The Evolution of Literacy:

a cross-cultural account of literacy's emergence, spread, and relationship with human cooperation



Daniel Austin Mullins
Institute of Cognitive & Evolutionary Anthropology
School of Anthropology & Museum Ethnography
Linacre College
University of Oxford

A thesis submitted for the degree of
Doctor of Philosophy
Trinity 2014

Abstract

Social theorists have long argued that literacy is one of the principal causes and hallmark features of complex society. However, the relationship between literacy and social complexity remains poorly understood because the relevant data have not been assembled in a way that would allow competing hypotheses to be adjudicated. The project set out in this thesis provides a novel account of the multiple origins of literate behaviour around the globe, the principal mechanisms of its cultural transmission, and its relationship with the cultural evolution of large-group human cooperation and complex forms of socio-political organisation. A multi-method large-scale cross-cultural approach provided the data necessary to achieve these objectives. Evidence from the societies within which literate behaviour first emerged, and from a representative sample of ethnographically-attested societies worldwide (n=74), indicates that literate behaviour emerged through the routinization of rituals and pre-literate sign systems, eventually spreading more widely through classical religions. Cross-cultural evidence also suggests that literacy assumed a wide variety of forms and socio-political functions, particularly in large, complex groups, extending evolved psychological mechanisms for cooperation, which include reciprocity, reputation formation and maintenance systems, social norms and norm enforcement systems, and group identification. Finally, the results of a cross-cultural historical survey of first-generation states (n=10) reveal that simple models assuming single cause-and-effect relationships between literacy and complex forms of socio-political organisation must be rejected. Instead, literacy and first-generation state-level polities appear to have interacted in a complex positive feedback loop. This thesis contributes to the wider goal of transforming social and cultural anthropology into a cumulative and rapid-discovery science.

Acknowledgements

The project set out in this thesis and, more broadly, my development as a researcher have benefitted greatly from the efforts of a number of individuals. Chief among these individuals is my resourceful and supportive supervisor, Professor Harvey Whitehouse, who built and maintained the institutional structure and resources that served as the cornerstone of this project.

Numerous others contributed their time, energy, and expertise to make this project possible. Most notably, I am indebted to the labours of generations of ethnographers, archaeologists, historians, and cross-cultural researchers whose research provided the foundation for this project. The curation and organisation of ethnographic materials by the Human Relations Area Files was a boon to this project. During the early stages of this project, conversations with Christiane Cunnar, Ruben Kubiak, and Christian Weisspfennig helped me to organise the computational methods of data collection. My understanding of cultural evolutionary theory, statistics, the evolution of cooperation, and the analysis of cross-cultural and historical materials has benefitted immensely from conversations with Quentin Atkinson, Oliver Curry, and Pieter François.

Generous financial and institutional support was provided by the Oxford University Press, which provided me with a Clarendon Scholarship, Linacre College, which kindly awarded me with both a Thomas Linacre Studentship and a grant for conference expenses, the School of Anthropology and Museum Ethnography, which provided a writing-up bursary during a crucial stage of this project, and the Institute of Cognitive and Evolutionary Anthropology (ICEA), which provided me with a stimulating and productive academic environment in which to work. The tireless professionalism of Barbara de Bruine and the ESRC-funded ‘Ritual, Community, and Conflict’ project also benefitted this project immensely.

I must also thank my inspiring teachers in ICEA and elsewhere. Namely, thanks to Justin Barrett, Emma Cohen, Iain Morley, Pascal Boyer, Jonathan Lanman, Dimitris Xygalatas, and Laura Fortunato. These scholars join a number of key individuals who have fostered my development as a researcher, including Michael Murphy, Russell McCutcheon, Vernon Night, Charles Nuckolls, M.V. Krishnayyagaru, Allen Maxwell, Steven Ramey, and Jim Bindon. Thanks especially to my friends and colleagues for their unwavering support — both personal and professional – during this project, including Michael Gantly, Chris Kavanagh, Jean-Luc Jucker, Igor Miklousic, Adam Gilbertson, Baptise Gille, Ben Johannes, Justin Lane, Veronika Rybanska, Bahar Tunçgenç, Martha Newson, Peter Rudiak-Gould, Andrea Grant, Venetia Congdon, and Rachel Watson.

Most intimately, I thank my family in the US and the UK. My parents, Larry and Mary Lou Mullins, and my brother, Ben Mullins, have contributed in any way that they could to support me throughout this project. The encouragement, advice, fortitude, and love of Roya Elaine Haghighat-Khah helped me immeasurably in the most difficult stages of this project, while Farnaz, Mustafa, and Ramin provided me with a home in the UK.

To my growing family,

who taught me that there is no end to learning.

Contents

ABSTRACT I

ACKNOWLEDGEMENTS III

CONTENTS VII

LIST OF FIGURES XIII

LIST OF TABLES XV

ABBREVIATIONS XVII

CHAPTER 1 1

INTRODUCTION AND MAJOR RESEARCH QUESTIONS

1.1 The evolution of cooperation 1

1.1.1 The puzzle of cooperation 1

1.1.2 Why did humans develop the ability to cooperate in small groups? 5

1.1.3 How is small-group human cooperation maintained? 7

1.1.3.1 Reciprocal altruism 8

1.1.3.2 Reputation formation and management 9

1.1.3.3 Social norms and norms enforcement 10

1.1.3.4 Identification with the group 11

1.1.4 Why did humans develop the ability to cooperate in large groups? 12

1.1.5 How is large-group human cooperation maintained? 17

1.2 Towards a cultural evolutionary account of literate behaviour 20

1.2.1 The challenges of large-group cooperation 21

1.2.2 New types of knowledge systems solve challenges of large-group cooperation 23

1.2.3 Large human groups made extensive use of literate behaviours 25

1.2.4 Literate behaviour is the product of cultural evolution 27

1.2.5 Literate Behaviour: Asking Tinbergen's Four Questions 29

1.2.5.1 Proximate causes of literate behaviour: ontogeny and causation/mechanism 32

1.2.5.2 Ultimate evolutionary causes of literate behaviour: phylogeny and function 35

1.2.6 Defining Literate Behaviour 36

1.3 Structure of thesis 36

1.4 Major Research Questions 36

1.5 The emergence of literate behaviour 37

1.5.1 What were the selective pressures that facilitated the independent emergence of literate behaviour around the globe? 37

1.5.1.1 Data and methods required to evaluate the role of routinization in the independent emergence of literate behaviour around the globe 43

1.5.1.2 The empirical hypotheses of Chapter 3 45

1.5.2 What were the major drivers in the adoption and spread of literate behaviour? 46

1.5.2.1 Data and methods required to evaluate the role of classical religious traditions in the cultural transmission and standardisation of literate behaviour. 46

1.5.2.2 The empirical hypotheses of Chapter 4 47

1.6 Literate behaviour and large, complex groups 48

1.6.1 Why do the products of literate behaviours, CERS, assume a large number of forms and social functions in increasingly large, complex groups? Moreover, what is the relationship between specific CERS and the emergence of large-group cooperation and socio-political complexity? 48
1.6.1.1 Data and methods required to evaluate the role of complex external representational systems in the cultural evolution of large-group human cooperation 53
1.6.1.2 The empirical hypotheses of Chapter 5 54
1.6.2 Are literate behaviours and increasingly complex forms of socio-political organisation in a complex positive feedback loop? 55
1.6.2.1 Data and methods required to evaluate the potential complex positive feedback loop between literate behaviour and socio-political organisation 58
1.6.2.2 The hypothesis of Chapter 6 58
1.7 Novel contributions to the field 58

CHAPTER 2 63

METHODOLOGY
2.1 Introduction 63

2.1.1 Towards the construction of a large-scale cross-cultural database of CERS 63
2.1.2 Existing empirical cross-cultural ethnographic data on literate behaviour 65
2.1.3 Criticisms of SCCS Variable 149 'Writing and Records' 66
2.1.4 The present study 68
2.1.4.1 Data sources and data collection procedures 68
2.1.4.2 Cross-cultural ethnographic sample 70
2.1.4.3 Cross-cultural ethnographic data coding procedure 73
2.1.4.4 Codebook 74
2.1.4.5 Descriptive statistics of cross-cultural ethnographic dataset 75
2.1.4.6 Overview of cross-cultural ethnographic methods 75
2.2. Cross-cultural archaeological and historical data collection 76

2.2.1 Cross-cultural archaeological and historical societies investigated 77
2.2.2 The independent emergence of literate behaviours around the globe 77
2.2.3 The independent emergences of the state-level polities around the globe 77

CHAPTER 3 81

TOWARDS AN EVOLUTIONARY HISTORY OF THE EMERGENCE OF LITERATE BEHAVIOUR
3.1 Introduction 81

3.1.1 The five major limitations of pervasive theories of the emergence of literate behaviour 82
3.1.1.1 The 'Standard View' of technological evolution 82
3.1.1.2 The foresightful and agential invention of literate behaviour 83
3.1.1.3 Simplistic and widely-discredited evolutionary explanations 84
3.1.1.4 The challenges posed by recent archaeological and palaeographic findings 85
3.1.1.5 Inadequate data and limited methodological scope and rigour 86
3.1.2 Overcoming the five major limitations of pervasive theories 87
3.1.2.1 Overcoming the 'Standard View' of technological evolution 87
3.1.2.2 Overcoming the fallacy of the foresightful and agential invention of literate behaviour 89
3.1.2.3 Overcoming simplistic and widely-discredited, though pervasive evolutionary explanations 90
3.1.2.4 Overcoming the challenges posed by recent archaeological and palaeographic findings 91
3.1.2.5 Overcoming inadequate data and limited methodological scope and rigour 92
3.1.3 Towards a novel theory of the emergence of literate behaviour 93
3.1.4 Principal aims and objectives 96
3.1.5 Hypotheses 97
3.2 Methods 98

3.2.1 Archaeological and historical methods 98
3.2.2 Cross-cultural ethnographic methods 99

3.3 Results 100
3.3.1 Cognitive scientific, archaeological, palaeographic, and historical survey of best-attested examples of the emergence of literate behaviours 100
3.3.1.1 Cognitive scientific insights into literate behaviour 100
3.3.1.2 Archaeological, palaeographic, and historical survey of best-attested examples of the emergence of literate behaviours 102
3.3.1.2.1 Mesopotamia 102
3.3.1.2.2 China 105
3.3.2 Cross-cultural ethnographic survey of the empirical relationship between routinization and literate behaviour 108
3.4 Discussion 111
3.5 Limitations 113
3.6 Conclusion 115
CHAPTER 4 117
TOWARDS AN EVOLUTIONARY HISTORY OF THE SPREAD OF LITERATE BEHAVIOUR
4.1. Introduction 117
4.1.1 Writing follows classical religions 118
4.1.2 Classical religions follow writing 120
4.2. Principal aims and objections 125
4.2.1 Using empirical cross-cultural ethnographic data to adjudicate the debate 125
4.2.1.1 Establishing a positive correlation between target variables before inferring causation 126
4.2.1.2 Inferring causality using correlational data 127
4.2.2 Empirical hypotheses 129
4.3 Methods 130
4.4 Results 130
4.5 Discussion 136
4.6 Limitations of the current study 141
4.7. Conclusion 142
CHAPTER 5 145
THE ROLE OF LITERACY IN THE CULTURAL EVOLUTION OF LARGE-GROUP HUMAN COOPERATION
5.1 Introduction 145
5.1.1 Limitations of existing qualitative research 148
5.1.2 Existing quantitative research 150
5.1.2.1 Limitations of existing quantitative research 151
5.1.3 Overcoming the limitations of existing research 151
5.1.3.1 The role of CERS in the cultural evolution of large-group cooperation 152
5.1.3.1.1 Reciprocity 154
5.1.3.1.2 Reputation formation and maintenance systems 155
5.1.3.1.3 Social norms and norm enforcement strategies 156
5.1.3.1.4 Group identity and mutualism 157
5.1.4 Principal aims and objectives 159
5.1.5 Hypotheses 160
5.2 Methods 161
5.3 Results 162
5.4 Limitations of present study 174

5.5 Future research 176
5.6 Concluding statement 178
CHAPTER 6 179
THE COMPLEX POSITIVE FEEDBACK BETWEEN LITERACY AND FIRST-GENERATION STATE-LEVEL POLITIES
6.1 Introduction 179
6.2 The present study 183
6.2.1 What were the principal factors involved in the emergence of first-generation states? 183
6.2.2 Existing scholarship 184
6.2.2.1 Limitations of existing scholarship 185
6.2.3 Principal aims 185
6.3 Methods 186
6.3.1 Methodological challenges 186
6.3.2 Variables under investigation 187
6.4 Results 188
6.4.1 Middle Uruk Period of the Susiana Plain 188
6.4.2 Late Uruk through Jemdet Nasr Period of southern Iraq 194
6.4.3 Dynast 0 of Egypt 201
6.4.4 Zapotec State of the Mexican highlands 205
6.4.5 Moche State of Peru 211
6.4.6 Early Maya Kingdom of Calakmul of Guatemala 216
6.4.7 Hunza of Mir Silim Khan of the Pakistani-Kashmir borderlands 220
6.4.8 Merina of Andrianampoinimerina of Madagascar 224
6.4.9 Kamehameha Kingdom of Hawai'i 227
6.4.10 Zulu of Shaka of southern Africa 231
6.4.11 Summary of major findings 236
6.5 Discussion 244
6.5.1 The role of CERS in the cooperative systems necessary for the emergence and early persistence of these first-generation states 244
6.5.2 The role of increasingly complex forms of socio-political organisation in the emergence, functional application, and diversification of CERS 245
6.5.3 The complex positive feedback between complex external representational systems and first-generation state-level polities 246
6.6 Future directions 248
CHAPTER 7 251
GENERAL DISCUSSION AND CONCLUSIONS
7.1 Novel contributions to the study of literate behaviour 251
7.2 Thesis objectives 253
7.3 Thesis organisation 254
7.4 Literate behaviour: answering Tinbergen's questions regarding phylogeny and function 254
7.4.1 Phylogeny: literate behaviour's evolutionary history 255
7.4.1.1 Towards an evolutionary history of the emergence of literate behaviour 255
7.4.1.2 Towards an evolutionary history of the spread of literate behaviour 259
7.4.2 Function: the relationship between the literate behaviour and human cooperation 261
7.4.2.1 The role of literate behaviour in the cultural evolution of large-group human cooperation 261
7.4.2.2 The complex positive feedback loop between literate behaviour and first-generation state-level polities 264

7.5 General recommendations for the study of literate behaviour 266

7.5.1 Recommendations towards a history of literate behaviour 266

7.5.2 Recommendations towards an account of the role of literate behaviours in the cultural evolution of large-group human cooperation 267

7.6 Benefits and limitations of this thesis' large-scale cross-cultural approach 268

7.7 Concluding statement 271

BIBLIOGRAPHY 273

APPENDIX 1 317

HUMAN RELATIONS AREA FILES SUBJECT CODES, TITLES, AND DEFINITIONS

APPENDIX 2 327

CODEBOOKS AND HUMAN RELATIONS AREA FILES SEARCH QUERY SYNTAX

APPENDIX 3 339

CROSS-CULTURAL ETHNOGRAPHIC DATABASE OF CERS

Bibliography of cross-cultural ethnographic database of CERS 344

Ethnographic excerpts used to generate the cross-cultural ethnographic database of CERS 363

List of Figures

CHAPTER 1

Figure 1.1 The visual word form area 33

Figure 1.2 Relationship between SCCS ordinal variables ‘Writing and Records’ and ‘Community Size’ 50

Figure 1.3 Sampling bias towards small-scale societies in the SCCS 51

CHAPTER 2

Figure 2.1 Geographic locations of societies sampled 74

Figure 2.2 Co-occurrence of societies sampled in prominent large-scale cross-cultural surveys 75

CHAPTER 3

Figure 3.1 Early Mesopotamian tablets 106

Figure 3.2 Shang-dynasty divinatory turtle plastrons 109

CHAPTER 5

Figure 5.1 The polity sizes of the sampling frame of the present study 155

CHAPTER 6

Figure 6.1 The complex positive feedback loop between technological improvement in agricultural production and human population growth 181

Figure 6.2 The complex positive feedback between CERS and complex forms of socio-political organisation 189

Figure 6.3 Uruk-period globular clay envelope or ‘bullae’ and eight tokens 196

Figure 6.4 Geographic locations of the sample of 'first-generation' states 197

Figure 6.5 Map of Sumer during the Early Dynastic Period *ca.* 3000-2360 BCE 199

Figure 6.6 Early city-seals from southern Iraq 202

Figure 6.7 The Narmer Palette 207

Figure 6.8 Cylinder seal marking temple property and identifying the individual who sealed the goods 208

Figure 6.9 Map of the Oaxaca Valley depicting the location of Monte Albán 210

Figure 6.10 Stelae 12-13 from Monte Albán, Oaxaca Valley 214

Figure 6.11 Map of key archaeological sites in the Moche Valley, Peru, including Cerro Arena and Cerro Oreja 216

Figure 6.12 Territorial organisation of the major population centres of the early Maya kingdom of Calakmul 221

Figure 6.13 Map of the Hunza Valley 225

Figure 6.14 Territory size of Merina during (1) Andrianampoinimerina's accession, (2) Andrianampoinimerina's death, and (3) the conquests of Radama I 229

Figure 6.15 Coloured lithograph of Kamehameha I in 1817 234

Figure 6.16 Royal kraal of Dingane 237

List of Tables

CHAPTER 1

Table 1.1 Levels of explanation in evolutionary theory 370

Table 1.2 Summary of the ethological analysis of infant crying 371

Table 1.3 Summary of the ethological analysis of literate behaviour 374

CHAPTER 2

Table 2.1 Coding scheme for SCCS variable 149 'Writing and Records' 68

Table 2.2 Descriptive statistics of CERS ethnographic dataset 77

CHAPTER 4

Table 4.1 Frequency relating an aggregate score of CERS present to the variable classical religion 133

Table 4.2 Crosstabulation (χ^2) and *p* values relating individual CERS to the variable classical religion 134

Table 4.3 Frequency of individual CERS in societal-level measures of classical religion 135

Table 4.4 Crosstabulation (χ^2) and *p* values relating individual CERS to the variable of moral high gods (binary) 136

Table 4.5 Frequency of the presence of individual CERS to the presence or absence of a belief in moral high gods 137

CHAPTER 5

Table 5.1 Crosstabulation (χ^2) and *p* values relating individual CERS to the variable community size 166

Table 5.2 Crosstabulation (χ^2) and *p* values relating individual CERS to the variable regional jurisdictional hierarchy 167

Table 5.3 Crosstabulation (χ^2) and *p* values relating individual CERS to the variable agricultural intensity (EA) 169

Table 5.4 Correlation (Somer's D) and *p* values relating aggregate measure of CERS to the SCCS 'indices of cooperation' 171

Table 5.5 Correlation (Somer's D) and *p* values relating individual CERS to 'Money (media of exchange) and credit' from the SCCS 172

Table 5.6 Correlation (Somer's D) and *p* values relating individual CERS to 'Credit source' from the SCCS 173

Table 5.7 Correlation (Somer's D) and *p* values relating individual CERS to 'Loyalty to the local community' from the SCCS 174

Table 5.8 Correlation (Somer's D) and *p* values relating individual CERS to 'Loyalty to the wider community' from the SCCS 175

Table 5.9 Correlation (Somer's D) and *p* values relating individual CERS to 'Sanctions' from the SCCS 175

CHAPTER 6

Table 6.1 Target variables for sample at first-generation state-level emergence 242

Table 6.2 Ten key factors of state formation that are shown to have facilitated the emergence and development of CERS 247

Abbreviations

AD	*Anno Domini*
BC	Before Christ
BCE	Before Common Era
C	Celsius
CE	Common Era
CERS	Complex External Representational Systems
CM	Centimetre
CREDS	Credibility Enhancing Displays
DNA	Deoxyribonucleic acid
EA	Ethnographic Atlas
EEA	Environment of Evolutionary Adaptedness
ESRC	Economic and Social Research Council
HRAF	Human Relations Area Files
MGH	Moral High Gods
MM	Millimetre
MLS	Multi-Level Selection
PSF	Probability Sample Files
RD	Ritual Database
SCCS	Standard Cross-Cultural Sample
UN	United Nations
VWFA	Visual Word Form Area
WEIRD	Western-Educated Industrialised Rich Democratic

Chapter 1

Introduction and Major Research Questions

Researchers have long argued that literacy is one of the principal causes and identifying features of particularly complex and large-scale forms of socio-political organisation. However, the history of literacy and its relationship with complex forms of socio-political organisation has been poorly understood. Researchers have not practiced the methods necessary to produce the data needed to evaluate competing hypotheses. This thesis aims to overcome the major limitations of previous research to (1) provide a novel account of the origins of the literate behaviour, (2) identify the principal mechanisms of literacy's cultural transmission, and (3) examine literacy's relationship with the cultural evolution of large-group human cooperation and complex forms of socio-political organisation. To investigate the potential relationship between the evolution of literacy and large-group human cooperation, we must begin by considering the evolution of cooperation.

1.1 The evolution of cooperation

1.1.1 The puzzle of cooperation

Cooperation is one of the greatest puzzles for the biological and social sciences[1] (Darwin 1871; Hamilton 1997). Cooperative behaviours can be puzzling to evolutionary theorists because it is not always obvious how they emerged through

[1] On 30 November, 2005, Robert May began his last presidential address to the Royal Society by saying, '[t]he most important unanswered question in evolutionary biology, and more generally in the social sciences, is how cooperative behaviour evolved and can be maintained in human or other animal groups and societies' (Colman 2006: 774).

natural selection (Boyd and Richerson 2006; Burnham and Johnson 2005; Colman 2006; Gintis et al. 2005; Henrich and Henrich 2006; Norenzayan 2013; Turchin 2013b). Natural selection dictates that behaviours that reduce the relative fitness of the actor[2] should be selected against and, conversely, genes that increase an organism's ability to survive and reproduce should be favoured. As a consequence, one might expect the world to be dominated by self-regarding individuals (Bowles and Gintis 2011). The natural world, however, is rife with examples of cooperative behaviours between individuals of the same, or even different, species (Melis and Semmann 2010). Not only are cooperative behaviours widespread, they are also crucial to the process of evolution. While competition or zero-sum[3] interactions between living organisms in the same environment are pervasive (*e.g.,* competition for mates or resources), almost all of the major evolutionary transitions from genes cooperating in genomes to animals cooperating in complex groups have required solutions to the puzzle of cooperation (Rubenstein and Kealey 2012).

Not limited to biological systems, the puzzle of cooperation applies equally well to the social scientific problems ranging from explanations of human morality (Binmore 2005; Curry 2005; Haidt 2012) and the mechanics of economic decision-making (Gintis et al. 2005) to the evolution of human ultrasociality in empires and states (Mullins et al. 2013; Turchin 2007, 2013b).

West et al. (2007: R661) summarise the classic example of the 'tragedy of the commons' by Hardin (1968) as follows:

[2] Specifically, I am referring to 'altruism' or behaviours that increases the fitness of another individual or individuals while decreasing the fitness of the actor (Bell 1997: 354).

[3] The phrase 'zero-sum' refers to a concept from game theory in which 'the total resource (award, penalty, etc.) is fixed' (Erdi 2008: 318) and 'is characterised by the exact balance of gain and loss' (Erdi 2008: 171). In mathematical terms, subtracting the sum of the total losses from the sum of the total gains of the interaction results in zero. Conversely, a 'non-zero sum' interaction (*e.g.,* the Prisoner's dilemma) is one in which the sum of the total losses from the sum of the total gains is either greater than or less than zero (*i.e.,* a net gain or loss), meaning that interactants 'are not necessarily in direct conflict' (Erdi 2008: 318).

> imagine a number of shepherds, each deciding how many sheep to keep on a shared pasture. The addition of extra sheep will have both a benefit and a cost. The benefit is that the shepherd will gain from extra sheep. The cost is potential over-grazing, which can damage the pasture. However, whilst our focal shepherd gains all of the benefit, he pays only a fraction of the cost, which is shared between all of the shepherds. Consequently, the individual shepherd has more to gain than to lose from adding extra sheep. The tragedy is that — as a group — all the shepherds would benefit from grazing less sheep. Such cooperation, however, is not stable, because each individual can gain by selfishly pursuing their [sic] own interests.

Given the range of cooperative behaviours exhibited throughout the natural world, it is not surprising to find that there are a number of different ways that the puzzle of cooperation can be solved. These solutions confer either direct fitness benefits, which provide advantages to the actor, or indirect fitness benefits, which provide benefits to others who carry genes for cooperation, particularly genetic relatives (Hamilton 1964; West et al. 2011).

Cooperation is not unique to humans. Organisms ranging from social amoebae to social insects routinely display altruism when they forgo their opportunity to reproduce in order to benefit others (West et al. 2011). All species of ants and termites and in many species of bees and wasps, for example, there are sterile workers that help to raise the offspring of the queen (ants, bees, and wasps) or a mated queen and king (termites) and are unable to reproduce (Wilson 1975: Figure 19.1). While our species' ability to cooperate with large groups of unrelated individuals is one of our most important survival strategies (Mullins et al. 2013), humans are not unique in their ability to cooperate with unrelated individuals. Non-related cooperative breeding birds and social insects, for example, have been shown to cooperate in a mutually beneficial manner within their species, while cooperation between species has been observed between such organisms as cleaner fish and their clients on tropical reefs (West et al. 2011). What, if anything, is special about cooperation among humans?

When compared to human cooperative mechanisms, much of non-human animal cooperation is a product of indirect benefits such as kin-selection or direct benefits that are maintained in a fairly passive manner (Melis and Semmann 2010). Often, returned benefits are the by-product of the well-being of the recipient. Larvae of several butterfly species, for example, produce nectar for ants, which defend the nectar-producing larvae, but only out of their own self-interest in obtaining the food source. Human intra-species cooperative mechanisms, in contrast, are characterised by the presence of elaborate and evolved active enforcement mechanisms, such as reward, punishment, and reputational systems, which allow individuals to be highly flexible in terms of when, to whom, and to what extent they extend their cooperation (Henrich and Henrich 2007; Melis and Semmann 2010). While a number of studies have shown that non-human animals make extensive use of social learning (Janik and Slater 2000, 1997; Jarvis 2007; Mitani 1994; Mitani et al. 1992, 1999; Snowdon 2001), humans are unique in the complexity, scale, and subtlety of their social learning (*i.e.*, cultural transmission) (Dawkins 2006: 190), even when compared to other primates (Bonner 1983; Bowles and Gintis 2011; Richerson and Boyd 1998). As a consequence, humans can use both their previous experience and their current observations of and information about others to modulate their situational level of cooperation. In other words, we are ‘conditional co-operators’ (Keser and Van Winden 2000). As discussed below, a large part of what makes human cooperation unique is that (1) we evolved a number of psychological mechanisms that promote cooperative behaviour in relatively small groups and (2) a number of cultural adaptations emerged that facilitate cooperation in increasingly large, complex groups of nominally-related individuals. Ultimately, however, studies of non-human animal cooperative behaviours illuminate the puzzle of human cooperation because the

difference in cooperative behaviours in humans versus non-human animals is ‘one of degree and not of kind’ (Darwin 1871: 104).

This introduction provides an enquiry into the evolutionary explanations of, first, small-group and, later, large-group human cooperation using the two levels of causation – proximate and ultimate – introduced by evolutionary biologist Ernst Mayr (1961). Proximate explanations for human cooperation discuss how cooperative behaviours evolved by providing an account of their mechanisms and their development during the lifetime of the individual, while ultimate causes for human cooperation discuss why these cooperative behaviours evolved to take their current forms (*i.e.*, their fitness consequences) and what cooperative behaviours are for (*i.e.*, their function) from an evolutionary perspective. Proximate and ultimate explanations provide a complementary framework with which to investigate cooperative behaviours.

Why (in evolutionary terms) and how (in terms of biological mechanisms and processes) did humans develop the ability to cooperate first in small and, later, in increasingly large, complex groups? In other words, how and why did humans extend their level of cooperation from small groups to increasingly large and complex forms of socio-political organisation? This section introduces the role that new types of external knowledge systems, most notably those that employ literate behaviour, may have played in solving the puzzle of large-group cooperation.

1.1.2 Why did humans develop the ability to cooperate in small groups?

As a species, we have spent the vast majority of our evolutionary history in intimate groups of foragers and hunter-gatherers. The shared, small-group ancestral environment that dominated our past presented a number of selective pressures, many of which were overcome by our ability to cooperate with both highly-related

and nominally-related individuals. In order to extract resources from the environment ancestral foragers needed to overcome a wide range of collection action problems such as those entailed in hunting big game, organising and sharing the returns from successful hunts, defending resources from predation or monopolisation by competitors, and providing childcare during the period of prolonged juvenile dependency (Bowles and Gintis 2011: 12).

Human cooperative behaviours could have evolved in their first instances because they provided direct and/or indirect fitness benefits. More cooperative groups could have conferred direct benefits to their members, for example, when in competition with neighbouring groups or when faced with resource scarcity. Kin altruism, one of the most prevalent forms of cooperation in nature (Frank 1997; Hamilton 1964, 1972), is an example of indirect fitness benefits. Given the high degree of relatedness between interacting individuals in small groups (Lehmann et al. 2007), indirect fitness benefits could also have driven the evolution of human cooperation by facilitating behaviours such as punishment, which presents both a cost to the actor and the indirect benefit of increasing fitness by aiding related individuals (Gardner and West 2004).

While small-group living among humans provided individuals with a number of fitness benefits, it also conferred several costs to members, including greater reproductive competition and increased parasite burdens (Rubenstein and Kealey, 2012). When the benefits of living together and cooperating in small groups outweighed the costs of doing so, humans tended to adopt small-group living (Alexander, 1974). As summarised by Bowles and Gintis (2011: 134), '[h]umans became a cooperative species because our distinct livelihoods made cooperation within a group highly beneficial to its members and, exceptionally among animals,

we developed the cognitive, linguistic and other capacities to structure our social interactions in ways that allowed altruistic co-operators to proliferate.' In sum, the ability to cooperate in small groups emerged as a consequence of an increase in the inclusive fitness of the individual co-operators.

1.1.3 How is small-group human cooperation maintained?

Humans share several cooperative mechanisms with earlier hominin species, especially kin detection systems, such as the ability to perceive phenotypic similarity through smell (Henrich and Henrich 2007). Humans also use cues such as childhood co-residence to approximate genetic relatedness (Lieberman et al. 2005). Cooperation in *Homo sapiens sapiens*, however, typically extends to larger groups of more distantly related individuals. According to Fiona Jordan and others, '[e]ven the smallest-scale human society is far larger than most primate groups' (Jordan et al. 2013). When compared to the size and complexity of the groups formed by our primate ancestors, small-scale human societies represent huge cooperative endeavours (Turchin 2013b).

Humans have spent the vast majority of our time as a distinct species in hunter-gatherer/forager bands of hundreds or, at most, a few thousand people (Jordan et al. 2013). The selection pressures to which humans are biologically adapted in what evolutionary psychologists call 'the environment of evolutionary adaptedness' (EEA) facilitated the emergence of our evolved psychology, which ultimately allowed us to achieve and maintain cooperation in groups of nominally-related kin. Our distinctive ancestral livelihood and associated cognitive capacities and longevity provided the basis for human small-group cooperation (Bowles and Gintis 2011: 135).

Important human cooperative mechanisms such as direct and indirect reciprocity, for example, have been shown to be largely beyond the cognitive range of other animals (West et al. 2011)[4]. Human cooperative enforcement strategies, which reduce the risk of individuals reaping the benefits of cooperation without paying the costs or 'free-riding' (Cohen 1955), are particularly elaborate. Human adaptations to small-group living include such cooperative adaptations as reciprocal altruism, reputation formation and management, social norms and norms enforcement, and identification with the group, each of which are explored in turn[5,6].

1.1.3.1 Reciprocal altruism

Human cooperation relies on reciprocal altruism. An altruistic behaviour in one that is beneficial to the recipient of the behaviour, but costly to the actor in terms of the lifetime fitness consequences of the behaviour (Hamilton 1964). Reciprocal

[4] However, Jordan et al. (2013) note that there is some evidence of direct reciprocity in apes, such as sex for food or grooming.

[5] A recent survey of the major mechanisms involved in the evolution of cooperation in small-scale groups by Peter Turchin (2013b) identifies the following four elements: '(1) Increasing returns to scale […]: examples include big-game hunting and coordinated defense against predators, risk pooling through extended networks, economic returns from trade and division of labor, and ability to generate new and retain existing knowledge. Probably the most important mechanism capable of generating increasing returns to scale is warfare (or parochial altruism, Bowles 2009). Warfare is particularly important because it generates increasing returns at all social scales. Thus, a village which has more warriors will be favored in a conflict against another village, and an empire which collects more taxes and raises more recruits will be favored in a conflict against another empire. (2) Inequity aversion and other leveling mechanisms: examples include food sharing, monogamy, and social control of "upstarts" (Boehm 1999, 2011). These mechanisms reduce within-group variation in fitness and, thus, the strength of individual-level selection relative to between-group selection. (3) Moralistic punishment and other mechanisms that control free riding (see Jordan *et al.*, in this volume). (4) Culture (Richerson and Boyd 2005), which (via conformist transmission) reduces within-group variability and enhances between-group variability.'

[6] Jordan et al. (2013: 90) provides a much more elaborate list of mechanisms that may have enabled cooperation in small-scale human societies, including the following: (1) kin recognition, kin bias, nepotism, (2) respect of territory, property, mates, (3) structured social interaction (assortativity), (4) 'reverse dominance hierarchy', (5) direct reciprocity, (6) coalition formation, social organized aggression, (7) multilocal residence: flexibility of male/female dispersal, (8) cooperative breeding, (9) marriage, pair bonding, (10) multilocal or multilevel ties outside the group, (11) leadership by persuasion, authority, or prosocial leadership, (12) moralistic punishment, moralistic rewards, (13) reputation and gossip, (14) norm psychology: norm adherence, norm internalization, institutions, (15) lethal force at a distance, (16) cumulative culture, cultural variation, social-learning biases, (17) language, (18) symbolic behaviour: expressive and as ethnic marker, (19) predisposition to impose categorical distinctions onto continuous cultural differences, leading to group boundaries and identities, (20) predisposition for collective ritual and synchronicity.

altruism, however, enables cooperation when the probability for future interactions allows for the acts to be reciprocated. ‘Tit-for-tat’ strategies of cooperation, for example, allow for multiple, beneficial exchanges between individuals, particularly when the cost to the altruist is low and the benefit to the recipient is disproportionately high (Axelrod 2006). For example, the sharing of highly perishable meat after a large kill comes at a small cost to the altruistic hunter, but provides a large benefit to the recipient (Mullins et al. 2013). These opportunities for reciprocal exchange are likely to have driven the evolution of human psychological systems that enable us to keep close accounts of altruistic behaviours such as meat-sharing in small groups (Cosmides and Tooby 1989; Cosmides et al. 2010; Haidt 2012; Trivers 1971).

1.1.3.2 Reputation formation and management

Human cooperation also relies on indirect reciprocity, which occurs when individuals help others in order to maintain a reputation so as to be included in future cooperation (Panchanathan and Boyd 2004). Indirect reciprocal exchanges involve an actor who does not necessarily anticipate a direct benefit from the recipient, but does expect to benefit from someone else as a consequence of her altruistic behaviour (Nowak and Sigmund 1998). Consequently, the reputations and status of individuals within the community are frequently reassessed, cooperative acts are frequently advertised, and the cost of the actor’s altruistic behaviour is offset by the increased probability that the actor will become the recipient of a future reciprocal act by an as yet undetermined group member (Alexander 1987; Leimar and Hammerstein 2001; Nowak and Sigmund 1998). The evolution of language facilitated the elaboration of indirect reciprocal exchange systems by allowing for social gossip, which allowed actors to more readily assess and respond to the

reputations of others (Dunbar 1998a, 2004). In the presence of knowledge regarding the level of cooperation observed over time and across a range of potential exchange partners, humans evolved new abilities to manage their reputations, including a high sensitivity to being observed by others (Bateson et al. 2006). The presence of indirect reciprocity and the reputational concerns that it engendered enabled cooperation by incentivising indirect reciprocal altruistic behaviours while introducing an additional cost to defection in small groups of nominally-related individuals. The formation and management of reputations also facilitated direct reciprocity, providing a guide for future and direct interactions between known exchange partners.

1.1.3.3 Social norms and norms enforcement

Social norms and norm enforcement strategies are another key mechanism for maintaining cooperation in small human groups. Explicit and prescriptive social norms minimise free-riding behaviour by constraining and, thus simplifying the range of expected and accepted behaviour. By prescribing the adoption of already widely-shared and/or highly-valued behaviours, free-riding and other behaviours that deviate from norms regarding conditional cooperative behaviours are more readily identifiable. Again, humans are conditional co-operators (Keser and Van Winden 2000). In other words, we modulate our cooperative behaviours based on our knowledge of the levels of cooperation that we find around us. A number of experimental economic games have verified this effect (*e.g.*, Brandts and Schram 2001; Fehr and Fischbacher 2004; Fischbacher et al. 2001; Keser and Van Winden 2000). The legitimacy of norm enforcement systems comes from cooperative social norms (Fehr and Fischbacher 2004) and the moral systems that they engender (Binmore 2005; Curry 2005; Haidt 2012). Issues of fairness, for example, have been

shown to be very important in human moral reasoning (Haidt 2012). A portion of the individuals in any given small group have been shown to enact punitive altruistic behaviours (Fehr and Gächter 2002). These punitive altruistic behaviours punish those who deviate from the expected and approved social norm, but at a cost to the actor. This costly punishment enables cooperation by providing a monitoring and enforcement strategy for cooperative and normative social behaviours, incentivising cooperative acts and presenting a cost to those who do not adhere to explicit and prescriptive social norms. When coupled with a robust norm enforcement strategy, prosocial norms facilitate cooperation in small groups of more distantly-related kin. However, interactants who receive the benefits of norm enforcement but who do not enforce social norms (*i.e.*, second-order free-riders[7]/defectors) can undermine the utility of social norms in maintaining cooperation in small human groups (Fowler 2005; Panchanathan and Boyd 2004).

1.1.3.4 Identification with the group

Another cooperative mechanism for small-group cooperation is identification with the group. Cross-cultural (Buchan et al. 2002; Gächter et al. 2010) and experimental (Buchan et al. 2009; Dion 1973; Kramer and Brewer 1986) studies provide evidence for the pervasive and powerful nature of group identity in small-group cooperation. Both direct and indirect forms of reciprocity as well as social norms and norm enforcement strategies are more effective in promoting cooperation in small groups when they are constrained to an identifiable local group. Given that neighbouring groups often compete for available resources, human evolved psychology incorporates a high-fidelity system for discerning and displaying group

[7] A 'free-rider' is an individual who shirks her responsibilities to contribute to a public good and still receives the benefits (Ostrom et al. 1994).

membership (Brewer 2007; Mullins et al. 2013). As a consequence, seemingly incidental or arbitrary differences can function as group markers and increase the likelihood of cooperation among local group members (Billig and Tajfel 1973)[8], who are more likely to meet, reciprocate, and track relevant reputations when compared to non-group members (Krasnow et al. 2013).

Taken together, reciprocal altruism, reputation formation and management, social norms and norms enforcement, and group identity are all human adaptations for cooperation in small groups and provide some of the *proximate* causes for the maintenance of cooperation in small groups of nominally-related kin. A number of additional mechanisms have been suggested to increase in-group cooperation and social cohesion, such as laughter, music (Morley 2012), and synchronised movement in collective rituals (Cohen et al. 2014; Jordan et al. 2013; Reddish et al. 2013; Wiltermuth and Heath 2009; Wiltermuth 2012).

1.1.4 Why did humans develop the ability to cooperate in large groups?

Humans have organised themselves into large, anonymous, yet cohesive and highly cooperative societies for thousands of years. Why? Historical sources demonstrate that the scale of cooperation in human groups has grown by orders of magnitude during the Holocene[9], resulting in the evolution of ultrasociality, *i.e.*, our ability to cooperate in groups of nominally genetically related individuals numbering in the millions (Turchin, 2007). While ultrasociality is one of our species most important survival strategies, it emerged too recently to be the result of novel genetic cognitive adaptations (Mullins et al. 2013). While human small-group cooperation

[8] The supposed use of the pronunciation for the Hebrew word for a plant containing grains, shibboleth or /ˈʃɪbəlɛθ/, as a test of group membership is one example (OED 2014).
[9] Beginning approximately 11,700 years before the present (Walker et al. 2009), the Holocene is the geological epoch that followed the Pleistocene.

largely evolved as a consequence of gene-culture coevolution[10] or the interaction of processes of genetic evolution and cultural evolution (McElreath and Henrich 2007; Richerson and Boyd 2005), our evolved psychological mechanisms for cooperation are insufficient to coordinate and maintain cooperation in groups of tens of thousands to hundreds of thousands or even millions that are comprised predominately of anonymous interactants (Anderson 1991; Mullins et al. 2013).

Our evolved psychology provides us with a number of cooperative tools, such as reciprocal altruism, reputation formation and management, social norms and norms enforcement, and identification with the group, but individuals in large groups are not able to keep track of group members, the outcome of exchanges with previous interactants, or the probability that an exchange with an anonymous exchange partner will provide that individual with either direct or indirect reciprocal benefits. The likelihood that free-riders, cheats, and defectors are able to go undetected and unpunished increases as groups grow in size and complexity, which results in a rapid break-down of cooperative behaviours.

For example, imagine that Lucy is sitting on a public bus in a large modern city like New York and asks a new passenger, a tourist called Shiza, to loan her 1,000 dollars in cash. The probability that this exchange, if successful, will provide additional opportunities for direct or indirect reciprocal exchange for Lucy or Shiza or,

[10] Bowles and Gintis (2011) describe gene-culture coevolution (*i.e.*, dual-inheritance theory) as a process in which 'human preferences and beliefs are the product of a dynamic whereby genes affect cultural evolution and culture affects genetic evolution, the two being tightly intertwined in the evolution of our species.' In other words, cultural transmission has an effect on the social and environmental conditions in which genetic selection occurs. The most frequently given example of gene-culture co-evolution given in introductory texts such as Boyd and Silk (2009), is that of the evolution of the ability to digest lactose, a sugar found in mammalian milk. Descendants of northern Europeans and several North African and Arabian populations possess the ability to digest lactose as adults (*i.e.*, lactose persistence), while the remainder of human populations follow the mammalian pattern and cease to produce the lactase enzyme after weaning or by around the age of five. As summarised by Boyd and Silk (2009: 379), '[i]n both Africa and Europe, high frequencies of lactase persistence only occur in populations with a long history of dairying, suggesting that the lactase-persistence gene evolved in response to this cultural practice.'

if unsuccessful, fewer opportunities for direct or indirect exchange for Lucy or Shiza are low because these individuals are unlikely to interact with either each other or those that witnessed this exchange in the future. Without additional information, Shiza is unable to assess the probability that Lucy will repay the debt because she knows nothing about Lucy's reputation as an individual, the social norms to which she may adhere, or the group within which she may identify, meaning that Shiza is unable to identify Lucy either as an individual or as a member of an existing cooperative group (*e.g.*, Alcoholics Anonymous). Shiza is also unlikely to be able to track or identify Lucy or even recall the debt incurred after the exchange on a public bus takes place, meaning that Shiza cannot effectively seek or enforce repayment of the debt. As a consequence, Shiza is unlikely to identify or enter into a cooperative exchange with Lucy within the large, anonymous community of New York because Shiza's evolved psychology is ill-equipped for such an anonymous exchange and, as a result, Shiza has little incentive to perform the altruistic act that is required to initiate cooperation with Lucy[11]. Kidney donation provides another example of our inability to initiate cooperation in large, anonymous communities. According to Henrich and Henrich (2006: 229), less than one-half of 1% of kidney donations in the United States come from anonymous strangers despite the fact that thousands die each year waiting for transplants. 68% of kidney donations in the United States come from kin.

[11] It does not follow, however, that cooperative incentives due to kin, reciprocity, or reputation are not present in a large city like modern-day New York. As Burnham and Johnson (2005: 131) conclude, '[e]ven in a large modern city like New York, as far from our ancestral hunter-gatherer groups as we can imagine, the enormous group size and anonymity that would appear to rule out any cooperative incentives due to kin, reciprocity, or reputation mask the reality of human life: people interact within networks of family, friends and acquaintances, where kin, reciprocity and reputation are still crucial to everyday life and maintain the highest level of attention and social intrigue. For any one individual, New York still is a village—just many different villages overlapping each other'. See also Delton et al. (2011).

Unlike the very large anonymous societies, typically organised as states, in which most humans currently live (Turchin et al. 2012)[12], our evolved psychology is best-suited to the small-scale social groups of our primate and hunter-gatherer ancestors (Boyd and Silk 2009: 438; Dunbar 1992). Given that anatomically modern *Homo sapiens sapiens* (1) evolved from archaic *Homo sapiens* approximately 200,000 years ago (Bradshaw 1997: 184) and (2) developed alternatives to small-group hunter-gather and forager groups with the emergence increasingly large and complex forms of socio-political organisation with the domestication of plants and animals, novel types of religions and religious rituals, and increased urbanisation during the Neolithic period approximately 10,000 to 5,000 years ago (Lewis-Williams and Pearce 2005: 17), humans lived in small hunter-gather and forager groups for approximately 95 to 97.5% of our time as a distinct species. Evolutionary psychologists have demonstrated how our genetic adaptations are best-suited for living in these small communities (Foley 1995). As a consequence, our evolved psychology is not sufficient to coordinate and maintain cooperation in large groups comprised predominately of anonymous interactants (Anderson 1991; Mullins et al. 2013).

Due to the marked limitations of our evolved cognition, cooperation in large groups required a range of cultural mechanisms. Here, culture is defined as knowledge that is acquired through social transmission and social learning that affects an individual's behaviour (Boyd and Richerson 2006). Unlike genetically inherited traits, which are predominately transmitted vertically from parent to offspring, cultural traits can be transmitted laterally to individuals of multiple generations, including one's own. While the evolutionary processes of genetic and

[12] Today, more than 99.9% of humans live in very-large communities of anonymous interactants (Norenzayan 2013).

cultural transmission interact, the unit of transmission differs. While genetic information is stored in sequences of DNA base pairs, cultural traits are stored in the brain as patterns of neural connections and in extrasomatic codes via complex external representational systems or 'CERS' such as standardised scripts (Mesoudi 2011). Cultural traits also differ from genes because they are both actively and passively acquired, while genes are acquired only passively (Richerson and Boyd 2000).

The human ability to cooperate in large groups of nominally-related individuals is largely the result of the cultural evolution of a range of cooperative tools, which are surveyed in the following section. In evolutionary terms, however, why would humans develop and maintain the ability to cooperate in such huge groups? What is the survival value of large-group cooperation?

Larger, more cooperative groups are able to dominate smaller, less cooperative groups by requiring individuals to routinely bear the costs of cooperation for the benefit of nominally-related individuals (Mullins et al. 2013). As a result, large-group cooperation evolved among humans to solve reproductive and survival problems in our ancestral and historical environments (*e.g.*, resource scarcity), but it is not yet clear what these pressures were and how they facilitated the emergence of large-group cooperation. According to Peter Turchin (2013b), '[i]t is not sufficient to point to their benefits for integration of large-scale societies. Such institutions have significant costs, and the historical record indicates that they repeatedly collapsed in past societies. In other words, we need an evolutionary mechanism to explain the spread of such traits despite the costs.' Unfortunately, explanatory models for the emergence of large-group cooperation, such as multi-level selection (MLS) or cultural group selection remain controversial as many evolutionary scientists

continue to reject them (Turchin et al. 2012). As a result of conflicting and largely untested theoretical accounts concerning the historical evolution of large-group cooperation, including 'bottom-up' theories such as the widely-discussed 'resource hypotheses' (Childe 1950; Diamond 1999; Johnson and Earle 2000; Kennett et al. 2012; Service 1962; Turchin et al. 2012; White 1959) and alternative theories such as those advanced by Service (1962) and Carneiro (1970), the current study is not able to provide an account of the survival value of living together and cooperating in large groups. A number of ongoing research projects, such as the ESRC-funded 'Ritual, Community, and Conflict' project (http://www.icea.ox.ac.uk/research/ritual/) and 'Seshat: Global History Databank' (http://evolution-institute.org/seshat), however, are beginning to produce the historical and cross-cultural data necessary to test competing predictions and, ultimately, may provide an evolutionary explanation of the emergence and persistence of large-group human cooperation.

1.1.5 How is large-group human cooperation maintained?

Much attention has been devoted to understanding cooperation in small-group living in which the number of interactants ranges from a few hundred to a few thousand individuals (Bowles 2006; Boyd and Richerson 1985; Choi and Bowles 2007; Lehmann and Feldman 2008; Richerson and Boyd 1998; Sober and Wilson 1999; Turchin 2007; West et al. 2011; Wilson 2003), but little attention has been accorded to the evolution of cooperation in large-group living in which the number of interactants ranges from tens or hundreds of thousands to tens of millions of individuals (Turchin 2013b)[13].

[13] Some of the most notable contributions to a cultural evolutionary account of complex societies include Flannery (1972), Keech McIntosh (1999), Johnson and Earle (2000), Turchin (2003), Kristiansen and Larsson (2005), Vaughn et al. (2010), Flannery and Marcus (2012), and Turchin (2013b).

The overwhelming majority of humans today, more than 99%, belong to a large-scale complex society (Norenzayan 2013; Turchin 2013b) where interactions with strangers in anonymous communities is frequent (Anderson 1991). How have humans organised themselves into anonymous, yet cohesive and highly cooperative societies of thousands to millions of individuals? How was this level of organisation possible given that the cooperative tools provided to us by our evolved psychology (*e.g.*, kin detection, reciprocal altruism, reputation formation and management, social norms and norms enforcement, and identification with the group) begin to break down in communities comprised of just a few hundred individuals (Mullins et al. 2013)?

Modern examples of large-group cooperation include solutions to a variety of collective action problems, including collecting foods for victims of hurricanes or tsunamis, volunteering for military service, recycling, voting, and paying taxes (Henrich and Henrich 2007; Mullins et al. 2013). To initiate and sustain cooperation at this level is difficult because self-regarding individuals are able to benefit from the cooperation of others without bearing their share of the costs. As with small-group cooperation, however, a necessary condition for the adoption of large group living is that its benefits must outweigh its costs.

Several socially transmitted changes in beliefs and behaviours have been proposed to solve the puzzle of large-group cooperation by transcending the severe limitations of our evolved psychology. For example, novel religions that promote a belief in powerful, omniscient, interventionist, and morally concerned gods may have emerged to provide a low-cost policing institution that enabled cooperation among strangers (Gervais and Norenzayan 2012; Norenzayan 2013; Shariff and Norenzayan 2011). Citing psychological studies that suggest people act in more

prosocial ways when they are being watched or, more importantly, when they *think* that they are being watched (Ernest-Jones et al. 2011), especially by a watchful god (Gervais and Norenzayan 2012), Norenzayan (2013: 9) concludes that 'big gods' function as a low-cost policing function because 'watched people are nice people.'

In other words, a belief in big gods functions to restore the small-group effects of surveillance even in an anonymous crowd, prompting people to interact as though they were being monitored by a third-party policing agent whose evaluation of their interactions were consequential to their reputation. Actually monitoring these interactions and punishing those who cheat, defect, or free-ride would be incredibly costly and was not possible without modern policing institutions and regulatory controls, but big gods may have been able to produce this effect at a relatively low cost. The prosocial functions of these novel religions may have also been enhanced by 'credibility enhancing displays' (CREDs), such as the performance of tedious rituals, the arduous construction of monumental architecture, the sacrifice of valuable goods for the poor, or religious martyrdom (Henrich and Gil-White 2001; Henrich 2009). CREDs are observable behaviours that (1) non-believers or outgroup members are less likely to perform because they are costly to the actor and (2) demonstrate an interactant's commitment to group membership and the doctrine shared with fellow group members (Laurin et al. 2012). Recent cross-cultural evidence also suggests that as groups become increasingly large and complex, their belief in a new type of religion with moralizing high gods increases, making a belief in such 'big gods' a strong candidate adaptation for ultrasociality (Norenzayan 2013; Roes and Raymond 2003). This finding has been contested, however, by those who argue that moralizing gods are a general prosocial institution that is equally

functional at stabilizing cooperation at the level of the village and the level of the empire (Turchin 2013b: 69).

Recent psychological (Swann et al. 2012), archaeological (Whitehouse et al. 2014), and cross-cultural (Atkinson and Whitehouse 2011) studies indicate that highly negative physiological arousal, instigated through an ancient and widespread type of ritual, bind small face-to-face groups based on networks of relational ties. A new type of ritual in which performances were much more frequent, but did not elicit high levels of physiological arousal may have enabled the development of a new complex system of knowledge transmission and provided a new transmission medium for socially strategic information such as group membership (Whitehouse and McQuinn 2012; Whitehouse 2000, 2004; Whitehouse et al. 2014). This candidate cultural adaptation for large-group cooperation is explored in depth in Chapter 3. These new types of religion and rituals may have enabled the emergence and spread of bodies of shared knowledge that contributed greatly to the emergence of large-group cooperation. In addition, consistent with some of the broader predictions of the resource hypothesis, the spread of agricultural knowledge and early technologies such as ceramics and metallurgy, for example, were likely to have been consequential in the evolution of large-scale cooperation (Morris 2013).

1.2 Towards a cultural evolutionary account of literate behaviour

While a number of cultural adaptations have been proposed to overcome the severe limitations of our evolved psychological tools, including those mentioned above, little attention has been accorded to the role of literacy in the evolution of cooperation in large-scale societies, which is the main focus of this thesis. Literacy is a particularly promising candidate adaptation in the emergence of large-group cooperation and the concomitant emergence of novel, large-scale and complex

forms of socio-political organisation because of its (1) empirical association with large, complex polities in the available cross-cultural (Basu et al. 2009; Murdock and White 1969) and archaeological data (Smith 2008), (2) frequent theoretical association with increases in group size and social complexity by social theorists, such as Gibbon (1776), Morgan (1877), Lévi-Strauss (1973), and Goody (1987)[14], and (3) its potential functional applications as extensions of the existing psychological mechanisms for cooperation provided to us by our evolved psychology (Mullins et al. 2013). The methods and concepts of cultural evolution can be applied to the study of literacy to provide an evolutionary explanation of this behaviour and its relationship with the cultural evolution of large-group cooperation[15].

1.2.1 The challenges of large-group cooperation

For humans to cooperate in increasingly large groups, we must be able to identify and track the reputations and group membership of increasing numbers of potential, past, or current exchange partners. To cooperate effectively, humans must be able to remember who has a relationship with whom, the outcomes of these relationships over time, and the likelihood of a successful exchange with any given exchange partner if the opportunity for exchange occurs. Increases in the number of interactants place huge demands on our visual processing, memory, and information processing systems (Dunbar 1998b). When compared with other organisms, humans

[14] Several other scholars also discuss this association (*e.g.,* Barton and Hamilton 1997; Bright and Daniels 1996; Diringer and Regensburger 1968; Gelb 1963; Schmandt-Besserat 1996; Sjoberg 1960).
[15] While this thesis employs cultural evolutionary theory, its major arguments are not at odds with alternative accounts of the gap between human biology and modern cooperative behaviour, including those forwarded by Tooby and Cosmides (2005) and Buss (1999). These scholars and their respective schools of thought endeavour to explain the high levels of cooperation found in the modern world, but disagree on how far our biology takes us. For example, in their recent paper on the evolution of human cooperation, Krasnow et al. (2013: 7) conclude, 'what is at issue is not whether humans have developed novel institutions and cultural practices that make modern life possible. What is at issue is why human cooperation and generosity exist and vary as they do.' All these approaches acknowledge that cultural systems explain the gap between our biology and modern cooperative behaviour, and would recognise readily the role of literacy in the evolution of large-group human cooperation.

have evolved to possess a more complex memory, more predictive capacities for future simulation, more fine-tuned systems for correctly identifying a number of individuals, and more precise numerical discriminatory abilities (Axelrod and Hamilton 1981; Fehr and Fischbacher 2004). Perhaps as a consequence of these cognitive traits, humans are able to cooperate in the largest groups of all primates (Dunbar 1998b). Despite these advantages, our cognitive systems limit our ability to create, learn, and retain information both as individuals and groups (Dunbar 1998b).

Our evolved psychology limits our meaningful social groups to an upward bound of 150 individuals (Dunbar 1992). As Robin Dunbar (1992) points out, however, even modest increases in the size of an exchange group results in huge increases in the number of relationships that an aspiring interactant must track and store. For example, if Shiza lives in a group of 100 people and she endeavours to enter into an exchange with each of them, she must track and store the identities and cooperative behaviours of 4,950 relationships, 99 relationships with herself and 4,851 dyadic relationships between the other group members. A ten-fold increase in Shiza's group size to 1,000 people, however, would result in an approximately 100-fold increase in the number of relationships that she must identify and track – 499,500 relationships, 999 relationships with herself and 498,501 dyadic relationships between the other group members. If Shiza endeavoured to enter into exchanges with all of the individuals in a so-called 'mega-empire' (*e.g.,* the Archaemenid Empire, Maurya Empire, Han dynasty, Roman Empire), which consisted of more than ten million citizens, a 100,000-fold increase from her original group, she would have to track the identity and cooperative behaviour of more than

50 trillion relationships, a 10 trillion-fold increase[16]. Of course, the actual number of individuals with whom Shiza would interact in such a group would be much less. Regardless, human cooperation in increasingly large groups of nominally genetically-related[17] individuals presents several challenges to our evolved psychology.

In sum, our evolved psychology provides us with the tools necessary, first, to identify and track the interactions of a relatively small number of interactants and, second, to respond and conform to the levels of cooperative behaviours that we observe or experience (Brandts and Schram 2001; Fehr and Fischbacher 2004; Fischbacher et al. 2001; Keser and Van Winden 2000). However, our evolved psychology rapidly breaks down when confronted with the prospect of interacting within increasingly large, complex groups of individuals with whom we have little or no experience and, consequently, of whom we have little knowledge (*i.e.*, strangers) (Anderson 1991; Mullins et al. 2013), resulting in naïve cooperation, defection, and competition. While humans can identify, track, and modify our behaviour in response to non-cooperative behaviour in small groups, our evolved psychology does not provide the tools necessary to do so effectively in large groups. Given the limitations of our evolved psychology, interactants in large groups are able to 'free-ride' (Cohen 1955), or to benefit from the cooperation of others, without paying their share of the costs of public goods.

1.2.2 New types of knowledge systems solve challenges of large-group cooperation

Like new types of religions with moralising gods and high-frequency rituals, new knowledge transmission processes may have evolved to solve part of the puzzle of large-group cooperation. New types of knowledge and knowledge systems

[16] The sum of a series can be generated by using the formula S = n(n+1)/2, where S is the sum of the series and n is the number of terms in the series, in this case 99,999 and 9,999,999, respectively.
[17] All humans are genetically related, if only nominally, because we all share a common ancestry (Cann et al. 1987; Rohde et al. 2004) .

supplement and enhance the evolved psychological knowledge possessed by every human being to facilitate the emergence and maintenance of large-group cooperation.

Jürgen Renn's recent edited volume entitled *The Globalization of Knowledge and History* provides several useful insights into the role that new types of external knowledge systems played in solving some of the obstacles of large-group cooperation. According to Renn and Hyman (2012: 1), knowledge is 'the capacity of an individual, a group, or a society to solve problems and to mentally anticipate the necessary actions'. Individuals frequently appropriate shared knowledge, including information concerning social norms, group identities, and individual/group reputations, by reconstructing it from external representations of knowledge, such as spoken language, standardised scripts, or calendrical systems. To appropriate or to create shared knowledge through external representations of that knowledge, an individual must use cognitive structures, such as visual processing systems and memory systems, to interact with the means of external representation available in a given cultural and historical circumstance, such as a standardised script. Different systems for the external representation of knowledge have their own unique characteristics, such as differing speeds of transmission, levels of transmission fidelity, levels of portability, levels of permanence, and levels of legitimacy in particular socio-political settings.

For example, increased contact between language groups often results in linguistic borrowing, resulting in a linguistic form being taken by one language or dialect from another (Crystal 2008). Similarly, the problem of linguistic pluralism can be solved through the establishment of common ground in the form of a *lingua franca*, an auxiliary language that enables routine communication to occur between

groups who speak different native languages (Crystal 2008). Thus, linguistic borrowing and *linguae francae* provide strategic solutions to the problem of linguistic pluralism in increasingly large cooperative groups.

Like linguistic borrowing and *linguae francae*, the complex external representational systems under investigation in the current study provide humans with novel and powerful tools for the transmission of knowledge. These new types of knowledge transmission processes, in turn, provide potential solutions to the puzzle of cooperation in large groups.

1.2.3 Large human groups made extensive use of literate behaviours

The scale of human cooperation increased immensely with the emergence of states, macrostates, and 'mega-empires' composed of hundreds of thousands to tens of millions of individuals (Turchin 2013b). Preliminary cross-cultural (Basu et al. 2009; Murdock and White 1969) and archaeological data (Smith 2008) suggest that these levels of large-group cooperation made extensive use of the products of literate behaviour – complex external representational systems or 'CERS' (Mullins et al. 2013; Renn and Hyman 2012). As a result, several social scientists have hypothesised recently that the behavioural innovation of literacy, like the emergence of agriculture, was one humanity's most consequential changes (Diamond 1999; Powell 2012; Smith 2008; Stein 2009; Wells 2012; Woods 2010), especially during the Holocene (Smith 2008; Wells 2012). Chapter 5 attempts to answer a set of questions regarding the potential relationship between literate behaviour and the emergence of large-group cooperation and socio-political complexity. Namely, did literate behaviour facilitate the emergence of significant increases in polity size and social complexity or the other way around? Or, is some as yet unidentified factor(s) responsible for both? To answer these questions, this chapter provides an explicit

empirical and cross-cultural test of the relationship between large-group cooperation and the presence of CERS. Chapters 5 and 6 present evidence to suggest that CERS functioned in various ways to facilitate the emergence of first-generation or independently-emergent states. The emergence of the state, in turn, 'dramatically accelerated sociocultural evolution by allowing for an increase in the production of knowledge and offering technologies, such as writing, for the transmission of that knowledge across space and time' (Renn and Hyman 2012: 1). Among other applications, several of the CERS under investigation in the current study, including standardised scripts and written literature, provided a method of fixing norms, maintaining doctrinal orthodoxy, regulating the economy, enforcing the law, and extending systems of governance through space and time – among other functions — enabling cooperation in ethnically diverse populations of largely anonymous exchange partners (Mullins et al. 2013).

The history of knowledge is one in which novel knowledge systems are layered 'on successive layers of older knowledge systems in such a way that the outcome of a knowledge production process becomes the precondition for the stability of the level of development attained' (Renn and Hyman 2012: 1). Technological artefacts provide a useful example of knowledge transmission. While popularly portrayed as the outcome of a few heroic revolutionaries, any given technological innovation is situated within a long technological past[18] (Basalla 1988). The evidence presented in Chapter 3 indicates that the independent emergence of writing in Mesopotamia and China was, in part, the consequence of shifts in the frequency of collective rituals and the organisation of labour before it facilitated the emergence of a particular model of state organisation and novel mental

[18] For example, James Watt produced the steam engine by applying insights that he gathered from the construction and functioning of the Newcomen steam engine, which in turn had a multitude of technological antecedents (Basalla 1988; Mesoudi 2011; Mesoudi et al. 2013).

constructions such as literature and science (Renn and Hyman 2012: 1). In this way, knowledge systems, like all cultural products are the result of the gradual accumulation of modifications over time or 'cultural evolution'[19].

1.2.4 Literate behaviour is the product of cultural evolution

Chapters 3 through 6 evaluate the historical emergence and spread of literate behaviour and, once present, its principal functions and its relationship with novel forms of socio-political organisation, a process that is currently poorly understood. While many recognise that literate behaviour can function as a conduit for the transmission of cultural systems and several others have long-suggested that CERS, such as writing, contribute to the evolution of socio-political complexity, a small but growing contingent of scholars are beginning to unravel the cultural evolutionary processes that resulted in the emergence of literate behaviour itself (Changizi and Shimojo 2005; Changizi 2010; Hyman and Renn 2012; Lock and Gers 2012; Mesoudi et al. 2013; Skelton 2008; Smith 2008; Trigger 2004). Previous scholarship focused primarily on (1) the social morphological effects of literacy, particularly alphabetic literacy, (2) the promotion of a hierarchy or historical trajectory of inscribing practices that culminated in a certain form of literacy, particularly phonological literate behaviour, or (3) definitional debates concerning the inclusion or exclusion of various categories of external representations within the category of writing (Barton and Hamilton 1997).

[19] Culture, like genetic material, can be analysed as a system of inheritance (Richerson and Boyd 2005). As noted by Currie (2013), social scientists have adopted a number of theories and methods that were developed in evolutionary biology to understand human behaviour and cultural change. Within this framework, long-standing social-scientific theories of human behaviour and cultural change represent testable hypotheses within a cultural evolutionary framework. Cultural evolution, which follows different transmission rules than genetic inheritance and has a long evolutionary history in humans (Brown et al. 2011), relies on cultural learning, which exploits our evolved psychological adaptations and capacities to help us learn from others (Henrich and Henrich 2007). A recent book by Alex Mesoudi (2011) entitled *Cultural evolution* provides a useful introduction to the theory of cultural evolution.

As Mesoudi et al. (2013: 206) conclude,

> the development of writing systems is characterised by processes of spread, variation, and selective adaptation to local needs and speciation. Speciation occurs when the adaptation of a writing system to a new niche (*e.g.*, a new domain of knowledge, a new language or a previously illiterate society) leads to changes in the writing system that fundamentally affect the way in which the system functions as an external representation of knowledge.

As noted, literate behaviours emerged too recently to be the outcome of novel genetic cognitive adaptations (Mullins et al. 2013). Instead, archaeologists, cognitive scientists, comparative psychologists, and linguists are beginning to understand that literate behaviours are the outcome of cultural evolution. For example, the cognitive scientist Mark Changizi asks, '[w]e are reading using the eyes and brains of our illiterate ancestors. This brings us to a deep mystery: Why are we so good at such an unnatural act?' (Changizi 2010: 165), while the Adam Smith (2008: 16) contends:

> [l]ike agriculture, the adoption of literacy was a behavioral transition that took place in the absence of genetically heritable biological change on the part of its practitioners. Writing is something that all cognitively modern humans have always been biologically equipped to do. Yet for most of the Holocene no one did, and for most of the last five millennia only a very tiny proportion of us exercised this latent capacity. That is of course true of many technologies, but the case of writing is perhaps remarkable given that its technological prerequisites are minimal — it doesn't require high temperatures, the extraction and processing of a specific raw material, high-speed rotary motion or complex tools. Indeed, its material prerequisites had long previously been fully explored in support of the enthusiasm for pictorial representation and varieties of non-literate sign-use.

Cognitive neuroscientists Michael Platt and Geoffrey Adams reach a similar conclusion, saying: '[g]iven that until recently, few people learned to read, the VWFA [visual word form area] cannot have evolved specifically to support reading, but instead employ neural circuits that have been "'recycled" in humans to support new, culturally specific functions' (Platt and Adams 2012: 169). Due to their material construction and cross-cultural prevalence, CERS, such as writing systems, provide an ideal case study of cultural evolution (Trigger 2004).

1.2.5 Literate Behaviour: Asking Tinbergen's Four Questions

The four categories of evolutionary explanation (ontogeny, causation, phylogeny, and 'survival value'/function) (Tinbergen 1963) provide a robust and complementary framework for an integrative understanding of the cultural evolution of literate behaviour. Unlike the 'ultimate' level of evolutionary causation developed by Mayr (1961), two of Tinbergen's categories – phylogeny and function – help to avoid confusion and controversy by distinguishing between a behaviour's function and its evolutionary history (Hogan and Bolhuis 2009). These categories clearly distinguish not only between both past and present, but also current utility (function) and a description of the history of the behaviour (phylogeny) (Bateson and Laland 2013). Unlike the 'proximate' level of causation developed by Mayr (1961), Tinbergen's remaining two categories distinguish between the mechanisms employed to accomplish a function at a given point in time (causation/mechanism) and a description of the behaviour's form and the mechanisms that drive its development throughout the lifetime of the individual (ontogeny/development).

According to Tinbergen (1963), four complementary questions had to be answered to provide an adaptive explanation of a given behaviour on evolutionary grounds: (1) how did the behaviour develop over the lifetime of an individual? (ontogeny), (2) how did it evolve over the lifetime of the species? (phylogeny), (3) how does it work? (causation)?, and (4) what is the behaviour for? (function). These four questions are summarised in Table 1.1.

Table 1.1 Levels of explanation in evolutionary theory (adapted from Nesse (2013))

		Two objects of explanation	
		Developmental/historical: A sequence that results in the behaviour	Single form: The behaviour at a given point in time (*e.g.*, the current form)
		Tinbergen's Four Questions:	
Two levels of explanation	Proximate Explains how organisms work by describing their mechanisms and their ontogeny	Ontogeny Q: How did the behaviour develop over the lifetime of an individual? A: Description of the behaviour's forms at sequential life stages, and the mechanisms that control development.	Causation/Mechanism Q: How does the behaviour work? How is the behaviour shaped by the mechanisms that it uses? A: Description of the processes employed to accomplish a function.
	Ultimate/ Evolutionary Explains how a species came to its current form by describing a sequence of forms, and how selection and other evolutionary forces influenced them.	Phylogeny Q: How did the behaviour evolve over the lifetime of the species? A: Description of the history of the behaviour as reconstructed from its phenotype and genotype precursors	Function Q: What is the behaviour for? How did the behaviour evolve to solve a problem in the ancestral environment? A: Description of how variations in the behaviour have influenced fitness

The behaviour of human infant crying provides a useful example of the utility of Tinbergen's Four Questions to answering questions regarding behaviour on evolutionary grounds. Answers to Tinbergen's Four Questions are given for the behaviour of human infant crying in Table 1.2 using the ethological analysis provided by Zeifman (2001)[20].

[20] Bird song provides an equally revealing example of the utility of analyzing a behaviour by answering Tinbergen's Four Questions. (1) Ontogeny: Songbirds typically learn their songs with conspecifics during a sensitive period of early life (Bateson and Laland 2013); (2) Causation: the neural circuitry of bird singing or 'the song system' has been mapped as have the external mechanisms or motivation for bird song, including the effect of cloud cover of the onset of the dawn chorus and the effect of overnight temperature and wind strength on chorus intensity and duration (Hutchinson 2002); (3) Phylogeny: bird song, when viewed through comparative analyses, has been shown to vary along phylogenetic lines, while some modern songs have been shown to be differentially transmitted through songbird populations via a process of cultural evolution; (4) Function: Bird songs have been shown to increase individual fitness by driving away rivals and attracting potential mating partners (Bateson and Laland 2013). See Catchpole and Slater (2003), Bolhuis and Gahr (2006), Price et al. (2007), Zeigler and Marler (2008), and Bateson and Laland (2013) for a detailed discussion of bird song behaviour.

Table 1.2 Summary of the ethological analysis of infant crying by Zeifman (2001) Tabular format adapted from Nesse (2013)

		Two objects of explanation	
		Developmental/historical: A sequence that results in human infant crying	Single form: Human infant crying at a given point in time
		Tinbergen's Four Questions:	
Two levels of explanation	Proximate Explains how organisms work by describing their mechanisms and their ontogeny	Ontogeny Q: How did the behaviour develop over the lifetime of an individual? A: ***E.g.,* expansion of the vocal apparatus and growth of memory; transition from a primarily acoustic signal to a primarily visual signal**	Causation/Mechanism Q: How does the behaviour work? How is the behaviour shaped by the mechanisms that it uses? A: **External mechanisms: lack of food; Internal mechanisms: neurobiological bases of crying**
	Ultimate/ Evolutionary Explains how a species came to its current form by describing a sequence of forms, and how selection and other evolutionary forces influenced them.	Phylogeny Q: How did the behaviour evolve over the lifetime of the species? A: **Parallels with human alarm calls; parallels with crying behaviour in other mammalian and primate species.**	Function Q: What is the behaviour for? How did the behaviour evolve to solve a problem in the ancestral environment? A: **Elicits assistance from caregivers and provides survival value because an infant that does not cry when in need of assistance is less likely to survive.**

As demonstrated in Table 1.2, ultimate-level explanations pertain to the fitness consequences of human infant crying and whether it is selected, while proximate-level explanations pertain to the mechanisms that underpin the presentation of human infant crying. While discussing the ultimate-level evolutionary explanations of human infant crying, Zeifman (2001) concludes that this behaviour elicits assistance from caregivers and provides fitness benefits (*i.e.*, has survival value) because an infant that does not cry when in need of assistance is less likely to survive. Complementary, proximate-level causal explanations of human infant crying behaviour include both external mechanisms that prompt infant crying such as lack of food and internal mechanisms that enable the presentation of the behaviour such

as the activity in the limbic system and the endogenous opinoids involved in the cessation of infant crying (Scott-Phillips et al. 2011: 38).

This thesis utilises Tinbergen's Four Questions to provide an explanation of literate behaviour on evolutionary grounds. The questions related to the proximate-level of evolutionary explanation (*i.e*., ontogeny and causation/mechanism) of literate behaviour are relatively well researched and, as a result, will be surveyed only briefly in this introductory chapter. The ultimate-level of evolutionary explanations of literate behaviour (phylogeny and function) are discussed in Chapters 3 through 6.

1.2.5.1 Proximate causes of literate behaviour: ontogeny and causation/mechanism

The existing developmental and cognitive psychology of literate behaviour provides a fairly detailed account of (1) how literate behaviours develop over the lifetime of an individual (ontogeny) and (2) how literate behaviours are shaped by the mechanisms that they use to function (causation/mechanism).

The cognitive psychology of reading began in earnest with the publication of 'On relations of time and space in vision' by James M. Cattell (1900) and *The Psychology and Pedagogy of Reading* by Edmund Huey (1908) (Olson and Torrance 2009). Despite a gap between 1913 and the late 1960s, the academic study of the cognitive processes associated with literate behaviour has grown in the last 35 years (Rayner and Pollatsek 2012). As academic interest in language rapidly grew in the 1960s, cognitive psychologists began to investigate and understand some of the highly complex mechanisms upon which literate behaviours rely.

Once excluded from the ranks of legitimate academic topics in linguistics, the identification of the mechanisms that undergird literate behaviour (causation/mechanism) and their development over the lifetime of an individual (ontogeny) have now become the topic of entire anthologies (Breznitz et al. 2012;

Snowling and Hulme 2005), textbooks (Rayner and Pollatsek 2012; Tracey and Morrow 2012), and popular science publications (Changizi 2010; Dehaene 2009; Wolf 2008). One recent textbook, *Psychology of Reading* by Rayner and Pollatsek (2012), for example, describes several of the mechanisms involved in reading, including the human information processing system, the role of the retina and visual acuity, human pattern recognition systems, short term and long term memory, and the 'visual word form area' or VWFA (see Figure 1.1). Cohen and Dehaene (2004), McCandliss et al. (2003), and Baker et al. (2007) provide a useful discussion of the development of the VWFA. For an introductory discussion of the normal development of reading skills, see Aghababian and Nazir (2000). These proximate causes for literate behaviour are summarised in Table 1.3.

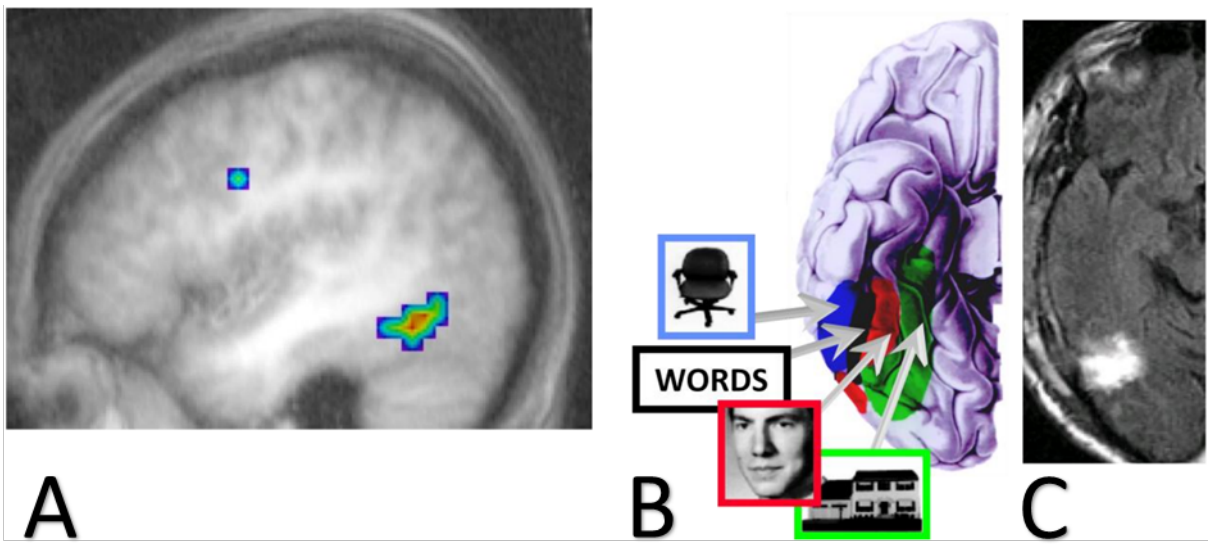


Figure 1.1 The visual word form area (VWFA) from Dehaene (2013). The VWFA, located predominately in the left-lateralised region of the occipitotemporal cortex, has been a particular area of emphasis in questions concerning the development of literate behaviours. (A) Highlighted areas mark the areas of the brain that are activated when an individual reads, as does the black area marked adjacent to the label 'WORDS' in (B). This area shows 'stronger activation to words than to many other categories of visual stimuli, such as pictures of objects, faces, or places. […] [I]f it is destroyed or disconnected, as in the patient whose brain scan is shown [in (C)], we may selectively lose the capacity to read' (Dehaene 2013).

Table 1.3 Summary of an ethological analysis of literate behaviour. Tabular format adapted from Nesse (2013).

		Two objects of explanation	
		Developmental/historical: A sequence that results in literate behaviour	Single form: Literate behaviour at a given point in time
		Tinbergen's Four Questions:	
Two levels of explanation	Proximate Explains how organisms work by describing their mechanisms and their ontogeny	Ontogeny Q: How did the behaviour develop over the lifetime of an individual? A: *E.g.*, expansion of the lexicon, development of speech, growth of memory; (Snowling and Hulme 2005: II); development of inferotemporal region (Cohen and Dehaene 2004; McCandliss et al. 2003)	Causation/Mechanism Q: How does the behaviour work? How is the behaviour shaped by the mechanisms that it uses? A: External mechanisms: complex sign systems, standardised texts; Internal mechanisms: information processing, word recognition, eye fixation, phonological coding (Snowling and Hulme 2005: I); visual word form area (VWFA) (Cohen et al. 2000)
	Ultimate/ Evolutionary Explains how a species came to its current form by describing a sequence of forms, and how selection and other evolutionary forces influenced them.	Phylogeny Q: How did the behaviour evolve over the lifetime of the species? A: **Discussed in Chapters 3 and 4.**	Function Q: What is the behaviour for? How did the behaviour evolve to solve a problem in the ancestral environment? A: **Discussed in Chapters 5 and 6.**

Ontogenetic explanations of literate behaviour make it clear that the development of a proficiency in a written language, for example, is incredibly difficult and time-consuming. Individual readers must develop the cognitive and linguistic tools required to break a code that maps spoken onto written language. Those attempting to become proficient in a written language, usually children, must master the ability to segment the speech stream and learn a range of symbols, which range widely in their level of complexity, before mapping these symbols onto spoken language (Snowling and Hulme 2005: II). The development of the ability to read as an expert often takes decades (Wolf 2008). This begs the question, why do humans expend so much time and energy to develop literate behaviour?

1.2.5.2 Ultimate evolutionary causes of literate behaviour: phylogeny and function

Modern governments, civic organisations, and individuals around the globe expend considerable resources to encourage literate behaviour. The United Nations (UN)[21], governments of nation-states (especially developing countries), corporations, educators, parents, and children all contribute a significant percentage of their resources to encourage the adoption and development of literate behaviour[22]. What is literate behaviour for (function) and what are the historical sequences that lead to the emergence and spread of literate behaviour around the globe (phylogeny)? Like all scientific investigations into animal behaviour, this thesis asks, '[w]hy does this animal [*Homo sapiens sapiens*] behave in this way?' (Bolhuis and Luc-Alain 2005: xxii). The important and hitherto unappreciated ultimate causes (phylogeny and function) of literate behaviour answer these questions and are the major focus of this thesis.

A systematic, cross-cultural, multidisciplinary, and multi-method approach to the cultural evolution of CERS is required to investigate the ultimate causes of literate behaviour and its potential relationship with the cultural evolution of large-group cooperation and complex forms of socio-political organisation. Information garnered from grammatology, archaeology, history, cognitive science, psychology, anthropology, and related disciplines is offered throughout this thesis to provide evidence and argument for the phylogenetic or historical and functional causes of literate behaviour.

[21] The UN designated 2003-2012 as the 'Literacy Decade'.

[22] According to Cree et al. (2012), authors of the independent nonprofit World Literacy Foundation's 2012 Final Report, the global annual opportunity cost of illiteracy is approximately $1.19 trillion US dollars, £81.312 billion of which is lost to the UK economy each year. 20% of the UK adult population was identified as 'functionally illiterate' in this report. This report was used to justify additional funding for literacy programmes.

1.2.6 Defining Literate Behaviour

This thesis defines[23] literate behaviour as the use of a repertoire of easily distinguishable visual signs that stimulate specialised, high-speed, high-fidelity, automated lexical access in fluent readers and writers (see Smith 2008). While those who are not fluent in the product of literate behaviour, such as a writing system, are able to perceive the visual stimulus produced by the literate behaviour, it does not stimulate lexical access automatically, quickly, or with a high degree of fidelity. As a consequence, complex external representational systems or CERS, such as a writing system, are both the extrasomatic product of literate behaviour and the medium of literate behaviour's instigation in the minds of literate sign users.

1.3 Structure of thesis

Chapter 1 outlines the major research questions and hypotheses examined in this thesis. Chapter 2 provides an account of the general methods employed in the collection of the data required to answer this thesis' major research questions. Chapters 3 and 4 provide a phylogenetic explanation of literate behaviour and Chapters 5 and 6 provide a functional explanation of literate behaviour. Finally, Chapter 7 provides a general discussion of the arguments and evidence presented in this thesis.

1.4 Major Research Questions

To provide a history of literate behaviour, first we must explore a question that has preoccupied historians, anthropologists, archaeologists, linguists,

[23] As noted by Smith (2008: 8-15), studies of literate behaviour have been severely limited by problems of definition, most notably what counts as a literate behaviour and why certain cases are beyond definitional borders. Anthropological accounts of literate behaviour have been limited further by unhelpful theoretical typologies of literate behaviour, such as Jack Goody's (1968) distinction between 'restricted' and 'full' literacy, where 'restricted' literacy is the practice of literacy in which the behaviour does not achieve its full 'potential' by failing to produce all of the proposed cognitive and socio-political effects of 'full' or ideal literacy. Street (1984: 61-65) provides a critique of this typology.

palaeographers, and grammatologists for decades (Coulmas 1999; DeFrancis 1989; Gaur 1984; Gelb 1963; Rogers 2004; Sampson 1985; Schmandt-Besserat 1996; Taylor 1883): what were the origins of literacy? What were the selective pressures that facilitated the independent emergence of literate behaviour around the globe? Second, we must unravel a puzzle that has prompted considerable debate between grammatologists, sociolinguists, historians, anthropologists, and scholars of religion – what were the major drivers in the adoption and spread of literate behaviour?

Why do literate behaviours assume a large number of forms and social functions in increasingly large, complex groups? This question has engaged social theorists, such as such as Gibbon (1776), Astle (1784), Morgan (1877), Breasted (1926), Lévi-Strauss (1973), and Goody (1987), for over two centuries. In this chapter we also consider the hypothesis that literate behaviours and increasingly complex forms of socio-political organisation interact in a complex positive feedback loop (Barton and Hamilton 1997; Gaur 1984; Lock and Gers 2012).

1.5 The emergence of literate behaviour

1.5.1 What were the selective pressures that facilitated the independent emergence of literate behaviour around the globe?

As discussed is Chapter 3, previous attempts to answer this question have frequently and erroneously attributed the cross-cultural origins of literate behaviour to actions of the ‘individual genius’ (Wang 2007: 363), inventor (Boltz 1994; Powell 1981: 422), heroic revolutionary (Houston 2004b: 235), or divine intermediary (Plato 2004: 78). Prominent theories of literate behaviour’s emergence offered by historians, palaeographers, grammatologists, classicists, and archaeologists often suffer from the ‘Standard View’ of technological evolution (Pfaffenberger 1992: 439),

which contends that unspecified human or societal 'necessities' drive the invention of new technologies (Smith 2008), not complex and observable cultural evolutionary processes.

Insights garnered from anthropology, archaeology, and history reveal that it is the purposes to which literate behaviours are put (Barton and Hamilton 1997; Halverson 1992a; Trigger 2004; Whitehouse 2000), the techniques employed in their execution (Pfaffenberger 1992), and the context of their application (Barton et al. 2005; Boyarin 1993; Cipolla 1969; Finnegan 1988; Harris 1989; Heath 1991; Kaestle and Damon-Moore 1993; Lockridge 1974; Street and Besnier 1994a; Street 1993, 2009, 1984; Thomas 1992), not any single societal 'necessity', that provided the selective pressures necessary for the development, adoption, application, and dissemination of literate behaviour. No single artefact or behaviour is ideally suited and universally applied for a given task. No single order of literate behaviour's functional development applies to the societies in which literate behaviour first emerged (Barton and Hamilton 1997: 793). As Adam Smith (2008) observes, the world's first scribes did not and could not tailor their nascent scripts to individual- or societal-level 'necessities' in a foresightful and agential manner. Moreover, early literate behaviours were used for a variety of social functions, including administrative, royal testimonial, religious, and divinatory functions[24]. Thus, the apparent design and efficacious utility of literate behaviour is the product of less human agency and forethought than previous scholastic accounts have suggested (Smith 2013: 72).

Furthermore, previous accounts of the origins of literate behaviour have been unable to provide an authoritative history of the cross-cultural emergence of literate

[24] Barton and Hamilton (1997: 799), following Goody (1981), identify three broad categories of literate behaviour's early functions – '*political and economic*, the *religious* (in the sense of mystical, divinatory, and ritual uses), and the *historical-literary* functions' (my emphasis).

behaviour because of their limited methodological scope and rigour. Some, such as Goody and Watt (1963) and Goody (1968), reach global conclusions after offering evidence from a single case or a non-representative sample of cases. Others, such as Morgan (1877), Taylor (1883), and Gelb (1963), offer simplistic and widely discredited monogenetic evolutionary explanations or unilinear evolutionary sequences of literate behaviour's emergence, development, and elaboration over time (Bright and Daniels 1996; Chrisomalis 2009; Trigger 1998). When cross-cultural data on literate behaviour have been collected systematically for a large sample of societies drawn from around the globe (Murdock and White 1969), they have been largely superficial, employing this now-defunct, monogenetic and unilineal historical model of literate behaviour's emergence and development. Some studies focus exclusively on (1) the diversity of CERS found cross-culturally (Hooker 1990; Houston 2004a; Senner 1989), (2) a circumscribed subset of the functional applications of literate behaviour in cherry-picked[25] historical case studies (Goody and Watt 1963; Halverson 1992b; Havelock 1963), or (3) the method by which literate behaviours encode speech (Bright and Daniels 1996; Coulmas 2003; DeFrancis 1989; Sampson 1985), failing to account for the shared features and evolutionary history of these systems and behaviours.

Given the highly variable material and environmental conditions of the polities within which the world's independently emergent scripts arose, the minimal technological prerequisites for the development of literate behaviour (Smith 2008), and the diverse functional applications of nascent literate behaviour (Barton and Hamilton 1997; Goody 1981; Halverson 1992a; Trigger 2004; Whitehouse 2000), material, environmental, and technological variables do not provide promising

[25] 'Cherry-picking' is a form of the fallacy of selective attention which preferences bodies of evidence and experimental designs likely to confirm a given position.

candidate factors for an evolutionary account of the emergence of literate behaviour around the globe. Similarly, despite considerable scholastic attention, accounts that emphasise the role of societal 'administrative needs' in the cross-cultural emergence of literate behaviours (*i.e*., the administrative hypothesis) (Bagley 2004; Baines et al. 2008; Postgate et al. 1995; Wang 2007), are unconvincing given that the archaeological evidence only provides robust support for this account in a single case – Mesopotamia (Barton and Hamilton 1997; Houston 2004b; Smith 2008).

Recent data offered by archaeologists, palaeographers, anthropologists, and cognitive scientists suggest that there are several hitherto unappreciated and untested candidates that may have provided the selection pressures necessary for the emergence of world's first literate behaviours (Changizi and Shimojo 2005; Changizi 2010; Dehaene 2009; Hyman and Renn 2012; Lock and Gers 2012; Mesoudi et al. 2013; Rayner and Pollatsek 2012; Skelton 2008; Smith 2008, 2013; Trigger 2004). Recent archaeological and palaeographic findings (Bagley 2004; Cooper 2004; Houston 2004a, 2004b; Smith 2008, 2013; Trigger 2004) and recent studies of human visual cognition and memory (Changizi and Shimojo 2005; Changizi 2010; Changizi et al. 2006; Dehaene and Cohen 2011; Dehaene 2009; Dehaene et al. 2010; Platt and Adams 2012; Rogers 2004) indicate that the world's first literate behaviours may have been the result of the emergence of full-time specialist sign users and the 'repetitious intensification' (Smith 2008, 2013) of precursor sign systems.

Adam Smith (2008, 2013) offers argument and evidence in favour of the conclusion that scripts emerged from the repetitious intensification of precursor systems of non-literate sign use by an interacting community of increasingly full-time specialist sign users. Non-literate sign systems (*e.g*., tallies) relied on more general

and universal cognitive capacities for object recognition and naming before they were largely replaced by literate sign systems. The resulting literate sign systems evolved through cumulative and blind selection pressures as the result of frequent interactions between specialist groups through the exploitation of human visual recognition systems, memory systems, and rapid lexical access (Smith 2013: 4). Full-time specialist sign users and the repetitious intensification of preliterate sign systems are readily identifiable as products of a broader shift towards routinization (Whitehouse 2000).

Smith's account of the emergence of literate behaviour accords with recent studies of socio-cultural evolution, proposing that routinization greatly increases the stability, coherence, comprehensiveness, and standardisation of cultural systems (Whitehouse 1996, 2000, 2004, 2012). Smith's 'repetitious intensification model' highlights how several psychological mechanisms are exploited through blind and cumulative selection pressures to bring about early literate behaviours. This process includes the highly repetitive and frequent interaction with visual object forms by a group of specialists, ultimately resulting in the emergence and replication of repertoires of sign forms and literate behaviours (Smith 2013: 15). Citing palaeographic evidence of this process in the Western period of the Han Empire in China (206-25 BC), Smith concludes, 'the cognitive consequences of 'reading' or producing many different examples of documents […] on a daily basis, as opposed to doing so only on special occasions, are considerable' (Smith 2008: 135). When viewed in light of recent insights into broader shifts in socio-cultural evolution, particularly the process of routinization, the 'repetitious intensification model' becomes a powerful explanatory framework for a theory of the historical emergence of literate behaviours around the world.

Recent research into socio-cultural evolution has discovered that the advent of 'routinization' (Whitehouse 1996, 2000, 2004, 2012) or high-frequency collective rituals played a major role in (1) the formation of large-scale social identities by facilitating trust and cooperation on an unprecedented scale, (2) the emergence of groups of specialists who fulfilled roles and offices that were understood to be distinct from the persons who held them, (3) the elaboration of complex shared networks of doctrines and narratives, and (4) increases in cultural conformity, doctrinal conservativism, ecclesiastic authority, and transcendental domination.

Recent archaeological evidence focused on the emergence of routinized collective rituals in human prehistory encourages these conclusions (Johnson 2004; Mithen 2004; Whitehouse and Hodder 2010). For example, investigations in modern-day southwestern Iran find that routinized collective rituals and the doctrinal mode of religiosity[26,27] it engenders preceded and may have facilitated the emergence of systems of writing in this region (Johnson 2004: 46). Similarly, recent archaeological studies of Çatalhöyük (Mithen 2004: 36; Whitehouse and Hodder 2010) in modern-day Turkey demonstrate the presence of large settlement size and routinized rituals, but no evidence of literacy, indicating the primacy of routinization over literacy in the evolution of socio-political complexity in this region. Whitehouse and Hodder (2010: 126) hypothesise that 'the appearance of doctrinal dynamics helped to foster the development and spread of inscribing practices and ultimately fully developed literate traditions'. Thus, the process of routinization appears to facilitate the emergence of literate forms, yet the details of this process remain unclear. A synthesis of recent

[26] Boyer (2005), following Whitehouse (2000), defines the 'doctrinal' mode as one that 'requires constant communication and relatively intelligible and explicitly articulated material, therefore high-frequency exposure' (9).

[27] Likewise, Hinde (2005) summarises Whitehouse's 'doctrinal mode' as one that 'involves a tendency toward a system that depends on routinized worship and teaching, through which is transmitted a body of fairly complex doctrinal, which is incorporated into the individuals' general knowledge' (33).

findings in palaeography, cognitive science, archaeology, comparative ethnography, and history provide the key to understanding how the process of routinization gave rise to the first literate behaviours.

The ‘repetitious intensification model’ can be gainfully combined with the process of routinization to contribute to a phylogenetic evolutionary explanation of the polygenetic origins of literate behaviour. High-frequency interactions within groups of specialists, complex shared networks of doctrines and narratives, and doctrinal conformity all provide selection pressures towards the repetitious intensification of non-literate sign systems. Moreover, routinization encourages (1) more word-like and less object-like recognition of individual signs, (2) decreased cognitive processing demands and conscious attention, (3) increases in the population of sign exemplars, and (4) the emergence of basic lexicons.

1.5.1.1 Data and methods required to evaluate the role of routinization in the independent emergence of literate behaviour around the globe

The obvious first step needed to evaluate the cross-cultural relationship between the candidate explanatory selection pressures of routinization and the emergence of the world’s first literate behaviours is to investigate the available archaeological and palaeographic data for early literate societies. Chapter 3 surveys the relevant variables for two of the best-attested societies in which literate behaviour emerged independently (*i.e.*, *ca*. 2400 B.C. Mesopotamia; and *ca*. 1250 B.C. China). The data provided by this archaeological and historical survey allows us to explore the relationship between the process of routinization and the emergence of literate behaviour.

Second, to supplement the data available in the archaeological record, large-scale cross-cultural data are needed to test these predictions empirically and cross-

culturally. This second step uses the results of the large, representative cross-cultural ethnographic database of CERS constructed in Chapter 2 as well as existing cross-cultural data to test several major hypotheses associated with this novel account of the origins of literate behaviour. While the ethnographic record in isolation cannot be used to generate conclusions about the prevalence of events in the past because of the pronounced effects of cultural contact and transmission (Ember and Ember 1997: 2), the results of a systematic cross-cultural survey in which the sample is designed to minimise the much-discussed effects of the problem of non-independence between data points (*i.e.*, Galton's problem) (Currie 2013; Denton 2007; Dobson and Gelade 2012; Eff 2004; Ember and Otterbein 1991; Herkenrath 2002; Lagacé 1979; Mace et al. 1994; Murdock 1949; Naroll 1965, 1967, 1965; Nettle 2009; Pollet et al. 2014; Ross and Homer 1976; Tylor 1889) can serve as a useful supplement to the comparative palaeographic and archaeological evidence. The use of the cross-cultural method vastly improves the reliability and generalizability of evolutionary analyses based on ethnographic materials when compared to the available alternatives, including regional controlled comparisons (*e.g.*, Eggan 1954; Fillitz 2002; Fox and Gingrich 2002b), one-case and two-case comparisons[28], or the examination of one or a plurality of so-called modern 'classic cases', such as the !Kung San or the Hadza (Marlowe 2005). So-called 'classic cases', who now occupy marginal habitats, and who have been influenced considerably by highly developed and complex socio-political factors (Ember and

[28] Ember and Ember (2009) note that comparison is essential 'to understand why a particular community or culture is the way it is', before concluding that one-case analyses are not sufficient for explanatory analysis because 'a single case has an enormous number of traits, and any one or more of them may cause or explain what we are interested in explaining'; there is 'no way to decide which traits in a single society are causally connected to other traits'. Similarly, Ember and Ember (2009) conclude, '[a] two-case comparison is not more useful than a one-case analysis if we want to demonstrate a cross-cultural relationship'. Systematically and statistically verifiable cross-cultural research that endeavours to provide a test of causal predictions must 'investigate a sample of situations with and without the presumed cause' (Ember and Ember 2009).

Ember 1997; Norenzayan 2013), are not typical or representative historical human groups. The limitations of so-called modern ‘classic cases’ will be investigated in more depth in Chapters 2 and 7.

Building on the available cognitive, palaeographic, and archaeological data concerning the world’s first independent script emergences, the following empirical hypotheses are tested to evaluate the role of routinization in the independent emergence of literate behaviour around the globe. Each of these hypotheses isolates a feature of both (1) routinization and (2) literate behaviour before predicting a statistical association between the two factors.

1.5.1.2 The empirical hypotheses of Chapter 3

Hypothesis 3.1 Cultures with highly arousing religious rituals are negatively correlated with the presence of CERS.

Hypothesis 3.2 Cultures with highly arousing religious rituals are negatively correlated with cultures in which the recitation of texts during religious rituals is present.

Hypothesis 3.3 Cultures with high-frequency religious rituals are positively correlated with the presence of CERS.

Hypothesis 3.4 The recitation of texts during religious rituals is positively correlated with ritual frequency.

Chapter 3 attempts to overcome many of the limitations encountered in previous approaches to the evolutionary history of literate behaviour by using a cultural evolutionary framework to synthesise the available historical, archaeological, palaeographic, and grammatological data with the results of a large, representative

cross-cultural survey of literate behaviour. In sum, Chapter 3 argues that high-frequency interactions within groups of specialists, complex shared networks of doctrines and narratives, doctrinal conformity, and other hallmarks of routinization provided the selection pressures necessary for the initial development and spread of the world's first literate behaviours.

1.5.2 What were the major drivers in the adoption and spread of literate behaviour?

As discussed in Chapter 4, evidence submitted by historians, grammatologists, palaeographers, sociolinguists and anthropologists indicates that literate behaviour was culturally transmitted principally through the spread of complex, hierarchical religious systems or 'classical religions' (Coulmas 2003; Diringer and Regensburger 1968; McCauley 2000; Trigger 2004; Whitehouse and Hodder 2010; Whitehouse 2000). A small, but vocal group of anthropologists and religious studies scholars have contested this account, submitting evidence and argument in favour of the hypothesis that literate behaviour was primary in the homogenisation and spread of classical religions.

What is the relationship between classical religions and the spread of complex external representational systems (CERS), such as standardised scripts? Did classical religions facilitate the adoption and spread of CERS or the other way around? Or is there some as yet unidentified factor(s) responsible for both?

1.5.2.1 Data and methods required to evaluate the role of classical religious traditions in the cultural transmission and standardisation of literate behaviour.

Despite over fifty years of scholastic attention, this debate suffers from a dearth of reliable empirical data. Chapter 4 addresses some of the bolder and more testable claims in this debate using two principal data sources – (1) historical,

grammatological, palaeographic, sociolinguistic, and anthropological accounts and (2) the cross-cultural (N=74) ethnographic database of CERS that is constructed in Chapter 2 and existing cross-cultural data sources containing data on the variable presence of classical religions.

Building on the data available, Chapter 4 tests the prediction that classical religions facilitated the cultural transmission and standardisation of CERS, such as standardised scripts. It is hypothesised that there will be a positive and strong correlation between the influence of classical religion and societal-level measures of CERS. Given that a belief in moral high gods that are active in human affairs have been associated closely with classical religions (Johnson 2005; Swanson 1964), it is further hypothesised that there will be a positive and strong correlation between societies that have a belief in moral high gods and the CERS systems under investigation. Each of these hypotheses isolates a feature of both (1) classical religions and (2) literate behaviour before predicting a statistical association between the two factors.

To evaluate the empirical relationship between classical religions and literate behaviour, cross-cultural ethnographic data is employed to test three hypotheses.

1.5.2.2 The empirical hypotheses of Chapter 4

Hypothesis 4.1 Classical religion is positively correlated with the presence of CERS.

Hypothesis 4.2 The presence of a belief in moral high gods is positively correlated with the presence of CERS.

Hypothesis 4.3 Classical religion is positively correlated with cultures with religious rituals in which texts are recited.

After offering argument and evidence in favour of a novel cultural evolutionary explanation of the history of literate behaviour in Chapters 3 and 4, this thesis investigates the relationship between the cultural evolution of (1) literacy and (2) human large-group cooperation (Chapter 5) and increasingly complex forms of socio-political organisation (Chapter 6).

1.6 Literate behaviour and large, complex groups

1.6.1 Why do the products of literate behaviours, CERS, assume a large number of forms and social functions in increasingly large, complex groups? Moreover, what is the relationship between specific CERS and the emergence of large-group cooperation and socio-political complexity?

Recently, several social scientists have hypothesised that the behavioural innovation of literacy, like the emergence of agriculture, was one humanity's most consequential changes (Diamond 1999; Powell 2012; Smith 2008; Stein 2009; Wells 2012; Woods 2010). These scholars join a long line of social theorists, including Gibbon (1776), Astle (1784), Morgan (1877), Breasted (1926), Goody (1986a), Cipolla (1969), Daniels (1996a), and Coulmas (2003), in their support of the idea of a non-arbitrary association between the presence of literate behaviour and the emergence of socio-political complexity, particularly large-scale forms of socio-political organisation. Are literate behaviours important enough in the evolution of large, complex forms of socio-political organisation to warrant these claims?

Once present, CERS are shown to assume a large number of forms and social functions, particularly in large, complex groups (Barton and Hamilton 1997; Halverson 1992a; Trigger 2004; Whitehouse 2000). Why? What is the relationship between specific CERS and the emergence of the socio-political complexity and

large-group cooperation? Did CERS facilitate the emergence of significant increases in polity size and socio-political complexity or the other way around? Or, is some as yet unidentified factor(s) responsible for both?

As discussed in Chapter 5, existing theoretical accounts frequently describe literate behaviour as a major cause of increases in human group size and socio-political complexity, most notably at the level of 'civilisation' (Astle 1784; Barton and Hamilton 1997; Breasted 1926; Daniels 1996a; Diringer and Regensburger 1968; Gelb 1963; Gibbon 1776; Goody 1987; Lincoln 1953; Morgan 1877; Schmandt-Besserat 1996; Sjoberg 1960). Literate behaviour is frequently seen to be 'at the root of a branching tree of transformational effects on technology and social institutions' (Smith 2008: 3). Large-scale samples of ethnographic data offer empirical support in favour of an association between the presence of literate behaviour and large, complex groups. A recent cross-cultural survey (Basu et al. 2009) analysed data from 186 societies, which comprise the Standard Cross-Cultural Sample (*i.e.*, SCCS) (Murdock and White 1969), and found that the association between empirical proxies for literate behaviour and group size is positive and non-linear with a monotonically increasing mean once group size reaches 200 or more persons ($p < 0.01$) (see Figure 1.2). Despite the qualitative and quantitative associations between literacy and large, complex groups, theories of the role of literate behaviour in the evolution of socio-political complexity remain controversial.

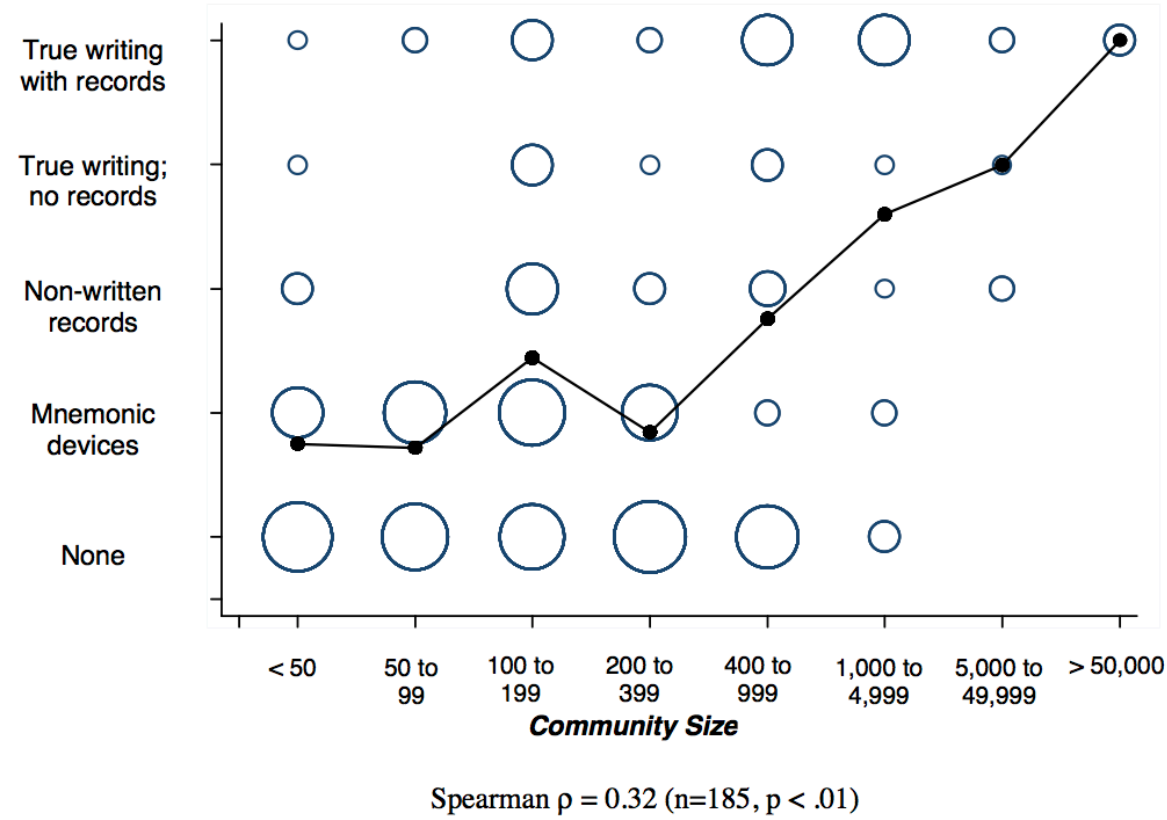


Figure 1.2 Relationship between SCCS ordinal variables 'Writing and Records' and 'Community Size' from Basu et al. (2009: 904). The size of each data point (*i.e.* white circle) represents the relative number of societies that fall into that category on the 'writing and records' scale (Y-axis). For example, all of the societies sampled with a 'community size' of > 50,000 possess 'true writing with records', while a large number of societies with a 'community size' < 999 individuals have no 'writing and records'. The mean 'writing and records' score for each 'community size' score is indicated by a black dot, which is connected by a solid black line. The number of large-scale societies sampled is small, reflecting the SCCS' sampling bias towards small-scale societies (see Figure 1.3).

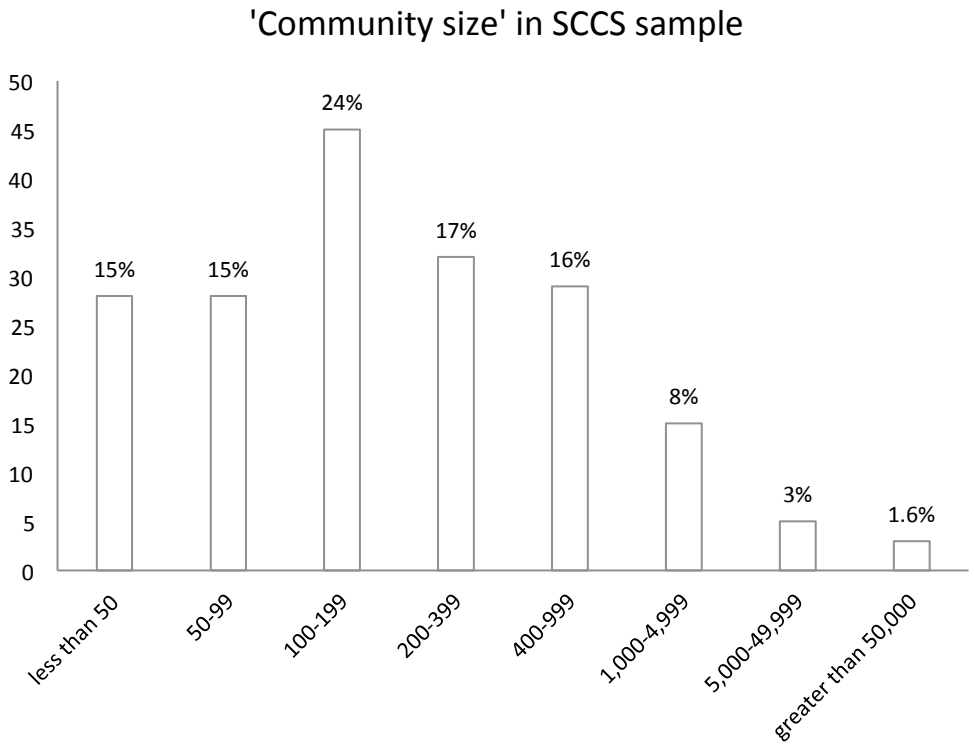


Figure 1.3 Sampling bias towards small-scale societies in the SCCS, in which 87% of the sample has a 'community size' of < 1,000 individuals. The total number of societies that fall into that category on the 'community size' scale (X-axis) is represented on the Y-axis. The frequency of societies sampled (n=185) for each category is presented as a percentage above each bar.

Some, including historians (Cipolla 1969; Harris 1989; Kaestle and Damon-Moore 1993; Lockridge 1974; Thomas 1992) and anthropologists (Barton and Hamilton 1997; Barton et al. 2005; Boyarin 1993; Finnegan 1988; Heath 1991; Street and Besnier 1994b; Street 2009, 1984, 1993), contend that literate behaviours must be understood as both a concrete object and as a social product of particular political, historical, and ideological settings. Brian Street (2006b) classifies this approach as one operating within the 'ideological' model of literacy, which he defines as the study of literacy as 'a social practice, not simply a technical or neutral skill; that is always embedded in socially constructed epistemological principles' (Street 2006a). Others view the social (Goody 1977, 1987, 2000a; Havelock 1963) and cognitive (Cattell 1900; Goody and Watt 1963; Goody 1987; Greenfield 1972; Huey

1908; McLuhan and Fiore 1967; McLuhan 1963; Ong 1982) effects of literate behaviour to be largely invariant. Street (2006b) classifies this scholarship as one belonging to the 'autonomous model' of literacy. According to Street (2006a), the 'autonomous' model of literacy 'works from the assumption that literacy itself – autonomously – will have effects on other social and cognitive practices'.

Neither the 'ideological' or the 'autonomous' models of literacy are sufficient for a cultural evolutionary account of literate behaviour. Scholarship that adopts the 'ideological' model is insufficient for a comprehensive cultural evolutionary account of literate behaviour because it has not been systematic, choosing instead to rely on carefully selected case studies that focus on the regions or historical periods with which individual researchers are familiar. In addition, an exclusive focus on the micro-level social and political settings in which literate behaviours are enacted risks overlooking common selection pressures and shared solutions to universal cooperative problems (Houston 2004b). Scholarship that adopts the 'autonomous' model fails to acknowledge adequately that literate behaviour has taken on a large variety of forms and has been found to serve a huge variety of social functions historically and cross-culturally (*e.g.*, administrative, royal testimonial, and divinatory functions) (Barton and Hamilton 1997; Goody 1981; Halverson 1992a; Trigger 2004; Whitehouse 2000). Of course, literacy on its own does not have agency, but requires individual social actors in particular settings to either produce or consume literate behaviour to have any effects.

As discussed in Chapter 5, recent insights into human evolution garnered from behavioural economics, palaeography, grammatology, evolutionary psychology, and anthropology suggest that literate behaviours help to solve the puzzle of cooperation in large groups. Literate behaviours allow us to transcend the severe

limitations of human evolutionary psychology through the elaboration of our evolved psychological adaptations for cooperation, which include reciprocity, reputation formation and maintenance systems, social norms and norm enforcement strategies, and group identity and mutualism.

1.6.1.1 Data and methods required to evaluate the role of complex external representational systems in the cultural evolution of large-group human cooperation

The data provided in published studies that have investigated the relationship between literate behaviour and large-group cooperation and socio-political complexity have been unsystematic; they rely on appeals to authority, assertion or 'cherry-picked' case studies; or they are empirically unfalsifiable. Debates concerning the role of literacy in the emergence of socio-political complexity around the globe have suffered from a dearth of reliable empirical data. For example, while Goody draws on his extensive and largely incontrovertible ethnographic fieldwork amongst the LoDagaa and LoWiili of northern Ghana to evidence his ambitious and unilateral predictions regarding the role of literacy in the emergence of socio-political complexity (*i.e*., the 'literacy thesis'), contrary ethnographic evidence offered by Scribner and Cole (1981), Bloch (1986, 1998), Finnegan (1988), Parry and Bloch (1989), Street (1993), Whitehouse (1995, 2000), and others is unable to empirically demonstrate that their counter-evidence is not anomalous. More ambitious theoretical accounts of the relationship between literacy and socio-political complexity (Barton and Hamilton 1997; Donald 1991; Hyman and Renn 2012; Lock and Gers 2012; Mesoudi et al. 2013; Renn and Hyman 2012; Trigger 1998, 2003, 2004) submit limited comparative archaeological, historical, and ethnographic data for several important functions of literacy, but do not provide a (1) broad theoretical framework for understanding why literate behaviour may have facilitated increases in

human cooperation and socio-political complexity or (2) large-scale cross-cultural empirical data.

Two data sources are needed to test statistically the relationship between CERS and measures of socio-political complexity – (1) a cross-cultural empirical catalogue of CERS thought to be highly consequential in the emergence of large-scale polities and the cultural evolution of socio-political complexity (Mullins et al. 2013) and empirical proxies for socio-political complexity and (2) comparative historical and archaeological data concerning the role of CERS in the cooperative systems necessary for the emergence and persistence of large, complex and independently-emergent polities. Chapter 5 presents the first cross-cultural empirical catalogue of CERS thought to be highly consequential in the emergence of large-scale polities and the cultural evolution of socio-political complexity. Chapter 6 assesses the prediction that literate behaviour and increasingly complex forms of socio-political organisation are in a complex positive feedback loop using comparative archaeological and historical data from ten, first-generation states.

1.6.1.2 The empirical hypotheses of Chapter 5

Unlike prominent accounts of the relationship between literate behaviour and socio-political complexity[29], Chapters 5 and 6 use an empirically-based, multi-method approach to provide a broad theoretical framework for understanding why specific CERS and their functional applications to problems associated with large-group cooperation are likely to have been integral to increases in the socio-political complexity in human populations.

[29] The potential relationship between literate behaviour and shifts in socio-political complexity are discussed by a number of social scientists (*e.g.,* Astle 1784; Barton and Hamilton 1997; Breasted 1926; Daniels 1996a; Diringer and Regensburger 1968; Gelb 1963; Gibbon 1776; Goody 1987; Lincoln 1953; Morgan 1877; Schmandt-Besserat 1996; Sjoberg 1960).

Chapter 5 tests the statistical relationship between CERS and measures of socio-political complexity. Each of this chapter's hypotheses isolates a feature of both (1) literate behaviours and (2) large-group cooperation and socio-political complexity. The empirical hypotheses tested in Chapter 5 are as follows:

Hypothesis 5.1-5.3 The presence of each CERS is positively correlated with increasing (a) community size, (b) levels of regional jurisdictional hierarchy, and (c) levels of agricultural intensity.

Hypothesis 5.4 The presence of CERS is positively correlated with several of the eighteen 'indices of societal cooperation' (Johnson 2005).[30]

1.6.2 Are literate behaviours and increasingly complex forms of socio-political organisation in a complex positive feedback loop?

Simple and intuitive models of causation and problem solving often assume single cause-and-effect relationships (Erdi 2008; Sobiech 2012). According to the principle of common cause by philosopher of science Reichenbach (1956), 'there are three possible causal explanations for a reliable statistical relationship between two events A and B: A causes B, B causes A, or both events are generated by a third event or set of events, their common cause' (Hagmayer et al. 2007: 86)[31]. Once both A and B are present, they may enter into a complex relationship in which 'an effect feeds back into its cause' (Erdi 2008: 357). In other words, A and B are no longer independent, as A and B cannot be fully separated and there is no clear distinction

[30] Note that the predicted directions (positive/negative) are contingent on the direction of the SCCS coding, where higher numbers do not always equate to higher levels of the variable in question.

[31] Counterexamples to the principle of common cause are present, however, including spurious correlations caused by similar laws of evolution acting on otherwise independent quantities (*e.g.*, a 99% correlation between per capita consumption of margarine in the United States and the divorce rate in Maine from 2000 to 2009). See Tyler Vigen's website 'spurious correlations' at http://tylervigen.com for additional examples.

between causes and effects because 'some proportion of the output […] of a system is passed (feed [sic] back) to the input,' constituting a causal loop (Erdi 2008: 8).

Causal feedback loops can either be positive or negative – '[n]egative feedback loops have dampening or stabilising effects and positive feedback loops have amplifying or destabilising effects in systems' (Sobiech 2012: 38)[32]. For example, the process of thermoregulation and our ability to stabilise our own body temperature (*i.e.*, homeostasis) at approximately 37°C constitutes a negative feedback loop[33] (*i.e.,* feedback inhibition). The product of the interaction 'temporarily shuts down its own synthesis whenever its levels rise' (Hoefnagels 2009: 86).

Complex positive feedback loops are also ubiquitous in complex biological systems such as ant trails, where the 'ant which [sic] first finds the food starts a feedback loop as more and more ants are recruited to the food, and as more ants are recruited the rate of recruitment increases further' (Sumpter 2006). Similar complex positive feedback loops are also found in the honey bee's recruitment dance (Seeley 2009; Seeley et al. 1991), termite mound construction (Bonabeau et al. 1998), and Messor sancta ants' cemetery construction (Sumpter 2006; Theraulaz et al. 2002). The product of the interaction 'stimulates its own further production' (Hoefnagels 2009: 86)[34].

[32] Turchin (2007) offers a similar account, saying 'negative feedbacks counteract the effect of a perturbation; they dampen it out. Positive feedbacks, by contrast, amplify the effect of a perturbation […].'

[33] The negative feedback loop of thermoregulation provides one example (Reece et al. 2011: 868). If the stimulus prompts the hypothalamus to detect that an individual is too hot, the sympathetic nervous system responds by opening sweat glands and dilating capillaries (i.e., vasodilation), which functions to reduce and stabilise body temperature. Conversely, if the stimulus prompts the hypothalamus to detect that an individual is too cold, the sympathetic nervous system responds by causing capillaries to restrict (i.e., vasoconstriction) in skin, arms, and legs, which increases the thermal insulation of superficial tissues more than 300%, thereby elevating body temperature (Rintamäki 2007). Thus, the process of thermoregulation serves as an example of a negative feedback loop.

[34] The positive feedback loop of oxytocin production during child labour is one illustrative example (Reece et al. 2011: 1015). In brief, the head of the fetus pushes against the cervix, stimulating nerve impulses that the brain responds to by producing oxytocin. This oxytocin is carried in the bloodstream to the uterus, where it stimulates uterine contractions and pushes the fetus toward the cervix, stimulating further oxytocin production.

Cycles exhibited by historical societies and states, like those found in biological systems, exhibit complex feedback loops, but dynamics involving social systems are far more complex (Turchin 2007). According to Peter Turchin (2007), '[h]uman societies and states can be modelled as dynamic systems, consisting of parts that interact with each other. […] The key concept here is dynamic feedback. A change in the state of one component of the system has an effect on another, but the change in the second might in turn affect – feedback on – the first' (Turchin 2007). One prominent example of a positive feedback loop in human social systems is that of the 'Matthew principle', which predicts that the rich will get richer and the poor will get poorer over time. Turchin (2007) provides an account of the 'Matthew principle' as it relates to increased land scarcity in premodern agrarian societies:

> [h]uman beings need to consume a certain amount of goods to survive. Most basically, they have to get enough food. Those who do not have enough land to feed themselves will have to start selling what they have to make up the difference. As a result, they become poorer. By contrast, those who have more land than they need to feed themselves will have a surplus income that they can use to acquire even more land. Thus, the rich get richer. The positive feedback of the Matthew principle arises as a result of the threshold of the minimum consumption level. The Matthew principle ensures that all people whose land holdings are below the threshold—the poor—gradually lose their remaining property, which ends up in the hands of the rich. Finally, the population is divided into a tiny minority of wealthy landowners and a huge majority of landless proletarians.

As discussed in Chapter 6, recent scholarship concerning the cultural evolution of language and its relationship with socio-political organisation suggests that literate behaviour and large-scale forms of social organisation exist within a complex positive feedback loop (Barton and Hamilton 1997; Lock and Gers 2012). Andy Lock and Matt Gers (Lock and Gers 2012: 27), for example, recently concluded, '[w]riting systems arising from necessity drive changes in the developmental context, which then drives further elaboration of writing and social changes'. Similarly, David Barton and Mary Hamilton find that the relationship

between literacy and socio-political organisation is ‘complex and involves a feedback effect from the initial social and economic context into which literacy is introduced’ (Barton and Hamilton 1997: 810).

1.6.2.1 Data and methods required to evaluate the potential complex positive feedback loop between literate behaviour and socio-political organisation

Existing scholarship on the cultural evolutionary relationship between literate behaviour and socio-political organisation has relied on (1) grand theoretical accounts that forward a now widely-discredited monogenetic and unilineal evolutionary account of literate behaviour’s emergence and development over time (*e.g.*, Gelb 1963), (2) detailed historical case studies that are severely limited in their generalizability to other regions or historical time periods (*e.g.*, Baines 1983), or (3) an ‘imaginative history’ of writing’s cultural evolution in which the analysis is not limited to the existing historical and archaeological record and does not review the available data systematically or comparatively (*e.g.*, Lock and Gers 2012). A systematic survey of the existing archaeological and historical data is needed to test the prediction that literate behaviours and increasingly complex forms of socio-political organisation exist within a complex positive feedback loop.

1.6.2.2 The hypothesis of Chapter 6

Chapter 6 uses archaeological and historical data from ten first-generation states to test the prediction that literate behaviours and increasingly complex forms of socio-political organisation exist within a complex positive feedback loop.

1.7 Novel contributions to the field

The work in this thesis uses a multidisciplinary approach to investigate the cultural evolutionary history of literate behaviour and the role of its products, complex

external representational systems (CERS), in the emergence of large-group human cooperation and complex forms of socio-political organisation.

Chapter 2 presents the methodology employed in the construction of this thesis' two principal data sources: first, a large-scale cross-cultural ethnographic database of CERS, and second, historical and archaeological data for two sets of societies — societies in which literate behaviour emerged independently and societies in which human cooperation at the level of the state emerged independently. To ensure that the arguments of this thesis were as reliable and representative as possible, this thesis employed a multi-method design. Building on the methodological designs of Landauer and Whiting (1964), Roberts and Forman (1971), Rohner (1975), this thesis tested theories in two ways – cross-culturally, with data constructed through a large-scale cross-cultural survey, and intra-culturally, with case studies and sample surveys (Levinson and Malone 2000). This multi-method design resulted in the most objective[35] and generalizable[36] cultural evolutionary account of the cross-cultural patterning and distribution of literate behaviours that is currently available. The resulting data enables us to test hypotheses statistically while overcoming many of the selection biases that have undermined the reliability of previous scholarship[37].

Chapters 3 and 4 synthesise the available historical, archaeological, palaeographic, and grammatological data with the results of a large, representative

[35] As noted by Levinson and Malone (2000: 372), large-scale cross-cultural studies are made more objective than ethnographic accounts because 'the theory tester (comparativist) and data collector (ethnographer) are different individuals. Thus, the data collector cannot consciously or unconsciously skew the data in favour of the theory being tested.' It should be noted that while biases of selective attention may be reduced in large-scale cross-cultural studies, rater bias is still present.

[36] Cross-cultural research of the kind employed in this thesis provides 'the most generalizable results of any kind of social scientific research' (Ember and Ember 2009: 13).

[37] In addition, the resulting data allow us measure the statistical relationship between the now-obsolete SCCS variable 'Writing and Records' and the novel dataset to provide a measure of its veracity and, therefore, its accuracy in previous research, such as Atkinson & Whitehouse (2011), Sanderson & Roberts (2008), and Basu, Kirk & Waymire (2009), and its utility for future research.

cross-cultural survey to provide an evolutionary history of literate behaviour (*i.e.*, a phylogeny).

Chapter 3 tests the prediction that literate behaviour evolved through the routinization of rituals and the resulting 'intensification' of pre-literate sign systems. The results presented in Chapter 3 provide evidence in favour of a novel explanatory theory for the historical emergence of literate behaviour.

Chapter 4 tests a set of hypotheses related to the prediction that literate behaviours were culturally transmitted principally through the spread of classical religions. The results presented in Chapter 4 provide empirical evidence in support of the prediction that the cross-cultural prevalence of CERS is attributable in large part to its cultural transmission by classical religions. These findings are relevant to anthropologists and scholars of religion who endeavour to identify and explain the factors that brought about the emergence of the world's first classical religions as well as historians, grammatologists, palaeographers, sociolinguists and anthropologists who seek to identify the factors that contributed to the cultural transmission of literacy.

Chapters 5 and 6 assess the potential functional relationship between literate behaviour and the cultural evolution of large-group human cooperation and complex forms of socio-political organisation.

Chapter 5 tests a set of hypotheses related to the prediction that the products of literate behaviours, CERS, facilitated the levels of cooperation necessary for the emergence of large-group cooperation and increasingly complex forms of socio-political organisation using the large-scale cross-cultural database of CERS developed in Chapter 2.

Chapter 6 uses the archaeological and historical data developed in Chapter 2 to assess the role of CERS in the cooperative systems necessary for the emergence of the world's ten, first-generation states – as defined by Flannery and Marcus (2012) – before testing the prediction that literacy and increasingly complex forms of socio-political organisation interact in a complex positive feedback loop (Barton and Hamilton 1997; Gaur 1984; Lock and Gers 2012). The evidence presented in Chapter 6 offers widespread evidence in favour of this prediction.

These findings contribute greatly to our understanding of one of the greatest puzzles for the biological and social sciences (Boyd and Richerson 2006; Burnham and Johnson 2005; Colman 2006; Gintis et al. 2005; Henrich and Henrich 2006; Norenzayan 2013; Turchin 2013b) – explaining the evolution and maintenance of human cooperative behaviour (Colman 2006: 774), especially in large groups of nominally-related individuals (Anderson 1991; Mullins et al. 2013; Turchin 2007, 2013b). The solutions to the most pressing real-world problems faced by groups, organisations, societies, and humanity itself – problems including the maintenance of cooperation in work settings (Frey and Osterloh 2002), the protection of the legitimacy of civil and criminal law and the state (Tyler and Huo 2002), the resolution of disputes between ethnic groups, states, and multinational corporations (Simmons 1998; Tyler 2010), and the minimisation of both the causes and ill-effects of climate change – rest on our ability to understand and, ultimately, motivate human cooperation.

The major findings and limitations of this thesis are discussed in a wider context before the general conclusions and suggestions for further study are presented in Chapter 7.

In summary, this thesis evaluates the following predictions:

1. The process of routinization and the emergence of increasingly complex forms of socio-political organisation facilitated the emergence of literate behaviours around the globe (Chapter 3),
2. Literate behaviours were been culturally transmitted principally through the spread of classical religions (Chapter 4),
3. The products of literate behaviours, CERS, facilitated the levels of cooperation necessary for the emergence of large-group cooperation and increasingly complex forms of socio-political organisation (Chapter 5), and
4. Literate behaviours and increasingly complex forms of socio-political organisation interact within a complex positive feedback loop (Chapter 6).

The following chapter outlines the methods used to collect the data necessary to evaluate these predictions.

Chapter 2

Methodology

2.1 Introduction

The evidence and argument offered in this thesis relies on two principal datasets. The first section of this chapter details the construction of the first dataset, a large-scale cross-cultural ethnographic database of complex external representational systems (CERS). The second section of this chapter discusses the construction of the second dataset – historical and archaeological data for two sets of societies, *i.e.*, societies in which literate behaviour emerged independently and societies in which human cooperation at the level of the state emerged independently.

2.1.1 Towards the construction of a large-scale cross-cultural database of CERS

To provide the data necessary to (1) provide a cultural evolutionary explanation of the history of literate behaviour and (2) investigate the potential relationship between literate behaviour and the cultural evolution of large-group human cooperation and complex forms of socio-political organisation, a database of CERS must be compiled systematically for a large sample of societies drawn from around the globe[38]. By cataloguing systematically the cross-cultural variation in

[38] This method of large-scale cross-cultural comparison is often called the 'holocultural' method. The holocultural method has been used extensively across the social sciences since the early 1970s (Atkinson and Whitehouse 2011; Brant 1972; Broude 1980; Carroll 1978; Deaner and Smith 2013; Dickson et al. 2005; Ember and Ember 1995, 2009; Ember and Levinson 1991; Ember et al. 1991; Ember 1983, 1990, 1988; Fox and Gingrich 2002a; Gray and Ellington 1984; Gray and Wolfe 1980, 1981; Gray 1980, 1984, 1996; Jankowiak et al. 2002; Koch et al. 1975; Lagacé 1974, 1979; Levinson

CERS, this database provides the most objective and generalizable empirical account of the cross-cultural patterning and distribution of literate behaviour that is currently available. The results of a systematic cross-cultural ethnographic survey in which the sample is designed to minimise the much-discussed effects of the problem of non-independence between data points (*i.e.*, Galton's problem) (Currie 2013; Denton 2007; Dobson and Gelade 2012; Eff 2004; Ember and Otterbein 1991; Herkenrath 2002; Lagacé 1979; Mace et al. 1994; Murdock 1949; Naroll 1965, 1967, 1965; Nettle 2009; Pollet et al. 2014; Ross and Homer 1976; Tylor 1889) can supplement the available comparative historical, archaeological, palaeographic, and grammatological and palaeographic data, which suffers from both sampling biases[39] and a paucity of systematic cross-cultural data on literate behaviour (Baines 1983; Postgate et al. 1995; Powell 2012). This cross-cultural ethnographic database of CERS allows us to test hypotheses statistically while overcoming many of the biases and limitations that have undermined the reliability of previous scholarship.

The construction of a large-scale database of CERS presents several challenges. An exhaustive study of the cross-cultural patterning and distribution of literate behaviour would require the development of a comprehensive typology of literate behaviours. As historians and anthropologists have discussed at length (*e.g.*, (Barton et al. 2005), literate behaviour encompasses a wide variety of activities.

and Malone 1980; Levinson 1977, 1978, 1979, 1990; Malpass 1979; Masumura 1977a, 1977b, 1977b; Munroe and Munroe 1991; Otterbein 1978; Quinlan and Quinlan 2007; Schaefer and Levinson 1977; Shalinsky and Glascock 1988; Sipes 1973; Somersan 1984; Thornhill 1991; Veneziano 2000; Wagner and Davis 1978; Winkelman 1986a, 1986b, 1990; Wolfe and Gray 1981). Holocultural research begins by operationalising the traits under investigation, and creating a codebook that specifies how to identify these traits in the ethnographic source material. Holocultural research then adopts a representative, global sample of cultures in which to test for the social and behavioural hypotheses statistically (Levinson, 1978; Otterbein, 1969; Schaefer & Levinson, 1977).

[39] There are numerous factors that contribute to sampling bias in studies of the material record. Archaeologist Lewis Binford (1964) explores several common biases, including the following: bias resulting from limited access (*e.g.,* a land-owner refuses access to a site in a sample), biases towards areas of popular interest over time (*e.g.,* burial and platform mounds), and biases towards material artefacts over 'cultural features'. Biases are also present toward sites in more visible, stable, or accessible areas and toward more long-lasting materials and features (*e.g.,* writing on clay tablets versus more perishable materials such as paper).

What humans do with literacy varies widely – ranging from everyday activities such as reading a newspaper, bus timetable, or recipe to rare or once-in-a-lifetime activities such as submitting a ballot or completing a birth registry. Individuals in particular times, places, and social settings practice literate behaviour in a plurality of ways. The functions of literate behaviour are also diverse and wide-reaching (Halverson, 1992a; Whitehouse, 2000; Trigger, 2004; Barton & Hamilton, 1997).

Providing a comprehensive map of the large number of cultural traits associated with literate behaviour cross-culturally is not feasible for a single study because it would be constrained greatly by the inherent partiality of the ethnographic record and would require copious amounts of time. Instead of attempting to examine literate behaviour *per se*, this study limits its scope to a relatively small number of the products of literate behaviours (*i.e.,* CERS) such as standardised scripts or timekeeping and calendrical systems, representing a first step towards an empirical account of the cross-cultural patterning and distribution of literate behaviour. Before describing the codebook, methods, hypotheses, and sample for the current study, this chapter will first describe the limitations and applications of existing cross-cultural data on literate behaviour.

2.1.2 Existing empirical cross-cultural ethnographic data on literate behaviour

The Standard Cross-Cultural Sample (SCCS) is a quantitative ethnographic database of 186 cultures originally developed by Murdock and White (1969) to tackle Galton's Problem or the problem of non-independence between cross-cultural data points. Among the hundreds of variables contained in the SCCS, one contains data relevant to the study of literacy — Variable 149 'Writing and Records'. This single variable contains the only large-scale empirical cross-cultural data on CERS

currently available. The coding scheme for the variable ‘Writing and Records’, which is first presented in Murdock and Provost (1973: 379–380), is found in Table 2.1.

Table 2.1. Coding scheme for SCCS variable 149 ‘Writing and Records’ from Murdock and Provost (1973: 379–380)

Code	Description
0	Writing, records, and mnemonic devices in any form are lacking or unreported.
1	Writing and significant records are lacking but the people employ mnemonic devices, *e.g.*, simple tallies.
2	The society lacks true writing but possesses significant nonwritten records in the form of picture writing, quipus, pictorial inscriptions, or the like.
3	The society has an indigenous system of writing but lacks any significant accumulation of written records, or alternatively has long used the script of alien people.
4	The society has an indigenous system of true writing and possesses written records of at least modest significance.

After highlighting some of the inadequacies and applications associated with the SCCS variable ‘Writing and Records’, this chapter will propose a new codebook and novel methodologies for the cross-cultural analysis of literate behaviour.

2.1.3 Criticisms of SCCS Variable 149 ‘Writing and Records’

Several studies rely heavily on the variable ‘Writing and Records’ from the SCCS, including Atkinson and Whitehouse (2011), Sanderson and Roberts (2008), and Basu et al. (2009). The former two studies make use of SCCS data to test various predictions regarding the effects of writing on religious complexity and standardisation using large, diverse sampling strategies, while the latter tests hypotheses related to the role of transactional recordkeeping in the evolution of impersonal exchange and vocational specialisation. While the ‘Writing and Records’ variable has been employed in a number of important cross-cultural studies, it is not

adequate for a systematic cross-cultural study of (1) the history of literate behaviour and (2) the potential relationship between the cultural evolution of literate behaviour and the emergence of large-group human cooperation and complex forms of socio-political organisation.

First, it is not precise; by measuring the degree to which a given society has CERS on a five-point ordinal scale, 'Writing and Records' loses precision. To gain precision, each element in the variable (*i.e.*, mnemonic devices such as simple tallies; nonwritten records such as picture writing, quipus, pictorial inscriptions; indigenous systems of writing; and bodies of written records) should be coded independently as present, absent, or not reported. Second, 'Writing and Records' represents a limiting and now-defunct developmental framework of the cross-cultural evolution of CERS. For example, money and other transactional records, which are likely to have contributed to the routinization of pre-literate sign systems in Mesopotamia, for example, are excluded from 'Writing and Records', while mnemonic devices such as simple tallies are included. Similarly, calendrical systems, which may have contributed to script emergence in Mesoamerica (Chapter 3), are excluded from the variable. Third and most importantly for the purposes of the current study, this variable does not measure the CERS that grammatologists, palaeographers, classicists, archaeologists, and anthropologists have most closely associated with either the origins of writing systems or indices of societal cooperation and socio-political complexity. In an effort to overcome many of the criticisms to which the SCCS variable 'Writing and Records' is vulnerable, the current study combines insights garnered from a wide array of disciplines to propose a new

codebook to analyse the cross-cultural patterning and distribution of literate behaviour[40].

2.1.4 The present study

2.1.4.1 Data sources and data collection procedures

Cross-cultural ethnographic data for this thesis were gathered by analysing a large number of ethnographic reports, grammatological accounts, encyclopaedia of writing systems, and other, reputable cross-cultural ethnographic data sources for a large sample of societies.

The primary data source for this database is the full-text ethnographic reports archived in the Human Relations Area Files (HRAF), an ethnographic archive and search engine that contains approximately 1,000,000 pages of ethnographic materials from thousands of original ethnographies and covers societies of widely varying complexity, from simple hunter-gatherer bands to traditional kingdoms and modern states. The HRAF has been the unparalleled source for cross-cultural research for over 50 years and has been employed frequently by researchers in many disciplines, including social psychology[41], archaeology[42], medical sciences[43],

[40] Despite the conceptual and methodological improvements of this novel database, it is important to measure the statistical relationship between the now-obsolete SCCS variable 'Writing and Records' and the novel dataset to provide a measure of the SCCS variable's veracity and, therefore, its accuracy in previous research, such as Atkinson & Whitehouse (2011), Sanderson & Roberts (2008), and Basu, Kirk & Waymire (2009), as well as its utility for future research. There was a moderate positive correlation between the SCCS variable 149 'Writing and Records' and an aggregate CERS variable derived from the novel dataset for a sub-sample of cultures ($r_s(33)=.418$, $p<.05$), indicating broad complementarity in results across datasets for this aggregate variable.

[41] *E.g.,* Russell (1991): 'Culture and the Categorization of Emotions'; Watson (1973): 'Investigation into deindividuation using a cross-cultural survey technique'; Hupka et al. (1999): 'Universal Development of Emotion Categories in Natural Language'; Levinson (1981): 'Physical punishment of children and wifebeating in cross-cultural perspective'; Zern (1969): 'The Relevance of Family Cohesiveness as a Determinant of Premarital Sexual Behavior in a Cross-Cultural Sample'; Barber (1998): 'Ecological and psychosocial correlates of male homosexuality - A cross-cultural investigation'; Carpenter (2000): 'Effects of cultural tightness and collectivism on self-concept and causal attributions'; Raybeck and Ngo (2011): 'Behavior and the Brain: Mediation of Acquired Skills.'

[42] *E.g.,* Shay (1985): 'Differentiated treatment of deviancy at death as revealed in anthropological and archeological material'

primatology[44], anthropology[45], linguistics[46], sociology[47,48,49,50,51], and economics[52,53]. Additional cross-cultural data sources included Levinson's 10-volume *Encyclopaedia of World Cultures* (Levinson and Bennett 1992; Levinson and Hays 1991; Levinson and Hockings 1992a, 1992b; Levinson and O'Leary 1991; Levinson and Wilbert 1994; Levinson 1996; Levinson et al. 1994, 1995a, 1995b), the *Encyclopaedia of World Cultures: Supplement* (Skoggard et al. 2002), *The World's Writing Systems* (Bright and Daniels 1996), *The Blackwell Encyclopaedia of Writing Systems* (Coulmas 1999), *Ethnologue: Languages of the World* (Lewis and others 2009), and

[43] *E.g.,* Nelson et al. (2000): 'Child care practices in nonindustrialized societies'; Morse et al. (1990): 'Initiating breastfeeding: a world survey of the timing of postpartum breastfeeding'; Pelto et al. (2010): 'Premastication: the second arm of infant and young child feeding for health and survival?'; Rogoff et al. (1975): 'Age of Assignment of Roles and Responsibilities to Children: A Cross-Cultural Survey'; Parman (2002): 'Lot's wife and the old salt: Cross-cultural comparisons of attitudes toward salt in relation to diet.'

[44] *E.g,* Kennedy (2005): 'From the ape's dilemma to the weanling's dilemma: early weaning and its evolutionary context'

[45] Consider the following: McCall (2009): 'Studying Cultural Evolution at the Tips: Human Cross-cultural Ecology'; Dickson et al. (2005): 'Where do you go when you die? A cross-cultural test of the hypothesis that infrastructure predicts individual eschatology'; Owens (2008): 'A Case Study of the eHRAF Collection of Ethnography Database in the Middle East'; Kline and Boyd (2010): 'Population size predicts technological complexity in Oceania'; Barone (2000): 'Is the siesta an adaptation to disease? A cross-cultural examination'; Sosis et al. (2007): 'Scars for war: evaluating alternative signaling explanations for cross-cultural variance in ritual costs'; Beals et al. (1984): 'Brain Size, Cranial Morphology, Climate, and Time Machines [and Comments and Reply]'; McGrath (1991): 'Biological impact of social disruption resulting from epidemic disease'; Ember and Ember (1994): 'War, Socialization, and Interpersonal Violence: A Cross-Cultural Study'; Gray and Young (2011): 'Human-Pet Dynamics in Cross-Cultural Perspective'; Burbank (1987): 'Female Aggression in Cross-Cultural Perspective'; Huber and Breedlove (2007): 'Evolutionary theory, kinship, and childbirth in cross-cultural perspective'; Moore and Cassidy (2007): 'Female status predicts female mate preferences across nonindustrial societies'; Moritz et al. (2011): 'Social Risk-Management Strategies in Pastoral Systems: A Qualitative Comparative Analysis'; Huber et al. (2011): 'New Cross-Cultural Perspectives on Marriage Transactions'; Chick and Shen (2011): 'Leisure and Cultural Complexity'; Shalinsky and Glascock (1988): 'Killing infants and the aged in nonindustrial societies: Removing the liminal'; Bagwell (2006): 'Specialization, social complexity and vernacular architecture: A cross-cultural study of space construction'

[46] See Schrauf (1999): 'Mother tongue maintenance among North American ethnic groups'

[47] See Petersen et al. (1982): 'Social Structure, Socialization Values, and Disciplinary Techniques: A Cross-Cultural Analysis'

[48] See Olivero (1990): 'Research notes—A new look at the evolution of police structure'

[49] See Masumura (1977b): 'Social Integration and Suicide: A Test of Durkheim's Theory'

[50] See Caulkins and Peters (2002): 'Grid-group analysis, social capital, and entrepreneurship among North American ethnic groups'

[51] See Moor et al. (2009): 'Analogical Reasoning and the Content of Creation Stories Quantitative Comparisons of Preindustrial Societies'

[52] See Anderson and Swimmer (1997): 'Some empirical evidence on property rights of first peoples'

[53] See Hull and Bold (1994): 'Hell, Religion, and Cultural-Change'

'Omniglot - writing systems and languages of the world' (Ager 2012) (see Appendix 3 for a complete bibliography of the ethnographic reports cited).

After relevant ethnographic data in the HRAF and additional ethnographic data sources were identified and extracted, tens of millions of words were analysed using standard cross-cultural textual content analysis techniques, coding procedures (Ember and Ember 2009), and large-scale qualitative data analysis techniques developed for this thesis. In all, sections from 2,018 discrete ethnographic reports were identified and analysed for the presence or absence of each of the CERS under investigation in this section. Existing and independently-coded ritual- and societal-level measures were taken from the 'Ritual Database' (RD) by Atkinson and Whitehouse (2011)[54], the Ethnographic Atlas (EA) by Murdock (1967), and the Standard Cross-Cultural Sample (SCCS) by Murdock and White (1969). These additional measures allowed this study to investigate the relationship between individual CERS and target variables. The additional variables used in the current study are 'ritual frequency' (RD), 'dysphoric ritual arousal' (RD), 'euphoric ritual arousal' (RD), 'recitation of texts' (RD), 'classical religion' (RD), 'belief in moralising high god(s)' (EA), community size (EA), regional jurisdictional hierarchy (EA), agricultural intensity (EA), and eighteen 'indices of societal cooperation' (SCCS), as identified and discussed by Johnson (2005). The codebooks for each of these variables can be found in Appendix 2.

2.1.4.2 Cross-cultural ethnographic sample

The sample for this cross-cultural database was derived from the Probability Sample Files (PSF), which is a stratified random sample of 60 non-industrialised societies from around the globe (Naroll 1967). The PSF is a representative sample of

[54] An empirical examination of 645 religious rituals from 74 cultures drawn from around the globe

human societies found among the societies cataloged in the Human Relations Area Files (HRAF). The PSF was sampled from the HRAF by stratifying the globe into 60 culture areas and then randomly selecting one case from each culture area. This sampling technique allowed the PSF to minimise the effects of what is popularly called Galton's Problem or the problem of non-independence between data points (Ember and Ember 2009; Naroll 1967). Like another, large-scale cross-cultural database by Atkinson and Whitehouse (2011), this sample supplemented the PSF with well-attested and largely unrelated eHRAF cultures from world regions that were not adequately represented in the PSF or did not contain enough relevant information. Ultimately, this sampling procedure produced a sample pool of 74 eHRAF societies (see Figure 2.1). The relationship between the societies sampled in the PSF and other large-scale cross-cultural samples, including the SCCS (Murdock and White 1969), the Atlas of World Cultures (Murdock 1981), and the Ethnographic Atlas (Murdock 1967) is presented in Figure 2.2. Like all synchronic cross-cultural surveys, each society sampled was 'pin-pointed' to a single time period or an 'ethnographic present' within the temporal range of the ethnographic materials available in the HRAF (Ember and Ember 2009: 14; Swanson 1980). The 74 societies sampled, as reported in the HRAF, are presented in Appendix 3.



Figure 2.1. Geographic locations of societies sampled. Map by Benjamin Mullins.

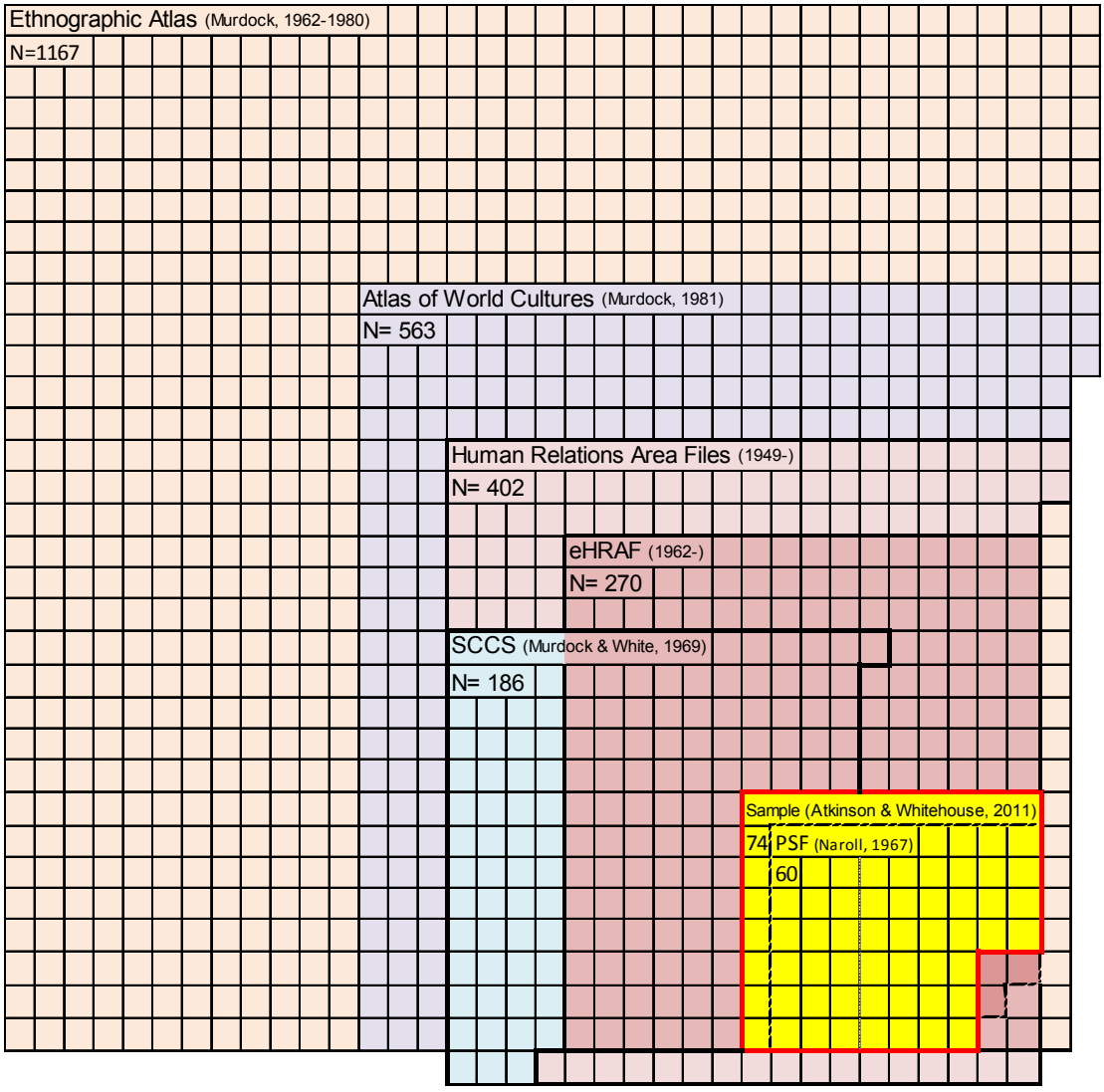


Figure 2.2. Co-occurrence of societies sampled in prominent large-scale cross-cultural surveys. Each cell represents a single culture group, as defined by the respective surveys. The size of the respective surveys decrease from the top left (*i.e.,* the Ethnographic Atlas) to the bottom right (*i.e.,* the PSF). The sample of the current ethnographic survey, which overlaps with the SCCS is highlighted in yellow and framed in red.

2.1.4.3 Cross-cultural ethnographic data coding procedure

Using standard coding procedures (Ember and Ember 2009) and large-scale qualitative data analysis techniques developed for this thesis, the presence or absence of the seven key CERS currently under investigation was assessed by conducting a textual content analysis of the eHRAF and other reputable cross-cultural data sources. Relevant ethnographic material was extracted and coded using standard structured questionnaire practices (see Appendix 2 for the codebook

of CERS). The eHRAF was searched for the presence or absence of the target variables in two phases. In the first phase, the current study took advantage of relevant subject codes available in the eHRAF. Every paragraph contained in the eHRAF has been coded for one or more of over 700 numbered subjects (*e.g.*, 132 Climate, 262 Diet, 671 Legal Norms). In total, 67 subject codes were identified for investigation (see Appendix 1), resulting in the extraction and analysis of 142,771 paragraphs in 1,917 distinct documents across 74 HRAF-societies. In addition, 32 targeted keyword searches were conducted, resulting in the extraction and analysis of an additional 64,335 paragraphs across the 74 societies sampled (see Appendix 2 for search syntax). The additional cross-cultural ethnographic data sources, as identified above, were investigated for the presence or absence of the target CERS by searching each by culture names, as listed in the eHRAF and the catalogue of ethnonyms provided by the *Encyclopedia of World Cultures: Supplement* (Skoggard et al. 2002).

The presence or absence of the specific trait under investigation was coded for each society in the sample before the resulting cross-cultural data were analysed statistically.

2.1.4.4 Codebook

This cross-cultural analysis focuses on the presence or absence of seven key CERS: (1) standardised scripts, (2) standardised calendrical records and time-keeping systems, (3) written literature, (4) codified laws and punishments, (5) criminal records, (6) transactional records, and (7) printing systems. Appendix 2 contains the codebook employed in this study, while Appendix 3 contains the ethnographic excerpts used to code the material analysed.

2.1.4.5 Descriptive statistics of cross-cultural ethnographic dataset

Of the 74 societies were investigated; the majority (54%) possessed at least one CERS. 18 societies possessed standardised scripts (24.3%), 40 possessed standardised calendrical or timekeeping systems (54.7%), 17 possessed written literature (22.9%), 15 possessed codified laws and punishments (20.3%), 13 possessed criminal records (18.0%), 20 possessed transactional records (28.1%), and seven possessed printing systems (9.7%) (see Table 2.2). When aggregated into an ordinal variable, six societies possessed all seven CERS (8.1%), six possessed six systems (8.1%), three possessed five systems (4.0%), two possessed four systems (2.7%), five possessed two systems (6.7%), 18 possessed one system (24.3%), and 34 did not possess any of the CERS under investigation (45.9%).

Table 2.2. Descriptive statistics of CERS ethnographic dataset

	n	No. Present	% Present
Standardised Script	74	18	24.3
Standardised Calendrical and Timekeeping	73	40	54.7
Written Literature	74	17	22.9
Codified Laws and Punishments	74	15	20.3
Criminal Records	72	13	18.0
Transactional Records	71	20	28.1
Printing	72	7	9.7

2.1.4.6 Overview of cross-cultural ethnographic methods

A database of the cross-cultural patterning and distribution of target CERS was developed using a representative sample of cultures drawn from around the globe. Inspired by Atkinson and Whitehouse (2011), who constructed a large-scale quantitative comparative analysis of ritual frequency and arousal, this thesis makes use of existing ritual- and society-level measures to investigate literate behaviour

and its products (CERS). In sum, the research methods employed in this thesis produces, for the first time, a reliable and representative cross-cultural catalogue of literate behaviour.

2.2 Cross-cultural archaeological and historical data collection

This section outlines the methods employed in the construction of this thesis' second principal dataset – historical and archaeological data for two sets of societies, *i.e.*, societies in which literate behaviour emerged independently and societies in which human cooperation at the level of the state emerged independently.

George P. Murdock, who initiated both the Cross-Cultural Survey at Yale University that later became the Human Relations Area Files (HRAF) as well as the ambitious 'Society For Cross-Cultural Research' at the University of Pittsburgh, often taught his students that the 'cross-cultural comparison of decontextualized traits concerning large numbers of societies around the world is […] merely a quick way to discover robust patterning in sociocultural behaviour that requires closer study' (Trigger 2003: x). When investigating smaller samples of societies, such as those in which literate behaviours or state-level polities emerged independently, Murdock continued, 'data must be considered within a more contextualized framework if researchers are to understand their significance'[55,56] (Trigger 2003: x). Moreover, as noted by Carol and Melvin Ember (Ember and Ember 1997: 2), the 'ethnographic

[55] Bruce G. Trigger studied the theory and methods of cross-cultural comparison under George P. Murdock and Clellan Ford at Yale University from 1963 to 1964.

[56] Ember and Ember (2009) make a similar point saying, 'Cross-culturalists do not believe that cross-cultural research is the only way to test theory about cultural variation. […] Most cross-culturalists believe in the multimethod approach to testing theory; that is, they believe that worldwide cross-cultural tests should be supplemented (when possible and not impossibly costly) by studies of variation within one or more particular field sites (comparisons of individuals, households, communities) as well as within particular regions (*e.g.*, North America, Southeast Asia). Theories may also be testable experimentally and by computer simulations, as well as by examining historical and cross-historical data'.

record *by itself* cannot imply anything about the prevalence of events in the past' because of the pronounced effects of cultural contact and transmission. This thesis responds to these calls by submitting cross-cultural archaeological and historical data that were gathered by analysing approximately one hundred primary archaeological reports, palaeographic accounts, and ethnohistorical materials. Secondary sources are also frequently cited on the grounds that their authors' evaluations of the existing primary data are more accurate than my own.

2.2.1 Cross-cultural archaeological and historical societies investigated

Two sets of societies were analysed – societies in which literate behaviours emerged independently (N=2; Chapter 3) and societies in which large-scale, complex human cooperation emerged independently (N=10; Chapter 6).

2.2.2 The independent emergence of literate behaviours around the globe

Two of the best-attested examples of societies in which literate behaviours emerged (Mesopotamia *ca.* 2400 B.C. and China *ca.* 1250 B.C.) were investigated. The early forms and functions of literate behaviours and their immediate predecessors were surveyed to contextualise the results of a large-scale cross-cultural survey.

2.2.3 The independent emergences of the state-level polities around the globe

The following ten examples of independent state emergence, as catalogued recently by Flannery and Marcus (2012), were investigated: Middle Uruk Period of southwest Iran (Susiana Plain), Late Uruk (Jemdet Nasr) Period of southern Iraq, Dynasty 0 of Egypt, Zapotec State of the Mexican highlands (Oaxaca Valley), Moche State of Peru, Early Maya Kingdom of Calakmul of Guatemala (Maya lowlands),

Hunza of the Pakistani-Kashmir borderlands, Merina of Madagascar, Hawai'i (Kamehameha Kingdom), and Zulu of southern Africa (Shaka).

Using the materials available to account for patterned similarities and differences among 'first-generation' states, several variables were collected in this survey for each polity during its respective transition into a state-level socio-political organisation. Information was compiled for each of the ten first-generation states regarding (1) the time-period of state emergence, (2) the population size at state emergence, (3) the area of the polity at state emergence, and (4) the political and settlement hierarchy at state emergence. When available, data on the population density of the major urban centres were provided.

In addition to the social morphological variables listed above, this archaeological and historical survey investigated the presence or absence as well as the functional applications of the seven CERS under investigation in this thesis — standardised scripts, standardised calendrical and timekeeping systems, written literature, codified laws, criminal records, transactional records, and printing systems. The highly-varied functional applications of these CERS in first-generation states were recorded, including their role as (1) administrative records, which functioned to organise and track the economic, military, social, and political exploits of early state administrative bodies, (2) royal testaments, which often functioned to commemorate the pursuits of royalty, and (3) religious and divinatory records, which often functioned as a guide for the correct performance of rituals and as a mechanism for legitimating and protecting royal ideological power networks (Trigger 2003).

This archaeological and historical survey, presented in Chapter 6, characterised the diversity of literate behaviour and analysed the role that they may

have played in the emergence of the centralisation, hierarchy, and power networks necessary for the formation of ten, first-generation states. The resulting data were used to evaluate the prediction that literate behaviours and increasingly complex forms of socio-political organisation interact in a complex positive feedback loop (Barton and Hamilton 1997; Gaur 1984; Lock and Gers 2012).

Chapter 3

Towards an evolutionary history of the emergence of literate behaviour

3.1 Introduction

Despite over a century of scholastic attention, pervasive theories[57] of the origins of literate behaviour are limited by five crucial problems. These problems include: the adoption of the 'Standard View' of technology (Pfaffenberger 1992); the questionable conclusion that literate behaviour is the result of foresightful and agential invention (Smith 2008, 2013); simplistic and widely-discredited evolutionary explanations (Bright and Daniels 1996; Chrisomalis 2009; Coulmas 2009; Powell 2012; Trigger 1998); discrepancies between theoretical predictions and recent archaeological and palaeographic findings (Bagley 2004; Cooper 2004; Houston 2004a, 2004b; Johnson 2004; Mithen 2004; Smith 2008, 2013; Trigger 2004; Whitehouse and Hodder 2010), and; limited methodological scope and rigour. This chapter demonstrates how these major problems can be overcome and submits argument and evidence in favour of a novel theory of the emergence of literate behaviours around the globe.

[57] The pervasive and prominent theories of the emergence of literate behaviour under review here include those forwarded by Lewis Henry Morgan (1877), Isaac Taylor (1883), Ignace Gelb (1963), Marvin Powell (1981), Geoffrey Sampson (1985), William Boltz (1994), Denise Schmandt-Besserat (1996), Stephen Houston (2004b), Henry Rogers (2004), Haicheng Wang (2007), and Christopher Woods (2010).

3.1.1 The five major limitations of pervasive theories of the emergence of literate behaviour

3.1.1.1 The ‘Standard View’ of technological evolution

Prominent theories of literate behaviour’s emergence offered by historians, philologists, palaeographers, grammatologists, classicists, anthropologists and archaeologists suffer from the ‘Standard View’ of technological evolution (Pfaffenberger 1992: 439). The ‘Standard View’ contends that unspecified human or societal ‘necessities’ drive the invention of new technologies (Smith 2008) and does not consider the complex and gradual processes in which ‘people are shown to be the active appropriators, rather than the passive victims, of transferred technology’ (Pfaffenberger 1992). For example, Nicholas Postgate and others conclude that ‘the stimulus to move from individual symbols or emblems to a coherent writing system is more likely to have come from the needs of administration than from a wish to disseminate propaganda’ (Postgate et al. 1995: 479). Jerrold Cooper (2004: 78) contends that literate behaviours in China were ‘sparked by the organizational needs of a growing Shang polity’. Similarly, Haicheng Wang (2007: iii) endeavours to understand ‘how the ideological and administrative needs of the early state were met’ by writing. Finally, Stephen Chrisomalis (2009: 63) finds that ‘[a]lthough the *potential* for representing language and numbers exists in all humans, it is realized only when there is sufficient need and interest to do so’ (emphasis in the original).

George Basalla (1988: 6) parodies this need-driven account of technological evolution, saying that people need water

> so they dig wells, dam rivers and streams, and develop hydraulic technology. They need shelter and defense, so they build houses, forts, cities and military machines […]. They need to move through the environment with ease, so they invent ships, chariots, carriages, bicycles, automobiles, airplanes, and spacecraft.

According to the 'Standard View' of technological evolution, 'there are universal human needs, and for each there is an ideal artefact […] and to the extent that anyone bothers to look, it will be found, and inevitably adopted (although it might be resisted for a time)' (Pfaffenberger 1992: 496).

3.1.1.2 The foresightful and agential invention of literate behaviour

The origins of literate behaviour are frequently and erroneously attributed to the actions of the 'individual genius' (*e.g.*, Wang 2007: 363), inventor (*e.g.*, Boltz 1994; Diamond 1999; Michalowski 1994; Powell 1981: 422; Pyysiäinen 1999; Stein 2009; Woods 2010), or heroic revolutionary (*e.g.*, Houston 2004b: 235). According to Adam Smith (2008: 4), 'writing is often described as though it were an unfettered exercise of the will by a first generation of scribes, who were clear about their goals and designed writing systems to achieve them'[58]. For example, Haicheng Wang (2007: 363) concludes that an 'individual genius was involved in its [*i.e.*, writing's] invention'. Marvin Powell (1981: 422) suggests that writing was invented by a Sumerian-speaking citizen of Uruk and finds, 'it was an individual I have no doubt, certainly not a committee, and not a slow accretion of sign after sign from generation to generation; there is not a single instance in the history of writing for a communal evolutionary invention of a script. Individuals invent.' Similarly, William Boltz (1994: 38–39) forwards, 'writing is an invention […] the result of a momentary occurrence. In this case, the moment was when someone realized that a graph or sign could stand for a […] meaningful unit of language'. According to Piotr Michalowski (1994: 54), literate behaviour had no 'direct "evolutionary precursors" [and] was a completely new invention.' For Stephen Chrisomalis (2009: 63), '[w]riting systems

[58] See Smith (2013) for a more detailed discussion of the role of agency in the emergence of literate behaviour.

and numerical notation systems do not simply *emerge;* rather, they are *invented* by human beings in specific sociohistorical circumstances and for specific purposes […] (emphasis in the original).' Finally, for Stephen Houston (2004b: 235) writing is the result of a 'moment of revelatory creation'.

3.1.1.3 Simplistic and widely-discredited evolutionary explanations

As summarised by Barry Powell (2012: 1), several 'popular confusions' in the study of writing persist, such as 'the illusion that the *purpose*, *origin*, and *function* of writing is to represent speech, the common supposition that writing comes from pictures, [and] the misapprehension that writing necessarily evolves towards the goal of finer phonetic representation' (emphasis in the original). These confusions are largely the consequence of the shortcomings of early and prominent theories of the origins and functions of literate behaviour, such as those offered by Morgan (1877), Taylor (1883), and Gelb (1963), who offer simplistic and now widely-discredited evolutionary explanations of literate behaviour's emergence, early development, and elaboration over time (Bright and Daniels 1996; Chrisomalis 2009; Coulmas 2009; Trigger 1998). For example, Lewis Henry Morgan (1877) notes that the phonetic alphabet was the principal invention that distinguished civilisation from upper barbarism in his model of progressive evolutionism[59]. Taylor (1883) offers the overly simplified tripartite typology of writing systems – logographic, syllabic, alphabetic – 'that has dominated grammatology for more than a century' (Daniels 1996b: 6).

[59] According to Lewis Henry Morgan (1877: 10), '[a]ll such tribes, then, as never attained to the art of pottery will be classed as savages, and those possessing this art but who never attained a phonetic alphabet and the use of writing will be classed as barbarians.' Morgan (1877: 31) continued, '[t]he achievements of civilized man, although very great and remarkable, are nevertheless very far from sufficient to eclipse the works of man as a barbarian. As such he had wrought out and possessed all the elements of civilization, excepting alphabetic writing. [...] The use of writing, or its equivalent in hieroglyphics upon stone, affords a fair text of the commencement of civilisation. Without literary records neither history nor civilization can properly be said to exist. The production of the Homeric poems, whether transmitted orally or committed to writing at the time, fixes with sufficient nearness the introduction of civilization among the Greeks.'

Chapter VI of *A Study of Writing* by the enormously influential Ignace Gelb[60] (1963) presents a monogenetic and unilinear evolutionary sequence of literate behaviour's emergence, development, and elaboration over time. In this widely-cited chapter, Gelb (1963) suggests that 'true' writing only originated once, in Mesopotamia, before being transmitted and incorporated throughout the Old World. Gelb (1963: 201) also discusses the steps necessary for the 'unidirectional' development of writing systems before concluding that 'writing must pass through the stages of logography, syllabography, and alphabetography in this, and no other order'.

3.1.1.4 The challenges posed by recent archaeological and palaeographic findings

Fourth, existing theories of the origins of literate behaviours fail to account for recent archaeological and palaeographic findings (Bagley 2004; Cooper 2004; Houston 2004a, 2004b; Johnson 2004; Mithen 2004; Smith 2008, 2013; Trigger 2004; Whitehouse and Hodder 2010) and recent studies of human visual cognition and memory (Changizi and Shimojo 2005; Changizi 2010; Changizi et al. 2006; Dehaene and Cohen 2011; Dehaene 2009; Dehaene et al. 2010; Platt and Adams 2012; Rogers 2004). These studies indicate that the world's first literate behaviours and their early functional applications may have been the result of several previously unappreciated factors. Moreover, existing theories have not taken into account the varied technological, material, and historical environments in which standardised scripts arose (Smith 2008) and their diverse functional applications once present (Halverson 1992a; Trigger 2004; Whitehouse 2000). Several, including Postgate et

[60] As noted by 'grammatologist' Peter Daniels (1996b: 3), [t]he word *grammatology* was adopted by I. J. Gelb, author of the first linguistically sound theoretical study of writing systems (1952), to refer — in preference to *graphology*, which was already used for the practice of reading a person's character by handwriting analysis — to the science he pioneered. (The term was subsequently taken over, with acknowledgement, in a very difference sense by the philosopher Jacques Derrida.) The name parallels *phonology* and *morphology*, the branches of linguistics that study sounds and meaningful units' (emphasis in the original).

al. (1995), Bagley (2004) and Wang (2007), work from the assumption that the 'administrative hypothesis' can be gainfully extended to explain the emergence of literate behaviours around the globe. The 'administrative hypothesis' states that '[t]he growing intensity and anonymity of utilitarian administrative procedures' brought about the emergence of literate behaviours and is based on the archaeological and palaeographic evidence from Mesopotamia (Bagley 2004; Postgate et al. 1995), but has not shown much promise for explaining for the independent emergence of literate behaviours outside of this region (Smith 2008: 17). As noted by Mayan palaeographer Stephen Houston (2004b: 234), 'the argument becomes forced for other areas where sampling problems and perished records are held to explain the lack of uniform support for an administrative hypothesis'.

3.1.1.5 Inadequate data and limited methodological scope and rigour

While many have attempted to provide an authoritative history of literate behaviour (Coulmas 1999; DeFrancis 1989; Gaur 1984; Gelb 1963; Rogers 2004; Sampson 1985; Schmandt-Besserat 1996; Taylor 1883), previous scholarship has been unable to do so because of its limited methodological scope and rigour. Some, such as Goody and Watt (1963) and Goody (1968), reach global conclusions after offering evidence from a single case or a non-representative sample of cases. As noted above, others, such as Morgan (1877), Taylor (1883), and Gelb (1963), offer simplistic and widely discredited monogenetic evolutionary explanations or unilinear evolutionary sequences of literate behaviour's emergence, development, and elaboration over time (Bright and Daniels 1996; Chrisomalis 2009; Trigger 1998). When cross-cultural data on literate behaviour have been collected systematically for a large sample of societies drawn from around the globe (Murdock and White 1969), it has been largely superficial, employing these now-defunct, monogenetic and

unilineal historical models of literate behaviour's emergence and early development (see Chapter 2). Some studies focus exclusively on (1) the diversity of literate behaviour found cross-culturally (Hooker 1990; Houston 2004a; Senner 1989), (2) a circumscribed subset of the functional applications of literate behaviour in cherry-picked[61] historical case studies (Goody and Watt 1963; Halverson 1992b; Havelock 1963), or (3) the method by which literate behaviours encode speech (Bright and Daniels 1996; Coulmas 2003; DeFrancis 1989; Sampson 1985), failing to account for the shared features and evolutionary history of these systems and behaviours.

3.1.2 Overcoming the five major limitations of pervasive theories

New theory, data and methods are required to identify and test promising candidate selection pressures for the emergence of literate behaviour. However, the major limitations of previous approaches to the origins of literate behaviour can be overcome largely by garnering insights from recent studies across the sciences and humanities. This sections outlines how each of the major problems with pervasive theories of the emergence of literate behaviour can be overcome.

3.1.2.1 Overcoming the 'Standard View' of technological evolution

Insights garnered from anthropology, archaeology, and history reveal that it is the purposes to which literate behaviours are put (Barton and Hamilton 1997; Halverson 1992a; Trigger 2004; Whitehouse 2000), the techniques employed in their execution (Pfaffenberger 1992), and the context of their application (Barton et al. 2005; Boyarin 1993; Cipolla 1969; Finnegan 1988; Harris 1989; Heath 1991; Kaestle and Damon-Moore 1993; Lockridge 1974; Street and Besnier 1994a; Street 1993, 2009, 1984; Thomas 1992), not any single societal 'necessity' or isolated individual

[61] 'Cherry-picking' is a form of the fallacy of selective attention which preferences bodies of evidence and experimental designs likely to confirm a given position.

human 'need', that provided the selective pressures necessary for the development, adoption, application, and dissemination of literate behaviour. No single artefact or behaviour is ideally suited and universally applied for a given task[62]. Jessica Whisenant (2008: 71), following Peter Damerow (1999), concludes, '[s]ince the technology of writing does not have the same effects in every culture, the social environment in which writing developed must also be taken into consideration as having a great deal of influence over what was written down and how it was written down'. Following Brian Street (1984), and Ruth Finnegan (1988), Whisenant (2008: 4) observes, 'a wide spectrum of ethnographic studies revealed that while the emergence of literacy could facilitate shifts in culture and cognition, literacy itself could by no means be treated as a monolithic skill with uniform and predictable effects in every culture'. Despite considerable scholastic attention, accounts that emphasise the role of societal 'administrative needs' in the cross-cultural emergence of literate behaviours (*i.e*., the administrative hypothesis) (Bagley 2004; Baines et al. 2008; Postgate et al. 1995; Wang 2007), are unconvincing given that the archaeological evidence only provides robust support for this account in a single case – Mesopotamia (Barton and Hamilton 1997; Houston 2004b; Smith 2008). To overcome this shortcoming of pervasive theories of the emergence of literate behaviours, theories must be introduced that do not depend on the erroneous and simplistic assumptions of the 'Standard View' of technological evolution.

[62] George Basalla (1988) makes a similar point with respect to the evolution of the wheel, which was not the product of 'societal necessities'. As summarised by Pfaffenberger (1992: 496), '[f]irst used for ceremonial purposes in the Near east, the wheel took on military applications before finally finding transport applications. In Mesoamerica, the wheel was never adopted for transport functions, given the constraints of terrain and the lack of draught animals. Even in the Near East, where the wheel was first invented, it was gradually given up in favor of camels. Basalla comments, "A bias for the wheel led Western scholars to underrate the utility of pack animals and overestimate the contribution made by wheeled vehicles in the years before the camel replaced the wheel".'

3.1.2.2 Overcoming the fallacy of the foresightful and agential invention of literate behaviour

The world's first scribes did not and could not tailor their nascent scripts to individual- or societal-level 'necessities' in a foresightful and agential manner[63]. Citing evidence of the independent emergence of literate behaviour in China, Adam Smith (2013: 75) hypothesises that literate behaviours were 'begotten, not created.' Smith (2013: 75) continues, 'this [*i.e.,* the emergence of literate behaviours] happens by a fundamentally "blind" process of selection.' As noted by Florian Coulmas (1989: 3), '[o]f course, it [*i.e.*, writing] was not invented in the sense that one day somebody decided that writing was what was needed, and sat down at a desk to invent it'. Jean Bottéro (1995: 4) makes a similar observation, saying '[c]ontrary to what one still seems to think, those who "invented" writing at the end of the fourth millennium, did not develop it all at once, and the history of the stages of the evolution […] illustrates its strange and frightening complications very well […].' Moreover, early literate behaviours were used for a variety of social functions, including administrative, royal testimonial, religious, and divinatory functions, meaning that they may not have been invented to solve analogous problems around the globe[64]. As Harvey Whitehouse (2000: 174–175) concludes, 'literacy comprises an extremely heterogeneous set of practices, the 'consequences' of which vary enormously according to the social contexts in which literacy operates and the purposes to which it is put.' Thus, the

[63] Of course, numerous historically-attested and modern examples of the foresightful and agential invention of writing systems for previously unwritten languages, but none of these are examples of the independent emergence of literate behaviour. Missionary, colonial, or governmental linguists with an in-depth knowledge of both a given language and the strategies for representing languages graphically are the most common 'inventors' of writings sytems, though there are documented instances of script invention in the absence of high levels of proficiency in literate behaviour, the best-known case being the recording of the Cherokee language with existing signs to form a syllabary by Sequoyah around 1820 in what later became the state of Arkansas (Diamond 1999; Street and Besnier 1994b; Walker 1981).

[64] Barton and Hamilton (1997: 799), following Goody (1981), identify three broad categories of literate behaviour's early functions – '*political and economic*, the *religious* (in the sense of mystical, divinatory, and ritual uses), and the *historical-literary* functions' (my emphasis).

apparent design and efficacious utility of literate behaviour may have been the product of less human agency and forethought than previous scholastic accounts have suggested (Smith 2013: 72). Previous scholarship has been limited by an emphasis on literate behaviour's 'invention.' Additional cross-cultural ethnographic, archaeological, palaeographic, and historical data are necessary to test hypotheses related to the cultural evolution of literate behaviour.

3.1.2.3 Overcoming simplistic and widely-discredited, though pervasive evolutionary explanations

Literate behaviour is polygenetic. Contrary to the historical model proposed by Gelb (1963) and others, literate behaviour emerged independently in several societies around the globe before being transmitted to and incorporated by a large number of societies. As noted by Stephen Chrisomalis (2009: 62), '[p]rior to the twentieth century, the predominance of Biblical scholars among philologists, archaeologists, and epigraphers meant that enormous importance was attached to Mesopotamian representation systems, following the monogenetic principle based on a strict interpretation of the Bible […].' The archaeological, palaeographic, and linguistic evidence for the independent emergence of literate behaviours around the globe is now overwhelming (Chrisomalis 2009; Coulmas 2003; Daniels 1996a; Houston 2004a). As summarised by Florian Coulmas (2003),

> evidence for the independent origins of writing in Mesopotamia, China, Mesoamerica and elsewhere has been piling up. No connections with other scripts can be established for some undeciphered scripts such as Proto-Elamite (Damerow and Englund 1989), developed around the end of the fourth millennium BCE in Susa, western Iran, Linear A (Palaima and Sikkenga 1999), used by the Minoans in Crete (ca 1800–1450 BCE), and the Indus script (Parpola 1994), which came into existence around the middle of the third millennium BCE in the Indus Valley. Monogeneticism is, therefore, no longer considered a viable theory. Everything in present knowledge points to the fact that writing was engendered independently […].

Chrisomalis (2009: 62) concurs, noting '[m]ost scholars now reject the principle of monogenesis […].' In response to this prehistorical evidence, novel theories of literate behaviour's emergence must account for the multiple origins of literate behaviour around the globe.

No single order of literate behaviour's functional or representational development applies to the societies in which literate behaviour first emerged (Barton and Hamilton 1997: 793). Teleological and unidirectional models for literate behaviour's evolution have now been widely discredited (Coulmas 2003: 198). Terry Joyce and Susanne Borgwaldt conclude that 'Gelb's classification is undoubtedly flawed by his zeal to present a teleological account of writing, placing the alphabet as the final stage in an evolution via logography and syllabary' (Borgwaldt and Joyce 2011: 2). According to Florian Coulmas (2009), Gelb's 'stages' of writing reflect what Gelb called 'the stages of primitive psychology […], three great steps by which writing evolved from the primitive stages to a full alphabet'. According to Coulmas (2003: 198), [m]odern scholarship has not confirmed the unidirectional theory of writing […]. The real picture is more muddled, and certain aspects of Gelb's teleological evolutionism must be rejected. […] [O]thers have criticized Gelb's theory as an expression of alphabetocentrism, if not Western supremacism'. Peter Daniels (1990), Richard Sproat (2000), Henry Rogers (2004), and Bruce Trigger (2004) each note a variety of problems with Gelb's classification and evolutionary model of literate behaviours.

3.1.2.4 Overcoming the challenges posed by recent archaeological and palaeographic findings

Recent data offered by archaeologists, palaeographers, anthropologists, and cognitive scientists suggest that there are several hitherto unappreciated and

untested candidate selection pressures for the emergence of world's first literate behaviours (Changizi and Shimojo 2005; Changizi 2010; Dehaene 2009; Hyman and Renn 2012; Lock and Gers 2012; Mesoudi et al. 2013; Rayner and Pollatsek 2012; Skelton 2008; Smith 2008, 2013; Trigger 2004). Recent archaeological evidence indicates that (1) the material and environmental conditions of the polities within which the world's independently emergent scripts arose were highly variable, (2) the technological prerequisites for the development of literate behaviour were minimal (Smith 2008), and (3) the functional applications of nascent literate behaviour were diverse (Barton and Hamilton 1997; Goody 1981; Halverson 1992a; Trigger 2004; Whitehouse 2000). Taking into account the varied technological, material, and historical environments in which standardised scripts arose (Smith 2008) and their diverse functional applications once present (Halverson 1992a; Trigger 2004; Whitehouse 2000), material, environmental, and technological variables do not provide promising candidate factors for an evolutionary account of the emergence of literate behaviour around the globe. Therefore, pervasive theories of the origin of literate behaviours that emphasise material, environmental, or technological variables must be rejected in favour of novel theories of the origins of literate behaviour that take into account this recent archaeological and palaeographic evidence.

3.1.2.5 Overcoming inadequate data and limited methodological scope and rigour

Despite over a century of scholastic debate, debates concerning the emergence of literate behaviours around the globe have suffered from a dearth of reliable data and adequate methodological scope and rigour. (Smith 2008: 17). As noted by Stephen Houston (2004b: 234) sampling problems and perished records have plagued previous scholarship, causing theories of literate behaviour's

emergence to rely on inadequate data. The study of the origins of literate behaviour has not benefitted from sustained and intensive scholastic scrutiny. In his introductory chapter to the theory and history of writing, which is entitled ‘A Difficult Topic, Little Studied, Poorly Understood’, Marvin Powell (2012: 2) observes, ‘[i]n no sense is the history of writing a discipline with niches in universities filled by experts.’ To date, the data required to evaluate promising candidate selection pressures for the emergence of literate behaviours have not been available and the methods necessary to collect and analyse this data have not been widely practiced. What is needed is a synthesis of the available historical, archaeological, palaeographic, and grammatological and palaeographic data for early literate societies with the results of a large, representative cross-cultural survey of literate behaviour. This chapter demonstrates that such a synthesis provides the evidence necessary to overcome the primary methodological inadequacies that have plagued previous scholarship and allows candidate explanatory selection pressures for the emergence of literate behaviour to be tested.

3.1.3 Towards a novel theory of the emergence of literate behaviour

As noted previously, recent archaeological and palaeographic findings (Bagley 2004; Cooper 2004; Houston 2004a, 2004b; Smith 2008, 2013; Trigger 2004) and recent studies of human visual cognition and memory (Changizi and Shimojo 2005; Changizi 2010; Changizi et al. 2006; Dehaene and Cohen 2011; Dehaene 2009; Dehaene et al. 2010; Platt and Adams 2012; Rogers 2004) indicate that the world’s first literate behaviours may have been the result of previously unappreciated factors. These factors include the emergence of full-time specialist sign users and the ‘repetitious intensification’ of precursor sign systems (Smith 2008, 2013).

Adam Smith (2008, 2013) offers argument and evidence in favour of the conclusion that scripts emerged from the repetitious intensification of precursor systems of non-literate sign use by an interacting community of increasingly full-time specialist sign users. Non-literate sign systems (*e.g.*, tallies) relied on more general and universal cognitive capacities for object recognition and naming before they were replaced by literate sign systems. The resulting literate sign systems evolved through cumulative and blind selection pressures as the result of frequent interactions between specialist groups through the exploitation of human visual recognition systems, memory systems, and rapid lexical access (Smith 2013: 4). Full-time specialist sign users and the 'repetitious intensification' of preliterate sign systems are readily identifiable as products of a broader shift towards routinization (Whitehouse 2000).

Smith's account of the emergence of literate behaviour accords with recent studies of socio-cultural evolution, proposing that routinization greatly increases the stability, coherence, comprehensiveness, and standardisation of cultural systems (Whitehouse 1996, 2000, 2004, 2012). Smith's 'repetitious intensification model' highlights how several psychological mechanisms are exploited through blind and cumulative selection pressures to bring about early literate behaviours. This process includes the highly repetitive and frequent interaction with visual object forms by a group of specialists, ultimately resulting in the emergence and replication of repertoires of sign forms and literate behaviours (Smith 2013: 15). Citing palaeographic evidence of this process in the Western period of the Han Empire in China (206-25 BC), Smith concludes, 'the cognitive consequences of 'reading' or producing many different examples of documents […] on a daily basis, as opposed to doing so only on special occasions, are considerable' (Smith 2008: 135). When

viewed in light of recent insights into broader shifts in socio-cultural evolution, particularly the process of routinization, the ‘repetitious intensification’ model by Smith (2008) becomes a powerful explanatory framework for a novel theory of the historical emergence of literate behaviours around the globe.

Recent research into socio-cultural evolution has discovered that the advent of ‘routinization’ (Whitehouse 1996, 2000, 2004, 2012) or high-frequency collective rituals played a major role in (1) the formation of large-scale social identities by facilitating trust and cooperation on an unprecedented scale, (2) the emergence of groups of specialists who fulfilled roles and offices that were understood to be distinct from the persons who held them, (3) the elaboration of complex shared networks of doctrines and narratives, and (4) increases in cultural conformity, doctrinal conservativism, ecclesiastic authority, and transcendental domination. Recent archaeological evidence focused on the emergence of routinized collective rituals in human prehistory encourages these conclusions (Johnson 2004; Mithen 2004; Whitehouse and Hodder 2010). For example, investigations in modern-day southwest Iran find that routinized collective rituals and the doctrinal mode of religiosity it engenders preceded and may have facilitated the emergence of systems of writing in this region (Johnson 2004: 46). Similarly, recent archaeological studies of Çatalhöyük (Mithen 2004: 36; Whitehouse and Hodder 2010) in modern-day Turkey demonstrate the presence of large settlement size and routinized rituals, but no evidence of literacy, indicating the primacy of routinization over literacy in the evolution of socio-political complexity in this region. Whitehouse and Hodder (2010: 126) hypothesise that ‘the appearance of doctrinal dynamics helped to foster the development and spread of inscribing practices and ultimately fully developed literate traditions’. Thus, the process of routinization appears to facilitate the emergence of

literate forms, yet the details of this process remain unclear. A synthesis of recent findings in palaeography, cognitive science, archaeology, comparative ethnography, and history provide the key to understanding how the process of routinization gave rise to the first literate behaviours.

In short, the 'repetitious intensification model' can be gainfully combined with the process of routinization to contribute to a phylogenetic evolutionary explanation of the polygenetic origins of literate behaviour. High-frequency interactions within groups of specialists, complex shared networks of doctrines and narratives, and doctrinal conformity all provide selection pressures towards the repetitious intensification of non-literate sign systems. Moreover, the routinization of non-literate sign systems facilitates the emergence of literate behaviour by (1) facilitating more word-like and less object-like recognition of individual signs, (2) decreasing cognitive processing demands and conscious attention, (3) increasing the population of sign exemplars, and (4) encouraging increasingly frequent use of basic lexicons (Smith 2008).

3.1.4 Principal aims and objectives

This chapter attempts to overcome many of the limitations encountered in previous approaches to the evolutionary history of literate behaviour by using a cultural evolutionary framework and a novel theoretical approach to synthesise the available historical, archaeological, palaeographic, and grammatological data with the results of a large, representative cross-cultural survey of literate behaviour. Specifically, the principal aim of this chapter is to evaluate the cross-cultural relationship between the candidate explanatory selection pressures of routinization and the emergence of the world's first literate behaviours. First, this chapter aims to isolate features of both (1) routinization and (2) literate behaviour before predicting

statistical associations between features of each. Next, this chapter tests a set of hypotheses using two principal data sources. Finally, this chapter evaluates the findings of this study by exploring both its implications for a novel theory of the origins of literate behaviour as well as its methodological and theoretical limitations.

3.1.5 Hypotheses

This chapter argues that high-frequency interactions within groups of specialists, complex shared networks of doctrines and narratives, doctrinal conformity, and other hallmarks of routinization provided the selection pressures necessary for the initial development and spread of the world's first literate behaviours. Initially, this prediction is analysed using recent studies of human visual cognition and memory, palaeography, and archaeology as they relate to two of the best-attested examples of societies in which literate behaviour emerged independently. Next, to test this prediction empirically using a representative sample of ethnographically attested societies, this chapter first isolates several features of routinization, including ritual arousal and ritual frequency, as identified recently by Quentin Atkinson and Harvey Whitehouse (Atkinson and Whitehouse 2011). Finally, statistical associations are predicted between these features of routinization and the products of literate behaviours, including complex and external representational systems (CERS), as identified and collected in Chapter 2, and the recitation of texts during religious rituals, as identified by Atkinson and Whitehouse (2011). The following four empirical hypotheses are examined:

Hypothesis 3.1 Cultures with highly arousing religious rituals are negatively correlated with the presence of CERS.

Hypothesis 3.2 Cultures with highly arousing religious rituals are negatively correlated with cultures in which the recitation of texts during religious rituals is present.

Hypothesis 3.3 Cultures with high-frequency religious rituals are positively correlated with the presence of CERS.

Hypothesis 3.4 The recitation of texts during religious rituals is positively correlated with ritual frequency.

In sum, this chapter tests the prediction that the cumulative and blind selective pressures that first transformed precursor sign systems into literate forms around the globe were facilitated by high-frequency interactions within groups of specialists, complex shared networks of doctrines and narratives, doctrinal conformity, and other hallmarks of routinization.

3.2 Methods

The historical and cross-cultural relationship between routinization and literate behaviour is examined using two data sources — (1) studies of palaeography, archaeology, and human visual cognition and memory as they relate to two of the best-attested historical examples of societies in which literate behaviour emerged independently and (2) the cross-cultural (N=74) ethnographic database of CERS and existing cross-cultural data sources described in Chapter 2.

3.2.1 Archaeological and historical methods

The first step needed to evaluate the cross-cultural relationship between the candidate explanatory selection pressures facilitated by routinization and the emergence of the world's first literate behaviours is to investigate the available

archaeological and palaeographic data for societies in which literate behaviour emerged independently as this data provides the most direct evidence of the selection pressures under investigation. This section surveys the available palaeographic and archaeological evidence for two of the best-attested societies in which literate behaviour emerged independently (*i.e*., *ca*. 2400 B.C. Mesopotamia and *ca*. 1250 B.C. China). Particular attention is given to the potential relationship between the hallmarks of routinization and literate behaviours.

3.2.2 Cross-cultural ethnographic methods

Next, building on the available cognitive, palaeographic, and archaeological data, this chapter offers empirical data from the cross-cultural ethnographic database of CERS constructed in Chapter 2 to test a set of hypotheses regarding the role of routinization, measured here by high-frequency/low arousal religious rituals, in the emergence of the world's first literate behaviours.

A textual content analysis of a large number of ethnographic reports, grammatological accounts, encyclopaedia, and other, reputable cross-cultural data sources was performed for a large sample of societies. Target CERS were coded as present, absent, or not reported for each society sampled (n=74). A detailed description of the methods employed in the present study is available in Chapter 2. Existing and independently-coded ritual- and societal-level measures for this chapter were taken from the 'Ritual Database' (RD) project (Atkinson and Whitehouse 2011). These additional ritual- and societal-level measures allowed this study to test hypotheses about the relationship between shifts in the frequency and arousal of religious rituals and the presence and application of literate behaviour. The additional variables used in the current study were ritual arousal (RD), ritual frequency (RD),

and the recitation of texts during religious rituals (RD). See Appendix 2 for codebook for each of these existing variables.

3.3 Results

The results of this chapter's two surveys are presented in the following two sections (3.3.1 and 3.3.2). The results of the cognitive scientific, archaeological, palaeographic, and historical survey are presented first, followed by the empirical results of the cross-cultural ethnographic survey.

3.3.1 Cognitive scientific, archaeological, palaeographic, and historical survey of best-attested examples of the emergence of literate behaviours

Writing systems show an enormous diversity of form and function cross-culturally, but this diversity is bounded by their shared and relatively recent history as well as their shared methods of exploiting ancient human cognitive systems. In fact, all writing systems have been traced to a handful of independent origins and all writing systems that have ever existed share several essential features (Changizi and Shimojo 2005; Changizi 2010; Dehaene 2009; Hyman and Renn 2012; Lock and Gers 2012; Mesoudi et al. 2013; Rayner and Pollatsek 2012; Skelton 2008; Smith 2008, 2013; Trigger 2004).

3.3.1.1 Cognitive scientific insights into literate behaviour

No technological, material, or environmental factors have been shown to predict the emergence of 'pristine' or independently-emergent scripts. No specific raw materials or complex tools have been shown to be prerequisites of literate behaviour. In fact, while humans possessed and employed strikingly similar simple and universally available tools, both cognitive and material, for pictorial representation and non-literate sign-use for tens of thousands of years, the

application of these tools and techniques to encode linguistic content occurred rarely and only recently (Smith 2013).

Owing to their recent lineage and their common exploitation of ancient cognitive mechanisms, all writing systems are shown to share several universal features. The acquisition of these literate behaviours also conforms to a set of universal and predictable processes (see ontogenetic explanation in Chapter 1).

Recent evidence from cognitive science provides some robust methods of identifying literate behaviour's universal features. This evidence indicates that reading and writing behaviours (1) appeared very recently in human evolution (Smith 2013: 2), (2) required lengthy periods of explicit instruction (Rogers 2004: 1), and (3) were only employed by a tiny fraction of the human population until the last century (Dehaene and Cohen 2011). Therefore, biological approaches to cognition that propose specialised neural modules evolved under selection pressures for specific problems posed by the physical or social environment are inappropriate for the study of the evolution of literate behaviours (Platt and Adams 2012: 168). Instead, literate behaviours are clearly the product of cultural evolution (Changizi and Shimojo 2005; Changizi 2010; Dehaene 2009; Hyman and Renn 2012; Lock and Gers 2012; Mesoudi et al. 2013; Rayner and Pollatsek 2012; Skelton 2008; Smith 2008, 2013; Trigger 2004) (see Chapter 1).

A decade of research in the cognitive sciences suggests that literate behaviours exploit ancient human visual systems (Dehaene 2009: 171), especially those employed in object recognition and face perception (Dehaene et al. 2010: 1364). It stands to reason that early literate systems were under selection pressures to be easy to read and write. Of these two selection pressures, the ability to read has been shown to be the most robust (Changizi and Shimojo 2005: 272), requiring

incredible feats of human visual systems. A theory of the origination of literacy must be grounded in the cognitive sciences and must build on this previous research (Whitehouse 2012).

In sum, the cognitive scientific evidence available suggests that literate behaviours should (1) be relatively recent and complex products of cultural evolution, (2) emerge primarily under selection pressures to be easy to read, and (3) exploit ancient visual and aural systems through explicit instruction. To evaluate whether these predictions from the cognitive sciences match what we observe in materially and historically-attested societies, archaeological and historical data are needed.

3.3.1.2 Archaeological, palaeographic, and historical survey of best-attested examples of the emergence of literate behaviours

This survey explores the potential relationship between the emergence of literate behaviours in the best-attested societies in which literate behaviour emerged independently (*i.e.*, Mesopotamia and China) and the process of routinization, analysed here by some of its hallmarks, including high-frequency interactions within groups of specialists, complex shared networks of doctrines and narratives, and doctrinal conformity.

3.3.1.2.1 Mesopotamia

Literate behaviours emerged in modern-day southern Iraq during the Late Uruk/Jemdet Nasr Period approximately 5,000 ago and may represent the earliest known instance of the independent script emergence (see Figure 3.1). The archaeological and palaeographic evidence from Mesopotamia indicates that there was an association between increasing administrative complexity and the presence

and functional application of literate behaviours[65] (Bagley 2004; Postgate et al. 1995), but these studies fail to account for the potentially more integral and direct role of routinization on the 'repetitious intensification' of pre-literate sign systems. Moreover, despite considerable scholastic attention (Bagley 2004; Baines et al. 2008; Postgate et al. 1995; Wang 2007), archaeological accounts that emphasise the 'administrative hypothesis' in the cross-cultural emergence of literate behaviours have been shown to be largely incompatible with evidence of script emergence outside of Mesopotamia (Barton and Hamilton 1997; Houston 2004b; Smith 2008). Therefore, the routinization of pre-literate sign systems provides a potentially more parsimonious explanation of the independent emergence of literate behaviours around the globe.

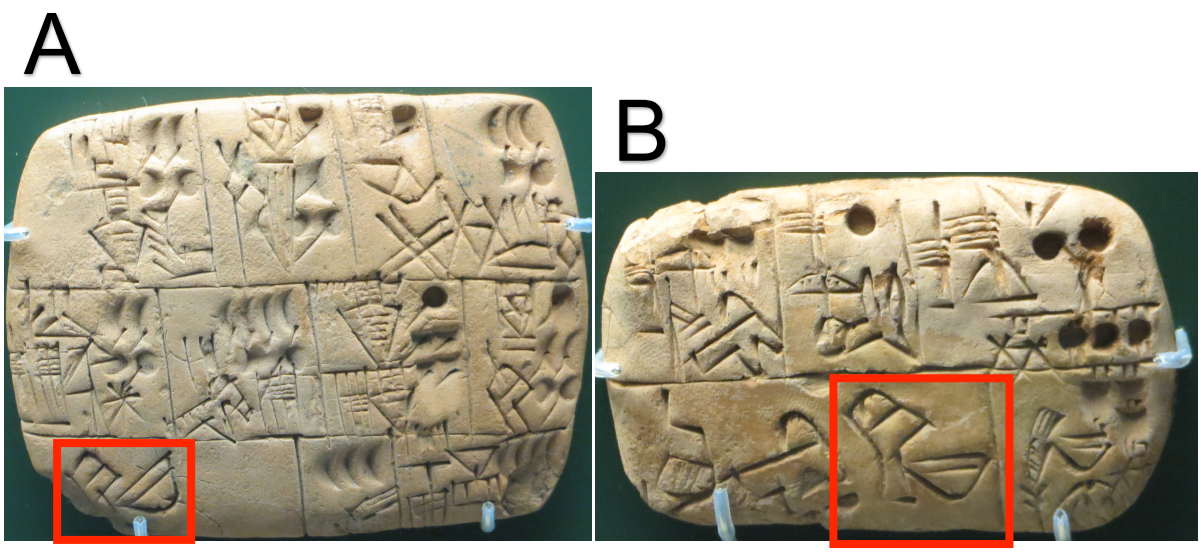


Figure 3.1. Early Mesopotamian tablets. (A) A temple record of daily rations of barley beer, the stable drink of Mesopotamia. (B) A 'food issue list.' The area in red rectangles is the sign for 'ration', which is represented by combining the symbol for a human head with the symbol for a bowl. Both tablets date from approximately 3300-3100 BC (Late Uruk Period). Images and composition by Daniel Mullins. Source: The British Museum (Museum Numbers ME140855 and ME140852, respectively)

[65] These findings are largely consistent with the 'administrative hypothesis', which states that the increased intensity of utilitarian administrative and bureaucratic procedures coupled with the challenges to cooperation brought about by the increased anonymity encountered in the increasingly large city of Uruk/Warka facilitated the emergence of literate behaviours in Mesopotamia.

The routinization of pre-literate sign systems is largely compatible with both the recent archaeological and palaeographic evidence and the 'administrative hypothesis' of Mesopotamian script emergence, but – unlike the 'administrative hypothesis' – it does not rely on the 'Standard View' of technological evolution. Following Postgate et al. (1995: 588), Bruce Trigger (2003) reports that 'to ensure that no mistakes were made during rituals, prayers were recorded in written form' by this period. This functional application of scripts in Mesopotamia has striking parallels with their use early in the Old Kingdom in Egypt, where lector priests used written scripts to ensure the correct performance of rituals. A large corpus of archaeological evidence also indicates that high-frequency interactions within groups of specialists were also present. As summarised by Whisenant (2008: 73), '[s]ome of the earliest examples of cuneiform writing […] are school exercises comprised of lists and paradigms – "multiple duplicates of thematic lists of words"'. According to Piotr Michalowski (2003: 451), these highly-repetitive lexical lists for specialist scribal training accounted for approximately 15% of the earliest texts from Uruk. These lexical lists retained strikingly similar features over time as they appear to have been copied for over 800 years (Whisenant 2008: 73). According to Nissen et al. (1993), these lexical lists were replicated throughout the third millennium. Other hallmarks of routinization were also present during this period. The city of Uruk/Warka increased its political control over the region, expanded its resource base, became increasingly urbanised, and showed evidence of increasingly frequent religious rituals (see Chapter 6).

High-frequency interactions within groups of specialists, complex shared networks of doctrines and narratives, doctrinal conformity, and other hallmarks of routinization provided the selection pressures necessary for the initial development

and spread of literate behaviours in the Late Uruk/Jemdet Nasr Period in Mesopotamia. Likewise, increases in socio-political complexity are shown to have facilitated the elaboration, spread, and functional application of writing systems and other products of literate behaviour here, especially calendrical and time-keeping systems, constituting a complex positive feedback loop, a process that is investigated further in Chapter 6.

3.3.1.2.2 China

Archaeological and palaeographic evidence suggests that literate behaviours were present independently nearly 4,000 miles to the northeast of Uruk/Warka in modern-day Anyang province, China during the Shang Dynasty in approximately 1,250 BC. Adam Smith (2008, 2013) provides a comprehensive overview of the available archaeological and palaeographic evidence regarding the independent emergence of literate behaviour in China. According to Smith (2008: 143), '[t]he biggest difficulty with the proposal that literacy was in widespread everyday use for administrative and other purposes during the Anyang periods is, quite simply, the lack of direct evidence for the proposal.' Only much later, in the latter half of the first millennium B.C. is there clear archaeological evidence that 'literacy was central to administration of all kinds […] from major population centers' Smith (2008: 145). If the 'administrative hypothesis' is not sufficient to explain the independent emergence of literate behaviours in Anyang province, China, what were the selection pressures that brought about literate behaviours here?

Recent archaeological evidence suggests that the emergence of literate behaviour in Anyang province approximately three millennia ago may have been attributable to the 'repetitious intensification' of pre-literate sign systems as a consequence of routinization. Pyro-osteomancy involves the heat-cracking and

interpretation of bones for the purposes of divinatory rituals and, according to the available archaeological evidence, was a widespread practice of increasingly specialised ritual practitioners for approximately two millennia before the emergence of literate behaviour in Anyang province (Flad 2008). Given their durability, prolonged and consistent period of manipulation, and abundance in the archaeological record of North China, these heat-treated bones and changes in their manipulation over time provide a window into shifts in the behaviours of their manipulators, ritual practitioners, over time (Smith 2008: 149) (see Figure 3.2).

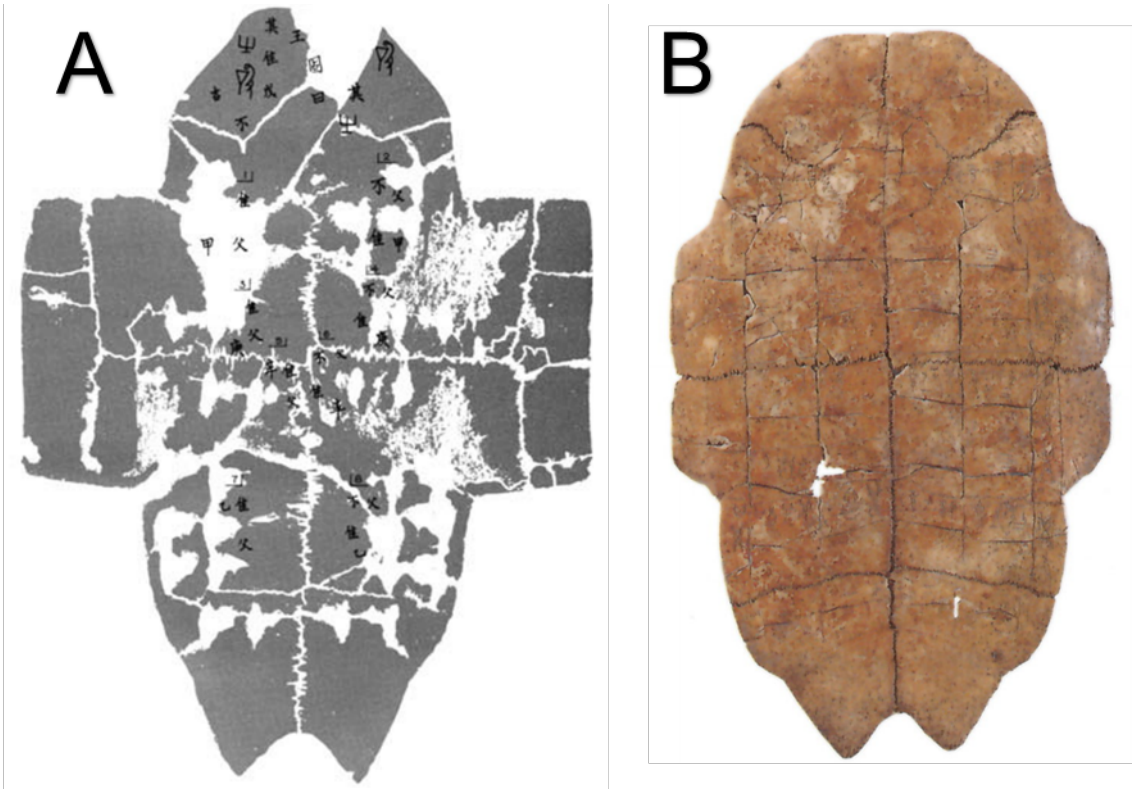


Figure 3.2. Shang-dynasty divinatory turtle plastrons. (A) Rubbing and enhanced characters of Shang-dynasty divinatory turtle plastron from Hessler (2006: 250). (B) Shang-dynasty plastron used to divine the success of hunting expeditions by Prince You from Higham (2013: 560).

Most notably, these bones indicate that frequency of interactions within increasingly specialised groups of ritual practitioners increased immensely during this period, providing evidence for the process of routinization. Following Robert Bagley (2004), Smith (2008: 151–152) concludes,

> [w]e know from the inscriptions that divination could be performed on a daily basis, multiple times each day, on multiple bones that continued to be used over many days […]. We also know that diviners divined repeatedly about the program for a single sacrifice, making multiple competing propositions about the kinds and numbers of animals to be sacrificed. Moreover, we know that some scribes routinely added the notation "adopted […]" or "not adopted […]) as a coda to the divination record, presumably indicating the proposition among the competing alternatives that was in fact to be used to inform the sacrificial program. […]. The initial move towards keeping a record of the divination process is most satisfactorily explained by the degree of complexity and frequency it had attained by, or before, the Anyang period, and by the need to make available its results to those who carried out the similarly complex and frequent sacrificial procedures.

The specialisation of religious practitioners also increased immensely during this period, as did the frequency of their interactions with pre-literate sign systems employed in divinatory rituals. According to Smith (2008: 147), '[d]ivination documented in writing took place at Anyang on a daily basis' and 'divination normally functioned *with* writing' (emphasis in the original). Like the Mesopotamian literate specialists, Chinese diviners demonstrated a high degree of conformity with their historical predecessors. 'Clearly, for some diviners and their patrons, in a variety of cultural contexts, there was sufficient motivation to adopt or continue to use existing techniques of recording information to keep track of their prognostications', observes Smith (2008: 147). In sum, Smith (2008: 154) finds, 'the activities of [the] divination workshop involved intense, repetitive and specialised productivity by a small group of collaborators, of the kind that could have supported the emergence of writing from a precursor system of sign use.'

Smith's 'repetitious intensification' model and the archaeological evidence that he offers in support of it are readily identifiable as products of a broader shift towards routinization (Whitehouse 2000). According to Smith (2008: 148), his model requires that diviners 'adopt or invent a set of object-like signs to manage their activities, that they share them with one another, and that they continue adding to the repertoire while using it increasingly intensively and repetitively'. These activities, including

high-frequency interactions within groups of specialists and complex shared networks of doctrines, are hallmarks of the process of routinization, a promising alternative explanation for the selection pressures the facilitated the independent emergence of literate behaviour in China.

3.3.2 Cross-cultural ethnographic survey of the empirical relationship between routinization and literate behaviour

The archaeological, palaeographic, and historical data from two of the best-attested examples of societies in which literate behaviour emerged independently, however, are insufficient to evaluate the cross-cultural relationship between routinization and literate behaviour. The archaeological, palaeographic, and historical data pertaining to literate behaviour and the hallmarks of routinization suffer from both sampling and preservation biases and a paucity of systematic cross-cultural data (Baines 1983; Postgate et al. 1995; Powell 2012). To overcome these limitations, a large-scale systematic cross-cultural ethnographic survey of both routinization and the products of literate behaviour is needed. This section examines the empirical relationship between the hallmarks of routinization and literate behaviours using the cross-cultural (N=74) ethnographic database of CERS and existing cross-cultural data sources to isolate features of both (1) routinization and (2) literate behaviour before predicting statistical associations between features of each. The results of this chapter's four empirical hypotheses are presented below.

Hypothesis 3.1: Cultures with highly arousing religious rituals are negatively correlated with the presence of CERS.

As predicted, there was a negative correlation between CERS and HRAF-societies with highly arousing religious rituals. When aggregated into a single ordinal

variable, there was a negative correlation between CERS and overall ratings of ritual arousal (r_s= -.489, n= 74, p< .001). The null hypothesis stating that there is no significant relationship between highly arousing religious rituals and CERS is rejected. When divided into dysphoric and euphoric arousal dimensions, there was a negative correlation between both CERS and dysphoric ritual arousal (r_s= -.307, n= 74, p< .01) and euphoric ritual arousal (r_s= -.442, n= 74, p< .001). These findings are indicative of a shift in the form and function of religious rituals and the ramifications that a shift may have had on the routinization of pre-literate sign systems.

Hypothesis 3.2: Cultures with highly arousing religious rituals are negatively correlated with cultures in which the recitation of texts during religious rituals is present.

As predicted, a simple linear regression established that the recitation of texts could statistically predict overall variation in ritual arousal (r^2=.131, $F_{1,72}$=10.819, p<.005), and the recitation of texts accounted for 12% of the explained variability in ritual arousal. These findings should be regarded with some caution given that only 40 of the 645 rituals sampled (6.2%) contained recited texts. Despite this relatively small sample size, the negative relationship between the recitation of texts in religious rituals and highly-arousing religious rituals is indicative of a shift in the form and function of religious rituals and the ramifications that that shift may have had on the routinization of pre-literate sign systems. The null hypothesis stating that there is no significant relationship between highly arousing religious rituals and the recitation of texts during religious rituals is rejected.

Hypothesis 3.3: Cultures with high-frequency religious rituals are positively correlated with the presence of CERS.

Contrary to this prediction, when CERS were aggregated into a single ordinal variable, there was no relationship with societal-level measures of ritual frequency (r_S= -.072, n= 74, p= .544). This may be because the ritual database only contains six rituals that occur daily (of the 645 rituals sampled). Despite the small number of daily rituals, half of the societies in which daily rituals occur had five or more CERS present. This may suggest a relationship between CERS and high-frequency religious rituals. Citing ritual data from Anyang province, China, Smith (2013) suggests that daily interactions are required for the repetitious intensification of pre-literate sign systems. Additional cross-cultural data on daily rituals are required to evaluate their potential relationship with literate behaviour. The null hypothesis, which states that there is no significant relationship between cultures with high-frequency religious rituals and CERS, cannot be rejected.

Hypothesis 3.4: The recitation of texts during religious rituals is positively correlated with ritual frequency.

Contrary to this prediction, there was no relationship between ritual frequency and the recitation of texts during religious rituals ($\chi 2(4)=5.067$, n=645, p=.280). While consistent with the predictions of this thesis, this finding, like the findings of hypothesis 3.2, should be considered with some caution given that only 40 of the 645 rituals sampled (6.2%) contained recited texts. Additional research is required to assess statistically this proposed relationship. The null hypothesis, which states that there is no significant relationship between the recitation of texts during religious rituals and ritual frequency, however, is rejected.

3.4 Discussion

The principal arguments and data sources employed in this study – (1) studies of human visual cognition and memory, palaeography, and archaeology as they relate to two of the best-attested examples of societies in which literate behaviour emerged independently and (2) the cross-cultural (N= 74) ethnographic database of CERS and existing cross-cultural data sources – attempted to overcome the major limitations of pervasive accounts of the emergence of literate behaviours around the globe. Each of the principal data sources under investigation offered evidence consistent with the prediction that the hallmarks of routinization provided selection pressures towards the repetitious intensification of non-literate sign systems and, ultimately, the emergence of literate behaviour. Evidence of high-frequency interactions within groups of specialists was particularly well-documented in the two examples of the independent emergence of literate behaviours explored here, namely Late Uruk Jemdet Nasr Period modern-day Iraq and approximately 1250 B.C. modern-day Anyang province China.

Four empirical hypotheses were tested using the cross-cultural ethnographic database of CERS (N= 74) and existing cross-cultural data sources described in Chapter 2. The results of two of the four empirical hypotheses tested were consistent with the predictions of this thesis. First, as predicted, there was a negative correlation between HRAF-societies with highly arousing religious rituals and CERS. Second, a simple linear regression established that the recitation of texts could statistically predict overall variation in ritual arousal and the recitation of texts accounted for 12% of the explained variability in ritual arousal. Third, contrary to prediction that HRAF-societies with high-frequency religious rituals should be positively correlated with the presence of CERS, there was no relationship with

societal-level measures of ritual frequency. However, the data available may not be sufficient to evaluate the effects of daily rituals on the emergence of literate behaviours due to the small number of daily rituals recorded in the 'Ritual Database' by Atkinson and Whitehouse (2011). Finally, contrary to the prediction, there was no relationship between ritual frequency and the recitation of texts during religious rituals. This study employed the most generalizable and objective empirical account of the cross-cultural patterning and distribution of CERS that is currently available and examined empirically, for the first time, the relationship between literate behaviours and the hallmarks of routinization, including high-frequency interactions within groups of specialists, complex shared networks of doctrines and narratives, doctrinal conformity.

Consistent with the 'repetitious intensification model' proposed by Adam Smith (2008, 2013) and recent archaeological, palaeographic, and cognitive scientific research, this study proposed that routinization provided the pressures for (1) more word-like and less object-like recognition of individual signs, (2) decreased cognitive processing demands and conscious attention, (3) increases in the population of sign exemplars, and (4) the emergence of basic lexicons.

This study overcomes the primary limitations of prevailing theories of the emergence of literate behaviour. Unlike studies that suggest that a societal 'necessity' or isolated individual human 'need' provided the selective pressures necessary for the development, adoption, application, and dissemination of literate behaviour, the present study focused on the empirical relationship between a set of predictor variables (*i.e.,* empirical proxies for routinization) and a range of the products of literate behaviour (*i.e.*, complex external representational systems or CERS). Rejecting the unlikely premise that literate behaviour is the result of

foresightful and agential invention, this study contends that humans did not and could not tailor their nascent scripts in a deliberate manner. Instead, the literate behaviours are shown to have emerged through the complex and gradual process of cultural evolution. Likewise, this study overcame the simplistic and widely-discredited, yet pervasive evolutionary explanations of the emergence of literate behaviour by analysing the polygenetic origins of the non-teleological historical development of literate behaviours. Most crucially, the present study incorporated recent data offered by archaeologists, palaeographers, anthropologists, and cognitive scientists and provided new data with the methodological scope and rigour necessary to evaluate promising candidate selection pressures for the emergence of literate behaviours.

3.5 Limitations

While the archaeological and historical survey data offered here provides evidence in favour of the argument that the process of routinization facilitated the emergence of literate behaviours around the globe, much of the data offered here are necessarily correlational and synchronic and, therefore, do not allow causal predictions to be tested directly.

The ethnographic record in isolation cannot be used to generate conclusions about the prevalence of events or behaviours in the past because of the pronounced effects of cultural contact and transmission (Ember and Ember 1997: 2) and significant changes throughout history. However, as discussed in Chapter 2, the results of a systematic cross-cultural survey in which the sample is designed to minimise the much-discussed effects of the problem of non-independence between data points (*i.e.*, Galton's problem) (Currie 2013; Denton 2007; Dobson and Gelade 2012; Eff 2004; Ember and Otterbein 1991; Herkenrath 2002; Lagacé 1979; Mace et

al. 1994; Murdock 1949; Naroll 1965, 1967, 1965; Nettle 2009; Pollet et al. 2014; Ross and Homer 1976; Tylor 1889) can serve as a useful supplement to the available comparative historical, archaeological, palaeographic, and grammatological and palaeographic data for the societies in which literate behaviours first emerged.

As noted in Chapter 1, the use of the cross-cultural method vastly improves the reliability and generalizability of evolutionary analyses based on ethnographic materials when compared to the available alternatives, including regional controlled comparisons (*e.g.,* Eggan 1954; Fillitz 2002; Fox and Gingrich 2002b), one-case and two-case comparisons[66], or the examination of one or a plurality of so-called modern 'classic cases', such as the !Kung San or the Hadza (Marlowe 2005). So-called 'classic cases' are not typical or representative historical human groups, who now occupy marginal habitats, and who have been influenced considerably by highly developed and complex socio-political factors (Ember and Ember 1997; Norenzayan 2013). Large-scale cross-cultural and empirical historical data on routinization and literate behaviour would be well suited for this task. To date, however, no such data are available. Moreover, the process of collecting this data would require a vast amount of resources, including the collaboration and organisation of hundreds of professional historians and copious amounts of time, and would be constrained by the available historical and archaeological evidence. In contrast, large-scale cross-cultural ethnographic data provide a comparatively efficient and cost-effective

[66] Ember and Ember (2009) note that comparison is essential 'to understand why a particular community or culture is the way it is', before concluding that one-case analyses are not sufficient for explanatory analysis because 'a single case has an enormous number of traits, and any one or more of them may cause or explain what we are interested in explaining'; there is 'no way to decide which traits in a single society are causally connected to other traits'. Similarly, Ember and Ember (2009) conclude, '[a] two-case comparison is not more useful than a one-case analysis if we want to demonstrate a cross-cultural relationship'. Systematically and statistically verifiable cross-cultural research that endeavours to provide a test of causal predictions must 'investigate a sample of situations with and without the presumed cause' (Ember and Ember 2009).

method for evaluating cross-cultural hypotheses empirically (Ember and Ember 2009; Levinson and Malone 1980; Trigger 2003).

To test these predictions more definitely, much more historical, archaeological, and cross-cultural data are required. Specifically, empirical measures of the elements of routinization must be made alongside measures of literate behaviours using diachronic data. One notable project, 'Seshat: Global History Databank' (http://evolution-institute.org/seshat), which is supported by the Evolution Institute and large grants from the United Kingdom's Economic and Social Research Council (ESRC), is beginning to produce the historical and cross-cultural data necessary to test competing predictions regarding the selection pressures that may have facilitated the emergence of literate behaviours around the globe. This historical database is currently collecting data relevant to both routinization and literate behaviour (among its approximately 700 variables on government, religion, economy, and society) for hundreds of polities over the preceding five thousand years and promises to improve drastically our understanding of the cross-cultural emergence of literate behaviour in the years to come.

3.6 Conclusion

Several previously unappreciated factors, the hallmarks of routinization, may have facilitated the independent emergence of literate behaviours around the globe. If correct, this novel theory may provide a useful guide for future archaeological, palaeographic, grammatological, and historical studies of the phylogeny of literate behaviour. Chapter 6, which uses the archaeological and historical data developed in Chapter 2 to assess the potential relationship between literate behaviour and the cultural evolution of the world's ten, first-generation states, provides a model for a more comprehensive historical approach.

Chapter 4

Towards an evolutionary history of the spread of literate behaviour

4.1 Introduction

What is the relationship between complex and hierarchical classical religions and the spread of the products of literate behaviour, complex external representational systems (CERS), such as standardised scripts? Did classical religions facilitate the adoption and spread of CERS or the other way around? Or is/are some as yet unidentified factor(s) responsible for both?

Evidence submitted by archaeologists (Trigger 2004), palaeographers (Diringer and Regensburger 1968), sociolinguists (Coulmas 2003), and anthropologists (Whitehouse and Hodder 2010) indicates that literate behaviour was culturally transmitted through the spread of classical religions. A small, but vocal group of anthropologists (Boyer 2002, 2005; Gellner 1988; Goody 1986a, 1986b, 2004) and scholars of religion (Pyysiäinen 1999) contest this account, submitting evidence and argument in favour of the hypothesis that literate behaviour was primary in the homogenisation and spread of classical religions.

Despite over fifty years of scholastic attention, this debate remains unresolved because of a dearth of reliable empirical data. The work in this chapter addresses some of the bolder and more testable claims in this debate using two principal data sources: (1) historical, grammatological, palaeographic, sociolinguistic, and

anthropological accounts and (2) the cross-cultural (N= 74) ethnographic database of CERS and existing cross-cultural data sources constructed in Chapter 2.

4.1.1 Writing follows classical religions

For over fifty years scholars have suggested that standardised scripts spread with the expanding boundaries of complex religious systems. According to Florian Coulmas, '[t]he present distribution of scripts testifies to the close link between writing systems and religion. Boundaries defined by scripts largely coincide with those of faith' (Coulmas 2003: 201). Coulmas continues, '[w]riting systems not associated with a proselytising faith, like oral religion, usually remained local' (Coulmas 2003: 203). In his recent global comparative analysis of the cultural transmission of the standardised scripts, Coulmas (2003: 201) provides several examples of the primacy of religious transmission in the spread of standardised scripts, including the following:

> That the Latin alphabet has been adapted to write so many languages is a direct result of the Christianization of Europe.
>
> The distribution of the Greek alphabet and its Cyrillic extension corresponds to the realm of the Orthodox Church, Cyril (827-69 CE) having been a Greek missionary who converted the Slavs.
>
> To this day, the division between catholic Rome and orthodox Constantinople runs right through the ernstwhile Serbo-Croatian language area, the catholic Croatians using the Latin alphabet, the orthodox Serbs the Cyrillic.
>
> The establishment of the Armenian and Georgian churches resulted in the creation of the Armenian and Georgian alphabets.

Extending his reach beyond Christian Europe, Coulmas (2003: 202-203) finds:

> The Arabic alphabet, an offshoot of the Aramaic-derived Nabataean script, issued from the Arabian peninsula in the wake of the Islamic conquest and now serves as many as a hundred languages in largely Islamic countries on three continents, Africa, Asia and Europe. Each one of the original letters of the Arabic alphabet is revered as a creation of God himself.
>
> The Chinese script spread to regions beyond the Chinese empire, such as Vietnam, Korea and Japan together with Buddhism and Confucianism. Travelling along another route, from India through Sri Lanka to South-east

> Asia in the period 100 CE to 800 CE, Buddhism also helped to spread the Brahmi-derived Pali script.
>
> The Hebrew square script, too, is a holy script serving Jewish communities both for Biblical and modern Hebrew.

In his comparative historical analysis of the cultural evolution of writing systems, the Bruce Trigger extends Coulmas' argument for the primacy of religious transmission in the spread of standardised scripts to the Near East and South Asia by saying, '[m]ajor shifts in the use of scripts in Iran and India have generally accompanied the introduction of new religions" (Trigger 2004: 66). Trigger (2004: 67) continues:

> [i]t is clear that the development of writing systems everywhere has been influenced by considerations of efficiency, which have promoted increasing reliance on phonography at the expense of logography. Yet the survival of heavily logographic scripts in modern industrial societies indicates that the superior efficiency of alphabets, and of phonography, has been ethnocentrically overrated by Western scholars. It is also obvious that religious, political, ethnic, and class loyalties, as well as cultural beliefs and preferences, have played an important role in both resisting and bringing about changes in scripts.

The notion that the conservation, persistence, and spread of standardised scripts is largely predicated on the cultural transmission of religious systems and practitioners is echoed by the palaeographers David Diringer and Reinhold Regensburger (1968: 222), who state concisely, 'alphabet follows religion.' The philosopher Bob McCauley (2000: 73) expresses a similar sentiment, saying

> [r]eligion dates from our prehistoric past. Both the archaeological and the anthropological evidence suggests that human religious activities do not depend on keeping chronicles or on inventing writing or even on establishing fixed settlements.

As discussed in Chapter 3, Whitehouse and Hodder (2010: 126) reach a similar conclusion in their interdisciplinary study of the role of spirituality and religious ritual in the emergence of complex societies, saying 'the appearance of doctrinal dynamics helped to foster the development and spread of inscribing practices and ultimately fully developed literate traditions'. Whitehouse (2000: 176) elaborates this

point, saying '[w]here the transmission of doctrines and ritual forms is extremely frequent and repetitive, these become fixed in memory, regardless of whether they are also written down.'[67]

4.1.2 Classical religions follow writing

Conversely, other anthropologists, most notably Jack Goody, and religious studies scholars offer argument and evidence in favour of the conclusion that literate behaviour, particularly standardised scripts, was primary in the homogenisation and spread of religious traditions. Citing evidence from the Ancient Near East and twentieth-century Africa, Goody (1986a: 5) concludes, 'literate religions […] spread like jam [because] the performative force of that channel of communication [is recognised] as being more effective than the purely oral one.' Furthermore, Goody contends, '[a]lphabetic religions […] are more widely distributed within and more easily adopted without' (Goody 1986a: 4). Goody argues for the primacy of writing in several of his other publications on the topic. In his ethnohistorical account of a nineteenth-century Brazilian slave revolt, Goody argues for the primacy of writing in shaping social identity saying, 'written religion [means] the religion is capable of crossing tribal or national boundaries and hence of recruiting adherents, as in the Bahia revolt, on a non-tribal basis' (Goody 1986b: 333). Goody continues, 'writing tends to turn a religion of inheritance into a religion of conversion' (Goody 1986b: 318).

In a more recent publication on the topic, Goody (2004: 50) summarises his position as follows:

> [m]y major proposition is that if language was central to the origins of religion, then any change or addition to our means of communication should have important implications, and in some respects consequences, for religions as

[67] The role of routinization in the emergence and early cultural evolution of literate behaviour is discussed in Chapter 3.

> for all fields of social action. Why otherwise would we speak of what Tylor and others called 'ethical religions' as 'religions of the book'? The book is presumed to make a difference, especially in the formation of ethical doctrines. In this case 'doctrines' instantly become more prominent, more explicit, more 'developed' doctrinally, with writing. In this respect, the 'religions of the book' have an advantage, if advantage it be, over the religions of oral cultures; they tend to absorb them when they come in contact (Goody 1986: chapter 1). But written religions do not always lack images nor do unwritten ones lack doctrines.

Illka Pyysiäinen builds on Goody's argument to conclude, 'saints, ancestors, and the like belong to oral religions, whereas god beliefs of the monotheistic type belong to literate religion in which words and ideas can be decoupled from a particular context' (Pyysiäinen 2009: 100). Pascal Boyer relies heavily on the observations of Goody before concluding, 'literacy is a very useful tool for a religious guild that needs to 'brand' its services, so much so that in history very few "doctrinal" systems were ever observed with no use of or influence from literacy' (Boyer 2005: 26). Boyer's argument echoes that of Ernest Gellner, who states, '[w]riting makes possible the codification and systematization of assertion, and hence the birth of doctrine' (Gellner 1988: 72).

Building on Goody[68] and Gellner's hypotheses regarding the primacy of writing in the homogenisation and spread of religious tradition, Boyer provides an empirical cross-cultural prediction. He predicts that there is a high correlation — '.9 correlation' (2002) or '.95 correlation' (2005) — between the presence of literacy and

[68] Goody (2000) recently summarised his position as follows: '[w]hat Durkheim saw as the mechanical solidarity of simpler societies is not only a matter of the division of labor. Social relations and values have more obviously to be upheld in face-to-face situations; there is no possible linguistic communication to the oral channel that accounts for some of those features that are commonly regarded as characteristic of the "primitive mentality." The greater concreteness and relative lack of abstraction must be linked to the dominance of the context of the interactive situation. Inhibitions are placed on the elaboration of general rules, which are more often implicit than explicit. In the terminology developed by Max Weber and Talcott Parsons, such societies tend to be particularistic rather than universalistic. Social institutions are much affect by the limitations of the oral channel. Religions tend to have a more local focus, to be more clearly intertwined with everyday life. Legal procedures are less governed by general laws, by formal procedures […]. The homeostatic tendencies of the memory usually consign to oblivion what is no longer wanted. Oral communication in the political field obviously restricts the buildup of bureaucratic government […]. The more complex the organization of the state and the economy, the greater the pressure toward the graphic representation of speech' (24-25).

'doctrinal'[69,70] systems. This high correlation, Boyer contends, is the result of the emergence of literate monopolistic religious guilds or groups of specialists that (1) promise 'to deliver a stable, uniform kind of service that only it can provide, but also a service that any member of the guild will provide in the same way', (2) 'used writing', and (3) 'claim connection, not to local spirits and ancestors but to larger-scale supernatural agents' (Boyer 2002: 11). Similarly, Pyysiäinen (1999: 270) argues that the emergence of sacred texts facilitates a shift towards a specialist pursuit of a doctrine that is 'coherent', 'complete', 'universally valid', and 'independent of time and place'. Pyysiäinen (1999: 269), like Boyer (2002, 2005) elaborates on Goody's 'literacy thesis'[71,72] to contend that writing, when mediated through literate monopolistic religious guilds, facilitates the transmission of 'radically counter-intuitive ideas', including a belief in moral high gods[73], just as religious language creates disparity between ordinary and specialist understanding that reinforces and expands the role of the priesthood.

Boyer's (2002, 2005) account of the homogenisation of religious representations and the emergence of doctrinal religions diverges from that of Whitehouse (2000, 2004) and Whitehouse and MacCauley (2005) in several significant ways. First, Whitehouse (2000: 174), following Heath (1983), Street

[69] Boyer (2005), following Whitehouse (2000), defines the 'doctrinal' mode as one that 'requires constant communication and relatively intelligible and explicitly articulated material, therefore high-frequency exposure' (9).
[70] Likewise, Hinde (20005) summarises Whitehouse's 'doctrinal mode' as one that 'involves a tendency toward a system that depends on routinized worship and teaching, through which is transmitted a body of fairly complex doctrinal, which is incorporated into the individuals' general knowledge' (33).
[71] Goody (1986) invokes his 'literacy thesis' to explain the emergence of doctrinal religious systems and speculates that 'written religions' move towards the 'pre-eminence of a High God' (44).
[72] Goody (1986) elaborates his 'literacy thesis' to explain shifts in religious forms to conclude, 'the ritual text may become mumbo-jumbo to the populace, requiring a specialist body of interpreters to "translate" (in one of several ways) the words addressed to the deity' (37).
[73] 'Moral high gods' as defined in the Standard Cross-Cultural Sample (SCCS) is measured as follows: (1) absent or unreported, (2) present but not active in human affairs, (3) present and active in human affairs but not concerned with human morality, and (4) present, active in human affairs, and concerned with human morality.

(1984), Graff (1987), Finnegan (1988) and others, notes 'literacy comprises an extremely heterogeneous set of practices, the "consequences" of which vary enormously according to the social contexts in which literacy operates and the purposes to which it is put.' In contrast, Boyer contends that the emergence and dissemination of literacy has largely invariant cognitive and social morphological effects as outlined in Goody's 'literacy thesis' (Goody 1977, 1986a). To use the terminology of Brian Street (2006b), the model of literacy employed by Goody, Gellner, Pyysiäinen, and Boyer is readily identifiable as 'autonomous', meaning that these scholars attribute agency to literate behaviours before ascribing a range of universal cognitive or, in this instance, social effects to these behaviours. Second, unlike Whitehouse (2000), who notes that the connection between literacy and large states is not without exception (*e.g.*, Inca Empire), Boyer (2005: 23) speculates that practically all doctrinal religious systems and large states employ some writing. Third, Whitehouse (2000: 175) concludes that the 'principal characteristics that Goody associated with literacy are in fact features of the doctrinal mode of religion, whether or not a tradition operations in this mode happens to utilise a system of writing' because language 'is the dominant medium of the doctrinal mode of religiosity'. However, Boyer (2005: 23) contends that writing 'facilitates the uniformity of service and practice' and made systematic argumentation easier, selecting for groups that adopted rather than ignored 'the technology of writing'. Fourth, Whitehouse (2000) contends that routinization triggers the first large-scale, centralised, hierarchical forms of religious organization while the reliance on literate sources and the literal renditions of these sources are secondary and add to these effects of routinization. In contrast, Boyer (2005: 20) argues that the analogy between literate religious specialist and a craftsman's guild, not a shift in modes of

religious transmission found in collective ritual performances, explains the development of doctrinal traditions in large-scale polities. Fifth, unlike Whitehouse (2000, 2004), Mithen (2004), and Johnson (2004), who submit archaeological evidence that suggests, 'far from literacy creating religious guilds, religious guilds may well have created literacy for their own purposes', Boyer (2005: 26) contends, 'literacy is a very useful tool for a religious guild that needs to "brand" its services, so much so that in history very few doctrinal systems were ever observed with no use of or influence from literacy'.

Whether petitioning for the primacy of religious transmission in the standardisation and spread of literate behaviour or vice versa, there appears to be a general level of agreement in the comparative literature regarding an interaction between a particular type of religious system and the products of literate behaviour, such as standardised scripts. However, persistent disagreement regarding the causal direction of this interaction remains. Despite decades of appeals to authority, potentially 'cherry-picked' case studies, and speculative empirical predictions, some of the bolder and more testable claims of this topic have not been empirically assessed using a large, representative sample of world cultures and large-scale comparative ethnographic data. Where relevant empirical cross-cultural data exists (Murdock and White 1969), it employs largely superficial and problematic writing and recordkeeping data, as discussed in Chapter 2.

A recent study by Sanderson and Roberts (2008), for example, found that writing and mode of subsistence were both important predictors of their measure of religious complexity. Using variable 149 'Writing and Records' of the Standard Cross-Cultural Sample (SCCS)[74], Sanderson and Roberts (2008: 460) sampled 168

[74] See Chapter 2 for a more detailed critique of this variable

societies and found that 90% of ‘Shamanic religions’, 93% of ‘Communal religions’, and 66% of ‘Polytheistic religions’ are ‘found in societies where there is no writing or any record keeping’, while 87% of ‘Monotheistic religions […] are found in literate societies’. Again, however, given the SCCS’ sampling bias towards small-scale societies and its use of a now-defunct model of human literate behaviour, these results are not widely generalizable and, therefore, must be considered with some scepticism. Sanderson and Roberts (2008: 461), following Goody (1986a), Boyer (2001), Ong (1982) and Martin (1995), contend that ‘it is clearly the establishment of written dogma that allowed complex religions to emerge and grow’, but caution that ‘the arguments of Goody, Boyer and Martin apply mainly to Monotheistic priesthoods, because only a minority of Polytheistic societies have true writing’. Recent studies of the role of a belief in powerful, omniscient, interventionist, morally concerned gods in the cultural evolution of large-scale social cooperation, however, suggest that monotheism is no more effective than polytheistic religious traditions in supernatural policing, among other proposed mechanisms of cooperation (Norenzayan 2013).

4.2 Principal aims and objections

4.2.1 Using empirical cross-cultural ethnographic data to adjudicate the debate

This chapter attempts to resolve conflicting accounts of the relationship between classical religions and the spread of literate behaviours. The available historical, palaeographic, and sociolinguistic data suggest that literate behaviours were culturally transmitted principally through the spread of classical religions, but these data have not proven sufficient to adjudicate this debate.

The first objective of this chapter is to establish a positive correlation between (1) classical religions and (2) literate behaviour before attempting to infer causation from the data surveyed. Next, some of the bolder and more testable claims in this debate are evaluated by testing set of hypotheses using large-scale cross-cultural ethnographic data before analysing the results and exploring the implications of these findings. Finally, the major limitations of this study are noted.

4.2.1.1 Establishing a positive correlation between target variables before inferring causation

If there is a widespread and long-standing association between classical religions and the products of literate behaviour, they should co-occur cross-culturally. In other words, it should be difficult to find societies in which one occurs without the other. They should be statistically correlated. A cautionary note must be made, however, regarding the inference of causality from correlational data.

The commonly used phrases ‘correlation does not imply causation’ or ‘correlation is not causation’ are misleading and in need of qualification (Hatfield et al. 2006). Often, researchers ‘misunderstand such phrases to mean that limitations on causal inference arise from the type of statistical analysis conducted’ (Hatfield et al. 2006). According to biostatistician Donna Spiegelman (2010) and in accordance with David Hume’s empiricism (Hume 1888), ‘the adage “correlation is not causation” has been repeated so often that another salient feature of the relationship of correlation to causation seems virtually to have been forgotten: that correlation [or, more precisely, covariation] is a necessary (but not sufficient) condition for causation’. As discussed in Chapter 2, it is easy to find examples of spurious correlations (*i.e.*, situations in which a correlation is present and causation is logically

not present[75]). In this way, correlations can be misleading when attempting to determine causality. Despite these dangers, scientific advances are largely attributable to researchers investigating the causal implications of statistical correlations. Correlation may be suggestive of causation if certain conditions are met, including (1) the data from which the correlation was computed were obtained using an appropriate method and (2) the correlation remains after taking into account rival hypotheses and potential confounds such as hidden variables and independence of measures. Correlational data taken from experimental settings in which the researcher actively manipulated independent variables in randomised conditions with a control group is ideally suited for making causal inferences. Unfortunately, as is the case in the present study, it is often impractical or impossible to gather experimental data with experimental controls. Large-scale, cross-cultural data from a representative sample of ethnographically attested societies provides one of the best data sources available to test for the statistical correlation and potential causal relationship between societies with classical religion(s) and literate behaviour.

4.2.1.2 Inferring causality using correlational data

Establishing a correlation between the two target variables cannot provide a conclusive resolution to this debate, but it does provide evidence that this debate is worth having while revealing which variables are worthy of further study and suggesting causal directionality. If classical religions and literate behaviour do not appear to be related cross-culturally, then they are unlikely to have been causally linked to one another. Likewise, if complex external representational systems other

[75] Chandrasekaran (2012) provides several examples of spurious correlations.

than standardised scripts or written literature, such as standardised calendrical and timekeeping systems or transactional records, are correlated with classical religions, then we can infer that these cultural systems may have either facilitated the emergence of classical religions or were culturally transmitted by classical religions. This process has the effect of potentially widening the list of promising candidate factors while refining the cultural systems under examination from the large and amorphous category of 'literacy' to the more specific, identifiable, and measurable cultural systems of CERS.

To conclude that classical religions were homogenised and spread through the cultural transmission of literate behaviours, one would expect to find a strong empirical relationship between classical religions and the use of literate behaviours in the principal conduit for the cultural transmission of religions – religious rituals. In other words, if writing homogenised and standardised classical religions, then one would expect to find that classical religions relied heavily on writing in their religious rituals.

Again, while a positive correlation between our target variables does not provide conclusive evidence of causality, the large-scale, cross-cultural data from a representative sample of societies can be suggestive of a causal relationship between (1) classical religions and (2) religious rituals in which texts are recited. Moreover, this data allows for the examination of the prediction that writing's wide use in religious rituals enabled the homogenisation and standardisation of religion that was required for the emergence of classical religions. If there is either (1) no correlation or (2) a weak correlation between classical religions and religious rituals in which texts are recited, then writing may not have been as instrumental to the homogenisation and standardisation of religion as Goody, Gellner, Pyysiäinen,

Boyer, and others suggest. Instead, writing may have followed the cultural transmission of classical religions while contributing little to nothing to the emergence of these classical religions.

4.2.2 Empirical hypotheses

Building on historical, palaeographic, and sociolinguistic data, the present study predicts that complex and hierarchical classical religions facilitated the cultural transmission and standardisation of CERS, such as standardised scripts. Given that a belief in moral high gods has been associated closely with classical religions (Johnson 2005; Swanson 1964), we can also test for an empirical relationship between societies with (1) a belief in moral high gods and (2) complex external representational systems (CERS). Therefore, it is hypothesised that there will be a positive and strong correlation between both (1a) the influence of classical religion and (1b) associated belief in moral high gods (Johnson 2005; Swanson 1964) and (2) societal-level measures of CERS. Additionally, contrary to the prediction that classical religions were homogenised and standardised through the cultural transmission of literate behaviours, it is hypothesised that classical religion will have a positive, but weak correlation with societies with religious rituals in which texts are recited, suggesting that writing followed classical religions in the societies sampled.

In sum, the empirical hypotheses tested in the current study are as follows:

Hypothesis 4.1: Classical religion is positively correlated with the presence of CERS.

Hypothesis 4.2: The presence of a belief in moral high gods is positively correlated with the presence of CERS.

Hypothesis 4.3: There is a positive correlation between classical religion and cultures with religious rituals in which texts are recited.

4.3 Methods

Data for this chapter were gathered by performing a textual content analysis of a large number of ethnographic reports, grammatological accounts, encyclopaedia, and other, reputable cross-cultural data sources for a large sample of societies before coding each target complex external representational system as either present or absent for each society sampled (n= 74). A detailed description of the methods employed for the current study is available in Chapter 2. Existing and independently-coded ritual- and societal-level measures for this chapter were taken from the 'Ritual Database' (RD) (Atkinson and Whitehouse 2011) and the Ethnographic Atlas (EA) (Murdock 1967) project. These additional societal-level measures allowed this study to test hypotheses regarding the relationship between the presence of classical religion and the presence and application of specific CERS. The additional variables used in the current study were classical religion (RD), the recitation of texts during religious rituals (RD), and a societal-level measure of belief in moral high gods (EA) (see Appendix 2 for codebook).

4.4 Results

Hypothesis 4.1: Classical religion is positively correlated with the presence of CERS

As predicted, a Chi-square test for association revealed a statistically significant association between *classical religion* and an ordinal measure of *CERS* ($\chi^2(12)= 49.500$, $n= 56$, $p< .001$). There was a strong association between *classical religion* and a dichotomous measure of *CERS* (0 = 0 CERS present, 1 = 1 to 7 CERS present) (Cramer's V= 0.532, $n= 56$, $p< .01$). Of the 37 cultures in the pre-classical condition, the vast majority had zero CERS present (26/37; 70.2%), while eight possessed one CERS (8/37; 21.6%) and three possessed two systems (3/37;

8.1%). In contrast, of the 25 cultures in the mixture condition, the minority had zero CERS present (8/25; 32.0%) (Table 4.1.)

Table 4.1. Frequency relating an aggregate score of CERS present to the variable classical religion

		Frequency of Religion		
Number of CERS Present	*n*	Pre-Classical System Present	Mixture System Present	Classical System Present
0	34	.764	.235	0
1	18	.444	.500	.055
2	5	.600	.200	.200
3	0	0	0	0
4	2	0	.500	.500
5	3	0	.333	.667
6	6	0	.333	.667
7	6	0	.333	.667

Having found a statistically significant ($p < .001$) and strong association between classical religion and an aggregate ordinal measure of CERS, the individual CERS in this survey were investigated to identify which system(s) may interact with these measures of the influence of classical religion. There was a positive and strong correlation between the presence of classical religion and each CERS under investigation (Table 4.2) (all at least $p < .01$).

Table 4.2 Crosstabulation (χ^2) and *p* values relating individual CERS to the variable classical religion

		Classical Religion	
CERS	*N*	χ^2 (df)	*p* value
Standardised Script	74	41.62 (2)	<.001
Standardised Calendrical and Timekeeping	73	21.77 (2)	<.001
Written Literature	74	36.09 (2)	<.001
Codified Laws & Punishments	74	31.86 (2)	<.001
Criminal Records	72	38.41 (2)	<.001
Transactional Records	71	30.67 (2)	<.001
Printing	72	14.57 (2)	.001

Having found a positive correlation between classical religion and each CERS under investigation, this section now provides some descriptive statistics of the resulting dataset (Table 4.3). The vast majority of the societies sampled in the classical religion condition were shown to possess a standardised script, a standardised calendrical and timekeeping system, written literature, codified laws and punishments, criminal records, and transactional records. In contrast, little to none of the societies sampled in the pre-classical or mixed religious tradition were shown to possess the CERS under investigation, except standardised calendrical and timekeeping systems, which was present in 70.8% of the societies sampled in the mixed religious tradition condition. Therefore, the null hypothesis, which stated that there is no significant relationship between classical religion and CERS, was rejected.

Table 4.3 Frequency of individual CERS in societal-level measures of classical religion

CERS	*n*	Religion		
		Pre-Classical System Present (apprx.)	Mixture System Present (apprx.)	Classical System Present (apprx.)
Standardised Script	74	.000	.280	.916
Standardised Calendrical and Timekeeping	73	.297	.708	1.00
Written Literature	74	.000	.280	.833
Codified Laws and Punishments	74	.000	.240	.750
Criminal Records	72	.000	.166	.818
Transactional Records	71	.085	.250	.916
Printing	72	.000	.012	.400

Hypothesis 4.2: The presence of a belief in moral high gods is positively correlated with the presence of CERS

As predicted, a Chi-square test for association revealed a statistically significant association between the presence of a belief in moral high gods that are active in human affairs (Swanson 1964), recoded as a binary variable (Johnson 2005; Roes and Raymond 2003), and the presence of CERS ($\chi^2(1)= 7.806$, n= 56, $p< .01$). In addition, there was a positive correlation between the original ordinal measure of a belief in moralising high gods provided by Swanson (1964) and an aggregate ordinal measure of CERS ($r_S= .426$, $n= 57$, $p= .001$). There was a moderately strong association between a belief in moral high gods and a dichotomous measure of CERS (Cramer's V= 0.373, n= 56, $p< .01$). In fact, positive correlations were found between each complex external representational system under investigation and a belief in moral high gods, except printing systems (all $p< .05$). Given the positive correlation between CERS and a belief in moral high gods,

the individual CERS under investigation were examined to identify which system(s) may interact with these measures.

Table 4.4 Crosstabulation (χ^2) and *p* values relating individual CERS to the variable of moral high gods (binary)

		Presence of a belief in moral high gods (binary)	
	n	χ^2 (df)	*p* value (2-tailed)
Standardised Script	56	14.39 (1)	<.001
Standardised Calendrical and Timekeeping	55	7.38 (1)	<.01
Written Literature	56	11.62 (1)	<.01
Codified Laws & Punishments	56	9.04 (1)	<.01
Criminal Records	54	12.00 (1)	<.01
Transactional Records	53	10.91 (1)	<.01
Printing	54	4.80 (1)	.06

Positive correlations were found between each complex external representational system under investigation, except printing, and the presence of a belief in moral high gods (all at least $p < .05$, except printing, see Table 4.4). The majority of the HRAF-societies sampled with standardised scripts, written literature, codified laws and punishments, criminal records, transactional records, and printing systems also possessed a belief in moral high gods that were active in human affairs and supportive of morality. Nevertheless, the overwhelming minority of the HRAF-societies sampled without a belief in this type of god had a standardised script, standardised calendrical and timekeeping systems, written literature, codified laws and punishments, criminal records, transactional records, or printing (Table 4.5).

Table 4.5 Frequency of the presence of individual CERS to the presence or absence of a belief in moral high gods (MHG)

		Moral High Gods	
	n	Societies with MHG with CERS Present (apprx.)	Societies without MHG with CERS Present (apprx.)
Standardised Script	56	.750	.181
Standardised Calendrical and Timekeeping	55	.481	.166
Written Literature	56	.727	.200
Codified Laws and Punishments	56	.700	.217
Criminal Records	54	.777	.200
Transactional Records	53	.692	.200
Printing	54	.750	.240

Hypothesis 4.3: Classical religion is positively correlated with cultures with religious rituals in which texts are recited

As predicted, a two-sided Fisher's Exact Test revealed a statistically significant association between the presence of classical religion and cultures with religious rituals in which texts are recited ($p < .01$). Of the 16 cultures sampled with religious rituals in which texts are recited (Atkinson and Whitehouse 2011), half (8/16) occurred where classical religion (Christianity, Islam, Hinduism, Buddhism) was the indigenous religion or had been adopted by all or almost all in the culture, 31.2% (5/16) occurred where some elements of classical religion mixed with indigenous beliefs and practices, and the remaining 20.0% (3/15) occurred in pre-classical cultures, who had no contact with classical religion or who had contact but no record of ideas being adopted exist. The null hypothesis, which states that there

is no significant relationship between classical religion and cultures with religious rituals in which texts are recited, was rejected.

4.5 Discussion

Hypothesis 4.1: The presence of classical religion will be positively correlated with the presence of CERS.

The results the ethnographic analysis of this chapter lend support to the close association between the presence of classical religions and the presence of literate behaviour. These findings accord with the available comparative cross-cultural, historical, and archaeological literature.

To the extent to which 'classical religion' can serve as an effective proxy for doctrinal religious systems, Boyer's empirical prediction that 90% (Boyer 2002) or 95% (Boyer 2005) of societies with 'doctrinal' systems possess writing receives empirical support. 92% of the societies sampled in the classical religion condition possessed a standardised script. Interestingly however, the relationship between standardised scripts and classical religions did not appear to be as unique as the proponents for the primacy of writing in the cultural transmission of complex hierarchical religious traditions might contend. In fact, there was a positive and strong correlation between the presence of classical religion and each of the CERS under investigation. Like standardised scripts, for example, 92% of the societies sampled in the classical religion condition possessed transactional records. Therefore, if one were to adopt Boyer and Goody's logic, one could conclude that the 'performative force' of this potentially more ancient storage/accounting system, not standardised scripts, facilitated the emergence and spread of complex and hierarchical doctrinal religious traditions.

Another CERS, standardised calendrical and timekeeping systems, was even more frequent than standardised scripts in the societies sampled in the classical religion condition. In fact, every society sampled (100%) in the classical religion condition possessed standardised calendrical and timekeeping systems. Again, adopting the logic of Goody, Gellner, Boyer, and others who employ the 'autonomous' model (Street 2006a), one could contend that the mere presence of a standardised calendrical or timekeeping system in a given society could help to standardise the ordering of time for ritual activity, subsistence, travel, exchange, or any other activity. This may be because standardised calendrical or timekeeping systems provided the 'performative force' necessary for the homogenisation of religious representations and the spread of classical religions.

Of course, it is the specific purposes to which standardised calendrical and timekeeping systems are put (*i.e.*, their functional applications) and their success in solving collective action problems, not their mere existence that would facilitate the emergence of increasingly large, complex, and hierarchically-organised religious traditions (Whitehouse 2000: 174). Similar arguments could be made for written literature, codified laws and punishments, and criminal records, which all were correlated positively with the societies sampled in the classical religion condition, but not in the pre-classical religion condition. While each of these systems could function to further stabilise[76], freeze[77], standardise[78], systematise[79], decontextualize[80,81],

[76] Boyer asks, '[h]ow do guilds manage to keep their message stable and uniform?' and responds, 'a great advantage of writing is that it facilitates the uniformity of service and practice that the main selling point of such professional groups' (Boyer 2005: 23).
[77] 'Writing could also freeze aspects of religion as we see with regard both to ritual and myth in Mesopotamia' (Goody 1986a: 38).
[78] 'With writing, […] [s]tandardization and quality control become possible', thus '[d]octrine can be defined and delineated' (Gellner 1988: 74).
[79] 'Writing makes possible the codification and systematization of assertion, and hence the birth of doctrine' (Gellner 1988: 73).
[80] 'The main tool of the transcendent was writing, which disembodied the Word, and made it possible to revere it irrespective of context' (Gellner 1988: 88).

brand[82], conserve[83], or otherwise store or transmit doctrinal religious traditions, no single one of them appears to be necessary or uniquely impactful on the historical emergence of classical religions.

Hypothesis 4.2: The presence of moral high gods will be positively correlated with the presence of CERS

Similarly, the data provided by the current study enabled the analysis of the relationship between the presence of a belief in moral high gods and CERS. Building on the work of Goody and others, Pyysiäinen (1999: 269) contends that writing, when mediated through literate monopolistic religious guilds, facilitates the transmission of a belief in moral high gods, as religious language creates disparity between ordinary and specialist understanding which reinforces and expands the role of the priesthood. As was the case when analysing the relationship between classical religions and standardised scripts, the relationship between a belief in moral high gods and standardised scripts was not as exceptional as predicted by Pyysiäinen et al.

The results of the current study accord with those of Sanderson and Roberts (2008), who found that writing and mode of subsistence were both important predictors of their measure of religious complexity. Statistically significant and positive associations were found between the presence of a belief in moral high gods and the presence of CERS, providing additional empirical support for the positive

[81] '[S]aints, ancestors, and the like belong to oral religions, whereas god beliefs of the monotheistic type belong to literate religion in which words and ideas can be decoupled from a particular context' (Pyysiäinen (2009: 100).

[82] '[L]iteracy is a very useful tool for a religious guild that needs to 'brand' its services, so much so that in history very few 'doctrinal' systems were ever observed with no use of or influence from literacy' (Boyer 2005: 26).

[83] '[O]nce the holy Word have been written down in book form and institutionalized in a church, it becomes a profoundly conservative force, or better a force of continuity—its own continuity, not necessarily the state's, despite changes in the polity or economy' (Goody 1986: 20).

correlation found between the presence of classical religion and the presence of CERS. In fact, the current study revealed a positive correlation between each of the CERS under investigation and the presence of a belief in moral high gods. This finding raises the possibility that each, or a combination, of these CERS may have brought about the dramatic and unilateral changes attributed to writing by Pyysiäinen and others. Alternatively, one could conclude from these findings that the emergence of a belief in moral high gods antedated one of more of the CERS under investigation. One could also conclude that a shift towards a belief in moral high gods facilitated the emergence of larger, more cooperative groups that took advantage of new cooperative tools, such as these CERS, to solve the collective action problems that followed increased polity size and socio-political complexity (see Chapter 5).

Hypothesis 4.3: Classical religion will be positively correlated with cultures with religious rituals in which texts are recited

While there was a significant relationship between the presence of classical religion and cultures with religious rituals in which texts are recited, this relationship did not appear to be as robust as predicted by those who argue for the primacy of writing in the homogenisation and spread of religious traditions. If the exegetical recitation of texts in religious rituals was primary to the homogenisation and spread of doctrinal religious systems, then one might expect to find an incredibly large number of religious rituals in which texts are recited in doctrinal religious traditions. Contrary to this prediction, however, of the 61 rituals sampled from societies in the classical religion condition in the Ritual Database (Atkinson and Whitehouse 2011), the minority (24/61; 39.3%) contained the recitation of texts. Similarly, if ‘literate religions […] spread like jam [because of] the performative force of that channel of

communication', as Goody (1986a) suggests, it is difficult to explain why a quarter (10/40) of the rituals in which texts were recited did not belong to complex, hierarchical, classical religions.

4.5.1 General discussion

Given (1) the close empirical association between both classical religion and a belief in moral high gods and the majority of the complex external representational systems under investigation, (2) the likelihood that standardised scripts emerged more recently than several other systems, such as transactional records and standardised calendrical and timekeeping systems, in many, if not all of the societies under investigation and, therefore, may have been impactful in the cultural evolution of classical religions, (3) that each of the CERS under investigation could function to organise, standardise, or otherwise alter the persistence or transmission of doctrinal religious traditions, and (4) the majority of rituals from classical religions sub-sampled from a large database of religious rituals (Atkinson and Whitehouse 2011) did not include the recitation of texts, it is implausible to conclude that the emergence of classical religions and/or moral high gods were contingent on the emergence of standardised scripts.

While the functional application of one or more of these CERS may have served in a secondary and elaborative role in the increasing complexity of religious systems in one or more of the societies sampled, this chapter offers evidence and argument in favour of the conclusion that the historical cultural transmission and stabilisation of literate behaviours, particularly standardised scripts, was contingent on the spread of classical religions, as attested by the available archaeological (Trigger 2004), palaeographic (Diringer and Regensburger 1968), sociolinguistic (Coulmas 2003), and anthropological data (Whitehouse and Hodder 2010).

4.6 Limitations of the current study

Citing decades of debate regarding the relationship between doctrinal religions and writing, the current study examined some of the bolder and more testable predictions of this debate. Subsequently, two sets of variables were isolated and quantified, namely those related to (a) classical religions and (b) literate behaviours. By limiting its empirical scope in this way, the current study allowed for the most detailed comparative cross-cultural analyses of the relationship between classical religions and literate behaviours to date. However, this focused approach did not explore several other important factors in the cultural transmission of literate behaviours. While the results of the current study indicate that classical religions facilitated the standardisation and spread of literate behaviours, it remains difficult to infer accurately the direction of causality between these two factors given the nature of the data investigated.

Potentially fertile areas of exploration into the cultural transmission of CERS include analyses of the influence of the following: the development and expansion of increasingly complex political entities, such as kingdoms, states, and empires (Renn and Hyman 2012: 1); cultural beliefs concerning the value of particular CERS, such as the use of the Latin or Latinate scripts in the storage and transmission of Christian religious doctrine (Coulmas 2003); exchange and the elaboration of trade routes and ethnically-diverse markets (Renn and Hyman 2012: 1); ecological factors including geographic features and topographic determinants; the evolution of transportation technologies (Basalla 1988); within-group social stratification, such as the restriction of CERS to certain groups, *e.g.*, social classes (Olson and Torrance 2009); and the capacity and efficiency of a given standardised script in encoding the linguistic content of neighbouring or interacting groups (Bright and Daniels 1996; DeFrancis

1989; Sampson 1985). To allow causal predictions to be tested directly, however, these proposed areas of further exploration require additional historical and cross-cultural data. As noted in Chapter 3, one notable project, 'Seshat: Global History Databank', may provide the data necessary to test competing hypotheses regarding the spread of literate behaviours around the globe.

Trigger summarises the large number of variables in play in the cultural transmission of CERS saying, 'religious, political, ethnic, and class loyalties, as well as cultural beliefs and preferences, have played an important role in both resisting and bringing about changes in scripts" (Trigger 2004: 67). Coulmas (2003: 203) expresses a similar appreciation for the role of politics and trade on the cultural transmission of these systems, saying:

> [t]rade and empire also played major roles, as exemplified, for instance, by the spread of cuneiform from Assyrian/Babylonian to other languages in the region, the wide dissemination of the Aramaic script as the clerical medium of Imperial Aramaic, or, in modern times, the promotion of the Russian alphabet in the Soviet Union. Many languages, such as, for example, Korean, Mongolian, Persian, Romanian, Turkish and Vietnamese have been written in different scripts, reflecting changing political alignments.

More comprehensive examinations of the cultural transmission of literate behaviours will need to explore the influence of these factors.

4.7 Conclusion

The current large-scale cross-cultural study presents a first step towards an empirical account of the role of classical religions in the cultural transmission of CERS. The results of this chapter accord with the available comparative archaeological (Trigger 2004), palaeographic (Diringer and Regensburger 1968), sociolinguistic (Coulmas 2003), and anthropological (Whitehouse and Hodder 2010) literature. Specifically, the results of this chapter indicate that (1) there is close empirical association between the presence of large, hierarchically-organised

religious traditions and literate behaviours and (2) the historical cultural transmission and stabilisation of literate behaviours, particularly standardised scripts or writing, may have been contingent on the spread of classical religions.

Classical religions did not appear to rely as heavily on writing as predicted by those who contend for the primacy of writing in the homogenisation and spread of classical religions. Contrary to the prediction that there should be an incredibly large number of religious rituals in which texts are recited in classical religions, only approximately a third contained the recitation of texts. Moreover, a quarter of the rituals in which texts were recited did not belong to classical religious systems, making the prediction that writing homogenised and standardised classical religions increasingly untenable. Additional cross-cultural and historical data are required to analyse the empirical relationship between the religious rituals of classical religions and the remaining CERS under investigation, most notably standardised timekeeping and calendrical systems and transactional records. The current study encourages further cross-cultural comparative research into the cultural transmission of CERS by identifying several previously unappreciated factors.

Chapter 5

The role of literacy in the cultural evolution of large-group human cooperation

5.1 Introduction

Evidence from the societies within which complex external representational systems (CERS) first emerged, and from a representative sample of ethnographically-attested societies, indicates that literate behaviour emerged through the routinization of rituals and the resulting 'repetitious intensification' of pre-literate sign systems (Chapter 3) before being standardised and dispersed through the spread of classical religious traditions (Chapter 4). Once present, CERS are shown to assume a large number of forms and socio-political functions (Chapter 1), particularly in large, complex groups. Why?

Recently, several social scientists have hypothesised that the behavioural innovation of literacy, like the emergence of agriculture, was one of the most consequential events in human history. According to Adam Smith (2008: 3), '[t]he emergence of literacy […] ranks alongside the transition to agriculture as one of the most consequential changes that our species has undergone during the Holocene. Similarly, Andrew Wells (2012: 1) observes, '[w]ith the possible exception of systematic agriculture, literacy is the most important technology that humans have invented'. Christopher Woods (2010: 15) argues, 'it would be difficult to dismiss the

contention that writing – the boundary between history and prehistory – transformed civilization more than another other invention'. Gil Stein (2009: 7) finds, '[w]riting is one of the most important inventions ever made by humans. […] Writing was the world's first true information technology, and it was revolutionary'. Barry Powell (2012: 1) opens his book, which is entitled *Writing: theory and history of the technology of civilization*, with the words '[i]t is not hard to see that writing is the single most important technology in human life'. Finally, Jared Diamond (1999: 29) observes, 'writing [is] possibly the most important single invention of the last few thousand years'. These scholars join a long line of social theorists, including Gibbon (1776), Astle (1784), Morgan (1877), Breasted (1926), Goody (1986a) and others[84], in attributing importance to the role of literacy in increases in polity size and socio-political complexity.

Social theorists have long supported the idea of a non-arbitrary association between the presence of literate behaviour and the emergence of socio-political complexity. For many, literate behaviour is one of the principal causes and identifying features of particularly complex and large-scale forms of socio-political organisation, most notably 'civilisation'. Edward Gibbon (1776: 218) writes, '[t]he use of letters is the principal circumstance that distinguishes a civilized people from a herd of savages, incapable of knowledge or reflection'. According to Thomas Astle (1784: i), 'the noblest acquisition of mankind is SPEECH and the most useful art is

[84] Unlike those who point to the enlightening effects of the invention or introduction of writing, Lévi-Strauss (1973: 392) argues that 'the only phenomenon with which writing has always been concomitant is the creation of cities and empires, that is, the integration of large numbers of individuals into a political system, and their grading into castes or classes'. For Lévi-Strauss (1973: 392–393), the use of writing for intellectual and aesthetic pleasure is a secondary result of its primary function of writing, which is to facilitate slavery and to make possible the exploitation of thousands of workers. Lévi-Strauss (1973: 393) evidences this second point — writing did not consolidate knowledge, it only strengthened dominion — by noting that (1) native empires in African and in pre-Columbian America, while large, did not persist for more than a few decades; (2) the expansion of compulsory education across Europe was tied to the extension of military service and proletarianization; and (3) the advocacy of literacy is connected with increased governmental authority 'so that the government can say: Ignorance of the law is no excuse'.

WRITING. The first, eminently, distinguished MAN from the brute creation; the second, from uncivilized savages' (emphasis in the original). Astle (1784) continued, 'without speech we should scarcely have been rational beings' before concluding that writing is an 'invention [...] which hath contributed more than all others to the improvement of mankind'[85]. Similarly, president Abraham Lincoln (1953: 360) observes, '[w]riting – the art of communicating thoughts to the mind through the eye, is the great invention of the world [...] enabling us to converse with the dead, the absent, and the unborn, at all distances of time and space; and great, not only in its direct benefits, but greatest help, to all other inventions'. For Lewis Henry Morgan (1877), literate behaviour, specifically the phonetic alphabet, was the principal behavioural innovation that distinguished civilisation from upper barbarism[86]. In the view of James Henry Breasted (1926: 53–54), '[t]he invention of writing and of a convenient system of records on paper has had a greater influence in uplifting the human race than any other intellectual achievement in the career of man. It was more important than all the battles ever fought and all the constitutions ever devised'.

More recently, Carlo Cipolla (1969: 8) observes, '[i]t appears that the art of writing is strictly and inevitably connected with the condition of urbanization and commercial intercourse'. Jack Goody (1987: 300) concludes, '[c]ognitively as well as sociologically, writing underpins 'civilization', the culture of cities'. Peter Daniels (1996a: 1) states, '[h]umankind is defined by language, but civilization is defined by

[85] See Finnegan (2006) for a critique of Thomas Astle's treatise.

[86] According to Lewis Henry Morgan (1877: 10), '[a]ll such tribes, then, as never attained to the art of pottery will be classed as savages, and those possessing this art but who never attained a phonetic alphabet and the use of writing will be classed as barbarians.' Morgan (1877: 31) continued, '[t]he achievements of civilized man, although very great and remarkable, are nevertheless very far from sufficient to eclipse the works of man as a barbarian. As such he had wrought out and possessed all the elements of civilization, excepting alphabetic writing. [...] The use of writing, or its equivalent in hieroglyphics upon stone, affords a fair text of the commencement of civilisation. Without literary records neither history nor civilization can properly be said to exist. The production of the Homeric poems, whether transmitted orally or committed to writing at the time, fixes with sufficient nearness the introduction of civilization among the Greeks.'

writing'. Neil MacGregor (2012) finds, '[writing is] essential for the creation of human civilization'. Andrew Bosworth (2003: 9) argues, '[w]riting is the DNA of civilization. […] The connection between writing and civilization could not be more intimate'. Chris Scarre (2013: 196), following James Hooker (1990), observes, '[a] salient feature of early states that is of wide significance is the adoption of writing.' Finally, Florian Coulmas (2003: 191) writes, '[t]he idea of writing emerged bit by bit, only gradually revealing its potential as one of the most powerful tools of civilization builders'. Is the behavioural innovation of literacy consequential enough in the evolution of large, complex societies to warrant these conclusions?

5.1.1 Limitations of existing qualitative research

The evidence from existing qualitative research is insufficient to affirm that the behavioural innovation of literacy was a principal factor in the evolution of large, complex societies. Many social theorists employ the 'autonomous model' of literate behaviour, viewing the cognitive and social effects to be largely invariant cross-culturally (Street 2006a). In other words, these theorists work from 'the assumption that literacy itself – autonomously – will have effects on other social and cognitive practices' (Street 2006a). Insights garnered from anthropology, archaeology, and history reveal that it is the purposes to which literate behaviours are put (Barton and Hamilton 1997; Halverson 1992a; Trigger 2004; Whitehouse 2000), the techniques employed in their execution (Pfaffenberger 1992), and the context of their application (Barton et al. 2005; Boyarin 1993; Cipolla 1969; Finnegan 1988; Harris 1989; Heath 1991; Kaestle and Damon-Moore 1993; Lockridge 1974; Street and Besnier 1994a; Street 1993, 2009, 1984; Thomas 1992), not their mere existence, that determine their function and, therefore, their potential ability to enable large-group human cooperation and novel forms of socio-political organisation.

Moreover, previous research regarding the relationship between literate behaviour and large, complex forms of socio-political organisation present insufficient evidence to support their universalising conclusions because they rely on appeals to authority, assertion or 'cherry-picked' case studies; or are empirically unfalsifiable. Debates concerning the role of literacy in the emergence of socio-political complexity around the globe have suffered from a dearth of reliable empirical data. For example, Morgan cites fragmentary evidence from a handful of Native American societies before offering his universal typology of 'the principal stages of human development'. Breasted (1926) is limited severely by the comparative archaeological evidence available to him and, like Morgan, is hamstrung by his eurocentrism[87] and his adherence to the tenants of progressive evolutionism[88]. While Jack Goody draws on his extensive ethnographic fieldwork amongst the LoDagaa and LoWiili of northern Ghana to evidence his ambitious and unilateral predictions regarding the role of literacy in the emergence of socio-political complexity (*i.e.*, the 'literacy thesis[89]'), contrary ethnographic evidence offered by Scribner and Cole

[87] The social theories developed by Breasted (1926) and Morgan (1877) are 'Eurocentric' because they forward a worldview that centers on Western European civilization. These authors demonstrate a scholastic commitment to the notion of European exceptionalism, which privileges European history and societies while ignoring or suppressing the study non-European groups.

[88] Breasted (1926) and Morgan (1877) submitted social theories in which societies underwent unilinear development through the general stages of savagery, barbarism, and civilisation.

[89] Goody's prolific writings on this topic are often referred to collectively as the 'literacy thesis' (Goody and Watt 1963; Goody 1968, 1977, 1986a, 1987, 1998, 2000a, 2000b, 2004, 2010). The literacy thesis predicts that literacy has inherent properties which transform social organisation and cognitive processes. Pascal Boyer, following Goody, calls this a 'cognitive style' (Boyer 2001: 280). The literacy thesis suggests that new forms of social organisation will follow the emergence of literacy, especially alphabetic literacy, independent of social setting, techniques of usage, or functional application. Like Morgan, proponents of the literacy thesis claim that alphabetic literacy has a 'civilising effect' on human societies, facilitating increases in social complexity and polity size. Goody (1987: 56) seems to have retracted his emphasis on alphabetic literacy in his earlier work (Goody and Watt 1963), saying, 'it is a gross ethnocentric error of Europe to attribute too much to the alphabet and too much to the West.' By treating literacy as a transportable technology like any other, proponents of the literacy thesis seek to contrast 'oral' and 'literate' social forms. According to Goody (1977: 110), '[t]he existence of the alphabet therefore changes the type of data an individual is dealing with, and it changes the repertoire of programmes he had available for treating this data. Whether or not it changes the hardware, the organization of the central nervous system, and if so over what time span, is another matter, but on the analogy of language the possibility is there. […] I would argue that changes […] of the kind I have mentioned could be described as differences in modes of thought, or

(1981), Bloch (1986, 1998), Finnegan (1988), Parry and Bloch (1989), Street (1993), Whitehouse (1995, 2000), and others is unable to empirically demonstrate that their counter-evidence is not anomalous. Similar shortcomings limit the explanatory power of the analyses provided by Cipolla (1969), Daniels (1996a), MacGregor (2012), Bosworth (2003), and Coulmas (2003). Some existing studies focus exclusively on (1) the diversity of CERS found cross-culturally (Hooker 1990; Houston 2004a; Senner 1989), (2) a circumscribed subset of the functional applications of literate behaviour in cherry-picked historical case studies (Goody and Watt 1963; Halverson 1992b; Havelock 1963), or (3) the method by which literate behaviours encode speech (Bright and Daniels 1996; Coulmas 2003; DeFrancis 1989; Sampson 1985), failing to account for the shared features and evolutionary history of these systems and behaviours.

5.1.2 Existing quantitative research

Large-scale samples of ethnographic data offer empirical support in favour of a non-arbitrary association between the presence of literate behaviour and large groups. As noted in Chapter 1, a recent cross-cultural survey (Basu et al. 2009) analysed data from 186 societies, which comprise the Standard Cross-Cultural Sample (*i.e.*, SCCS) (Murdock and White 1969), and found that the association between empirical proxies for literacy and group size is positive and non-linear with a

---

reflective capabilities, or even cognitive growth.' Despite its persistence, the literacy thesis has been heavily criticized since its proposal (Andersen 1989; Collins 1995; Finnegan 1988; Halverson 1992a; Harris 1989; Heath 1983; Parry and Bloch 1989; Raven 2001; Street 1984, 2011). Most of these criticisms centre on the argument that the category of 'literacy' is under-defined. Its critics contend that it provides an insufficient category to assess the implications of the enormous variety of cultural transmission and storage systems employed in various ways by polities around the world. The imposed binary of 'oral' / 'literate' allows proponents of the literacy thesis to associate a constellation of social as well as cognitive features to these imprecise and unfalsifiable categories. Critics also note that the evidence in favour of the literacy thesis is cherry-picked and, therefore, cannot be generalised to formulate reliable cross-cultural predictions. As a consequence, the literacy thesis does not provide an adequate theory of the origin and early evolution of literate behaviour and its potential social effects.

monotonically increasing mean once group size reaches 200 or more persons ($p < 0.01$) (see Figure 1.2 of Chapter 1).

5.1.2.1 Limitations of existing quantitative research

Despite the quantitative associations between literacy and large, complex groups, theories of the role of literate behaviour in the evolution of socio-political complexity remain controversial (Barton and Hamilton 1997; Finnegan 2006; Halverson 1992a; Street 2006a; Trigger 2004; Whitehouse 2000). Much of this controversy stems from the limitations of existing data sources with regard to measures of both (1) polity size and socio-political complexity and (2) literate behaviour. The SCCS, which provides the most prominent measures of polity size and socio-political complexity, suffers from a sampling bias towards small-scale societies (see Figure 1.3). Existing quantitative cross-cultural data on literate behaviour (Murdock and White 1969) employ a now-defunct, monogenetic and unilineal historical model of literate behaviour's emergence and development, as discussed in Chapters 2 and 3.

Up until now, the qualitative and quantitative research available does not provide the evidentiary foundation necessary to make cross-cultural generalisations regarding the empirical relationship between literate behaviour and large, complex forms of socio-political organisation.

5.1.3 Overcoming the limitations of existing research

Drawing relevant empirical data from a large, representative sample of societies drawn from around the globe allows the present study to overcome the seemingly intractable problems of previous qualitative research. Likewise, the present study addresses the major shortcomings of previous quantitative research

by (1) widening the evidentiary basis for comparison by using a sampling frame that is not biased towards small-scale societies (see Figure 5.1) and (2) focusing on an isolated set of relevant and quantifiable variables related to the products of literate behaviour, CERS. The potential role of complex external representational systems in the cultural evolution of large-group human cooperation is examined statistically for a large sample of societies drawn from around the world (N= 74) by extracting and coding relevant textual material from a large number of primary ethnographic reports, cross-cultural data sources, and grammatological accounts, as described in Chapter 2. As a result, the present study provides the most rigorous examination of the relationship between literate behaviour and large-group human cooperation and socio-political complexity available.

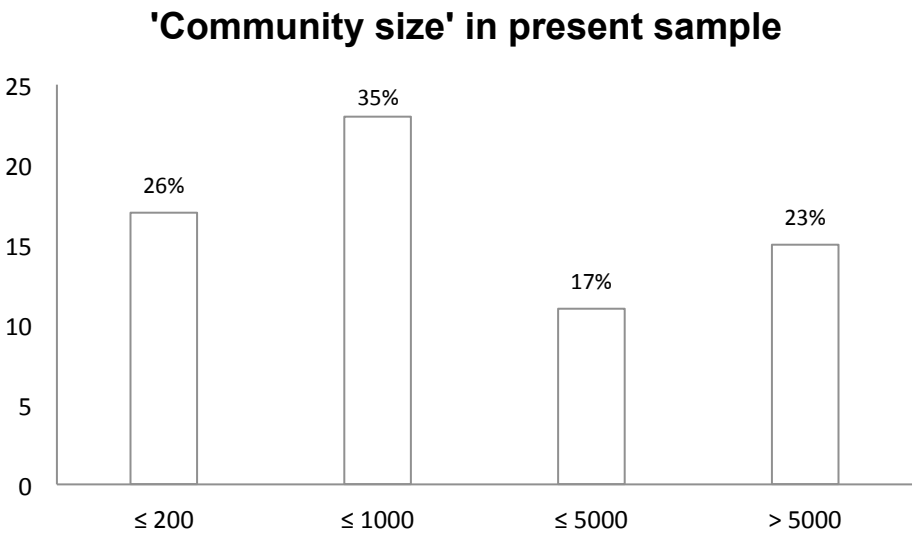


Figure 5.1. The polity sizes of the sampling frame of the present study is more balanced than the sampling frame of the SCCS, which suffers from a bias towards small-scale societies (see Figure 1.3). The total number of societies that fall into that category on the 'community size' scale (X-axis) are represented on the Y-axis. Using the available 'community size' data (n= 66), the frequency of societies for each category is presented as a percentage above each bar.

5.1.3.1 The role of CERS in the cultural evolution of large-group cooperation

While our evolved psychology provides us with the necessary tools to initiate and sustain cooperation in small groups, it is not sufficient when social interactions

between strangers are frequent because interactants are not able to keep track of group members or the outcome of exchanges with previous interactants, assess the reputations of potential exchange partners, or benefit from the direct benefit of reciprocity or the indirect reciprocal benefit of developing a reputation for being a co-operator or interacting with a known co-operator. As discussed in Chapter 1, when groups gain in size and complexity, anonymity threatens the stability of the group because co-operators are vulnerable to exploitation by those who reap the benefits of cooperation without paying the costs (*i.e*., free-riders) (Cohen 1955). Free-riders, cheats, and defectors are more likely to go undetected and unpunished as groups grow in size and complexity, resulting in a rapid break-down of cooperative behaviours. Increasing anonymity also decreases the likelihood of 'altruistic punishment' or 'prosocial punishment', which enables cooperation by enforcing cooperation by the recipient but at a cost to the actor (Fehr and Gächter 2002), because the indirect and direct benefits of the costly act of punishment are greatly diminished in large, anonymous groups. In sum, the initiation and maintenance of cooperation in large groups is difficult because self-regarding individuals are able to benefit from the cooperation of others without bearing their share of the costs.

While a number of cultural tools have been proposed to overcome the severe limitations of our evolved psychological adaptations, such as those explored in the Chapter 1, little attention has been accorded to the role of literate behaviour in the evolution of cooperation in large-scale societies. Literate behaviour represents a particularly promising candidate factor in the emergence of large-group cooperation and the concomitant emergence of novel, large-scale and complex forms of socio-political organisation because of its potential functional applications as extensions of the existing psychological mechanisms for cooperation provided to us by our evolved

psychology (Mullins et al. 2013). The methods and concepts of cultural evolution can be applied to the study of literate behaviour to provide an adaptive explanation of this behaviour and its potential role in the cultural evolution of large-group human cooperation and novel forms of socio-political organisation. As noted by Florian Coulmas (1989: 15), 'writing can be seen as a kind of social problem solving, and any writing as the common solution of a number of related problems'.

The current study employs evolutionary theory to investigate the role CERS may have played in the elaboration of certain evolved cooperative adaptations, including reciprocity, reputation formation and maintenance systems, social norms and norm enforcement systems, and group identity and mutualism. Each of these cooperative adaptations will be discussed in turn below.

5.1.3.1.1 Reciprocity

Reciprocity facilitates cooperation (Axelrod and Hamilton 1981; Trivers 1971) because it allows individuals to preferentially associate and exchange with known co-operators, thus increasing the likelihood of a beneficial association or exchange. Cooperation is facilitated by both direct reciprocity, in which individuals track the behaviour of those individuals with whom they have interacted, and indirect reciprocity, whereby individuals have access to information about the cooperativeness of potential interaction partners (Nowak and Sigmund 1998). Human evolved psychology alone is able to make use of this cooperative tool in small groups because (1) exchanges are sufficiently few to track and store in memory and (2) people can track the increased cost of performing a costly act without reciprocation over time.

As groups grow in size, however, this small-group cooperative tool begins to become increasingly ineffective because (1) exchanges are too numerous and

heterogeneous to track and store in memory and (2) constantly adjusting the cost of performing numerous reciprocal exchanges over time exceeds the limits of evolved cognition.

This chapter predicts that two key CERS function to extend the efficacy of the evolved cooperative adaptation of reciprocity to large groups by functioning as elaborative tools. Transactional records provide the first elaborative tool, while standardised calendrical records and time-keeping systems provide the second. Transactional records function to externalise and store contracts, enabling them to be (1) repeatedly accessed over long periods of time, (2) transported over great distances, and (3) externally validated. These functions increase the number of direct reciprocal exchanges between interactants and increase the efficacy of reciprocal exchange in big groups. Standardised calendrical records and time-keeping systems function to (1) coordinate and synchronise exchange and (2) provide a precise and explicit representation of time against which contracts can be written and compared. This second tool has the effect of increasing the predictability of exchange and increases the number and fidelity of reciprocal exchanges between interactants in large, anonymous groups.

5.1.3.1.2 Reputation formation and maintenance systems

Reputation formation and maintenance systems facilitate cooperation between humans by providing new information about potential partners (*e.g.*, gossip and other forms of cultural learning), thereby changing motivations to defect by attaching a reputation benefit to cooperation and a reputation cost to defection (Henrich and Henrich 2007). For reciprocal behaviours to persist several criteria must be met: (1) interactants must be able to recognise previous interactants, (2) interact repeatedly, and (3) recall the relevant outcomes of previous exchange(s)

(Axelrod and Hamilton, 1981). Unaided human psychology alone makes use of this cooperative tool in small groups because individuals are able to remember and recall the deeds of others and modify their cooperative behaviour accordingly. However, as with reciprocity, the efficacy of reputation formation and maintenance systems falls precipitously in large groups because individuals frequently encounter strangers whose reputational states is by definition unknown.

This chapter examines how one complex external representational system, criminal records, functions to extend the efficacy of this small-group cooperative tool to large groups. Criminal records may function to provide a record of an individual's transgressions, which allows potential employers, lenders, or exchange partners (*i.e.*, interactants) to assess an individual's trustworthiness. This function extends the efficacy of reputation to promote cooperation in large, anonymous groups.

5.1.3.1.3 Social norms and norm enforcement strategies

Social norms and norm enforcement strategies are also important cooperative tools. Explicit social norms can function to minimise free-riding behaviour by aiding in the adoption of already widely-shared or highly-valued beliefs about how an interactant should behave in a particular scenario (Mullins et al. 2013). Social norms and their accompanying enforcement strategies (*e.g.*, moral punishments) remove the selection advantage of norm violation and favour the selection of norm-abiding behaviours within small groups. In small groups, this cooperative tool remains effective because norms can be collectively agreed and enforced. In larger groups, however, transgressions can be difficult to trace to culprits and crimes can be committed under the cloak of anonymity. Moreover, norms cannot be collectively agreed and enforced without some method of recognising and policing unauthorised innovation.

The current study proposes that four CERS — standardised scripts, codified laws and punishments, written literature, and printing systems — function to elaborate and extend the efficacy of social norms and norm enforcement strategies to large groups. Standardised scripts may function to reduce ambiguity about the mutual adherence to social norms by providing a portable, high-fidelity, and repeatedly accessible mechanism for social norm transmission and standardisation. Codified laws and punishments may function to make social norms and norm enforcement strategies more explicit, authoritative, and stable. Written literature may function to standardise, store, and transmit social norms and norm enforcement strategies. Printing may increase the efficacy of social norms and norm enforcement strategies by standardising, storing, and transmitting social norms and norm enforcement strategies more quickly, efficiently, and affordably than in non-printed written literature. These functions increase the efficacy of social norms and norm enforcement strategies in large, anonymous groups.

5.1.3.1.4 Group identity and mutualism

Finally, identification with a group and mutualism has been shown to promote cooperation (Buchan et al. 2011). Small group human psychology is highly attuned to group membership and signals of group identity as a way of determining the social boundaries of trust (Brewer 2007), so much so that even trivial and arbitrary differences between groups are enough to instigate ingroup favouritism (Billig and Tajfel 1973; Mullins et al. 2013).

In small groups, group identity and cohesion is efficacious for two, primary reasons. First, in-group members comprise known and readily identifiable individuals in small groups. Second, group identity and cohesion function to enable cooperation

in small groups because the imagistic mode[90] established relational ties in small groups based on shared experiences. Each of these functional applications of group identity and cohesion in small groups will be explored in turn. As it relates to its first small-group function, group identity and cohesion breaks down in large groups because transgressions can be difficult to trace to culprits and crimes can be committed under the cloak of anonymity. Moreover, group norms cannot be collectively agreed and enforced without some method of recognising and policing unauthorized innovation. As noted above, group identity and cohesion also functions to enable cooperation in small groups because the imagistic mode establishes relational ties in small groups based on shared experiences. In larger groups, however, relational ties based on shared experience cannot encompass large groups and so have to be replaced by categorical ties based on shared beliefs and practices.

This chapter proposes that two CERS function to extend the efficacy of this small-group tool to larger groups — standardised calendrical records and written literature. Standardised calendrical records and time-keeping systems may function to coordinate and synchronise large, collective rituals, which may function to increase group cohesion in big groups (*i.e.*, extend the doctrinal mode). Written literature may facilitate cooperation in large group living by functioning to standardise, store, and transmit shared beliefs across increasingly large numbers of individuals.

In sum, this chapter focuses on the ways in which seven key CERS may function to extend the utility of four evolved cooperative adaptations to solve problems posed by challenges to cooperation in increasingly large and complex

[90] '[L]ow-frequency, high-arousal rituals that must evince strong emotions to etch themselves into episodic memory if they are […] to be remembered accurately' (Atkinson and Whitehouse 2011).

social groups. It presents a foundational empirical account of the cross-cultural ethnographic patterning and distribution of CERS and their relationship with large-group human living and increasingly complex forms of socio-political organisation. Previous cross-cultural analyses of literacy have failed to consider systematically the relationship between specific products of literate behaviour and society-level proxies for group size and socio-political complexity, such as community size and regional jurisdictional hierarchy. While other CERS such as royal displays and external identification devices have also been tied to emergence of socio-political complexity in the historical, archaeological, palaeographic, and grammatological literature, the descriptive constraints and inherent partiality of the ethnographic and cross-cultural record make the inclusion of the these CERS in this database impossible.

5.1.4 Principal aims and objectives

Given the long intellectual history of associating literacy with increased polity size and socio-political complexity, this chapter's first aim was to test statistically the relationship between key products of literate behaviour (CERS) and measures of socio-political complexity. This was accomplished by matching up the sample employed in this study with that of the Ethnographic Atlas (EA) project (Murdock 1967), an empirical database of 1167 societies and published in 29 successive instalments of the journal *Ethnology*. Citing each CERS' hypothesised role in helping to solve problems of large-group cooperation, the first two hypotheses of the current study tested statistical predictions regarding the relationship between the presence of specific CERS and (1) community size, (2) levels of jurisdictional hierarchy, and (3) agricultural intensity.

To test for the cumulative advantage effects of the seven CERS examined here, an aggregate, ordinal measure of CERS was compiled. Subsequently, the

relationships between this aggregate measure and measures of socio-political complexity were analysed.

Second, while CERS very well could account for a significant portion of the observed differences in community size, levels of regional jurisdictional hierarchy, and agricultural intensity, more direct measures of cooperation were employed to assess more accurately the role of CERS in the cultural evolution of large-scale human cooperation. Following Johnson (2005), who identified eighteen ordinal 'indices of societal cooperation' from the 2,000 variables currently available in the SCCS database during his examination of the supernatural punishment hypothesis, the current study takes advantage of existing societal-level proxies for cooperation (*i.e.*, measures that 'may serve to indicate the extent to which the society is composed of cooperatively inclined citizens that are geared towards contributing to the public good') (Johnson 2005: 420).

5.1.5 Hypotheses

The empirical hypotheses tested in the current study are as follows:

Hypotheses 5.1-5.3: The presence of each *CERS* is positively correlated with increasing (a) *community size*, (b) levels of *regional jurisdictional hierarchy*, and (c) levels of *agricultural intensity*.[91]

[91] Data extracted from Atkinson and Whitehouse (2011) provides preliminary support in favour of these hypotheses. According to the database of 645 religious rituals collected from a global sample of 74 HRAF-societies (Atkinson and Whitehouse 2011), 16 HRAF-societies had religious rituals in which texts are recited. There was a positive correlation between the presence of HRAF-societies with religious rituals in which texts were recited and levels of regional jurisdictional hierarchy ($\chi2(4)=13.737$, n=64, $p<.01$), but no significant relationship with community size ($\chi2(3)=6.367$, n=66, $p=.095$) or levels of agricultural intensity ($\chi2(5)=10.180$, n=65, p=.07). While these data are indicative of levels of societal cooperation amongst groups with CERS and is sufficient to reject the null hypotheses— which state that there is no significant relationship between cultures with religious rituals in which texts and recited and levels of regional jurisdictional hierarchy — it is not able to do so for the variables community size and levels of agricultural intensity. A more systematic analysis is required to evaluate the potential relationship between CERS and large-group cooperation.

Hypothesis 5.4: The presence of *CERS* is positively correlated with 'indices of societal cooperation' (Johnson 2005).[92]

5.2 Methods

A detailed description of the methods employed for the current study is available in Chapter 2. In brief, data for this chapter were gathered by performing a textual content analysis of a large number of ethnographic reports, grammatological accounts, encyclopaedia, and other, reputable cross-cultural data sources for a large sample of societies before coding each target CERS as present, absent, or not reported for each society sampled. Existing and independently-coded socio-political measures for this chapter were taken from the Ethnographic Atlas (Murdock 1967) project and the Standard Cross-Cultural Sample (SCCS) (Murdock and White 1969). These additional socio-cultural measures allowed this study to test hypotheses about the relationship between specific CERS and social complexity. The additional variables used in the current study were community size (EA), regional jurisdictional hierarchy (EA), agricultural intensity (EA), and eighteen societal 'indices of cooperation' (SCCS), as identified and discussed by political scientist Dominic Johnson (2005). See Appendix 2 for the codebook of CERS, community size, regional jurisdictional hierarchy, agricultural intensity, and the eighteen proxies for cooperation.

[92] Note that the predicted directions (positive/negative) are contingent on the direction of the SCCS coding, where higher numbers do not always equate to higher levels of the variable in question.

5.3 Results

Hypothesis 5.1 The presence of CERS is positively correlated with community size.

Statistical analysis using asymmetric Somer's D revealed a statistically significant and strong association between an ordinal measure of CERS and community size (Somer's D= .520, *n*= 66, *p*< .001), which was analysed as the dependent variable. As described in Appendix 2, community size is coded as (1) ≤ 200, (2) > 200 and ≤ 1,000, (3) >1,000 and ≤ 5,000, and (4) > 5,000 persons.

The majority of large eHRAF-societies often possessed at least one, if not multiple CERS, while smaller societies did not. Of the fifteen HRAF-societies sampled with a community size greater than 5,000, thirteen (86.6%) possessed at least one CERS, while eight (53.3%) possessed five or more CERS. In contrast, of the forty eHRAF-societies sampled with a community size of 1,000 or fewer persons, only one (2.5%) possessed five or more CERS.

When the smaller eHRAF-societies sampled possessed CERS, they did not possess very many. While the majority (56.5%) of 23 HRAF-societies with a community size between > 200 and ≤ 1,000 persons possessed at least one CERS, ten of these eHRAF-societies (76.9%) had only one CERS and twelve (92.3%) had less than three CERS. Of the seventeen eHRAF-societies sampled with a community size of ≤ 200 persons, only two (11.7%) possessed at least one CERS and none (0.0%) possessed five or more CERS.

Likewise, as predicted, there is a statistically significant and moderate to moderately strong association between each individual CERS and community size (Table 5.1). The majority of HRAF-societies with a community size of > 5,000 persons possess standardised scripts (60.0%), codified calendrical and timekeeping systems (92.8%), written literature (60.0%), criminal records (53.3%), and

transactional records (66.6%), while the minority of HRAF-societies with a community size of ≤ 200 persons possessed standardised scripts (5.8%), codified calendrical and timekeeping systems (11.7%), written literature (5.8%), criminal records (0.0%), and transactional records (0.0%). Therefore the null hypothesis stating no significant relationship between the presence of CERS and community size was rejected.

Table 5.1 Crosstabulation (χ^2) and *p* values relating individual CERS to the variable community size

	Community Size		
	n	χ^2 (df)	*p* value
Standardised Script	66	19.99 (3)	<.001
Standardised Calendrical and Timekeeping	73	20.61 (3)	<.001
Written Literature	74	22.93 (3)	<.001
Codified Laws and Punishments	74	15.12 (3)	<.01
Criminal Records	72	21.99 (3)	<.001
Transactional Records	71	21.22 (3)	<.001
Printing	72	10.24 (3)	<.05

Hypothesis 5.2: The presence of each CERS is positively correlated with increasing levels of regional jurisdictional hierarchy.

Consistent with the predictions of this thesis, statistical analysis using asymmetric Somer's D revealed a statistically significant and moderately strong association between ordinal measures of CERS and regional jurisdictional hierarchy (Somer's D= .416, n= 64, *p*< .001), which was analysed as the dependent variable and chosen as a proxy for hierarchical complexity. All of the sixteen HRAF-societies sampled with two or more CERS present (100%) possessed at least one level of regional jurisdictional hierarchy, while none (0.0%) of the 22-HRAF societies

sampled with zero levels of regional jurisdictional hierarchy had two or more CERS present. Moreover, there was a statistically significant and moderate to moderately strong association between regional jurisdictional hierarchy and each constituent CERS under investigation (Table 5.2) (all at least $p < .05$).

Table 5.2 Crosstabulation (χ^2) and *p* values relating individual CERS to the variable regional jurisdictional hierarchy

		Regional Jurisdictional Hierarchy	
	n	χ^2 (df)	*p* value
Standardised Script	74	23.97 (4)	<.001
Standardised Calendrical and Timekeeping	73	9.60 (4)	<.05
Written Literature	74	25.53 (4)	<.001
Codified Laws and Punishments	74	23.65 (4)	<.001
Criminal Records	72	31.05 (4)	<.001
Transactional Records	71	21.14 (4)	<.001
Printing	72	17.04 (4)	<.01

The majority of HRAF-societies with three or more levels of regional jurisdictional hierarchy possessed standardised scripts (77.7%), standardised calendrical and timekeeping systems (87.5%), written literature (77.7%), codified laws and punishments (66.6%), criminal records (75.0%), and transactional records (77.7%), while the minority of HRAF-societies with two or fewer levels of regional jurisdictional hierarchy possessed standardised scripts (12.7%), standardised calendrical and timekeeping systems (43.6%), written literature (10.9%), codified laws and punishments (9.0%), criminal records (5.5%), and transactional records (15.3%). Therefore the null hypothesis stating no significant relationship between the presence of CERS and regional jurisdictional hierarchy was rejected.

Hypothesis 5.3: The presence of each CERS is positively correlated with increasing levels of agricultural intensity.

As predicted, statistical analysis using asymmetric Somer's D revealed a statistically significant and strong association between ordinal measures of CERS and agricultural intensity (Somer's D= .544, n= 65, $p< .001$), which was analysed as the dependent variable. Of the 54 HRAF-societies sampled that practice some form of agriculture, the majority (55.5%) possessed at least one CERS, while the vast majority of the HRAF-societies sampled that do not practice agriculture (90.0%) did not possess any CERS. Of the 22 HRAF-societies sampled that practiced intensive agriculture, the majority (72.7%) possessed at least one CERS. Finding a strong correlation between CERS and agricultural intensity, the current study examines the relationship between agricultural intensity and CERS at the systemic level. Given the intrinsic link between agricultural and seasonality, it was predicted that the strongest statistical association would be with standardised calendrical and timekeeping systems. There was a positive and statistically significant correlation between six of the seven CERS under investigation (Table 5.3). Contrary to the prediction that the strongest association would be between agricultural intensity and standardised calendrical and timekeeping, asymmetric Somer's D revealed that the strongest association measured was between the target variable and standardised scripts (Somer's D= .417, n= 65, $p< .001$) (all at least $p< .05$). The null hypothesis stating no significant relationship between CERS and agricultural intensity was rejected.

Table 5.3 Crosstabulation (χ^2) and *p* values relating individual CERS to the variable agricultural intensity (EA)

	Agricultural intensity		
	n	χ^2 (df)	*p* value
Standardised Script	65	27.89 (5)	<.001
Standardised Calendrical and Timekeeping	65	21.05 (5)	≤.001
Written Literature	65	25.18 (5)	<.001
Codified Laws and Punishments	65	25.88 (5)	<.001
Criminal Records	65	22.98 (5)	<.001
Transactional Records	65	18.33 (5)	<.01
Printing	65	11.85 (5)	<.05

Hypothesis 5.4: The presence of CERS is positively correlated with *'indices of societal cooperation'* (Johnson 2005).

While CERS could account for a significant portion of the observed differences in community size, levels of regional jurisdictional hierarchy, and agricultural intensity, more direct measures of cooperation are needed. After finding a positive statistical relationship between specific CERS and large, hierarchical agricultural groups, cross-cultural measures of public goods provide a more direct proxy for cooperation. Extracting data from the SCCS, Johnson (2005) identified eighteen ordinal 'indices of societal cooperation' in his examination of the supernatural punishment hypothesis (Johnson 2005: 423). While a sufficiently large sub-sample size exists for these variables to be analysed statistically against the aggregate CERS variable, further work is required on empirical societal proxies of cooperation to increase the statistical power of these tests. These eighteen 'indices of cooperation' are extracted and analysed statistically against the aggregate ordinal measure of CERS (Johnson 2005: 423) (Table 5.4).

As predicted, statistical analysis using asymmetric Somer's D revealed a statistically significant and moderate to strong association between ordinal measures of CERS and seven of the eighteen 'indices of societal cooperation', including money (media of exchange) and credit (Somer's D= .421, n= 35, $p< .01$), credit source (Somer's D= .430, n= 35, $p< .01$), community size (Somer's D= .338, n= 36, $p< .05$), mean size of local communities (Somer's D= .519, n= 31, $p< .001$), loyalty to local community (Somer's D= .389, n= 25, $p< .01$), loyalty to wider society (Somer's D= .406, n= 24, $p< .05$), and sanctions (Somer's D= .428, n= 25, $p< .05$), each of which was analysed as the dependent variable (Table 5.4) The individual CERS under investigation were examined further to identify which system(s) may interact with these 'indices of cooperation'. The positive correlations between SCCS variables 'community size' and 'mean size of local communities' further support the prediction that CERS would positively correlate with polity size, but was excluded from further analysis because another existing data source, the Ethnographic Atlas (EA), provided a larger dataset for this variable.

Table 5.4 Correlation (Somer's D) and *p* values relating aggregate measure of CERS to the SCCS 'indices of cooperation' as enumerated by (Johnson 2005)

			CERS Aggregate	
SCCS No.	Variable	*N*	Somer's D	*p* value
17	Money (media of exchange) and credit	35	.409	<.01*
18	Credit source	35	.430	<.01*
63	Community size	36	.338	<.05*
90	Police	36	.106	.523
235	Mean size of local communities	31	.519	<.001*
237	Jurisdictional hierarchy beyond local community	35	.209	.180
775	Compliance of individuals with community norms	25	-.017	.929
776	Formal sanctions and enforcement for community decisions	24	-.245	.178
778	Enforcement specialists (police, tax collectors)	25	-.191	.306
779	Loyalty to the local community	25	.377	.001*
784	Loyalty to the wider society	24	.366	<.05*
1649	Taxation paid to community	23	-.107	.575
1718	Frequency of internal warfare (resolved)	31	-.054	.734
1743	Sharing of food	24	.137	.466
1748	Sanctions	25	.373	<.05*
1749	Frequency of internal warfare involving non-territorially organized groups within unit of maximal political authority	24	.061	.719
1750	Frequency of violent conflict between groups within local communities	22	.056	.763

There was a statistically significant and moderately strong association between SCCS variable money (media of exchange) and credit and the presence of each of the CERS under investigation, except transactional records and printing.

Statistical analysis using asymmetric Somer's D revealed that the strongest associations were between Money (media of exchange) and credit and standardised script (Somer's D= .482, $p< .01$), written literature (Somer's D= .482, $p< .01$), codified laws and punishments (Somer's D= .482, $p< .01$), and criminal records (Somer's D= .439, $p< .05$) (Table 5.5). Money (media of exchange) and credit was found to be problematic as a measure of pre-contact cooperation as it included the use of foreign or modern coinage or paper currency in its ordinal scale. The closest proxy for this variable in the current study, transactional records, excludes the use of post-contact transactional records. As a consequence of this methodological difference, the lack of a statistically significant association between Money (media of exchange) and credit and transactional records was not surprising.

Table 5.5 Correlation (Somer's D) and *p* values relating individual CERS to 'Money (media of exchange) and credit' from the SCCS

		Money (media of exchange) and credit	
	n	Somer's D	*p* value
Standardised Script	35	.482	<.01
Standardised Calendrical and Timekeeping	35	.321	<.05
Written Literature	35	.482	<.01
Codified Laws & Punishments	35	.482	<.01
Criminal Records	34	.439	<.05
Transactional Records	33	.286	.095
Printing	35	.237	.129

Unlike money (media of exchange) and credit, the second 'societal index of cooperation' extracted from the SCCS, credit source, did not include the use of modern or foreign transactional systems and, therefore, provides a better proxy of pre-contact cooperation. There was a positive correlation between credit source and each of the CERS under investigation, expect printing (Table 5.6). The largest

observed effect-sizes between credit source and system-level CERS were with standardised script (Somer's D= .444, *p*< .01), written literature (Somer's D= .444, *p*< .01), codified laws and punishments (Somer's D= .444, *p*< .01), and transactional records (Somer's D= .434, *p*< .05) (Table 5.6).

Table 5.6 Correlation (Somer's D) and *p* values relating individual CERS to 'Credit source' from the SCCS

		'Credit source'	
	n	Somer's D	*p* value
Standardised Script	35	.444	<.01
Standardised Calendrical and Timekeeping	35	.334	<.05
Written Literature	35	.444	<.01
Codified Laws & Punishments	35	.444	<.01
Criminal Records	34	.382	<.05
Transactional Records	33	.434	<.01
Printing	35	.228	.142

While the variable presence or absence of a number of CERS approached conventional levels of significance with the SCCS variable 'loyalty to the local community', only standardised calendrical and timekeeping systems was positively correlated with this proxy for cooperation (Somer's D= .468, *p*< .01) (Table 5.7). As 'loyalty to the local community' was coded inversely in the SCCS, this finding implies that societies that possessed standardised calendrical and timekeeping systems were significantly less loyal to the local community, which runs contrary to the predictions of the current study.

Table 5.7 Correlation (Somer's D) and *p* values relating individual CERS to 'Loyalty to the local community' from the SCCS

		'Loyalty to local community'	
	n	Somer's D	*p* value
Standardised Script	25	.249	.071
Standardised Calendrical and Timekeeping	25	.468	<.01
Written Literature	25	.249	.071
Codified Laws and Punishments	25	.249	.071
Criminal Records	24	.171	.146
Transactional Records	23	-.025	.846
Printing	25	.096	.259

Similar to the observed relationship between individual CERS and loyalty to the local community, another proxy of societal cooperation, loyalty to the wider society, was only positively correlated with standardised calendrical and timekeeping (Somer's D= .380, $p< .05$) (Table 5.8). Also like loyalty to the local community, loyalty to the wider community was inversely coded, which implies, contrary to the predictions of the current study that societies that possessed standardised calendrical and timekeeping systems were significantly less loyal to the wider society. Given the weak associations between system-level measures of CERS and existing measures of loyalty to the local and wider community, the observed relationship between these proxies of cooperation and the aggregate CERS measure appears irreducible to particular complex external representational system(s), representing instead, perhaps, an emergent property of these systems.

Table 5.8 Correlation (Somer's D) and *p* values relating individual CERS to 'Loyalty to the wider community' from the SCCS

		'Loyalty to wider community'	
	n	Somer's D	*p* value
Standardised Script	24	.133	.420
Standardised Calendrical and Timekeeping	24	.380	<.05
Written Literature	24	.133	.420
Codified Laws and Punishments	24	.133	.420
Criminal Records	23	.034	.822
Transactional Records	22	.249	.112
Printing	24	.130	.292

In line with the general predictions of the current study, several CERS under investigation positively correlated with sanctions, another proxy of cooperation extracted from the SCCS and selected by Johnson (2005) (Table 5.9).

Table 5.9 Correlation (Somer's D) and *p* values relating individual CERS to 'Sanctions' from the SCCS

		'Sanctions'	
	n	Somer's D	*p* value
Standardised Script	25	.361	.05
Standardised Calendrical and Timekeeping	25	.303	.088
Written Literature	25	.361	.05
Codified Laws and Punishments	25	.361	.05
Criminal Records	24	.278	.109
Transactional Records	24	.171	.180
Printing	25	.140	.291

Finding statistically significant and moderate associations between both an aggregate measure of CERS and individual, system-level CERS measures and SCCS variables money (media of exchange) and credit, credit source, community size, mean size of local communities, loyalty to local community, loyalty to wider

society, and sanctions, the null hypothesis, which states that there is no significant relationship between the presence of CERS and these seven proxies of cooperation, was rejected.

5.3.1 Summary of major empirical results

The work in this chapter provided strong statistical support in favour of the prediction that CERS are associated empirically with larger, more hierarchically-organised, agriculturally-intense, and cooperative polities. The major results of the four empirical hypotheses of this chapter are summarised as follows:

1. As predicted, statistical analysis using asymmetric Somer's D revealed a statistically significant and strong association between an ordinal measure of CERS and community size (Somer's D= .520, n= 66, p< .001), which was analysed as the dependent variable.
2. As predicted, statistical analysis using asymmetric Somer's D revealed a statistically significant and moderately strong association between ordinal measures of CERS and regional jurisdictional hierarchy (Somer's D= .416, n= 64, p< .001), which was analysed as the dependent variable and chosen as a proxy for hierarchical complexity. All of the sixteen HRAF-societies sampled with two or more CERS present (100%) possessed at least one level of regional jurisdictional hierarchy, while none (0.0%) of the 22-HRAF societies sampled with zero levels of regional jurisdictional hierarchy had two or more CERS present.
3. As predicted, statistical analysis using asymmetric Somer's D revealed a statistically significant and strong association between ordinal measures of CERS and agricultural intensity (Somer's D= .544, n= 65, p< .001), which was analysed as the dependent variable.

4. As predicted, statistical analysis using asymmetric Somer's D also revealed a statistically significant and moderate to strong association between ordinal measures of CERS and seven of the eighteen 'indices of societal cooperation', including money (media of exchange) and credit (Somer's D= .421, n= 35, $p< .01$), credit source (Somer's D= .430, n= 35, $p< .01$), community size (Somer's D= .338, n= 36, $p< .05$), mean size of local communities (Somer's D= .519, n= 31, $p< .001$), loyalty to local community (Somer's D= .389, n= 25, $p< .01$), loyalty to wider society (Somer's D= .406, n= 24, $p< .05$), and sanctions (Somer's D= .428, n= 25, $p< .05$), each of which was analysed as the dependent variable.

5.4 Limitations of present study

With very few exceptions (Goody 1986a, 1987), the current ethnographic and historical record does not contain detailed cross-cultural data on the functional applications of specific CERS. Unfortunately, the small amount of cross-cultural data on the functional applications of CERS that is available were not collected systematically and is vulnerable to the charge of cherry-picking. The only way to explicitly and empirically test whether CERS actually serve these hypothesised functions is to systematically collect these data. However, this is difficult given the current constraints of the ethnographic and historical record. Given these limitations, it is not currently possible to use empirical methods to investigate cross-culturally, for example, the extent to which transactional records function to externalise and store contracts, thereby extending the limits of human evolved psychology and, therefore, helping to solve the puzzle of large-group human cooperation. The present study does, however, provide some preliminary cross-cultural evidence that these seven key CERS serve their respective hypothesised functions. In what follows, relevant

examples are offered from the primary source ethnographic material for one of the cooperative tools under investigation – reciprocity. For a comprehensive list of sources cited in this database see Appendix 2.

The current study predicted that two key CERS function to extend the efficacy of reciprocity to large groups — transactional records and standardised calendrical systems. The majority of these predictions are supported by data available in the ethnographic record. It was hypothesised that transactional records function to externalise and store contracts, enabling them to be (1) repeatedly accessed over long periods of time, (2) transported over great distances, and (3) externally validated. Several of these specific predictions are supported by the ethnographic and historical data catalogued by the current study. According to Izady (1992), for example, transactional records in the form of shaped clay tokens emerged amongst the Kurds because 'Kurdistan had become sufficiently complex to need records for commercial transactions.' Following the archaeological work of Schmandt-Besserat (1986) and Nissen (1986), Izady (1992) continues, '[a]s the messages they carried became more complex for each transaction, the tokens were encased in clay casings, and sometimes strung through a central hole so that the sequence of tokens could form a sentence'. Similarly, Maiskii (1921) writes, 'the variety of the tamga's [a Mongolian administrative unit] functions is reflected in the variety of the books it keeps. These books are:

1. Udarin-Gemdek — Book of Entries.
2. Jisana-Khulga — Book of Expenses.
3. Albanu-Dansa — List of householders and tax assessments for each.
4. Khuragul-Dansa — List of "alba" tax payers with a record of how much alba, in money units, each is to pay (as well as how much he has already paid in.)
5. Tobchi-Dansa — A book in which a record is kept of all the alba sums received.
6. Dzaralun-Dansa — A book showing how the alba sums are being spent.

> 7. Jisana-Keregles Mungonoi Dansa — A book recording the apportionment among the tax payers of expenses going to the maintenance of the khoshun administration.
> 8. Dagaje-Shitkhekhe-Tobich-Dansa — A book of decisions and explanations regarding the legal actions of the Minister of Justice and the Chulgan-Darga.
> 9. Erin-Toliur-Dansa — A list of all the males in the khoshun (the list is revised every three years.) [Page 589]
> 10. Toktomyl-Albanu-Dansa — A book in which are entered the permanent alba payments, as for example, the "danshuk" (offering) for the Bogdo-Gegen, or expenses connected with oblations, offerings, etc..'

This chapter also hypothesised that standardised calendrical records and time-keeping function to (1) coordinate and synchronise exchange and (2) provide a precise and explicit representation of time against which contracts can be written and compared. This, too, was evidenced by data available in the ethnographic record. Han (1949) for example, notes that "Economic and social functions are all marked and remembered according to the lunar calendar" in urban Korea, while Chun (1984) in *Reciprocity and Korean society* noted that in rural Korea:

> [f]ive periodic markets appear on Chindo island, where the village of Hasami is located […]. Each market place has its own exclusive open days six times in a month according to the solar calendrical system. Chun (1984) also notes, 'A situational context involving a major socio-political event in Hasami reflects the consensual mechanism. On the day after the [village ceremony], held on the fifteenth day of the first month of the lunar calendar, villagers gathered at the house of the village head to share some remaining food in a communal ceremony with their neighbors.

Similar ethnographic and historical evidence of the functional application of these CERS to these specific challenges of large-group cooperation could not be found for the smaller-scale, less complex societies in this sample. Taken together, this ethnographic evidence supports the predictions of the present study regarding the role of transactional records and standardised calendrical and time-keeping systems in promoting reciprocity in large, complex groups.

5.5 Future research

To explicitly and empirically test the extent to which specific literate behaviours serve specific social functions in the cross-cultural evolution of social

complexity, several additional steps must be taken. First, an exhaustive typology of literate behaviours should be constructed. The current chapter followed available ethnographic, archaeological, and grammatological data and limited its scope to the seven key CERS that have been most commonly implicated in increases in polity size and the emergence of novel, complex forms of socio-political organisation.

Second, diachronic data are required to test causal predictions more directly and more rigorously. Often, societies inherit suites of cultural traits together, not isolated ones (*e.g.* a society may adopt writing along with a taxation system or police force). In order to predict the role of CERS in the evolution of social complexity, historical data on precisely when these systems were employed, to what end (*i.e.*, social function or functions), and by whom should be collected. To construct a large-scale, cross-cultural historical database for a single research project, however, would be prohibitively expensive and time-consuming. Fortunately, 'Seshat: Global History Databank' (http://evolution-institute.org/seshat; Turchin et al. 2012), which is currently under construction, will facilitate future research into the history of literate behaviour greatly by providing variables related to ritual and group structure and scale over the last five millennia.

Finally, better dependent measures of cooperation, both cross-cultural and historical, are needed. Community size, regional jurisdictional hierarchy, agricultural intensity, and eighteen 'societal indices of cooperation' (Johnson 2005) — the 21 empirical proxies for cooperation employed in the current study, are only approximate measures of success in large-group cooperation. Better empirical proxies for cooperation are needed to test their functional relationship with CERS.

5.6 Concluding statement

The current study presents a first step towards an empirical account of the cross-cultural patterning and distribution of CERS and offers evidence and support for a functional evolutionary explanation of literate behaviour. CERS are shown to solve problems of large-group cooperation and, therefore, may have facilitated increases in polity size and increases in socio-political complexity. As discussed in following chapter, however, simple and intuitive models that assume single cause-and-effect relationships between CERS and novel, complex forms of socio-political organisation are not sufficient to explain their historical relationship.

Chapter 6

The complex positive feedback between literacy and first-generation state-level polities

6.1 Introduction

For most of our species' prehistory, we lived in small, hunter-gatherer bands[93]. Eventually, more complex forms of social organisation, including tribes, chiefdoms, and states (Service 1962), or hierarchical types of political organisation, including rank societies and stratified societies (Fried 1967), began to emerge. Humans began to experiment with the particularly large-scale, complex forms of socio-political organisation known as the 'state' just over 5,000 years ago. Anthropologists and archaeologists who endeavour to account for patterned similarities and differences among polities have found much utility in the category of the state and have suggested a variety of definitions[94].

[93] As discussed in the introductory chapter, given that anatomically modern *Homo sapiens sapiens* (1) evolved from archaic *Homo sapiens* approximately 200,000 years ago (Bradshaw 1997: 184) and (2) developed alternatives to small-group hunter-gather and forager groups during the Neolithic period approximately 10,000 to 5,000 years ago (Lewis-Williams and Pearce 2005: 17), humans lived in small hunter-gather and forager groups for approximately 95 to 97.5% of our time as a distinct species.

[94] To a large degree, these definitions reflect disciplinary boundaries as defined by available data sources and theoretical legacies. Archaeologists, for example, have focused on the material indicators of the state, such as monumental architecture, while anthropologists and political scientists working with ethnographic and historical data often focus their definitions on notable shifts in levels of either social integration or conflict (Flannery 1998; Stanish 2001). Given the limitations of the material record, archaeologists generally employ minimalistic definitions of the state. Archaeologist Henry Wright (1977), for example, developed a widely-used definition of the state by suggesting that a four-tiered political and settlement hierarchy is the principal diagnostic feature of the state in the material record. According to Wright (1977), '[s]tate emergence is indicated in the area by the rise everywhere of large centers dominating three or more subsidiary levels of settlement hierarchy. These centers

The transition to a state-level polity has long been a concern to social theorists such as Ibn Khaldun (1958), Thomas Hobbes (1991), Jean-Jacques Rousseau (1984), and Karl Marx and Friedrich Engels (Marx and Friedrich 1998) and, more specifically, anthropologists, such as Lewis Henry Morgan (1877), Julian Steward (1972), Robert Carneiro (1967), Elman Service (1977), and archaeologists, such as Lewis Binford (1964), Kevin Flannery (1972), Henry Wright (1977), and

---

have major secular architecture, and some have monuments indicating new and expansive forms of territorial control' (389). Archaeologists Spencer and Redmond (2004), incorporating the work of Wright (1977), suggest three diagnostic criteria: (1) a four-tiered regional settlement-size hierarchy, (2) royal palaces and specialised temples, and (3) evidence of the conquest/subjugation of distant territories. According to archaeologist Brian Billman (2002), researchers are in agreement regarding five defining characteristics — '(1) relatively permanent institutionalized forms of leadership (not ephemeral rule by charismatic leaders); (2) specialized, hierarchical administrative structures (*i.e.*, states are bureaucratic); (3) fixed territories (they are organized on the basis of land, not just kinship); (4) a tribute collection system to finance political activities; [and] (5) political control through the use of positive and negative sanctions' (372). In his investigation of protohistorical Hawaiian states, historical archaeologist Patrick Vinton Kirch (2010) extends the list of material indicators to include several factors that would be largely invisible in the material record. According to Kirch (2010), there are six 'essential characteristics of archaic states: (1) they exhibit well-developed class endogamy; (2) they were ruled by kings who typically traced their origins directly to the gods, and who were often regarded as instantiations of deities on Earth; (3) their political economies were to a large degree centrally controlled by the king's bureaucracy; (4) the king's status and power were legitimated by state cults involving a formalized temple system, overseen by full-time priests; (5) the king's power was maintained by a monopoly of force, involving a full-time warrior cadre or standing army; and (6) the king and his court occupied special residential quarters (palaces), and enjoyed various privileges and material luxuries supplied by a cadre of full-time specialists and craftspersons' (6). Not limited by the material record, anthropologists generally present maximalistic definitions of the state. Anthropologists Johnson and Earle (2000), for example, use ethnographic and historical data from around the globe to offer a detailed and widely-used definition of the state. Featured prominently in their definition are population size (hundreds of thousands or millions) and composition (ethnically diverse), territory size (regional), administrative size (regional institutions) and composition (economically-powerful ruling elite that is unrelated by kinship to the population that they administer), and the presence of a military, a state religion, and a dedicated bureaucracy. The well-attested theory of power networks by sociologist Mann (1986), which includes ideological, economic, military, and political power networks, provides the theoretical foundation for the definition of the state provided by Johnson and Earle (2000). According to Johnson and Earle (2000), '[t]he development of states does not merely involve increased centralization but may also result in a fragmentation of separate and potentially opposed power sources' (260). The transition to a state-level polity has long been a concern to social theorists. Helpfully, Elman Service (1977) distinguishes broadly between two anthropological perspectives on state formation — integration and conflict theories. The first, known as social integrationist, adaptationist, or functionalist theories, contends that state-level polities are an outcome of social, economic, or environmental problems. Wittfogel and Steward's hydraulic hypothesis, a prominent adaptationist theory, states that 'the managerial requirements of the construction of large irrigation systems led directly to the development of centralized, bureaucratic states' (Billman 2002). The second anthropological perspective on state formation, known as conflict theories, emphasise either the conquest of one ethnic group over another or internal, class conflict as the primary impetus for the emergence of the state, which functions to maintain 'the social, political, and economic domination by one segment over another' (Johnson and Earle 2000). In brief, Carneiro's circumscription theory, the most widely-cited conflict theory, states, '[i]n areas of circumscribed agricultural land, population pressure led to warfare that resulted in the evolution of the state' (Schacht 1988).

Patrick Kirch (2010). A comprehensive survey of theories of the origins of the state, which are numerous and highly varied, and definitional debates regarding the inclusion or exclusion of a given polity within the theoretical construct of the state are beyond the scope of the current study. Instead, this chapter examines widely-regarded examples of states variously described as 'archaic' (Feinman and Marcus 1998), 'primary' (Spencer 1998; Wright 1977), or 'first-generation' (Flannery and Marcus 2012). The archaeological construct of the 'first-generation' state facilitates the isolation and analysis of 'a political formation that developed through endogenous processes, and not in response to interactions with an external state or states' (Kirch 2010: 4). The leaders of first-generation' states had no template to teach them how to be statesmen, but had to invent their own (Flannery and Marcus 2012).

This chapter analyses these ten 'first-generation' states, as defined in Flannery and Marcus' (2012) recent investigation into the evolution of complex societies (Turchin 2013a), because they provide early and independent examples of cooperation among unprecedented numbers of strangers or 'anonymous communities' (Anderson 1991). First-generation states give insight into the few historical instances in which our evolved mechanisms for cooperation were extended from tens of thousands of interactants to tens of millions of interactants (Mullins et al. 2013).

As noted in Chapter 5, literacy has often been described as a cause of increases in group size and socio-political complexity (Astle 1784; Barton and Hamilton 1997; Breasted 1926; Daniels 1996a; Diringer and Regensburger 1968; Gelb 1963; Gibbon 1776; Goody 1987; Lincoln 1953; Morgan 1877; Schmandt-Besserat 1996; Sjoberg 1960). Chapter 5 used the cross-cultural empirical catalogue

of complex external representational systems (CERS) constructed in Chapter 2 to test the statistical relationship between CERS and measures of socio-political complexity. Chapter 5 demonstrated a robust empirical relationship between CERS and large and complex forms of socio-political organisation and outlined how CERS may function to extend the efficacy of a number of evolved cooperative tools.

Chapter 1 contrasted simple and intuitive models of causation and problem solving, which often assume a single cause-and-effect relationship (Erdi 2008; Sobiech 2012), with a more complex causal relationship in which 'an effect feeds back into its cause' (Erdi 2008: 357), a process known as a 'feedback loop'. In other words, Variable A and Variable B are no longer independent, as Variable A and Variable B cannot be fully separated and there is no clear distinction between causes and effects because 'some proportion of the output […] of a system is passed (feed [sic] back) to the input,' constituting a causal loop (Erdi 2008: 8). Section 1.6.2 distinguished between positive and negative feedback loops before providing several examples of each type. This chapter builds on the findings of Chapter 5 to analyse the prediction that the products of literate behaviour, CERS, and complex forms of socio-political organisation, namely first-generation state-level polities, are the outcomes of a complex positive feedback loop.

Peter Turchin (2007) notes, '[h]uman societies and states can be modelled as dynamic systems, consisting of parts that interact with each other. […] The key concept here is dynamic feedback. A change in the state of one component of the system has an effect on another, but the change in the second might in turn affect – feedback on – the first'. Human population growth and increasingly complex forms of agricultural technology is one example of a complex positive feedback loop. As summarised by Andrey Korotayev (2007), 'the more people – the more potential

inventors – the faster the technological growth – the faster the growth of the Earth's carrying capacity – the faster the population growth – with more people you have also have more potential inventors – hence faster technological growth, and so on' (see Figure 6.1).

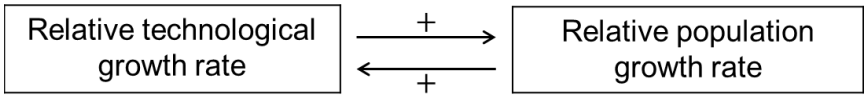


Figure 6.1. The complex positive feedback loop between technological improvement in agricultural production and human population growth. Redrawn from Korotayev (2007: 147)

6.2 The present study

This chapter uses the archaeological and historical data developed in Chapter 2 to assess the role of CERS in the cooperative systems necessary for the emergence of the world's ten, first-generation states before testing the prediction that literate behaviours and the increasingly complex forms of socio-political organisation, as described by Flannery and Marcus (2012) as 'first-generation states', interact in a complex positive feedback loop (Barton and Hamilton 1997; Gaur 1984; Lock and Gers 2012).

6.2.1 What were the principal factors involved in the emergence of first-generation states?

Johnson and Earle (2000) identify several key factors involved in the emergence of state-level polities, including population size (hundreds of thousands or millions) and composition (ethnically diverse), territory size (regional), administrative size (regional institutions) and composition (economically-powerful ruling elite that is unrelated by kinship to the population that they administer), and the presence of a military, a state religion, and a dedicated bureaucracy. The well-attested theory of power networks by sociologist Michael Mann (1986), which

includes ideological, economic, military, and political power networks, provides the theoretical foundation for Johnson and Earle's (2000) characterisation of the state. According to Johnson and Earle (2000: 260), '[t]he development of states does not merely involve increased centralization but may also result in a fragmentation of separate and potentially opposed power sources.'

Did any of these factors of state formation facilitate the emergence, spread, or functional applications of complex and external representational systems (CERS)? Were the factors driving state formation facilitated by the emergence, spread, or functional application of CERS? If the answers to both of these questions is 'yes', then the relationship between these two sets of variables constitutes a complex positive feedback loop. Variable set A (*i.e*., the factors driving state formation) and variable set B (*i.e.*, the factors driving the emergence, spread, and functional application of CERS) are no longer independent, as variable set A and variable set B cannot be fully separated and there is no clear distinction between causes and effects because 'some proportion of the output […] of a system is passed (feed [sic] back) to the input,' constituting a causal loop (Erdi 2008: 8).

6.2.2 Existing scholarship

Recent scholarship concerning the cultural evolution of language and its relationship with socio-political organisation suggests that literate behaviour and large-scale forms of social organisation exist within a complex positive feedback loop (Barton and Hamilton 1997; Lock and Gers 2012) (see Figure 6.2). Andy Lock and Matt Gers (Lock and Gers 2012), recently concluded, '[w]riting systems arising from necessity drive changes in the developmental context, which then drives further elaboration of writing and social changes'. Similarly, David Barton and Mary Hamilton find that the relationship between literacy and socio-political organisation is

'complex and involves a feedback effect from the initial social and economic context into which literacy is introduced' (Barton and Hamilton 1997: 810). Are these predictions warranted given the evidence available?

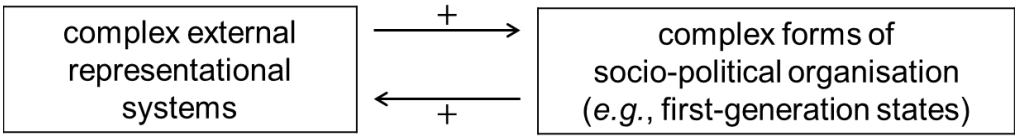


Figure 6.2. The complex positive feedback between CERS and complex forms of socio-political organisation

6.2.2.1 Limitations of existing scholarship

To date, existing scholarship on the cultural evolutionary relationship between literate behaviour and socio-political organisation has relied on (1) grand theoretical accounts that forward a now widely-discredited monogenetic and unilineal evolutionary account of literate behaviour's emergence and development over time (*e.g.*, Gelb 1963), (2) detailed historical case studies that are severely limited in their generalizability to other regions or historical time periods (*e.g.*, Baines 1983), or (3) an 'imaginative history' of writing's cultural evolution in which the analysis is not limited to the existing historical and archaeological record and does not review the available data systematically and comparatively (*e.g.*, Lock and Gers 2012). A systematic survey of the existing archaeological and historical data is needed to test the prediction that literate behaviours and increasingly complex forms of socio-political organisation exist within a complex positive feedback loop.

6.2.3 Principal aims

This chapter attempts to overcome the limitations of previous scholarship to (1) characterise the functional diversity of CERS, (2) analyse the role CERS may have had in the emergence of the centralisation, hierarchy, and power networks necessary for the formation of ten, first-generation states and (3) investigate the role

that the features of state formation, as defined by Johnson and Earle (2000), may have had in the emergence, spread, or functional applications of complex and external representational systems. To this end, this chapter conducts a systematic survey of the relevant archaeological and historical data.

6.3 Methods

Six of the first-generation states in this survey emerged before the written histories and detailed ethnographic accounts of cultural systems were present. As a result, archaeological analysis and material indicators are best suited for their investigation. The remaining four, first-generation states in this survey occurred during a period of intense Western contact, emerging between the late eighteenth and the early nineteenth centuries. As a consequence of this level of contact, the transition of each of these polities as first-generation states is relatively well-attested given the historical and ethnographic materials available. A detailed account of the methods employed in this chapter can be found in Chapter 2.

6.3.1 Methodological challenges

One of the challenges of analysing first-generation states is their complexity. As noted by Flannery and Marcus (2012), ‘1,000-acre cities and 8,000-square-mile tribute territories are too large for individual archaeologists to investigate in detail’ (372). As is always the case when using archaeological materials, the data available are inherently partial. Fortunately, several of the six, prehistorical ‘first-generation’ states under investigation in the current study have been analysed by some of the most extensive archaeological surveys to date (*e.g.*, surveys of the Oaxaca Valley and lower Mesopotamia).

Like first-generation states, complex external representational systems are, by definition, complex. This presents a challenge for scholars who are attempting to interpret their structure, form, content, and function. As scripts or calendrical systems became more standardised, for example, they also became more abstract and difficult to interpret by modern scholars (Trigger 2003). The knowledge systems employed in their construction becomes more specialised and elaborate. Early Mesopotamian signs, for example, became less pictographic and representational fairly quickly by being impressed with a stylus instead of being drawn on clay and by being written horizontally instead of vertically. These innovations facilitated more efficient encoding and decoding of the sign characters. In the process, these sign systems also became increasingly opaque to non-specialists.

6.3.2 Variables under investigation

Using the materials available to account for patterned similarities and differences among 'first-generation' states, several variables were collected for each of the ten polities in this survey during its respective transition into a state-level socio-political organisation (see Figure 6.4). These variables include (1) the time-period of state emergence, (2) the population size at state emergence, (3) the area of the polity at state emergence, and (4) the political and settlement hierarchy at state emergence. When available, data on the population density of the major urban centres were given. Finally, the major shifts in ideological, economic, military, and political power (Mann 1986) and ecological factors associated with state formation were surveyed.

In addition to the social morphological variables listed above, the current study investigated both the presence or absence and the functional applications of the seven CERS under investigation in this thesis — standardised scripts,

standardised calendrical and timekeeping systems, written literature, codified laws, criminal records, transactional records, and printing systems. As noted by Harvey Whitehouse (2000) and Bruce Trigger (2003), the recording systems used in early states varied fundamentally in their functions as well as their forms. The majority of functional applications of recording systems in first-generation states can be organised into the following three categories: (1) administrative records, which functioned to organise and track the economic, military, social, and political exploits of early state administrative bodies, (2) royal testaments, which functioned to commemorate the pursuits of royalty, and (3) religious and divinatory records, which often functioned as a guide for the correct performance of rituals and as a mechanism for legitimating and protecting royal ideological power networks (Trigger 2003). The extent to which the target CERS served these and other relevant functions are examined for each polity surveyed.

6.4 Results

6.4.1 Middle Uruk Period of the Susiana Plain

The societies of the Susiana Plain transitioned into a state-level society approximately 5,300 to 5,500 years ago (*i.e.*, the Middle Uruk Period) and may represent the earliest known instance of independent state emergence (Flannery and Marcus 2012). The Susiana Plain sits within the 21,000 square-mile expanse of modern-day Southwest Iran (see Figure 6.4) and is watered by the Karkheh, Dez, and Karun Rivers at an elevation of 130 – 550 feet (Flannery and Marcus 2012; Wright and Johnson 1975). Settlements on the Susiana Plain covered roughly 127.6 hectares and were populated by between 19,000 to 25,000 people at the time of state emergence (Wright and Johnson 1975; Wright 1977). Archaeologists note that

settlements during this period can be readily classified into one of four size categories. According to Johnson (1973), from smallest to largest, these settlements ranged from (1) small villages with a mean size of 0.9 hectares, (2) large villages with a mean size of 2.3 hectares, (3) small centres with a mean size of 5.3 hectares, to, finally, (4) large centres with a mean size of 14.8 hectares (Wright and Johnson 1975). The division of settlements into four distinct sizes mirrors the political hierarchy present during state emergence. While much smaller and less populous than the state that would emerge later in southern Iraq, the first political hierarchy with four administrative levels emerged here in the Susiana Plain (Flannery and Marcus 2012).

Several factors are likely to have facilitated the transition of the Susiana Plain to a state-level polity, including (1) an expanding resource base due to favourable climatic and ecological conditions, (2) the settlement of Susa's eventual political control over growing Abu Fanduweh, Chogha Mish, and other settlements across the Susiana Plain, (3) increased inter-regional trade, and (4) the invention or elaboration of administrative technologies, some of which were CERS.

Guillermo Algaze (2013) cites palaeoclimatic data for the nearby Mesopotamian alluvium throughout the Uruk period to provide insights into the climate that may have accompanied state formation on the Susiana Plain. Algaze (2013) concludes that the initial phase of the Uruk Period would have received greater rainfall than the later phase of the Uruk Period, which would have caused greater river meandering, meaning that larger stretches of the alluvial plains would have been more readily exploitable by smaller, less capital- and labour-intensive forms of irrigation, such as simple basin flow irrigation, than was possible in the later phase of the Uruk Period. Moreover, some of this rainfall would have fallen during

the summer, which would have increased agricultural outputs. As noted by Flannery and Marcus (2012), the Susiana Plain also benefitted from an underlying layer of gravel, which has the effect of reducing the waterlogging and salinization that often result from irrigation. In sum, climatic and ecological conditions that were uniquely favourable for the initial growth of large-scale human settlement were present in the Middle Uruk Period of the Susiana Plain.

Archaeological data also sheds light on the political, demographic, and administrative factors that may have facilitated this early instance of state formation in modern-day southwest Iran. Citing Johnson's mathematical analysis of population levels across the Susiana Plain, Flannery and Marcus (2012) survey the relevant archaeological data to find that the population and political organisation was likely to have rebounded more quickly than neighbouring Chogha Mish after both were attacked and burned in the Early Uruk Period. Using its economic, political, and, possibly, ideological power advantages, the people of Susa established themselves within a new, Level 1 centre over Chogha Mish as well as other settlements across the Susiana Plain, creating four levels of political and settlement hierarchy.

According to Wright and Johnson (1975), population growth, the political expansion of Susa, increased inter-regional trade, or increased specialisation, alone cannot explain the formation of this first-generation state. In addition, they conclude that administrative technologies played a hitherto underappreciated role in the formation of independently-emergent, state-level polities, including this one. Wright and Johnson (1975: 267) emphasise the integral role of administrative records, including CERS, in state formation to conclude,

> the effectiveness of […] a hierarchy of control is facilitated by the complementary specialization of information processing activities into observing, summarizing, message-carrying, data-storing, and actual decision making. This both enables the efficient handling of the masses of information

> and decisions moving through a control hierarchy with three or more levels, and undercuts the independence of subordinates.

As discussed by Flannery and Marcus (2012) and detailed by Wright and Johnson (1975), numerous administrative, transactional, and accounting technologies were invented, applied to new functions, or expanded in Middle Uruk settlements in the Susiana Plain, especially transactional records, in tandem with growing social and political complexity. While formalised written symbols did not appear until later in the Uruk Period, seals functioned to authorise the contents of both commodities and messages, plain counters functioned to indicate a numerical unit, beveled-rim bowls may have functioned to provide a daily standardised allocation of food or ration for workers, and ‘bullae’ or globular clay envelopes functioned to record transactions (see Figure 6.3). Additionally, scribal areas in special buildings were developed in a new, upper town in Susa during the Middle Uruk Period, indicating their prominence in this new form of socio-political organisation.



Figure 6.3. Uruk-period globular clay envelope or ‘bullae’ (top) and eight tokens used to represent commodities (bottom) by Marie-Lan Nguyen (2009) Creative Commons http://bit.ly/1u4XAj8 Source: Musée du Louvre



Figure 6.4 Geographic locations of the sample of 'first-generation' states (*i.e.,* state-level socio-political organisations that developed through endogenous processes and not in response to interactions with external state(s)). Archaeological and historical evidence attests to the independence of these state-level socio-political organisations (Flannery and Marcus 2012), despite any geographical proximities between them. Map drawn by Benjamin Mullins.

In sum, while favourable climatic and ecological conditions, population growth, the political expansion of Susa, and increased inter-regional trade were all major factors in the emergence of this state-level polity on the Susiana plain, administrative, transactional, and accounting systems, many of which employed CERS, were crucial in supporting the development, stabilisation, and elaboration of the state-level polity that emerged on the lands watered by the Karkheh, Dez, and Karun Rivers. With increased pressure to (1) identify, measure, and distribute a widening variety of commodities over greater distances across a larger population, (2) feed and administer larger numbers of workers, and (3) record and store transactions over larger exchange networks and for greater periods of time, several of the factors driving state formation also facilitated the development and elaboration of CERS. Therefore, the factors driving state formation on the Susiana Plain and the factors driving the emergence, spread, and functional application of CERS were not independent. They cannot be fully separated, as there is no clear distinction between causes and effects.

6.4.2 Late Uruk through Jemdet Nasr Period of southern Iraq

Several centuries later and approximately 180 miles to the west, a second, much larger and more populous first-generation state emerged on the alluvial lowlands of modern-day southern Iraq (Figure 6.4). These societies transitioned into a state-level society approximately 5,000 to 5,300 years ago (*i.e.*, Late Uruk Period or Jemdet Nasr Period) with the city of Uruk (*i.e.*, Warka), which is located approximately 19 miles east of the modern Iraqi city of As-Samawah, at its epicentre (Figure 6.5). Following estimates by Adams and Nissen (1972) and Nissen (2002), Guillermo Algaze (2013) concludes that this regional, state-level polity included the 250-hectare settlement of Uruk and 280 hectares of additional settlements in the

form of towns and villages, resulting in a total population of 80,000 to 90,000 people across settlements spanning 530 hectares. Like the earlier state-level polity that emerged on the Susiana Plain to the east, there is clear evidence of the emergence of a four-tiered political and settlement hierarchy. While Johnson (1975) contends that this regional polity reached this level of political complexity in the Late Uruk Period (*i.e.*, 5,100-5,300 years ago), Adams (1981) places this transition during the Jemdet Nasr Period (*i.e.*, 5,000-5,100 years ago) (Flannery and Marcus 2012). Regardless of precisely when this transition was made, the relative expanse of Uruk mark it out as a Level 1 centre, followed by two cities less than half the size of Uruk as Level 2 centres, then 20 towns as Level 3 centres, and, finally, 124 villages served as Level 4 centres (Flannery and Marcus 2012).

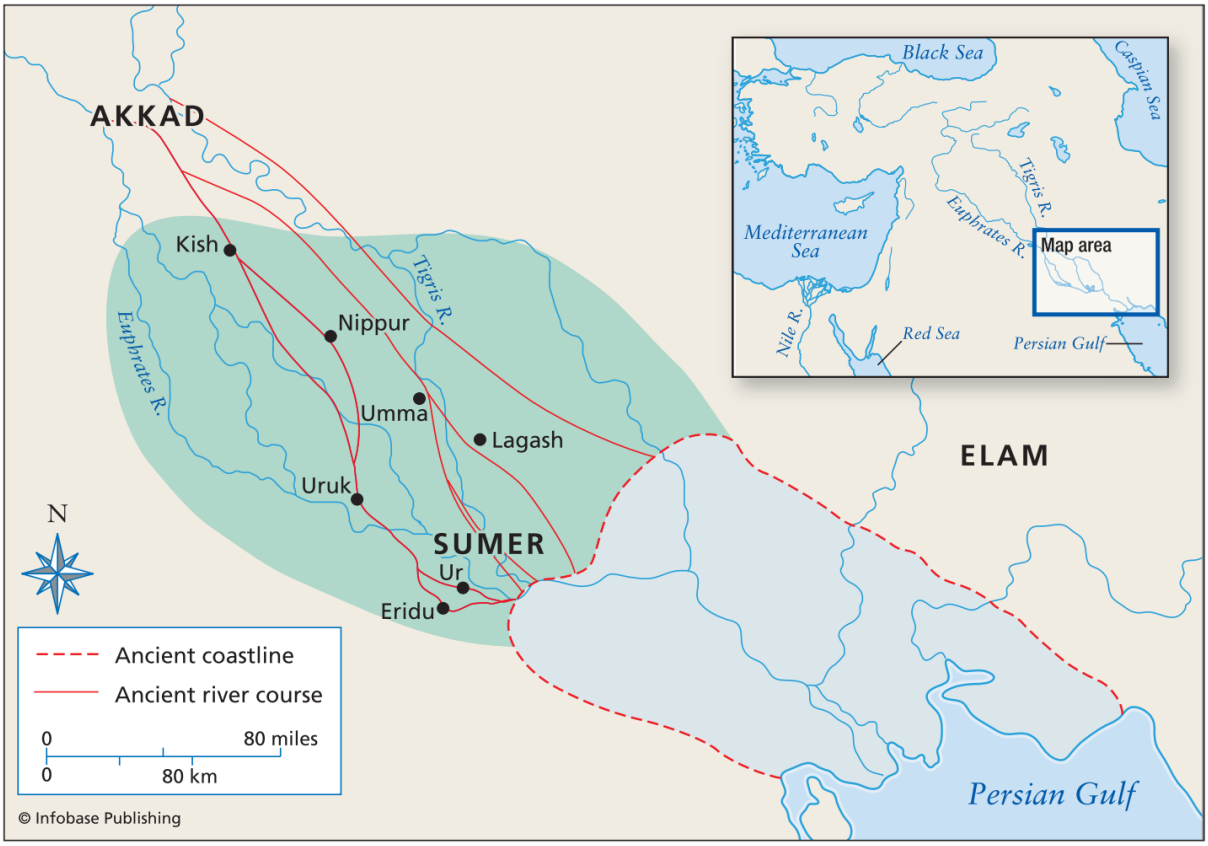


Figure 6.5. Map of Sumer during the Early Dynastic Period *ca.* 3000-2360 BCE depicting the city of Warka/Uruk as well as the approximate coastline and river courselines during this period from Somervill (2009: 28).

As with the state-level polity that emerged to the east on the Susiana Plain, numerous factors have been implicated as drivers of state formation in southern Iraq, but little attention has been afforded to the role of CERS in the development and maintenance of the state. Moreover, several major factors that are often attributed to state formation in the Susiana Plain during the Middle Uruk period were not present during the Late Uruk/Jemdet Nasr Period of modern-day southern Iraq. For example, these later settlements did not enjoy the particularly favourable climatic or ecological conditions found in the Middle Uruk Period settlements.

Again, citing the available palaeoclimatic and archaeological data, Algaze (2013) discusses a pronounced interval of drier climate in the final phase of the Uruk period, marking a climatic deterioration at roughly the same time period that the archaeological record attests to a period of political and economic expansion by Uruk polities. Algaze (2013) speculates that this territorial expansion may have been a colonial endeavour that was encouraged by the increased demand for resources that may have occurred during this period of climatic deterioration.

Citing data from a large archaeological survey of the area between the lower Euphrates and the Tigris Rivers by Adams (1981), Flannery and Marcus (2012) note that the emergence of this state in Southern Mesopotamia was facilitated by the development of irrigation canals from the lower Euphrates River. They also note that the population of this area increased dramatically during the Late Uruk Period, perhaps because of immigration to the area from abroad, including the Susiana Plain.

Like Susa, Uruk came to dominate the surrounding landscape. The city of Uruk grew quickly, measuring between 250 (Johnson 1973) and 300 acres (Adams 1966) or almost half of a square mile. Uruk would have dwarfed the settlement at

Susa both contemporaneously, when it covered 22 acres, and during its height at the beginning of the Middle Uruk Period, when it covered 60 acres or less than a tenth of a square mile (Flannery and Marcus 2012).

Like Susa, however, Uruk's development at the top of a four-tiered political and settlement hierarchy was marked by the application, intensification, and diversification of administration technologies, many of which made extensive use of CERS. According to Wright and Johnson (1975), 'spherical bullae served as bills of lading[95] for goods and animals sent to centers in the charge of illiterate transporters', while 'tablets served to summarize receipts and expenditures in centers' (272). Commodity seals and message seals authorised exchange over great distances. When included on bullae, the seal on the exterior of the spherical clay envelope could be checked against the simple counters within to ensure the validity of the transaction or contract. As they were on the Susiana Plain, beveled-rim bowls likely functioned as ration containers. Cuneiform writing appears during this period; the majority of these writings relate to administrative activities (Yoffee 2004). According to Norman Yoffee (2004), the later development of 'city-seals' (*i.e.*, sealings decorated with the names of various cities, See Figure 6.6), standardised writing, numbering, and mathematical systems attests to an indigenous notion of Mesopotamian cultural identity.

[95] A 'bill of lading' is a document that itemises the details of a shipment as well as its intended recipient, helping to ensure that exporters receive payment and importers receive merchandise.

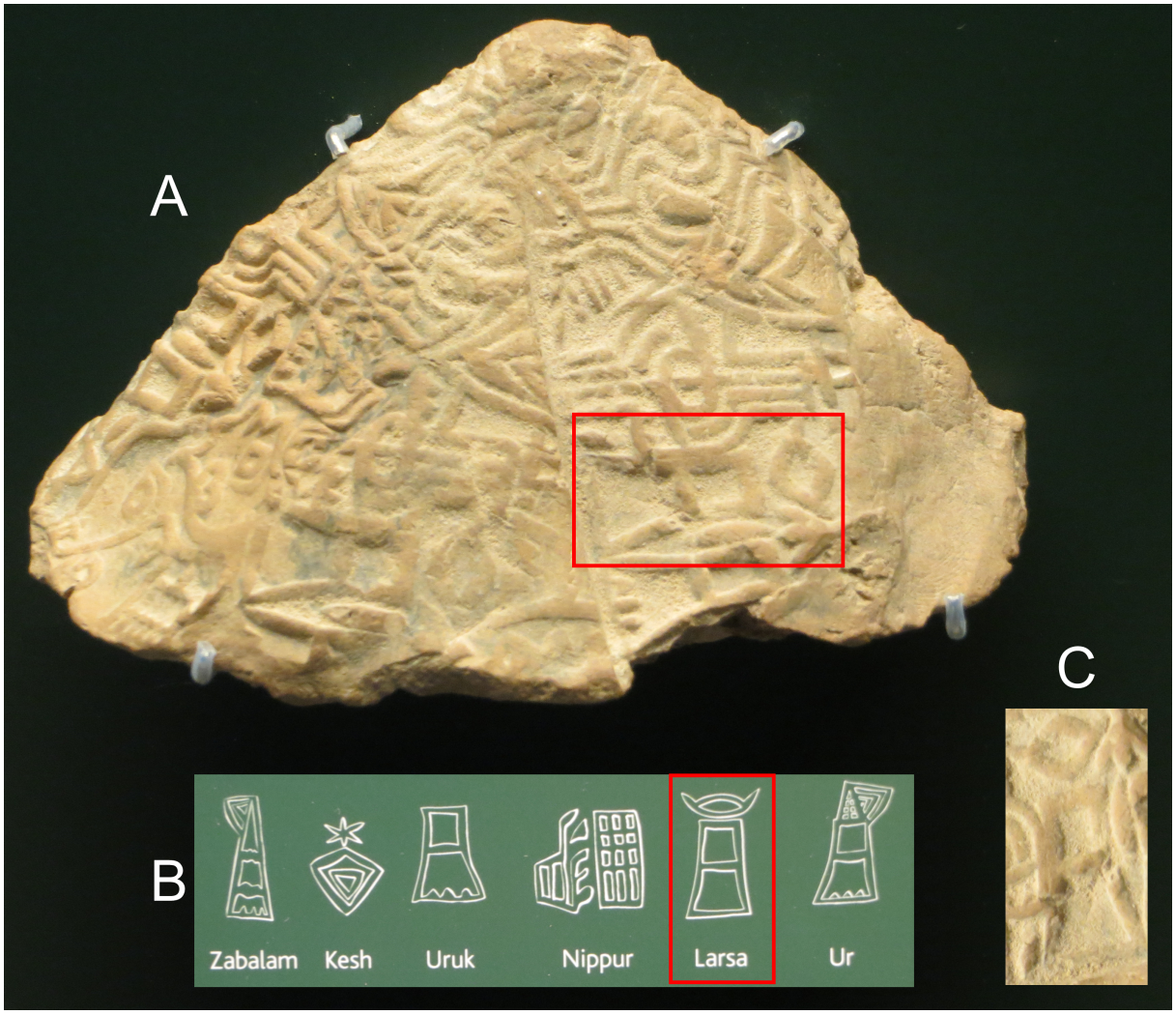


Figure 6.6. Early city-seals from southern Iraq. (A) Clay door-peg sealing containing several city-seals. (B) The city-seal symbols for a network of cities in southern Iraq. (C) The city-seal for Larsa, as indicated by the red rectangle in B. C is a counter-clockwise rotated image of the red rectangle in A. Photographs and composition by Daniel Mullins. Source: The British Museum (Museum Number 1930,1213.398)

The data produced from numerous excavations of the ruins of Uruk provide insights into the socio-political structure of this polity. Clay tablets from this period on which socio-political terms were inscribed have proven to be particularly valuable to archaeologists. The presence of specialist users of CERS, including bureaucrats, accountants, scribes, messengers, overseers, and early merchants are evidenced on these tablets. According to Robert Englund (1988), these tablets also attest to the presence of an archaic time counting system, which enable the reckoning of time and provide notations for ‘days’, ‘months’ and ‘years’. This time reckoning system

may have had several consequential administrative functions, such as allowing overseers to track the amount of work that an individual was contributing over time and provide rations accordingly (Høyrup 1991). Numbersign systems appear to have been present at Uruk during this period as well, which may have played a large role in providing the administrative and economic tools necessary for the emergence of a state-level polity in modern-day southern Iraq. These numbersign systems, especially when combined with the time reckoning system, may have facilitated activities ranging from administrative time notations and agricultural production to the regularisation of irrigation to feeding schedules for large animals, such as pigs (Englund 1988; Yoffee 2004).

Trigger (2003), following Postgate et al. (1995: 588), concludes, 'to ensure that no mistakes were made during rituals, prayers were recorded in written form' by this period. This functional application of scripts in Mesopotamia has striking parallels with their use early in the Old Kingdom in Egypt, where lector priests used written scripts to ensure the correct performance of ritual. Most importantly, however, a well-developed script provided Mesopotamia with a significant advantage over competitors in financial transactions and administrative recordkeeping (Trigger 2003: 597). As discussed in Chapter 3, the standardised script developed in Mesopotamia is one of the few 'pristine' or independently-emergent writing systems ever developed. While high-frequency interactions within groups of specialists, complex shared networks of doctrines and narratives, doctrinal conformity, and other hallmarks of routinization provide the selection pressures necessary for the initial development and spread of the Mesopotamian script, increases in socio-political complexity are shown to have facilitated the elaboration, spread, and functional

application of writing systems and other CERS, especially calendrical and time-keeping systems.

Like Susa before it, Uruk grew as a Level 1 centre at the head of a first-generation state-level polity in part because of its increased political control over the region, its expanding resource base, urbanisation, increasingly 'routinized' religious rituals, and its increasingly sophisticated administrative technologies. Each of these factors in state formation was enhanced by the functional applications of one or more CERS.

While the development and functional applications of CERS facilitated the emergence of this first-generation state, several key factors involved in facilitating state formation also facilitated the development and functional applications of CERS. The development of irrigation canals emerged largely as a result of increased agricultural demands resulting from a population increase and more elaborate administrative sophistication enabled by the development and elaboration of CERS. As population-levels increased, systems for reckoning time were developed in order to better administer a variety of pursuits, including the husbandry of domesticated animal stocks, the irrigation of agricultural land, and the rationing of the large number of workers involved in public works projects. Like Susa, as territory size increased, there was increased pressure to develop and adopt commodity and message seals to travel these distances. As both the number of exchange partners and the number of commodities increased, tablets were introduced to summarise receipts and accounts. As the number of religious specialists increased and created more elaborate ideological power networks, scripts were employed to limit innovation and ensure the correct performance of rituals. Therefore, while CERS *facilitated* state

formation in the Late Uruk/Jemdet Nasr Period of southern Iraq, CERS were also *facilitated by* state formation in this first-generation state.

6.4.3 Dynasty 0 of Egypt

The first state-level regional polity emerged along the Nile river and Nile river delta approximately 5,100 to 5,200 years ago or at approximately the same time as the emergence of the state more than 800 miles to the east in southern Iraq (see Figure 6.4). By the time the societies along the Upper Nile and within the Nile river delta transitioned into a state-level polity, they had amassed a population of approximately 870,000 people (Proussakov 2001), an order of magnitude larger than the population found in the state-level transition in southern Iraq. This first-generation Egyptian state was also incredibly large, stretching far beyond the boundaries of any other first-generation state before it to reach nearly 400 square miles (Bard 2000). Citing a series of surveys, Algaze (2013) concludes that Egyptian settlements formed a network of hierarchically-organised political units on four levels, much like those found in the instances of state emergence in modern-day southern Iraq and southwest Iran. Recent paleoclimatological data suggest that the Holocene 'climatic optimum' ended around this time, resulting in increasingly cooler temperatures. These data suggest that the lowest temperature in the last 6,000 years occurred in the northern hemisphere approximately 5,190 years ago, resulting in a dry period in northeastern Africa. Despite this cooling trend, Egypt was warmer and more arid than it is at present (Proussakov 2001).

According to Yoffee (2004: 47), this early Egyptian state was politically centralised, marked by an extreme polarization of wealth, symbols of kingship over an Egypt perceived as a geographic and symbolic duality, the growth of mortuary architecture ensuring the continuing role to be played by kings in an ordered and

decorous cosmos, characteristic elite art forms, and writing'. Yoffee (2004) and Flannery and Marcus (2012) note the increased urbanism and territorial expansion of an early Egyptian state. Citing the scenes depicted on the Narmer Palette, a carved siltstone cosmetic palette with writing and iconography on both sides (see Figure 6.7), Flannery and Marcus (2012) conclude that (1) a ruler from Upper Egypt first conquered the delta before expanding into the Southern Levant and (2) there was an indigenous association between the unification of Egypt and territorial conquest and political subjugation. Like the state-level polities that emerged in modern-day southwest Iran and southern Iraq, which both relied heavily on the administration of economic power networks, Dynasty 0 increased its economic power by taking control of the production and distribution of resources, a vast majority of which could be found within its own borders (Yoffee 2004). It also increased its ideological power through the mass construction of structures that functioned as displays of royal and ritual power, especially through mortuary displays.

Also like the transitions of the first-generation states in modern-day southwest Iran and southern Iraq, the process of Egyptian state formation was associated with the intensive application of administrative, transactional, and accounting systems. As noted by Yoffee (2004), above, the Egyptians developed a standardised script, which was used for great effect. According to Flannery and Marcus (2012), the 'scribe' became a powerful office in the early Egyptian state. So powerful, in fact, that hieroglyphic texts place scribes second in command only to the vizier, who was highest official to serve the king.

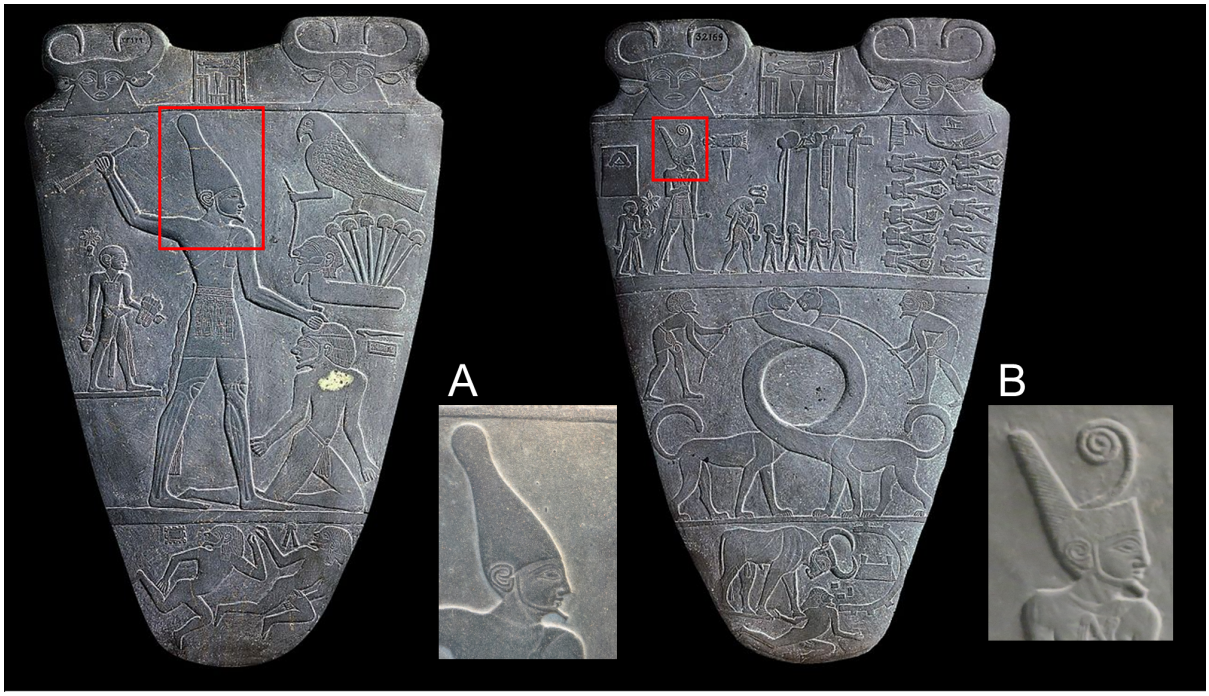


Figure 6.7. The Narmer Palette (both sides). Inset A depicts Narmer wearing the White Crown of Upper Egypt, while inset B shows him wearing the Red Crown of Lower Egypt. Background image modified from http://en.wikipedia.org/wiki/Narmer_Palette#mediaviewer/File:Narmer_Palette.jpg. Source: Egyptian Museum Cairo. Inset images by Daniel Mullins. Source: The British Museum.

Shaw (2000) provides an account of the drastic elaboration in state administration found during this period by exploring the use of early writing systems on the seals and tags attached to state goods and emblems of royal power (see also Trigger (2003) (see Figure 6.8). Citing the prevalence of writing and objects of state control and organisation in the archaeological record, Shaw suggests that a state taxation system may have already been in place in the early dynasties of Egypt. Treatises on anatomy and other written literature emerged around the same time (Proussakov 2001). As noted above, archaeological evidence also suggests that Egyptian script, like Mesopotamian script, was used to ensure the correct performance of rituals (Trigger 2003). In addition, early scripts were used to ensure the dead were properly provisioned for the afterlife (Postgate et al. 1995; Trigger 2003). The functional application of Egyptian script for use in royal and ritual texts,

however, was infrequent when compared to the application of this script for administrative recordkeeping. Like Mesopotamia, the vast majority of script-usage involved administrative recordkeeping by state-controlled institutions (Trigger 2003: 591). As discussed in Chapter 2 and with strong parallels to Mesopotamia, the standardised script developed in Egypt is one of the few 'pristine' or independently-emergent writing systems ever developed.

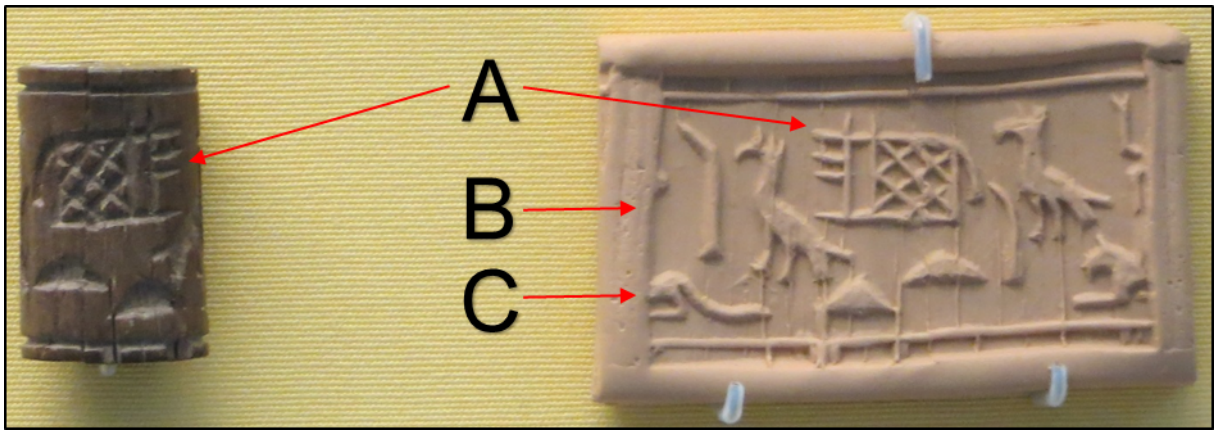


Figure 6.8. Cylinder seal marking temple property and identifying the individual who sealed the goods. This early Egyptian dynastic cylinder seal contains an image of a temple (A), which is depicted as a wooden shrine being guarded by a lion (C). Hieroglyphics were used to identify a person named 'Nehty' (B), who was responsible for the safekeeping of the goods to which this seal was affixed. Photograph by Daniel Mullins. Source: The British Museum (Museum Number EA49018)

Archaeological evidence also suggests that the early Egyptian state employed a standardised calendrical and timekeeping system. According to Proussakov (2001), the period of independent state emergence saw the emergence of the first annals in the form of wooden and ivory labels with painted or engraved signs indicating important events of a given year. Priests observed the stars and produced astronomical calculations, 'helping to predict the dates of the beginning of the annual Nile floods, and arrangement of the so-called nilometers for flood-level measurements, which are assumed to have influenced tax rates in the Early Kingdom' (see Aveni (1989) for a similar account). Transactional records, too, were

present during this period. In addition to seals and labels, tokens were beginning to be developed and used in exchange.

Functioning both independently and collaboratively, CERS such as a standardised script, written literature, a standardised calendrical and timekeeping system, and transactional records, are shown to have facilitated the emergence of the first-generation Egyptian state. Increasing state control and the elaboration of economic, ideological, military, and political power networks as well as the emergence and empowerment of specialist scribes had a 'feedback' effect on CERS, standardising their form and extending the functions to which they were put.

6.4.4 Zapotec State of the Mexican highlands

The next instance of independent state emergence in this sample emerged more than 4,500 miles to the southwest in the Americas. The Zapotec State formed between 2,500 and 2,000 years ago in the Oaxaca Valley (see Figure 6.4), which is within the Sierra Madre Mountains and shaped roughly like an inverted 'Y' (Flannery and Marcus 2012; Hamnett 2004) (see Figure 6.9). The societies of the modern-day southern Mexican highlands transitioned into a vast regional state-level polity in control of the entire 1,290-square-mile Oaxaca Valley (Flannery and Marcus 2012). While the expanse of this polity is far greater than the more ancient independent states in lower Mesopotamia and Egypt, it pales in comparison to the unification of the 4,028-square-mile Big Island of Hawai'i or the tens of thousands of square-miles controlled by the Merina of Madagascar, two first-generation states that are investigated in this chapter.

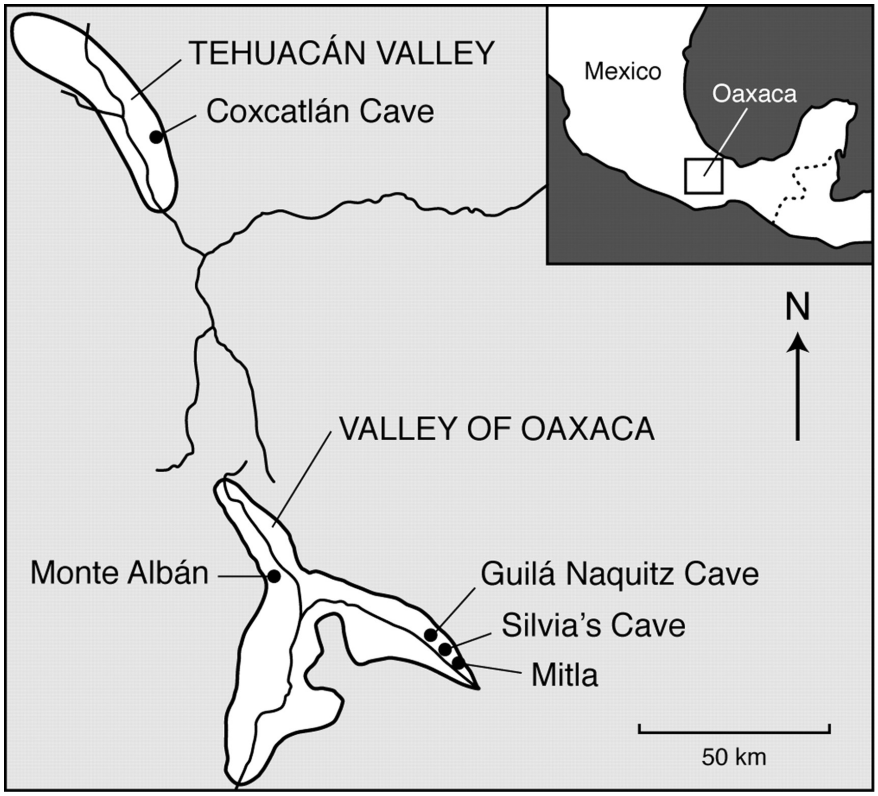


Figure 6.9. Map of the Oaxaca Valley depicting the location of Monte Albán from Perry and Flannery (2007: 11905).

Despite its significant area, the population of the Zapotec during their transition into a state-level regional polity totalled 40,000 people, roughly half that of the independent state that emerged more than two millennia earlier in southern Iraq and less than five percent of the state-level polity that emerged along the Nile river. Flannery and Marcus (2012) note that the Zapotec State, too, was comprised of the four levels of political and settlement hierarchy typical of states with a centre at the Level 1 site of Monte Albán, which is estimated to have had a population of 15,000 inhabitants. Next, the independently-emergent Zapotec State possessed six Level 2 settlements with an estimated population of 900 to 2,000 individuals and at least 30 Level 3 villages of approximately 200 to 700 persons. Following Kowalewski and Drennan (1989), Flannery (1999) notes that each of the Level 2 settlements was 8.7 to 17.4 miles or less than a day's walk away from the Level 1 centre of Monte Albán. Finally, 400 small villages and hamlets served as Level 4 political centres. Finsten

(2001) validates the presence of this four-tiered political hierarchy of residences in the Oaxaca Valley before noting that the regional climate was largely consistent with that which is observed today – marked rainy and dry seasons, little temperature variation, a largely semiarid climate, and frequent frosts at only the highest of northern elevations.

Archaeological and historical materials indicate that the Zapotec state developed gradually as the result of several interconnected evolutionary forces. According to Brian Hamnett (2004), state formation in the Oaxaca Valley was anticipated by several factors, all of which centre around the eventual Level 1 centre at Monte Albán.

First, population growth may have strained the resource base, resulting in increasing political and economic pressures towards a guaranteed food supply as produced by a more concentrated labour force. Flannery and Marcus (2012) submit archaeological evidence that high-efficiency tortilla griddles, or ‘comal’, functioned to provide rations for the workers of Monte Albán. Like the barley rations in the beveled-rimmed bowls of the Middle Uruk Period of the Susiana Plain, these high-efficiency tortilla griddles fed urban workers, thus facilitating urbanisation, before eventually spreading to households in smaller communities. Monte Albán grew. Arising in a buffer zone between previous political centres and sitting at the summit of a readily defensible mountaintop, Monte Albán became Oaxaca’s first city (Yoffee 2004). Military force through territorial expansion was also applied in an effort to resolve some of these political and economic pressures. In a move analogous to Kamehameha’s terracing of the Anahulu Valley, the leaders of Monte Albán expanded canal irrigation to the surrounding settlements, resulting in increased corn production. According to Flannery and Marcus (2012), Monte Albán attacked a rival

chiefly centre to the south, San Martín Tilcajete, on at least two occasions before subduing it to become the premier political power of the Oaxaca Valley and its first, independently-emergent state. A series of vivid stone monuments from the period attest to Monte Albán's bloody conquest and the unification of the valley.

Second, the concentration of land ownership in the valley resulted in increasing social differentiation, including the creation of a ruling elite with an agrarian base (Hamnett 2004). Like the Hunza of the modern-day Pakistani-Kashmir borderlands and the Merina of modern-day Madagascar, corvée labour appears to have been used for building construction, particularly in Tilcajete (Flannery and Marcus 2012).

Third, CERS, including standardised scripts, standardised calendrical and timekeeping systems, and codified laws and punishments, appear to have played an integral role in enabling the levels of cooperation needed for the emergence of the Zapotec state. As noted by Hamnett (2004), double-column hieroglyphic writing appeared alongside the transition to a state-level polity in the Oaxaca Valley. Paralleling the functional application of writing in the first-generation state along the Nile Delta, hieroglyphic writing in the Oaxaca Valley appears to have functioned as royal displays of ideological and military power, recording the names of important victims (Flannery and Marcus 2012). Following Marcus (1992), Chase et al. (2009) cite the partially deciphered Zapotec script in their suggestion that these writings, along with monumental architecture, such as a large royal palace, signalled the power networks of Monte Albán's rulers. As it was 4,700 miles away during the emergence of a state-level polity in Egypt, the knowledge of writing was restricted to priests and bureaucrats (Finsten 2001). As noted by John Justeson (1986), however, the Zapotec textual tradition was limited by an absence of grammatical

representation. Passages were never more than six signs long. Calendrical statements were interspersed between sign passages to provide a temporal framework.

Codified laws and punishments may have also been present to facilitate the execution of formalised legal processes (Schwabach 2003). Standardised calendrical and timekeeping systems were also developed and used (Justeson 1986). A 365-day secular calendar and a 260-day ritual almanac guided building construction, agricultural planning, and the reckoning of authority (Flannery and Marcus 2012) (see Figure 6.10). Joyce and Winter (1996) provide a detailed account of the role of writing and calendrical systems in the emergence of the state in the Oaxaca Valley. Using an actor-based perspective, Joyce and Winter (1996) explore how the Monte Albán elite capitalised on their increased ideological power to facilitate increased urbanisation in the Oaxaca Valley.

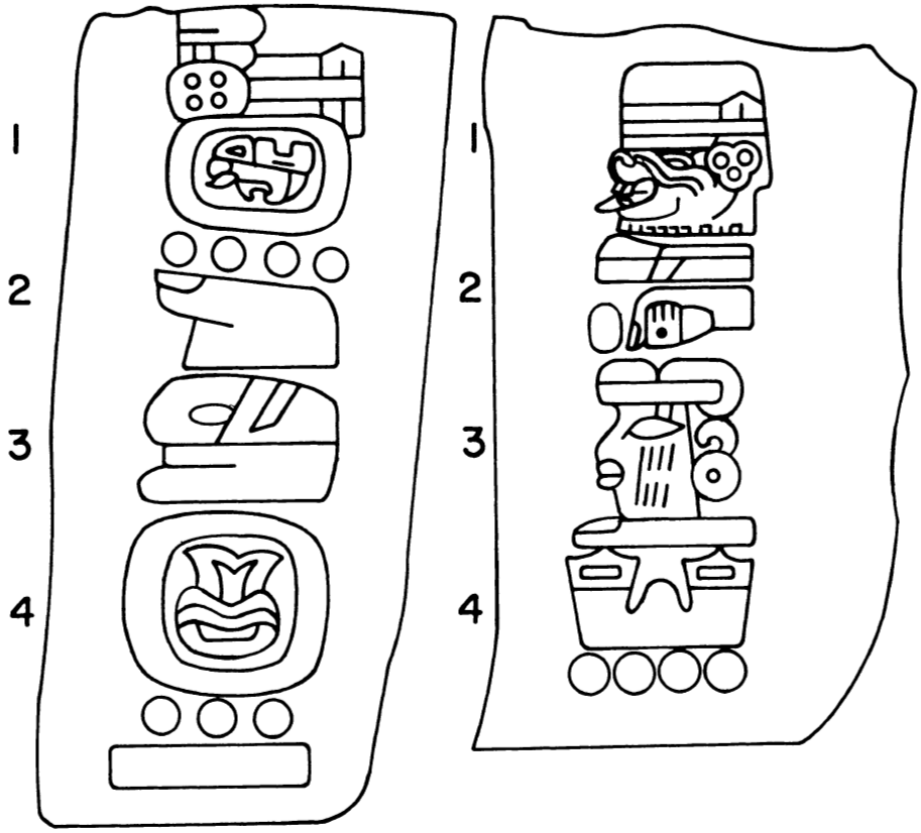


Figure 6.10. Stelae 12-13 from Monte Albán, Oaxaca Valley from Marcus (1976: 46). According to Marcus (1976), these stelae may comprise a single continuous inscription and may provide early evidence of the 260-day calendar.

According to their analysis, intricate hieroglyphic and calendrical systems were used to express the sanctity of the elite of Monte Albán, thus contributing to a shift in ideological power that enabled the elite to take control over ritual knowledge and authority, while promoting external conflict. To quote Joyce and Winter (1996), '[e]lites controlled certain ritually significant forms of esoteric knowledge, including astronomy and the calendar, and were able to communicate this information via writing' (36). In their conclusion, Joyce and Winter (1996: 46) note,

> an elite strategy of ideological manipulation was a major factor in the origin and development of urban society. Elites manipulated ideology to control religious institutions. Their special ritual role created and legitimated their political power and compelled nonelites to provide tribute, leading to increasing inequality. Elites used ideology to compel people to move to urban centers and into ecologically unstable piedmont areas, both of which had economic and ecological consequences. Elites also appear to have promoted interpolity conflict as a means of unifying people and extracting resources for military measures.

With the emergence of specialist CERS-users in the form of a political elite, the codification of laws and punishments for an increasingly large population, the use of calendrical systems to organise large building and agricultural projects to feed this growing population, and the use of hieroglyphic writing to legitimate royal power networks, simple and intuitive models that assume single cause-and-effect relationships are insufficient to explain the historical relationship between CERS and the first-generation Zapotec State. Instead, the factors involved in state formation and the emergence and functional application of CERS operated in a complex positive feedback loop. The emergence of the Zapotec State was both a cause and an effect of the emergence and functional application of CERS.

6.4.5 Moche State of Peru

A second, independently-emergent state developed in the Americas over 2,000 miles to the southeast of the Oaxaca Valley in modern-day northern Peru (see Figure 6.4). Archaeologists, however, have not reached a consensus concerning the time-period during which this state emerged along Peru's north coast (see Figure 6.11). Some contend that the Moche State was centred on Cerro Arena, which is dated to 2000-2200 years ago. Others argue that the societies of northern Peru transitioned into a state-level regional polity with its capital at either Cerro Oreja, which is dated to 1800-2000 years ago, or Las Huacas de Moche, which is dated between 1600 and 1800 years ago (Flannery and Marcus 2012). Regardless of whether the Moche State emerged 2,200 years ago or 1,600 years ago, archaeologists are confident that it covered an area of approximately 9,266-square-miles, roughly seven times the area controlled by the Zapotec State and roughly 24 times the area covered by the first-generation state along the Nile (Quilter 2010).

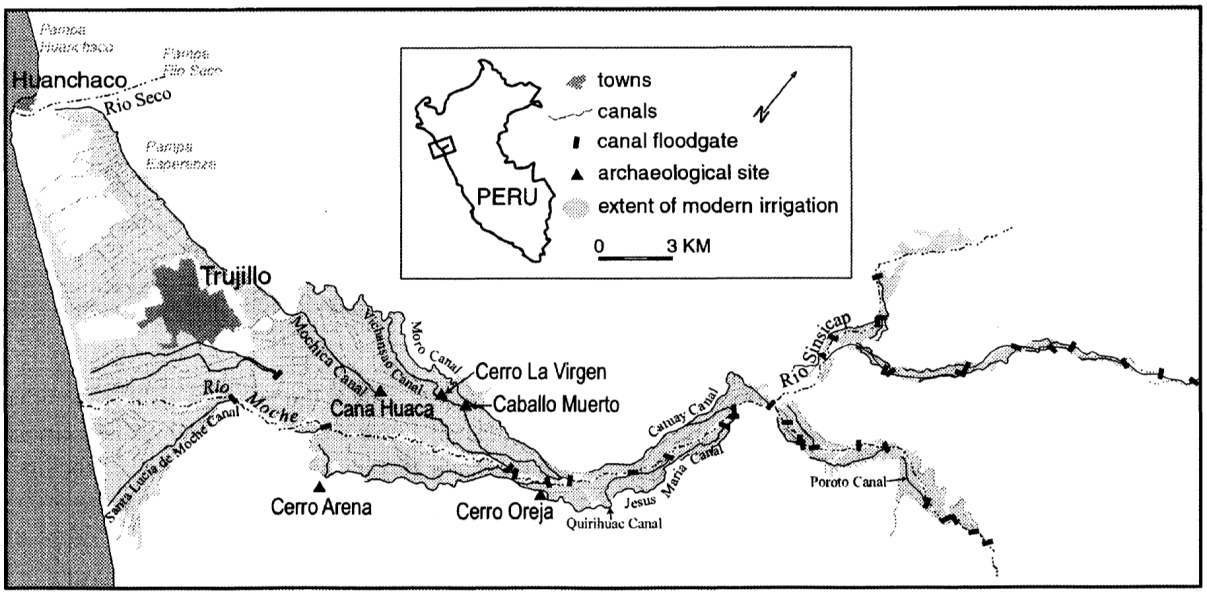


Figure 6.11. Map of key archaeological sites in the Moche Valley, Peru, including Cerro Arena and Cerro Oreja from Billman (2002: 379).

The climate of this area was warmer than today, meaning that cultivation was possible 100 to 300 meters higher than current limits and that the permanent snowline of 4,800 to 5,000 meters was well above the limits for cultivation. Despite these slightly higher temperatures, productive systems and the populations that they maintained were much more susceptible to subtle climatic variation than they would have been at lower elevations (Browman 2001).

Like the first-generation Zapotec state in the Mexican highlands, the development of the Moche State of Peru was a centuries-long process (Flannery and Marcus 2012). The Moche State employed a complex system of agriculture and pastoralism across the Andean highlands. This resource base provided for a population of greater than 50,000 people (Stanish 2001), which is roughly the same as the population of the Early Maya Kingdom more than 1,700 miles to the northwest. Surveys by David Wilson provide evidence that the Moche exhibited the classic site-size and political/settlement hierarchy typical of first-generation states (Flannery and Marcus 2012; Stanish 2001).

Similar to the systems developed in Late Uruk and Jemdet Nasr Periods of modern-day southern Iraq and the Zapotec state of the Mexican highlands, the Moche developed a complex hydraulic system in the Andean highlands to irrigate coastal lands, which did not receive any significant annual rainfall (Billman 2002). To protect their irrigation network in the highlands and to protect themselves from highland rivals, the nascent Moche state developed a powerful military apparatus, which they eventually used to subdue both highland enemies and coastal neighbours (Flannery and Marcus 2012). The result of these military incursions was territorial expansion. Coupled with the intensive use of labour for public works, such as canal and monumental architectural construction, this territorial expansion lead to the development of massive urban settlements (Stanish 2001).

Increasing societal differentiation was also associated with the emergence of the Moche state, producing a militaristic monarchical polity. As summarised by Charles Stanish (2001), '[f]or the first time in the Andes, as represented by Moche, we have unequivocal evidence of royal tombs built in restricted-access temples, clear economic specialization, the existence of a road system, palaces, a warrior-based elite, a regional polity beyond a single valley, and a fully urbanized capital' (55).

Unlike the Zapotec state that emerged in the Mexican highlands, the Moche did not develop a standardised script (Flannery and Marcus 2012). In fact, the Moche did not have several of the other CERS frequently associated with state formation in this survey, including a standardised calendrical and timekeeping system, written literature, codified laws and punishments, or criminal records. If many of the CERS under investigation in the current survey did not facilitate the emergence the Moche state, what did? Unlike several of the independently-

emergent states discussed thus far, including the Middle and Late Uruk/Jemdet Nasr Period polities and Dynasty 0 of Egypt, the administrative and managerial requirements of the nascent Moche state associated with large public works projects (*e.g.*, large irrigation systems) did not appear to be a major factor in the formation of the state-level polity in the Moche Valley.

In his empirical examination of two competing sets of hypotheses of Moche state formation using a large amount of archaeological data collected from two major surveys of the Moche Valley, Billman (2002) concludes that the challenges of large group size did not facilitate the emergence of the Moche state. Instead, Billman (2002: 374) contends that

> the physical control of irrigation canals by an emerging elite social stratum — not population pressure or management — led to increased political centralization during the Initial period (1800-900 B.C.). In short, the degree of political centralization was not related to the scale and complexity of the productive system, but the potential for individuals to manipulate the productive system to create social inequality and political control.

The CERS under investigation in the current study are hypothesised to function as cooperative tools in the settlement and dissolution of collective action problems. Therefore, it is not surprising that CERS are largely missing in a state that did not become increasingly socially and politically complex in response to the collective action problems that arise from large-group cooperation, but did so as a result of increasing social stratification and the political control of irrigation canals. As Billman (2002) concludes, the cooperative challenges encountered during the Moche development of irrigation systems was not enough to facilitate the transition to a more complex, state-level polity because the canals, themselves, (1) were short and relatively easy to construct, (2) were used by small and self-sufficient groups of people, and (3) did not demand high-levels of maintenance.

Like the development of their irrigation networks, Moche warfare, mutual defence, and agricultural intensification also do not appear to have posed significant enough challenges to cooperation to facilitate a shift in social complexity and the development of CERS as tools for large-group cooperative problems. The abundance of agricultural land and simple technologies such as slash-and-burn agriculture and floodplain irrigation enabled the Moche to avoid many of the collective action problems that may have facilitated increased levels of social complexity and the concomitant development or application of CERS. Instead, Moche rulers likely relied on 'personal charisma, ideology, and redistribution of surpluses produced by their own households and the households of their followers' to develop and increase their own socio-political power and, ultimately, engender the transition of Moche Valley into a state-level polity (Billman 2002).

Once the Moche state did emerge, however, an elaborate recordkeeping system using knotted cords called khipu or quipu was developed and expanded to enable the Moche to count and track commodities and livestock, facilitating exchange. While many parallels can be drawn between the development of the Moche State of Peru and several of the first-generation states surveyed thus far, including increased urbanisation, territorial growth across the region, and the development and elaboration of military power networks, it accomplished many of these feats largely without help from the development or functional application of CERS. Thus, the emergence of early Moche State of Peru provided the selection pressures necessary for the eventual emergence and diversification of CERS, but benefitted little from their presence and functional application.

6.4.6 Early Maya Kingdom of Calakmul of Guatemala

The societies of a forested depression of lowlands between modern-day northern Guatemala and the Mexican state of Campeche, an area known as the Mirador basin (see Figure 6.4), transitioned into a state-level polity approximately 1,750 years ago when the once-marginal community of Calakmul seized control of the region (Flannery and Marcus 2012). Like the first-generation states of lower Mesopotamia, Egypt, the Oaxaca Valley, and northern Peru, the early Maya kingdom of Calakmul was comprised of a four-level political and settlement hierarchy with Calakmul as the Level 1 centre (Sharer 2001). Similar to the settlement pattern of the Zapotec, the early Maya kingdom had six, Level 2 settlements dispersed roughly 20 miles, or one day's walk, from both one another and the capital at Calakmul (see Figure 6.12). These settlements were surrounded by Level 3 polities, which were, in turn, served by smaller, Level 4 settlements (Flannery and Marcus 2012).

The highland and tropical climates of the Mirador basin produced temperate conditions with a rainy season from May to December and a dry season from January to April. There are roughly 2,000 to 3,000 mm of rainfall across this region each year and temperatures between 15°C and 25°C in the Highlands and 25°C to 35°C in the northern lowlands and the Pacific coast (Sharer 2001). Taken together, this four-tiered settlement hierarchy and temperate conditions supported a population of over 200,000 people (Sharer 2006), with approximately 50,000 people living within Calakmul, itself (Flannery and Marcus, 2012).

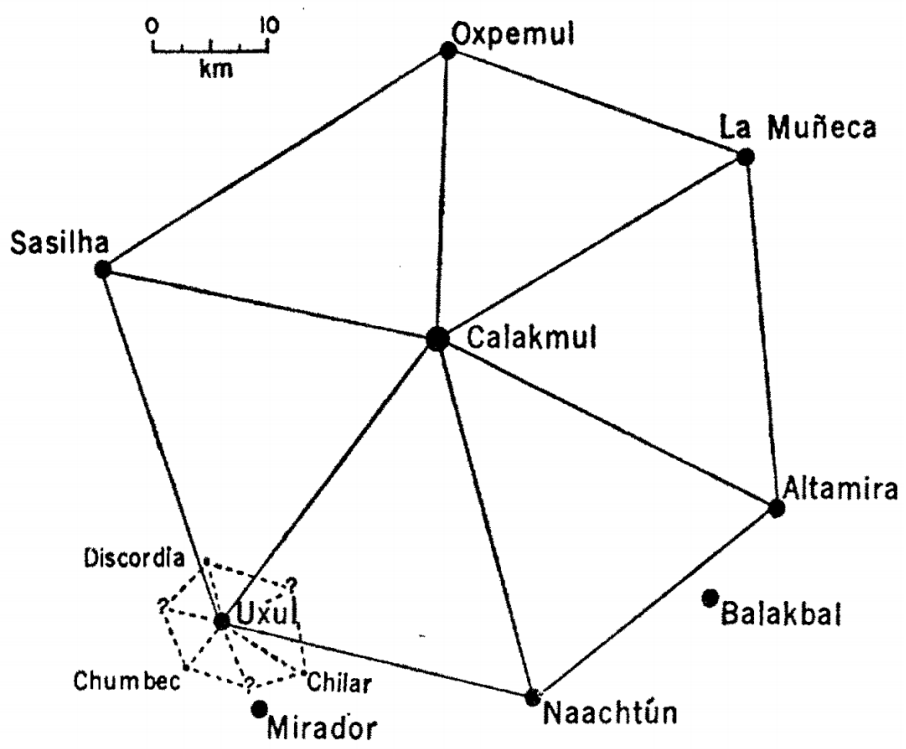


Figure 6.12. Territorial organisation of the major population centres of the early Maya kingdom of Calakmul from Marcus (1973: 913). The solid lines depict the distance (roughly a day's walk) of the secondary centres surrounding Calakmul.

Flannery and Marcus (2012: 200) suggest that the social and political dynamics of early Maya state formation were similar to those found in the highlands of the Oaxaca Valley or the coast of Peru. Large hieroglyphic monuments indicate that, like the Moche state, the Early Maya was an individualising monarchy, to use the terminology of Renfrew et al. (1974). Large temples, pyramids, and eventually palaces were constructed in this region, many of which functioned as royal displays. Like the protohistorical first-generation states in the Hunza Valley and in Madagascar, the development and widespread use of corveé labour preceded the emergence of the Early Maya state. Maya polities were often connected by 'sacbe' or causeway systems, which clustered around Level 1 polities like Calakmul and Tikal, which controlled canoe portages across the southern lowlands (Sharer 2001). The archaeological record also shows signs of intense military competition in the region. The Level 1 centre at Calakmul came to annex increasingly distant,

subordinate towns. Unlike the Moche, who relied heavily on simple slash-and-burn agriculture, the archaeological record indicates that intensive agriculture appears to have emerged around this time in the Mirador Basin. Also unlike the Moche, the Early Maya made extensive use of CERS, including a standardised script, a standardised calendrical and timekeeping system, written literature, and transactional records. According to Sharer (2001), some of the diagnostic material attributes of this time period include carved stone monuments with calendrical dates and hieroglyphic writing in folded books or on monuments, buildings, or artefacts. Hieroglyphic texts, combined with the later accounts of the hierarchical titles of sixteenth-century Maya nobles by Spaniards, provide evidence of long-standing and pronounced social stratification. Similar to Dynasty 0 of Egypt, a literate elite emerged among those at the top of the social hierarchy, particularly priests, who oversaw rituals, communicated with deities, kept calendars of significant events, and wrote historical chronicles (Sharer 2001). The portrayal of the early Maya rulers in hieroglyphic texts and on monumental architecture is also similar in many respects to that found along the Nile (Yoffee 2004).

Standardised calendrical and timekeeping systems were used to organise military manoeuvres such as raids, which often coincided with significant anniversaries or auspicious astronomical readings, as well as ritual ball games and captive sacrifices. As with the Zapotec and Hunza, who are discussed below, standardised calendars were also used to forecast rain and maximise agricultural output by determining the most desirable time-period for planting (Sharer 2001). Archaeoastronomer Anthony Aveni (1989) provides a detailed account of the various forms and functions of Maya calendrical and timekeeping systems in the book, appropriately called *Empires of time*. Using archaeological materials, post-conquest

written records, and the written accounts of the foreign invaders, Aveni finds that the Maya calendrical systems functioned in several key ways to support state formation, namely by serving as a guide for agricultural production and as a method for increasing the ideological power of Maya rulers. The Maya 'haab' calendar was used to calculate agrarian time after the onset of the rains and concomitant planting period, which varied significantly from year to year, while the 'tzolkin' calendar was used for divinations. According to Aveni (1989), '[t]he Maya ruler seems to have been using time and all of its natural indicators as a vehicle for legitimizing and validating his rulership and authority' (190). As with the Zapotec, Maya rulers increased their ideological power by sponsoring texts that claimed that kings eventually became deities (Sharer 2001). As the Maya transitioned into an increasingly hierarchical, state-level polity with increasing levels of specialisation, their calendar became more structured and formalised (Aveni 1989).

In sum, the archaeological material available demonstrates that CERS, such as standardised calendrical and timekeeping systems and standardised scripts, supported the formation of the Early Maya Kingdom. Several of the factors that drove state formation also facilitated the development and functional applications of CERS. Intense military competition between Calakmul and its neighbours led to an increase in the application of standardised calendrical and timekeeping systems. Furthermore, increasing population pressures brought about pressures for increasingly intensive forms of agricultural production, which facilitated the development of the 'haab' calendar. Increasing socio-economic inequality that resulted from the Early Maya Kingdom's individualising monarchy prompted rulers to seek out new vehicles for legitimating and validating their rulership and authority, such as state-sponsored ideological texts. These functional applications of CERS would not have been

developed without the pressures brought about by the factors associated with state formation. Therefore, several of the factors driving the emergence, development, and spread of CERS and those driving the emergence and elaboration of the Early Maya Kingdom of Calakmul of Guatemala were in a complex positive feedback loop.

The six instances of independent state formation surveyed thus far have been characterised using archaeological data. The remaining four cases in this survey all occurred during a period of intense Western contact. Emerging in either the late eighteen or early nineteenth centuries, the transitions of each of these sets of societies into state-level regional polities is relatively well-attested given the historical, colonial, missionary, trade, and ethnographic accounts available. As a result, researchers are better able to understand the intentions and efforts of the leaders involved in the development of these protohistorical states by integrating historical texts with the archaeological evidence of state formation (Dewar and Wright 1993; Flannery 1999). Also, the variety of tools used to facilitate cooperation at the level of the state are better evidenced and, therefore, easier to investigate.

6.4.7 Hunza of Mir Silim Khan of the Pakistani-Kashmir borderlands

The unification of the Hunza to form an independent, state-level polity occurred between AD 1790 and 1824 (Flannery and Marcus 2012). The Hunza state emerged on the modern-day Pakistani-Kashmir borderlands along the Hunza River, a tributary of the Indus, and among the Karakoram Mountains in an area now known as Gilgit-Baltistan, the northernmost territory of modern-day Pakistan (see Figure 6.13). This polity covered an area of roughly 7,900-square-miles and may have consisted of 3,000 to 4,000 people (Sidky 1993), making it the polity with the smallest state-level population in this survey. Like each of the first-generation states surveyed thus far, the Hunza possessed a four-level political and settlement

hierarchy by adding an additional level of administration to the three existing levels of administration of conquered chiefdoms (Flannery and Marcus 2012).

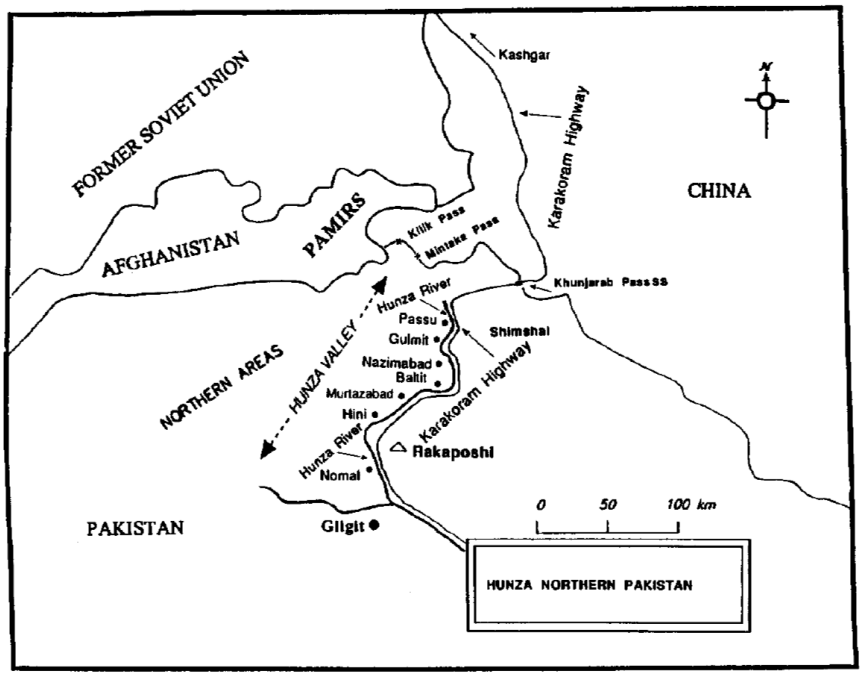


Figure 6.13. Map of the Hunza Valley from Sidky (1993: 133).

The geography, ecology, and climate put a number of constraints on the independent emergence of a state along the Hunza River. As noted by the ethnographer Sidky (1993), this mountainous region had little arable land in the form of level fields and scarce amounts of rainfall. Moreover, Hunza farmers were not able to make use of the water provided by the Hunza River for irrigation because it flowed almost a hundred meters below the arable lands (Sidky 1993). According to ethnographers and archaeologists, the development of complex hydraulic systems to divert seasonal glacial melt-waters for irrigation was instrumental in the emergence of the Hunza state as was the terracing of the steep slopes of the Karakoram Mountains to produce flat land for cultivation. The efforts of Mir Silim Khan facilitated the construction of these impressive terraces and complex irrigation systems (Flannery and Marcus 2012; Flannery 1999; Sidky 1993).

Using oral histories and historical records, Sidky (1993) provides an account of Silim Khan's role in Hunza's transition into a state-level polity. Silim Khan's reign began in 1790 and ended in 1824. After unifying the previously autonomous fortified villages of Baltit, Ganesh, and Altit, Silim Khan was able to consolidate his control over a large labour force and mobilise the use of the materials necessary to protect the Hunza for neighbouring rivals, particularly the Nagar, by investing in defensive structures. Silim Khan populated his labour force by demanding compulsory labour from one able-bodied man from each household in Baltit, Ganesh, and Altit. Next, Silim Khan used this large and loyal labour force to construct large hydraulic, landscaping, and residential development projects.

After expanding the Hunza resource base, Mir Silim Khan founded several new villages, including Haydarabad, Aliabad, and Hasanabad, which, in turn, took advantage of previously infertile areas. In addition, Silim Khan apportioned the most productive lands to the royal estate and worked them using corveé labour. The net effect of these activities was a centralisation of administrative control, including control over the agricultural calendar.

The development of a complex external representation system in the form of a standardised calendrical and timekeeping system allowed the Hunza administrative hierarchy to increase agricultural production by controlling planting, fertilisation, irrigation, and harvesting periods. As a consequence, the Hunza population grew quickly. This new agricultural calendar also increased tax revenues by increasing the likelihood of maximum yields and, therefore, the grain tax payable to the state. Silim Khan's power and his people spread throughout the Hunza valley. The spread of the Hunza created new logistical challenges for the administrative hierarchy, who turned to another communicative strategy to overcome this problem. Mir Silim appointed

new state officials to stretch from the capital at Baltit to the farthest reaches of the state. These new state officials, in turn, disseminated the dictates of Mir Silim Khan to the ‘wazir’, a subordinate bureaucrat and military commander, to the ‘trangfa’, a village headman, and onward to subordinate officers, including the ‘uyum’, who announced official orders.

The development of yet another CERS, codified laws and punishments, also facilitated the transition of the Hunza into a state-level polity. As noted by Sidky (1993), Mir Silim Khan would convene the ‘marika’ or formal council, which eventually produced a codified body of state legislation to resolve disputes and pass laws. According to Sidky (1993), these legal documents were still being used until just a few decades ago.

Taken together, innovations in communication, the development and adoption of CERS, population growth, territorial expansion, extension of the resource base through agricultural intensification, the emergence of a dedicated bureaucracy, increasing administrative control, and the emergence of an economically powerful ruling elite, were the principal factors that facilitated the emergence of the Hunza state. Standardised calendrical and timekeeping systems along with codified laws and punishments solved many of the challenges to cooperation faced by the increasingly large, complex population of the Hunza.

While the agricultural calendar contributed to the emergence of an ‘economically-powerful ruling elite that [was] unrelated by kinship to the population that they [administered]’ (Johnson and Earle 2000) and facilitated both population growth and tax revenues by increasing agricultural production through the optimisation of planting, fertilisation, irrigation, and harvesting periods, it would not have emerged to serve these functions without the selection pressures brought

about by state formation along the Hunza River. Likewise, without a dedicated bureaucracy and sufficient administrative control and enforcement mechanisms, codified laws and punishments would not have emerged to facilitate the levels of cooperation necessary to maintain cooperation at the level of the state. Therefore, given the historical, colonial, missionary, trade, and ethnographic accounts available, CERS, most notably standardised calendrical and timekeeping systems and codified laws and punishments, and the factors that brought about unification of the Hunza to form an independent, state-level polity are shown to have been in a complex positive feedback loop.

6.4.8 Merina of Andrianampoinimerina of Madagascar

Roughly contemporaneous with the emergence of the Hunza state-level polity, but some 4,180 miles to southwest, the societies on the island of Madagascar transitioned into a state-level polity between AD 1760 and 1810. Madagascar, the world's fourth largest island at 587,041 square-miles (see Figure 6.14), lies in the Indian Ocean approximately 400 miles east of Africa. According to estimates derived from archaeological sources, the Merina of Madagascar formed a state-level polity of approximately 10,000 people, which is less than half the population of the state-level polity that emerged along the Susiana Plain more than five millennia before (Dewar and Wright 1993; Schwartz 1992). Like the state-level polity that emerged in modern-day southwest Iran, the Merina of Madagascar demonstrated a settlement hierarchy of four levels (Flannery and Marcus 2012). According to Dewar and Wright (1993), a Level 1, 35 hectare capital arose along with secondary centres, villages, hamlets, and specialised military posts on the frontier (Flannery 1999). During its transition to a state-level polity, however, the settlements of the Merina were dispersed over an area of approximately 30,000 square miles (Flannery 1999), more than 60,000 times

the size of the settlements that emerged in the Susiana Plain. This enormous polity, which was more than three times larger than the second largest state-level society in this survey, emerged under the auspices of Andrianampoinimerina, who had ambitions to unite the whole of Madagascar from east coast to west coast, an area greater than 500,000 square-miles (Dewar and Wright 1993; Flannery and Marcus 2012; Flannery 1999).

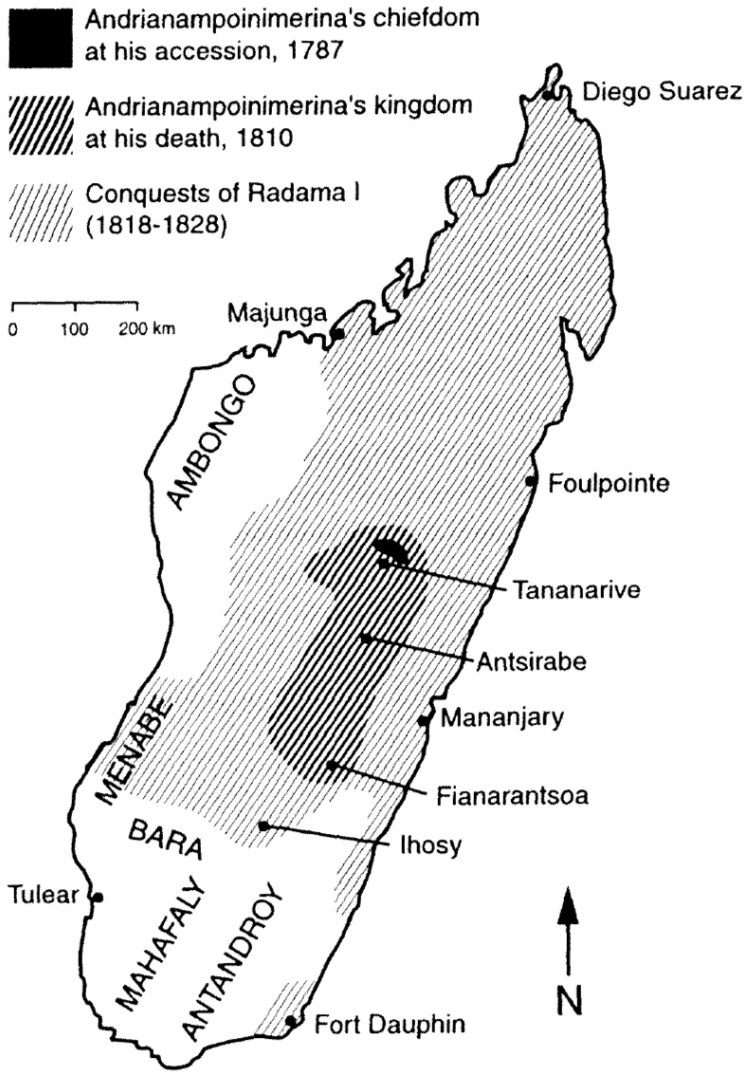


Figure 6.14. Territory size of Merina during (1) Andrianampoinimerina's accession, (2) Andrianampoinimerina's death, and (3) the conquests of Radama I from Flannery (1999: 14).

Archaeological data and historical records collected by Bloch (1986, 1998), Flannery (1999), and Flannery and Marcus (2012), attest to Andrianampoinimerina's

role in the transition of the societies of Madagascar into a state-level polity. Andrianampoinimerina, which can be translated as ‘prince desired by Imerina’, reigned over the Merina from 1787 until his death in 1810. He greatly expanded the territory, constructed defensive structures such as ditches and gates with multi-ton granite disks affixed to them, and expanded and increased the utilisation of an agricultural resource base. As noted by Dewar and Wright (1993), the nascent Merina state emerged in a fertile area with the potential for greatly expanded rice cultivation with increased labour investment. Like his uncle, Andriamasinavalona, and reminiscent of Mir Silim Khan of the Hunza some 4,000 miles to the northeast, Andrianampoinimerina used corveé labour to convert previously infertile marshland into productive rice fields. Rice production intensified, which enabled the marked territorial expansion of Andrianampoinimerina’s reign. Like the Mir Silim Khan, Andrianampoinimerina founded several new villages in these previously infertile regions. He placed them in concentric lines to protect valuable agricultural lands.

CERS also played a major role in this independent transition into a state-level polity in Madagascar. While the printing press was not introduced until Radama I or Lehidama, Andrianampoinimerina’s son, opened up his kingdom to English missionaries after 1810 (LeHoullier 2010), a standardised script, standardised calendrical and timekeeping systems, written literature, and transactional records all pre-dated the transition to a state-level polity. The Arabic script was used to transcribe the Malagasy language to encode sacred manuscripts called ‘Sorabe’, or ‘great writings’ after the seventh century (Bloch 1998). These writings included works on topics such as medicine, divination, and astrology and provided much of the knowledge that the Merina used to organise their astrological calendars and agricultural systems for rice production (Bloch 1998). As Bloch (1998) attests, the

introduction of these CERS, their limited accessibility, and their utility and prestige created a scribe aristocracy that used magico-religious information to gain prestige and ideological power. Upon ascending to a position of power, Andrianampoinimerina quickly sought out the council of this scribe aristocracy for administrative and strategic purposes, including how to organise his finances and when to organise conquests against foes. As Bloch (1998: 139) concludes,

> [t]here is sufficient evidence to say that before the British missionaries and the introduction of European script, a certain amount of the business of government was carried out in writing in Arabic script, either by administrators who were themselves literate, or by ones who trusted Antaimoro scribes. These scribes had the dual roles of diviner-astrologers and secretaries. The importance of these Antaimoros should not be ignored in understanding how the Merina were able to hold together and administer a kingdom considerably larger than the British Isles.

CERS, along with the development of a military, territorial expansion, the construction and expansion of ideological power networks, and increases in the levels of agricultural production and associated resource base facilitated the emergence of this state-level polity. These factors associated with state formation among the Merina also contributed to the emergence and elaboration of CERS. The emergence of a scribe aristocracy, for example, greatly increased the number of specialist sign users, facilitating the standardisation of the script and the expansion of the written literature and associated knowledge systems.

6.4.9 Kamehameha Kingdom of Hawai'i

A first-generation state-level polity emerged in the Hawai'ian archipelago between AD 1795, when Kamehameha, a minor chief of Hawai'i Island, overcame the Maui chiefs in a battle on O'ahu Island (Linnekin 1991) in AD 1810, when the chief of Kaua'I capitulated to Kamehameha (Flannery and Marcus 2012). This protohistorical state emerged approximately 4,000 miles west of the Zapotec state that it post-dated by some four millennia (see Figure 6.4).

The climate of the Hawai'an archipelago was temperate tropical with a high degree of variation in rainfall levels and soil fertility (Linnekin 1991). Like each of the state-level polities surveyed thus far, the Kamehameha Kingdom formed a state-level polity with a political and settlement hierarchy of four administrative levels. According to Flannery and Marcus (2012), the political hierarchy of the archipelago consisted of just three levels — (1) the paramount chief, (2) subchiefs, and (3) minor nobles. However, with the introduction of Kamehameha at the top of the administrative hierarchy a new Level 1 was created, followed by the governors of each island (Level 2), the subchiefs (Level 3), and minor nobles (Level 4). The Kamehameha Kingdom transitioned to a state-level polity with a population of more than 250,000 people, roughly the size of the Early Maya combined with the population of either the Moche or the Zapotec. Kamehameha administered the Hawai'ian state across an archipelago roughly 1,500 miles long, which consisted of 6,423 miles of dry land and large swaths of ocean.

Hawai'ian oral histories and British and American texts elucidate the role of Kamehameha I in the transition of the Hawai'ian archipelago into a state-level polity. Flannery and Marcus (2012) and Flannery (1999) provide a particularly vivid account from these sources. Kamehameha I reigned over increasingly large tracks of the Hawai'ian archipelago from 1782 – the year that Kalaniopu'u, the ruler of Kona and Ka'u and Kamehameha's uncle and mentor, died and left him in control of the sacred Waipio Valley – until his death in 1819 (Flannery and Marcus 2012).

Kamehameha utilised all four kinds of power networks — ideological, economic, military, and political (Mann 1986) — to accomplish what no previous Hawai'ian had before him (see Figure 6.15). He placed particular emphasis on military and economic power. Using (1) muskets and cannons from Western ships in

Hawai'ian harbours[96] and (2) novel and advanced military tactics in the use of these weapons as elicited from British and American sailors, Kamehameha gained a degree of military power that was unmatched by this rivals on Maui, Moloka'i, and O'ahu. Like Andrianampoinimerina and Mir Silim Khan, who expanded their respective resource bases to support their labour force and drive territorial expansion, Kamehameha increased his economic power by artificially terracing the Anahulu Valley of O'ahu. This project enabled the construction of war canoes and the provisioning necessary for his eventual and successful assault on his only remaining rival on the archipelago, the chief of Kaua'i (Flannery and Marcus 2012; Kirch and Sahlins 1994). Kamehameha then consolidated economic power by converting all lands to royal property (Flannery 1999).



Figure 6.15. Coloured lithograph of Kamehameha I in 1817 by Louis Choris. Source: http://en.wikipedia.org/wiki/Kamehameha_I#mediaviewer/File:Kamehameha_I.png

[96] Like their use by Spaniard conquistadors such as Cortés and Pizarro in the conquest and brutal subjugation of Native Americans from the late fifteen century (Diamond 1999), guns proved instrumental in the consolidation of power that facilitated the emergence of a first-generation Hawaiian state.

According to Michael Chauvin (2000), the Hawaiians had no written language or written history prior to Captain James Cook's arrival in 1778. Likewise, the Hawaiians did not possess the navigational practices, the standardised calendrical and timekeeping systems, or the other technologies of Western European astronomy until this time. No monetary system of commodity production was present, only a barter system for essential goods (McGregor 2007). Written property records did not replace indigenous oral property systems until the mid-nineteenth century (Banner 2002, 2005). Like the use of Western European weapons, however, several of these CERS were exploited quickly to enhance Kamehameha's power networks and facilitate the transition of the Hawai'ian archipelago into a state-level polity. For example, Kamehameha's invasion of O'ahu in 1790 made use of 16 foreign advisers and their concomitant use of several CERS for logistical support, including standardised calendrical and timekeeping systems for navigation (Flannery and Marcus 2012). Additionally, the first printed adminsitrative documents were produced by Hawai'i's first printing press, which was commissioned by order of Kamehameha II in 1822 'to preserve the peace of his dominions after disturbances on the shore and annoyance of the inhabitants by the crews of different foreign vessels' (Goldberg and Gawdiak 2005). The first written Constitution of Hawai'i was authorised by Kamehameha III in 1840 (Keahiolalo-Karasuda 2010).

When viewed en masse, while CERS functioned to facilitate the emergence of a state-level polity in the Hawai'ian archipelago, their utility paled in comparison to the brute military power provided by the use of artillery and military tactics. As noted by Peter Turchin (2013a), initial advantages such as military technologies and strategies can be readily copied and, therefore, cease to contribute to the persistence of a state-level polity. In the case of the Hawai'ian state, CERS

functioned primarily to consolidate the power of the Hawaiian state and protect it from splintering and faltering as it grew in size and scope and confronted immense pressures of foreign interests, including sugar growers and the government of the United States of America. Utimately, however, the Hawaiians succumbed largely to the power of foreign interests. On 8 October, 1840, fourteen days after King Kamehameha III signed the first written Constitution of Hawai'i, Chief Kamanawa II, grandson of one of the five Kona chiefs who supported Kamehameha I in his formation of the kingdom, was publicly hanged in front of 800 natives, under arms, including the chief's young grandsons, who were brought to the execution by their missionary teachers, thus ending Hawaiian royal sovereignty (Keahiolalo-Karasuda 2010).

In sum, while CERS made modest contributions to the emergence of the Hawai'ian state, the emergence and development of CERS were facilitated greatly by the emergence of this state. With state formation swiftly came a written language and literature, codified laws and punishments, criminal records, the printing press, standardised calendrical and timekeeping systems, and transactional records.

6.4.10 Zulu of Shaka of southern Africa

The Zulu transitioned into a state-level polity 1,178 miles southwest of the nearest first-generation state in this survey, the Merina of Madagascar (see Figure 6.4), around AD 1820 (Flannery and Marcus 2012). The Zulu state emerged in a large territory that reached from the Tugela River in the south to the Pongola River in the north and from the coast of the Indian Ocean to the east to the Drakensberg mountain range to the west. Their grassland home of southeastern Africa constituted a province called 'Natal' by the Portuguese explorer Vasco da Gama. Today, this area forms part of the KwaZulu-Natal province of the Republic of South Africa. The

Zulu occupied an agriculturally fertile, temperate region with a productive summer season lasting from October to April (Sithole 2002).

In a span of roughly twelve years, the Zulu converted 30 chiefly societies into the provinces of a vast and unified kingdom that stretched 7,000 square-miles, an area larger than the Kamehameha Kingdom of Hawai'i yet slightly smaller than the Hunza of the Pakistani-Kashmir borderlands (Flannery and Marcus 2012). According to Max Gluckman (1960), the population of the Zulu during their transition into a state-level polity was approximately 80,000 people, which is similar in population size to the societies of southern Iraq that transitioned into a state-level polity during the Late Uruk or Jemdet Nasr periods approximately five millennia before. The population of the Zulu quickly expanded with the increasing domination of the kingdom in the region, reaching 250,000 people at the height of the kingdom around 1828 (Robinson 2005). Unlike the other polities in this survey, which generally had four levels of political administration during their transition into a state-level polity, the Zulu had only three — (1) Shaka at his fortified capital of New Bulawayo (see Figure 6.16), (2) previously autonomous chiefs at their respective settlements, and (3) the headmen of each 'kraal' (Flannery and Marcus 2012). A 'kraal' is a traditional Zulu village comprised of a circular cattle fence within a circle or semicircle of dome-shaped homes, typically of cow dung construction (Toliver 2004). According to Flannery and Marcus (2012), however, the population of the Zulu Kingdom was organised along four hierarchical levels of prestige — (1) the ruling lineage of the Zulu or allied groups, (2) important subjugated chiefs and notables, (3) lower-ranking individuals of Shaka's most favoured subjugated societies, and (4) refugees or more recently subjugated peoples who were referred to as 'destitute', 'menials', or 'people with strange hair styles'.

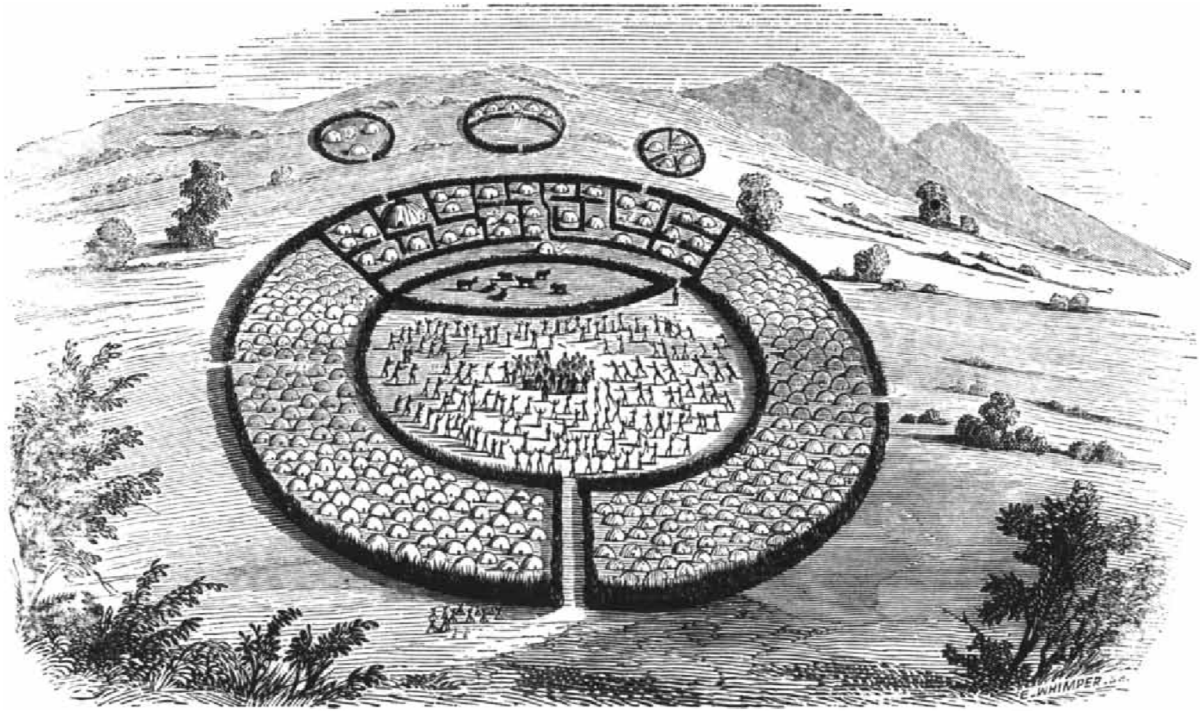


Figure 6.16. Royal kraal of Dingane (centre), Shaka's successor by E. Whimper from Gluckman (1960: 157). Dingane's hut is in upper left of the central kraal and is larger than the surrounding huts, which belong to his wives. The three smaller kraals at the top of the drawing belonged to Dingane's chief ministers.

Oral histories, European eyewitness accounts, and anthropological research describe the role of several key figures in the formation of the Zulu state, namely Dingiswayo, the chief of the Mthethwa (*i.e.*, Mtetwa), and Shaka, the illegitimate son of Zulu chief Senzangkhona (Davis 1996; Middleton and Miller 2007). The work of Max Gluckman (1960), Mathieu Deflem (1999), Carolyn Hamilton (1998), Kent Flannery (1999), and Kent Flannery and Joyce Marcus (Flannery and Marcus 2012) provide a useful synthesis of the available material. The consolidation of the Zulu people began in earnest in 1795 when Dingiswayo became chief of the Mthethwa. In his ambition to end internecine conflict between neighbouring tribes, Mthethwa defeated all of the major tribes in the region except for the Ndwande, whose chief, Zwide, ultimately executed Mthethwe in 1818 (Davis 1996; Deflem 1999). Shaka, who had taken refuge with the Mthethwa as a child before establishing himself as a brave warrior and ambitious leader in Dingiswayo's military framework, succeeded

Dingiswayo, before warring with Zwide and the Ndwande tribe. Using a litany of novel military strategies and weapons, Shaka defeated Zwide on Gqokli Hill in 1818 despite being outnumbered two-to-one (Flannery and Marcus 2012). Through this and other conquests, Shaka used his military and ideological power to form a state-level polity. He reinforced his defences around his new capital of New Bulawayo, where he used vast tracks of pastoral land for the cattle grazing necessary to support the thousands of warriors that he stationed there (Flannery and Marcus 2012).

While the Zulu experienced significant contact with European visitors, traders, and settlers, their role in the process of state formation has been judged to be negligible. According to Deflem (1999: 382), Shaka's 'wars of conquest, the organization of age-grade regiments, the restructuring of chiefly authority, the weakening of kinship ties and magical powers, and the impression left by the system of internal violence on the Zulu people', not 'external influences' were the major factors in the process of Zulu state formation.

While standardised scripts (Flannery and Marcus, 2012), standardised calendrical and timekeeping systems (Snedegar 1995), written literature (Flannery and Marcus, 2012), codified laws and punishments, criminal records, and printing systems were all largely absent at the time of independent state formation, two types of transactional records were used to great effect. The elaboration of several indigenous recording systems and mnemonic devices did function to encourage the formation of the Zulu state and stabilise its administration once present. According to the ethnomathematician Claudia Zaslavsky (1999), Zulu men notched sticks to keep records, while women tied knots to make temporary records. These knotted strings have been associated with a range of administrative and commercial applications,

including apportioning water, counting money, keeping commercial records, collecting taxes, counting loads of materials for house construction, and recording the number of ivory tusks sold. Knotted strings were sometimes used as a promissory note to one's creditor (Zaslavsky 1999). These recording and mnemonic systems also functioned to stabilise the Zulu state once present. Mpande, the brother of Dingange, who was both Shaka's brother and one of his assassins, ruled the Zulu after he joined with European forces to drive Dingane into Swaziland before eventually having him killed in 1840 (Deflem 1999). Mpande's reign was marked by the colonial construction of The Natal Code of Native Law in 1875, which was a codification of the system of native law as operationalized within the colony. As a consequence, legal topics from the authority and jurisdiction of the state to individual property rights were enshrined in a rigid system of jurisprudence (Costa 1997).

Though knotted strings facilitated administrative control and economic power networks in the nascent Zulu state, advances in military strategy and technology, increases in the ideological power networks administered by Shaka, territorial expansion, and population growth proved to be the principal factors involved in the emergence of the Zulu state. These factors, in turn, had a positive feedback effect on CERS. Increases in the number of exchange partners and the number of commodities traded as well as the introduction of a system of taxation produced more elaborate forms of transactional records and, eventually, codified laws and punishments. Likewise, the development of increasingly sophisticated military technologies drove the development of increasingly standardised calendrical and timekeeping systems.

6.4.11 Summary of major findings

This chapter endeavoured to account for patterned similarities and differences among ten, first-generation polities, focusing on (1) the role of CERS in the cooperative systems necessary for the emergence and early persistence of these first-generation states and (2) the role of these increasingly complex forms of socio-political organisation in the emergence, functional application, and diversification of complex and external representational systems (CERS). In other words, did the key factors of state formation, beginning with those identified by Johnson and Earle (2000), facilitate the emergence, spread, or functional applications of CERS? Additionally, were the factors driving state formation facilitated by the emergence, spread, or functional application of CERS? If the answers to both of these questions were 'yes', then the relationship between these two sets of variables were said to constitute a complex positive feedback loop. While the sample size found in this survey is too small to draw statistical inferences from the data, several general observations can be derived regarding the relationship between CERS and nascent, first-generation states. Most crucially, evidence of a complex positive feedback loop between CERS and first-generation states was found in nine of the ten polities surveyed, including the Middle Uruk Period of the Susiana Plain, Late Uruk/Jemdet Nasr Period of Southern Iraq, Dynasty 0 of Egypt, Zapotec State of the Mexican highlands, Early Maya Kingdom of Calakmul of Guatemala, Hunza of Mir Silim Khan of the Pakistani-Kashmir borderlands, Kamehameha Kingdom of Hawai'i, and Zulu of Shaka of southern Africa.

Taken together, this survey provides evidence and argument in favour of the predictions that (1) CERS contributed greatly to the cooperative systems necessary for the emergence and persistence of state-level polities (see Table 6.1 for a tabular

synopsis of the data collected) and (2) the factors that facilitated the emergence of state-level polities facilitated the emergence, functional application, and diversification of CERS (Table 6.2).

Table 6.1 Target variables for sample at first-generation state-level emergence

State-level polity	Latitude, Longitude	State-level emergence	Population at emergence	Area at emergence	Political hierarchy at emergence	Scripts	Calendars	Written Lit	Laws	Criminal Recs	Trans Recs	Printing
Middle Uruk Period of Susiana Plain (Southwest Iran)	31.31125, 48.59802	5,500 to 5,300 years ago[97]	22,000[98,99]	127.6 hectares (315 acres)[100]; .49-square miles	4 levels[101,102,103,104]	Absent	Absent	Absent	Absent	Absent	Present	Absent
Late Uruk through Jemdet Nasr Period of southern Iraq	31.335536, 45.55756	5,300 to 5,100 years ago[105] or at least by 5,100 to 5,000 years ago[106]	85,000[107,108]	530 hectares[109,110]; 2.04-square miles	4 levels[111]	Present	Present	Absent	Absent	Absent	Present	Absent
Dynasty 0 of Egypt	29.84722, 31.25083	5,200 to 5,100 years ago[112]	870,000[113]	386.1 square miles[114]	4-levels[115]	Present	Present	Present	Absent	Absent	Present	Absent
Zapotec State of the Mexican highlands (Oaxaca Valley)	17.05942, -96.7216	2,500-2,000 years ago[116,117]	40,000[118]	1,290 square miles[119]	4-levels[120,121]	Present	Present	Absent	Present	Absent	Absent	Absent
Moche State of Peru	-8.17062, -79.0094	2,200 – 1,600 years ago[122]	50,000[123]	9,266-square miles[124]	4-levels[125,126]	Absent	Absent	Absent	Absent	Absent	Present	Absent
Early Maya Kingdom of Calakmul of Guatemala	14.45006, -90.51	apprx. 1,750 years ago[127]	200,000[128]	1,500 square miles[129]	4-levels[130]	Present	Present	Present	Absent	Absent	Present	Absent
Hunza of the Pakistani-Kashmir borderlands of Mir Silim Khan	35.80257, 74.98318	A.D. 1790[131] to 1824[132]	3,500[133]	7,900 square miles[134]	4-levels[135]	Absent	Absent	Absent	Absent	Absent	Absent	Absent
Merina of Madagascar of Andrianampoinimerina	-18.7669, 46.86911	A.D. 1760 – 1810[136]	10,000[137]	30,000 square miles[138]	4-levels[139]	Present	Present	Present	Absent	Absent	Present	Absent
Hawai'i (Kamehameha Kingdom)	19.89677, -155.583	circa 1810[140,141]	250,000[142]	6,423 square miles[143]	4-levels[144]	Present	Present	Present	Absent	Absent	Present	Absent
Zulu of southern African (Shaka)	-28.3167, 31.41667[145]	1820[146]	80,000[147]	7,000-square miles[148]	3-levels[149]	Absent	Absent	Absent	Absent	Absent	Present	Absent

97 See Flannery and Marcus (2012: 236).

98 In southwestern Iran where Middle Uruk Susa, a center of about 5000, dominated a population of 20,000 or more, we know that invoice records were sent to centres for checking and if necessary adjudication, and that some form of summary records were kept, presumably for the use of yet higher authorities (Wright 1977).

99 Site population area taken from Wright and Johnson (1975).

100 Based on figures taken from Wright and Johnson (1975).

101 'Taking advantage of Chogha Mish's decline and Abu Fanduweh's smaller size, Susa extended its political control to the entire Susiana plain. The result was a kingdom with a political hierarchy of four levels' (Flannery and Marcus 2012: 236).

102 'The first political hierarchy with four administrative levels may have appeared in Iran, but the early state in Iraq was larger' (Flannery and Marcus 2012: 234).

[103] 'Our largest settlement group, the 54 Middle Uruk settlements of the Susiana Plain, show at least four discrete size categories (Figure 2). These were small villages with a mean size of 0.9 hectares, large villages with a mean size of 2.3 hectares, small centers with a mean size of 5.3 hectares, and large centers with a mean size of 14.8 hectares' (Johnson 1973: 101-103 as cited in Wright and Johnson 1975).

[104] 'Thus, there seem to have been four levels of settlement hierarchy from the perspective of site size and number, and from the more crucial perspective in which some settlements dominate the access of others' (Wright and Johnson 1975).

[105] See Flannery and Marcus (2012: 236).

[106] Jemdet Nasr (5,100 to 5,000 years ago) (Flannery and Marcus 2012: 239).

[107] 'Nissen arrived at this estimate by presuming a density of 200 persons per hectare of surveyed occupied area and by presuming that the lightly inhabited public quarter of Warka amounted to ca. 20 percent of the 250 ha extent of the site, Almost certainly, this underestimates the actual population density of Warka in the Late Uruk period as may be inferred from Postgate's (1994) study of the demography of Mesopotamian cities in the third and second millennium BC' (Algaze 2013).

[108] 'Late Uruk period, however, is the extraordinary development and demographic growth of the central portion of the alluvium surveyed by Adams, where Uruk/Warka attained the unprecedented size of 250 or so hectares, according to a detailed surface survey of the site conducted by a German expedition just before the onset of the First Gulf War (Finkbeiner 1991: fig. 18). Although there is no consensus on precisely how to correlate settlement extent and population in ancient Mesopotamian cities, there is general agreement that Nissen's (2003) estimate of the population of Warka in the Late Uruk period at 4,000 or so people probably represents a reasonable approximation. Not surprisingly, the settlement grid that surrounded Warka at this time was exceptionally complex in terms of its density and hierarchy (four or more tiers depending on how the data are analysed). It included numerous dependent small and large towns, villages, and hamlets situated within a 15-kilometer range of the city, totalling a minimum of 280 or so hectares of further occupation (Adams and Nissen 1972; Nissen 2002: fig 5). In other words, at a minimum, by the final phase of the Uruk period, the growing regional polity centred at Uruk/Warka had a population that can be conservatively estimated at well upwards of 80/90,000 people - and this estimate necessarily excludes the many small sites that were surely missed by the surveyors as well as associated, but inherently difficult-to-trace, transhumant and marsh-dwelling populations' (Algaze 2013).

[109] 'Perhaps the most spectacular growth during this period took place at Uruk itself. It grew to 170 acres in the Early Uruk period and reached 250 acres in the Late Uruk period. This growth, too, implies immigration [...]' (Flannery and Marcus 2012: 239).

[110] 'Johnson believes that a political hierarchy of four levels appeared in the Late Uruk period. The city of Uruk (250 acres) was all alone in Level 1; Level 2 consisted of eight towns measuring 20 to 35 acres; Level 3 included all villages in the seven- to 15-acre range; and smaller villages constituted Level 4. Adams is less convinced that a four-level hierarchy was present in the Late Uruk period. He has no doubt that it was present during the subsequent period, known as Jemdet Nasr (5,100 to 5,000 years ago). By that time Uruk surely exceeded 300 acres. Two smaller cities, less than half the size of Uruk, made up Level 2; Level 3 consisted of 20 towns, some of which had reached 50 acres in extent; and roughly 124 villages made up Level 4. For our purposes here, it is not crucial to know whether Uruk's four-level hierarchy emerged during the Late Uruk or the Jemdet Nasr period' (Flannery and Marcus 2012: 239).

[111] 'The first political hierarchy with four administrative levels may have appeared in Iran, but the early state in Iraq was larger' (Flannery and Marcus 2012: 234).

[112] 'It would seem that their first move was to take over the territories controlled by Naqada and This, unifying Upper Egypt into a first-generation kingdom. That kingdom was so powerful that its next step was to move against Lower Egypt, creating an even larger state. […] Hoffman's team believes that Hierakonpolis achieved supremacy between 5,200 and 5,100 years ago. During that period it continued to grow, building large palaces and temples at Hierakonpolis itself and establishing an isolated royal cemetery in the desert' (Flannery and Marcus 2012; see also Marcus 2008: 360).

[113] 'The estimated population of Egypt circa 5000 B.P. is thought to have been about 870,000 people, nearly one- fourth living in the Delta; otherwise a population of 2,000,000 or more is thought to be reasonable for the Early Dynastic Period' (Proussakov 2001).

[114] 'By *c.* 3000 BC, the early Dynastic state had emerged in Egypt, controlling much of the Nile Valley from the Delta to the first cataract at Aswan, a distance of over 1000km along the Nile' (Flannery and Marcus 2012).

[115] See Algaze (1993).

[116] 'Eventually Monte Albán attacked Tilcajete again, burning its ruler's palace and the community's major temple. Charcoal from the destruction of both buildings dates to about 2,000 years ago. Tilcajete did not recover from this second attack. It was abandoned, and on a mountaintop nearby its conquerors built a Level 2 administrative center linked to Monte Albán. It would seem that by this point Monte Albán had subdued the entire Oaxaca Valley and turned its former rivals into the districts of a first-generation kingdom' (Flannery and Marcus, 2012: 193).

[117] 'Archaeologists working there sometimes disagree about whether the first Zapotec kingdom emerged when Monte Albán was founded (500 B.C.), when it began to attack its rivals (300 B.C.), or when it finally defeated Tilcajete (30 B.C.)' (Flannery and Marcus, 2012: 198).

[118] 'The largest was Monte Albán itself (Level 1), with an estimated 15,000 inhabitants. Level 2 of the hierarchy consisted of six towns with estimated populations of between 900 and 2,000. There were palaces and elegant tombs at Monte Albán and its Level 2 towns, indicating that people of noble birth were in charge there. All six towns were less than a day's walk from Monte Albán, making intercommunication easy. All these larger settlements had multiple temples. Level 3 had at least 30 villages with populations estimated at 200 to 700. There were no palaces at these smaller communities, but several had at least one temple. Finally, the fourth, or lowest, level of the hierarchy consisted of 400 small villages, with no evidence of temples or palaces. These settlements brought the estimated population of the valley to more than 40,000' (Flannery and Marcus, 2012: 195).

[119] 'The unification of the 1,290-square-mile Oaxaca Valley was a significant accomplishment, though it pales in comparison to the 4,028-square-mile Big Island of Hawai'i' (Flannery and Marcus, 2012: 194).

[120] Once Monte Alban had subdued the rest of the valley, its inner ring of satellite communities disappeared. The four-tiered hierarchy typical of states emerged, with secondary administrative centres spaced 14-28 kilometres from the capital (Kowalewski *et al*. 1989; Marcus & Flannery 1996, figs. 196-7; see also Flannery 1999: 17).

[121] 'The largest was Monte Albán itself (Level 1), with an estimated 15,000 inhabitants. Level 2 of the hierarchy consisted of six towns with estimated populations of between 900 and 2,000. There were palaces and elegant tombs at Monte Albán and its Level 2 towns, indicating that people of noble birth were in charge there. All six towns were less than a day's walk from Monte Albán, making intercommunication easy. All these larger settlements had multiple temples. Level 3 had at least 30 villages with populations estimated at 200 to 700. There were no palaces at these smaller communities, but several had at least one temple. Finally, the fourth, or lowest, level of the hierarchy consisted of 400 small villages, with no evidence of temples or palaces. These settlements brought the estimated population of the valley to more than 40,000' (Flannery and Marcus, 2012: 195).

[122] 'The creation of Peru's Moche kingdom seems to have been a centuries-long process, involving both highland invaders and neighbouring coastal societies. Archaeologists working on Peru's north coast are still not in agreement about whether Cerro Arena (200 B.C.–A.D. 1), Cerro Oreja (A.D. 1–200), or Las Huacas de Moche (A.D. 200–400) was the capital of the valley's first kingdom' (Flannery and Marcus, 2012: 198).

[123] 'In contrast, estimates for the later polities such as Moche, Wari, and Tiwanaku are higher, with published populations in the 50,000-200,000 range' (Kolata 1993; Schreiber 1992 as cited in Stanish 2001: 56).

[124] 'Still, many archaeological cultures, particularly the Moche, reached across great expanses. From its original core in the Moche and Chicarna valleys on the north coast, Moche influence eventually stretched southward at least to the Nepena Valley and northward, dodging the Sechura Desert, to the upper reaches of the Chira River valley, a linear distance of 600 kilometres (373 miles). IF the area under Moche influence is conservatively estimated to have extended 40 kilometres inland, then the total area of Mochilandia was approximately 24,000 square kilometres (9,266 square miles). That is hardly enormous, but it made Moche territory larger than the modern nation-states of Slovenia and El Salvador' (Quilter 2010).

[125] 'Surveys by David Wilson provide evidence that a large society, with a political hierarchy of four administrative levels, formed in the Casma Valley between 2,200 and 2,000 years ago. This society

eventually broke down, however, suggesting that its enemies were too strong to expel' (Flannery and Marcus 2012: 197).

126 'Moche, Tiwanaku, and Wari also exhibit classic site-size hierarchies typical of first-generation states. Albarracin-Jordan (1996) and McAndrews *et al* (1997) demonstrate a four-tiered site-size hierarchy for Tiwanaku in its core territory' (Stanish, 2001: 56).

127 'Roughly 1,750 years ago, however, El Mirador suffered the same fate as Nakbe. One of its own satellite communities, Calakmul, rose to prominence and seized control of the basin from its former overlords' (Flannery and Marcus, 2012: 201).

128 From Table 12.3 in Sharer (2006).

129 'The heartland of the Calakmul kingdom was the 1,500-square-mile territory controlled by its Level 2 towns. Calakmul's political influence, however, could be felt over an area greater than 10,000 square miles. We know this because subordinate Maya towns often referred to their overlords when they carved hieroglyphic texts. Calakmul's subordinate towns did this by using an expression that can be translated "under the auspices of the Sacred Lord of Calakmul." On occasion, places as much as 150 miles away used similar phrases. Calakmul's attempt to annex such distant places, however, put it in direct conflict with other first-generation Maya kingdoms' (Flannery and Marcus 2012: 201).

130 'Calakmul was the capital of a territory with an administrative hierarchy of four levels. At its peak, the city was surrounded by six Level 2 towns, including settlements with names such as Naachtun, Oxpemul, Balakbal, and Uxul. These Level 2 towns all appear to be spaced one day's walk (about 20 miles) from each other and from the capital. Calakmul was linked to these towns by raised roads made of sascab, or crushed limestone. Each Level 2 town was in turn surrounded by Level 3 settlements, and so on down the hierarchy (Figure 55). The heartland of the Calakmul kingdom was the 1,500-square-mile territory controlled by its Level 2 towns. Calakmul's political influence, however, could be felt over an area greater than 10,000 square miles. We know this because subordinate Maya towns often referred to their overlords when they carved hieroglyphic texts. Calakmul's subordinate towns did this by using an expression that can be translated "under the auspices of the Sacred Lord of Calakmul." On occasion, places as much as 150 miles away used similar phrases. Calakmul's attempt to annex such distant places, however, put it in direct conflict with other first-generation Maya kingdoms' (Flannery and Marcus 2012: 201).

131 'Prior to A.D. 1790, Hunza society had male lineage heads, clan elders, and a village headman called a trangfa. All three villages were nominally under a chief called a thum, though he shared power with the elders and headmen' (Flannery and Marcus 2012: 186).

132 'The entire process of creating a Hunza monarchy may have taken 150 years, beginning with Mayori's slaughter of rival factions and climaxing with the territorial expansion of Ghazanfar Khan (1824–1865). This is further evidence that the transition from chief to king is a process rather than an event, with a long succession of rulers contributing to the final outcome' (Flannery and Marcus 2012: 187).

133 'At the start of Silim Khan's reign, the entire Hunzakut population of two to three thousand (according to local tradition) was confined to three fortified villages: Baltit, Ganesh, and Altit' (Sidky 1993: 137).

134 See Sidky (1993: 131).

135 'Many conquered provinces still preserved the three levels of administrative offices left over from their days as chiefdoms. The man who unified the provinces now got tribute from them all. He had created an overarching administrative level and needed a higher title—"king"—because "chief" was now only a provincial title' (Flannery and Marcus 2012: 189).

136 'Dewar and Wright found that the structure of the Merina kingdom was visible in the archaeological record. Between 1760 and 1810 its heartland was reorganized and featured a settlement hierarchy of four levels' (Flannery and Marcus 2012: 189).

137 Schwartz (1992) estimates that cultivation of all of these marshes would be needed to feed the expanded population of almost 10,000 people in the Ambo- himanga polity (Dewar and Wright 1993: 458).

138 See map in Flannery (1999: 14).

139 Dewar and Wright found that the structure of the Merina kingdom was visible in the archaeological record. Between 1760 and 1810 its heartland was reorganised and featured a settlement hierarchy of four levels (Flannery and Marcus 2012: 189).

[140] 'Realising that resistance was futile, the chief of Kaua'i capitulated in 1810. This left Kamehameha in command of the entire archipelago' (Flannery and Marcus 2012: 181).

[141] We have described the unification of Hawai'i at length for a reason: even though Polynesian in its details, it is an example of a widespread process by which monarchies were created from smaller-scale societies. We use the term "process" because it often took a succession of leaders to complete the transition. Rarely were the efforts of one ruler sufficient. In the case of Hawai'i important roles were played by 'Umi, Alapai, Kalaniopu'u, and Kamehameha. Opinions differ on the exact moment in this sequence when a kingdom existed' (Flannery and Marcus 2012: 182).

[142] See http://en.wikipedia.org/wiki/Kingdom_of_Hawaii

[143] Frequent rebellions against past chiefs, however, show us that it was not always easy to control the 4,028-square-mile Big Island. Now Kamehameha needed to control an archipelago 1,500 miles long, with 6,423 square miles of dry land and big stretches of ocean (Flannery and Marcus, 2012: 181).

[144] 'It is significant that the archipelago now had a political hierarchy of four administrative levels. In olden days each island had been ruled by a paramount chief (Level 1), below whom there were subchiefs (Level 2), who in turn supervised minor nobles (Level 3). Now Kamehameha was all alone in Level 1; the governors of each island occupied Level 2; the subchiefs occupied Level 3; and minor nobles occupied Level 4' (Flannery and Marcus 2012: 181-182).

[145] I computed the coordinates to be as follows: Latitude: -28.3167, Longitude: 31.41667.

[146] 'Shaka established his capital in 1820 at a place called New Bulawayo. There he built a royal kraal a mile in diameter, defended by a stockade and containing some 1,500 residences. He stationed a portion of his 50,000 warriors at New Bulawayo, which had 130 acres set aside for cattle' (Flannery and Marcus 2012: 184-185).

[147] See Gluckman (1960).

[148] 'Through this and other victories, Shaka turned 30 chiefly societies into the provinces of a unified kingdom covering 7,000 square miles. In only 12 years (a period so short as to be virtually invisible to an archaeologist) he had gone from the illegitimate son of a minor chief to the king of the Zulu' (Flannery and Marcus 2012: 184).

[149] 'Let us look briefly at some differences between Shaka's kingdom and Kamehameha's. While some of Kamehameha's predecessors may have created political hierarchies of four administrative levels, the society in which Shaka was raised had only two levels above the headmen of each kraal. Leadership in Natal relied heavily on military force; not only did it lack the sacred aspects of Polynesian leadership, it also lacked a continuum of rank based on the differential possession of sacred life force. The citizens of the Zulu kingdom did, however, display four descending levels of prestige, based largely on the length of time each group had been loyal to Shaka. On the most prestigious level were the king, the Zulu ruling lineage, and the ruling lineages of allied groups who (like the Mthethwa) had embraced Shaka from the beginning. The second level consisted of the more important chiefs and notables of the societies subjugated during the middle stages of Shaka's career. As a result of aligning themselves with the Zulu king, they were left in charge of their old territories. The third level of Zulu citizenry consisted of the lower-ranking members of Shaka's most favoured subjugated societies. Although these people had once belonged to different ethnic groups, they were now encouraged to think of themselves as sharing a common origin. Those who distinguished themselves would be appointed to bureaucratic posts. The fourth, or lowest, level was composed of people who had either sought refuge with the Zulu or were subjugated late in Shaka's career. According to Wright and Hamilton, such people were often referred to as "destitute," "menials," "people with strange hairstyles," or the like. They never became full Zulu citizens and were regarded as ethnically inferior even if they had once been led by hereditary chiefs' (Flannery and Marcus 2012: 185).

Table 6.2 Nine key factors of state formation that are shown to have facilitated the emergence and development of CERS

State-level polity	Population growth	Increased administrative control	Increasing agricultural intensification	Enhancements to military power in response to increased competition	Territorial Expansion	Growth of ideological power networks	Development of ruling elite	Development of a dedicated bureaucracy	Elaboration of economic power networks
Middle Uruk Period of Susiana Plain (Southwest Iran)	Present	Present	Absent	Absent	Present	Absent	Absent	Absent	Absent
Late Uruk through Jemdet Nasr Period of southern Iraq	Present	Present	Present	Absent	Present	Present	Absent	Absent	Absent
Dynasty 0 of Egypt	Present	Present	Present	Absent	Present	Present	Absent	Absent	Absent
Zapotec State of the Mexican highlands (Oaxaca Valley)	Present	Present	Present	Present	Absent	Present	Present	Present	Absent
Moche State of Peru	Present	Absent	Present	Absent	Present	Absent	Absent	Absent	Absent
Early Maya Kingdom of Calakmul of Guatemala	Present	Absent	Present	Present	Absent	Present	Present	Absent	Absent
Hunza of the Pakistani-Kashmir borderlands of Mir Silim Khan	Present	Present	Present	Absent	Absent	Absent	Present	Present	Present
Merina of Madagascar of Andrianampoinimerina	Present	Absent	Present	Present	Absent	Absent	Present	Absent	Present
Hawai'i (Kamehameha Kingdom)	Absent	Present	Absent	Present	Absent	Absent	Absent	Present	Absent
Zulu of southern African (Shaka)	Present	Present	Absent	Present	Present	Absent	Absent	Present	Present
Total	**9**	**7**	**7**	**5**	**5**	**4**	**4**	**4**	**3**

6.5 Discussion

6.5.1 The role of CERS in the cooperative systems necessary for the emergence and early persistence of these first-generation states

Each of the first-generation states in this survey possessed at least one CERS and the majority possessed multiple CERS during their emergence as a state-level polity. All but the Zapotec and the Hunza possessed transactional records and the majority also possessed standardised scripts and standardised calendrical and timekeeping systems. While the individual CERS under investigation in this survey varied in their functional application, their general functions can be categorised into three major types. The most frequent functional application of CERS was for administrative recordkeeping. All but the Moche and Hunza used one or more CERS to facilitate administrative activities and the Hunza began to use CERS for administrative purposes shortly after its transition into a state-level polity. The Late Uruk/Jemdet Nasr Period of southern Iraq, Dynasty 0 of Egypt, the Zapotec, the Early Maya, and the Merina all used CERS for religious and divinatory recordkeeping, most often to ensure the proper performance of rituals. Dynasty 0 of Egypt, the Zapotec, and the Early Maya all used CERS to legitimate and empower royalty. CERS also commonly were used to facilitate exchange, especially over long periods of time, such as between seasons, and over great distances, such as inter-regional trade routes.

CERS are shown to serve as one of the principal factors involved in state formation in seven of the ten first-generation states surveyed, including the (1)

Middle Uruk Period of Susiana Plain (Southwest Iran), (2) Late Uruk through Jemdet Nasr Period of southern Iraq, (3) Dynasty 0 of Egypt, (4) Zapotec State of the Mexican highlands (Oaxaca Valley), (5) Early Maya Kingdom of Calakmul of Guatemala, (6) Hunza of the Pakistani-Kashmir borderlands of Mir Silim Khan, and (7) Merina of Madagascar of Andrianampoinimerina. CERS played an auxiliary role in two of the three cases in which CERS were not major factors in the process of state formation – Hawai'i (Kamehameha Kingdom) and Zulu of southern African (Shaka). The Moche State of Peru was exceptional in that it did not appear to employ CERS to facilitate its formation, relying instead on 'personal charisma, ideology, and redistribution of surpluses produced [the royal's] households and the households of their followers' to develop and increase their own socio-political power and, ultimately, engender the transition of Moche Valley into a state-level polity (Billman 2002). As discussed in section 6.4.5, the Moche State of Peru appears to have been exceptional in its development as a state-level polity in several respects.

6.5.2 The role of increasingly complex forms of socio-political organisation in the emergence, functional application, and diversification of CERS

According to Johnson and Earle (2000), the emergence of state-level polities is indicated by several key factors, including population size (hundreds of thousands or millions) and composition (ethnically diverse), territory size (regional), administrative size (regional institutions) and composition (economically-powerful ruling elite that is unrelated by kinship to the population that they administer), as well as the presence of a military, a state religion, and a dedicated bureaucracy. As noted

above, the well-attested theory of power networks by sociologist Mann (1986), which includes ideological, economic, military, and political power networks, provides the theoretical foundation for the characterisation of the state by Johnson and Earle (2000). Did the key factors of state formation for the ten, first-generation states in this sample facilitate the emergence, spread, or functional application of CERS? According to the data available, this question must be answered in the affirmative. Several of the principal factors involved in the increases in socio-political complexity necessary for the emergence of state-level polities were shown to have served as principal factors involved in the emergence or functional applications of CERS.

Specifically, according to the archaeological, historical, and ethnographic resources reviewed in this survey, nine key factors of state formation were shown to have facilitated the emergence and development of CERS, including (1) population growth, (2) increased administrative control, (3) increasing levels of agricultural intensification, (4) enhancements to military power in response to increased competition between groups, (5) territorial expansion, (6) the growth of ideological power networks, (7) the development of a ruling elite, (8) the development of dedicated bureaucracy, and (9) the elaboration of economic power networks (see Table 6.2).

6.5.3 The complex positive feedback between complex external representational systems and first-generation state-level polities

In sum, this survey provided evidence and argument in favour of the predictions that (1) CERS contributed greatly to the cooperative systems necessary

for the emergence and persistence of first-generation state-level polities and (2) the factors that facilitated the emergence of first-generation state-level polities facilitated the emergence, functional application, and diversification of CERS. Thus, the simple and intuitive models that assume single cause-and-effect relationships between two sets of variables are insufficient to explain to the historical relationship between first-generation state-level polities and CERS. Instead, the factors involved in (1) independent state formation and (2) the emergence and functional application of CERS operated in a complex positive feedback loop. In other words, the emergence of first-generation states was shown to be both a cause and an effect of the emergence and functional application of CERS.

This is not, of course, to argue that CERS were essential or primary in the emergence of all first-generation states. As evidenced here, the Moche State of Peru was exceptional in that it did not appear to employ CERS in any significant degree to facilitate its state formation. However, crucial shifts in political, economic, ideological, and military power networks were often driven by the development and functional application of CERS. The balance of these power networks were also highly susceptible to other factors, such as shifts in the resource base, increasing levels of social inequality, the development of new technologies, and conflict and competition with neighbouring territories.

The principal factors involved in state formation are shown to have facilitated the emergence and functional application of one or more CERS in each of the first-generation states sampled. This is not, of course, to argue that the factors that drove the emergence of state-level polities were essential or primary in the emergence and

functional application of CERS. As discussed in Chapter 3, the process of routinization preceded and facilitated the primary emergence of literate forms around the globe. However, as discussed in the Introduction, the eventual emergence of state-level polities 'dramatically accelerated sociocultural evolution by allowing for an increase in the production of knowledge and offering technologies […] for the transmission of that knowledge across space and time' (Renn and Hyman 2012: 1). Once present, state-level polities functioned to encourage the development, adoption, and elaboration of CERS much like complex and hierarchical classical religions are shown to have done in Chapter 4.

6.6 Future directions

The role of CERS in the cooperative systems necessary for state formation, persistence, and growth is deserving of further investigation. Further enquiry is required to answer key questions regarding the role of CERS in first-generation states after state-level socio-political organisation was achieved. What was the role of CERS in the maintenance of political hierarchies and the subordination of internal factions of state-level polities, such as the large, complex chiefdoms? How might CERS function to increase social identification and internal cohesion in increasingly large, complex groups? What are the competitive advantages of the functional applications of CERS employed in second-generation states (*i.e.*, states that emerged through contact and competition with first-generation states)?

The wide implications of these questions for our understanding of the evolution of socio-cultural complexity demonstrate the importance of investigating

the complex positive feedback loop between CERS and large, complex polities such as first-generation states.

Chapter 7

General discussion and conclusions

7.1 Novel contributions to the study of literate behaviour

Social theorists have long associated the presence of literate behaviour with large, complex forms of socio-political organisation (Astle 1784; Barton and Hamilton 1997; Breasted 1926; Daniels 1996a; Diringer and Regensburger 1968; Gelb 1963; Gibbon 1776; Goody 1987; Lincoln 1953; Morgan 1877; Schmandt-Besserat 1996; Sjoberg 1960). However, the history of literate behaviour and its relationship with complex forms of socio-political organisation have received little attention and are poorly understood.

As discussed in Chapter 3, prominent theories of the emergence of literate behaviour suffer from a number of serious problems. These problems include: the adoption of the 'Standard View' of technology (Pfaffenberger 1992); the questionable conclusion that literate behaviour is the result of foresightful and agential invention (Smith 2008, 2013); simplistic and widely-discredited evolutionary explanations (Bright and Daniels 1996; Chrisomalis 2009; Coulmas 2009; Powell 2012; Trigger 1998); discrepancies between predictions and recent archaeological and palaeographic findings (Bagley 2004; Cooper 2004; Houston 2004a, 2004b; Johnson 2004; Mithen 2004; Smith 2008, 2013; Trigger 2004; Whitehouse and Hodder 2010)

and recent studies of human visual cognition and memory (Changizi and Shimojo 2005; Changizi 2010; Changizi et al. 2006; Dehaene and Cohen 2011; Dehaene 2009; Dehaene et al. 2010; Platt and Adams 2012; Rogers 2004), and; limited methodological scope and rigour.

Debates concerning the principal mechanisms of literate behaviour's cultural transmission have not been successfully adjudicated. Chapter 4 outlines long-standing and conflicting theoretical accounts of the cultural transmission of both classical religions and literate behaviours.

As discussed in Chapter 5, generations of scholars have identified literate behaviour as one of the principal causes and identifying features of particularly complex and large-scale forms of socio-political organisation. However, little is currently known about the relationship between the functions cross-culturally of specific products of literate behaviours, complex external representational systems (CERS), and the cooperative systems necessary for the development and maintenance of these novel forms of socio-political organisation. Up until now, simple and intuitive models of causation and problem solving, which often assume a single cause-and-effect relationship, have dominated our understanding of the relationship between literate behaviour and the emergence of state-level polities. As discussed in Chapter 6, literate behaviour has often been described as a cause of increases in polity size and socio-political complexity, but little attention has been paid to the possibility of complex positive feedback between literate behaviour and state-formation.

By combining cultural evolutionary theory with the data generated from a multi-method large-scale cross-cultural approach, this thesis was able to overcome the major limitations of previous studies of literate behaviour. As a result, this thesis provides an account of the polygenetic origins of literate behaviour, the principal mechanisms of its cultural transmission, and its relationship with the cultural evolution of large-group human cooperation and complex forms of socio-political organisation.

This thesis contributes to our understanding of one of the greatest puzzles for the biological and social sciences (Boyd and Richerson 2006; Burnham and Johnson 2005; Colman 2006; Gintis et al. 2005; Henrich and Henrich 2006; Norenzayan 2013; Turchin 2013b) – explaining the evolution and maintenance of human cooperative behaviour (Colman 2006: 774), especially in large groups of nominally-related individuals (Anderson 1991; Mullins et al. 2013; Turchin 2007, 2013b). Literate behaviour is shown to have served a hitherto unappreciated role in the cultural evolution of human cooperation, especially in increasingly large and complex forms of socio-political organisation.

7.2 Thesis objectives

The principal objectives of this thesis were (1) to provide a cultural evolutionary explanation of the evolutionary history of literate behaviour, (2) to investigate the role of literate behaviours in the cultural evolution of large-group human cooperation, including first-generation states, and (3) to do so in a radically interdisciplinary way, bringing to bear not only insights and data garnered from

across the social sciences, but also from the evolutionary sciences (both biological and cultural).

7.3 Thesis organisation

Tinbergen's four categories of evolutionary explanation (ontogeny, causation, phylogeny, and function) provided this thesis with an evolutionary framework for understanding literate behaviour (Tinbergen 1963). Given that the questions relating to the proximate-level evolutionary explanation of literate behaviour (*i.e*., ontogeny and causation/mechanism) have been relatively well-researched, this thesis took as its main focus the ultimate-level evolutionary explanation of literate behaviour (*i.e*., phylogeny and function). Chapters 3 and 4 synthesised the available historical, archaeological, palaeographic, and grammatological data with the results of the cross-cultural survey of literate behaviour constructed in Chapter 2, to test a set of empirical hypotheses related to the evolutionary history (*i.e.*, phylogeny) of literate behaviour. Chapters 5 and 6 assessed the functional significance of CERS within the cultural evolution of large-group human cooperation, including the complex positive feedback between literate behaviour and first-generation state-level polities, by bringing together insights and data from across the social and evolutionary sciences.

7.4 Literate behaviour: answering Tinbergen's questions regarding phylogeny and function

The major aims, results, and limitations of this thesis' four data chapters and their implications for further investigations of literate behaviour are discussed below. Next,

the broader benefits and limitations of a large-scale cross-cultural approach will be discussed. This chapter will conclude with a discussion of how this thesis contributes to the wider goal of 'transforming cultural anthropology into rapid-discovery science characterized not by cyclic development (in which each new generation rejects the insights of their elders) but by a cumulative growth of knowledge' (Turchin et al. 2012: 287).

7.4.1 Phylogeny: literate behaviour's evolutionary history

To provide a cultural evolutionary history of literate behaviour, this thesis addressed two unresolved questions. First, what were the selective pressures that brought about the independent emergence of literate behaviour around the globe? Second, what were the major drivers in the adoption and spread of literate behaviour? Chapters 3 and 4 were dedicated to each respective question.

7.4.1.1 Towards an evolutionary history of the emergence of literate behaviour

What were the selective pressures that brought about the independent emergence of literate behaviour around the globe? To answer this question, Chapter 3 demonstrated that pervasive theories[147] of the origins of literate behaviour are limited by five crucial problems before outlining strategies for overcoming each of these limitations. This chapter rejected theoretical approaches that (1) adopt of the 'Standard View' of technology, (2) fail to acknowledge that the world's first scribes did not and could not tailor their nascent scripts to individual- or societal-level 'necessities' in a foresightful and agential manner, (3) do not acknowledge the

polygenetic and non-teleological cultural evolution of literate behaviour, (4) fail to overcome the challenges posed by recent archaeological and palaeographic findings, and (5) employ inadequate data and methodological scope and rigour. Citing recent archaeological and palaeographic findings, this chapter demonstrated that there are hitherto unappreciated and untested candidate factors that may have provided the selection pressures necessary for the emergence of the world's first literate behaviours. The emergence of full-time specialist sign users and the 'repetitious intensification' of precursor sign systems (Smith 2008, 2013) are examples of these candidate factors and are readily identifiable as products of a broader shift towards routinization (Whitehouse 2000).

Chapter 3 predicted that the hallmarks of routinization, including high-frequency interactions within groups of specialists, complex shared networks of doctrines and narratives, and doctrinal conformity provided the cumulative and blind selection pressures necessary to transform precursor sign systems into literate forms around the globe. This chapter evaluated the cross-cultural relationship between the candidate explanatory selection pressures of routinization and the emergence of the world's first literate behaviours by isolating features of both (1) routinization and (2) literate behaviour before testing the following hypotheses:

Hypothesis 3.1: Cultures with highly arousing religious rituals are negatively correlated with the presence of CERS.

Hypothesis 3.2: Cultures with highly arousing religious rituals are negatively correlated with cultures in which the recitation of texts during religious rituals is present.

Hypothesis 3.3: Cultures with high-frequency religious rituals are positively correlated with the presence of CERS.

Hypothesis 3.4: The recitation of texts during religious rituals is positively correlated with ritual frequency.

These hypotheses were evaluated using two principal data sources — (1) studies pertaining to two of the best-attested historical examples of societies in which literate behaviour emerged independently (*i.e.,* Late Uruk Jemdet Nasr Period modern-day Iraq and approximately 1250 B.C. modern-day Anyang province China) and (2) the cross-cultural data on literate behaviour and existing cross-cultural data sources for a representative sample of societies drawn from around the globe (n= 74).

Each of the principal data sources under investigation offered evidence consistent with these predictions. Evidence of high-frequency interactions within groups of specialists was particularly well-documented in the best-attested historical examples of societies in which literate behaviour emerged independently. Two of the four empirical hypotheses tested were consistent with the predictions of this thesis. First, as predicted, there was a negative correlation between HRAF-societies with highly arousing religious rituals and CERS. Second, as predicted, a simple linear regression established that the recitation of texts during religious rituals could predict

overall variation in ritual arousal. Third, contrary to prediction that HRAF-societies with high-frequency religious rituals should be positively correlated with the presence of CERS, there was no relationship with societal-level measures of ritual frequency. However, the data available were not sufficient to evaluate the effects of daily rituals on the emergence of literate behaviours due to the small number of daily rituals recorded in the Ritual Database by Atkinson and Whitehouse (2011). Finally, contrary to the prediction, there was no relationship between ritual frequency and the recitation of texts during religious rituals.

To test these predictions more directly, additional cross-cultural historical data are required. Empirical measures of the elements of routinization must be made alongside measures of literate behaviours using diachronic data. As discussed in Chapters 3, 4, and 5, one notable project, 'Seshat: Global History Databank' (http://evolution-institute.org/seshat), which is currently under construction, may produce the historical and cross-cultural data necessary to test competing predictions regarding the selection pressures that may have facilitated the emergence of literate behaviours around the globe.

In sum, Chapter 3 employed the most reliable and representative empirical account of the cross-cultural patterning and distribution of literate behaviour that is currently available and demonstrated empirically, for the first time, the relationship between literate behaviours and the hallmarks of routinization, including high-frequency interactions within groups of specialists, complex shared networks of doctrines and narratives, doctrinal conformity. Evidence was found largely in favour of the prediction that the previously unappreciated selection pressures brought about

by routinization facilitated the independent emergence of literate behaviours around the globe.

7.4.1.2 Towards an evolutionary history of the spread of literate behaviour

What were the major drivers in the adoption and spread of literate behaviour? Did classical religions facilitate the adoption and spread of literate behaviour or the other way around? The available scholarship offers conflicting accounts with scholars offering argument and evidence in favour of the primacy of classical religion or literate behaviour. The available historical, palaeographic, and sociolinguistic data suggest that literate behaviours were culturally transmitted principally through the spread of classical religions, but these data have not proven sufficient to adjudicate this debate. This chapter attempted to resolve conflicting accounts by employing large-scale cross-cultural data (n= 74) collated and coded for this thesis or extracted from existing sources to test the following hypotheses:

Hypothesis 4.1: Classical religion is positively correlated with the presence of CERS.

Hypothesis 4.2: The presence of a belief in moral high gods is positively correlated with the presence of CERS.

Hypothesis 4.3: Classical religion is positively correlated with and cultures with religious rituals in which texts are recited.

Each of these predictions received empirical support, offering support in favour of the argument that classical religions were one of the principal mechanisms of literate

behaviour's cultural transmission. Classical religions did not appear to rely as heavily on writing as predicted by those who contend for its primacy in the homogenisation and spread of classical religions. Of the 61 rituals sampled from societies in the classical religion condition in the Ritual Database (Atkinson and Whitehouse 2011), the minority (24/61; 39.3%) contained the recitation of texts. Moreover, the relationship between writing and classical religions did not appear to be as unique as the proponents for the primacy of writing in the cultural transmission of classical religions might contend. In fact, there was a positive and strong correlation between the presence of classical religion and each of the CERS under investigation. Like standardised scripts, for example, 92% of the societies sampled in the classical religion condition possessed transactional records. Another CERS, standardised calendrical and timekeeping systems, was even more frequent than standardised scripts in the societies sampled in the classical religion condition. In fact, every society sampled (100%) in the classical religion condition possessed standardised calendrical and timekeeping systems, suggesting that CERS may have functioned to homogenise religious representations and facilitate the spread of classical religions.

Additional cross-cultural and historical data are required to analyse the empirical relationship between classical religions and literate behaviours. Given their pervasive cross-cultural co-occurrence, future studies should be motivated to investigate the relationship between classical religion and both standardised timekeeping and calendrical systems and transactional records.

In sum, large-scale cross-cultural evidence is offered in support of the prediction that classical religions were one of the principal mechanisms of literate behaviour's cultural transmission.

7.4.2 Function: the relationship between the literate behaviour and human cooperation

To provide an evolutionary account of literate behaviour's function, this thesis endeavoured to answer two questions that have received surprisingly little attention. First, why do the products of literate behaviours, CERS, assume a large number of forms and socio-political functions in increasingly large, complex groups? Second, what, if any, is the relationship between the cultural evolution of (1) literate behaviour and (2) large, complex forms of socio-political complexity? A chapter was dedicated to each question (chapters 5 and 6).

7.4.2.1 The role of literate behaviour in the cultural evolution of large-group human cooperation

Why do the products of literate behaviours, CERS, assume a large number of forms and socio-political functions in increasingly large, complex groups? Generations of scholars have cited literate behaviour as one of the principal causes and identifying features of particularly complex and large-scale forms of socio-political organisation. Nevertheless, the evidentiary basis offered in existing qualitative research is not adequate to test the prediction that the behavioural innovation of literacy was a principal factor in the evolution of large, complex

societies. Little is currently known about how the functions of specific products of CERS may have enabled the cooperative systems necessary for the development and maintenance of these novel forms of socio-political organisation.

Chapter 5 used evolutionary theory to investigate the role CERS may have played in the elaboration of certain small-group cooperative adaptations, including reciprocity, reputation formation and maintenance systems, social norms and norm enforcement systems, and group identity and mutualism. This chapter identified the functional applications of specific CERS as promising candidate causal factors in the emergence of the levels of cooperation necessary for the development of socio-political complexity and large-scale human polities.

To evaluate the cross-cultural relationship between literate behaviour and human cooperation, this chapter tested empirically the relationship between CERS and a set of proxies for large-group human cooperation, including (1) community size, (2) levels of jurisdictional hierarchy, (3) agricultural intensity, and (4) eighteen ordinal 'indices of societal cooperation'. Using large-scale cross-cultural data (n= 74) that were collected for this thesis and existing cross-cultural measures, this chapter tested the following hypotheses:

Hypothesis 5.1: The presence of each CERS is positively correlated with increasing community size.

Hypothesis 5.2: The presence of each CERS is positively correlated with increasing levels of regional jurisdictional hierarchy.

Hypothesis 5.3: The presence of each CERS is positively correlated with increasing levels of agricultural intensity.

Hypothesis 5.4: The presence of each CERS is positively correlated with ‘indices of societal cooperation’.

Evidence was found largely in favour of the prediction that CERS functioned to elaborate our small-group cooperative adaptations, facilitating the levels of cooperation necessary for the development of socio-political complexity and large-scale human polities. The results of each of the four empirical hypotheses tested were consistent with the predictions of this thesis. First, there was a statistically significant and strong association between an ordinal measure of CERS and community size. The majority of large eHRAF-societies often possessed at least one, if not multiple CERS, while smaller societies did not. Second, there was a statistically significant and moderately strong association between ordinal measures of CERS and regional jurisdictional hierarchy. Third, this analysis revealed a statistically significant and strong association between ordinal measures of CERS and agricultural intensity. Of the 22 HRAF-societies sampled that practiced intensive agriculture, the majority (72.7%) possessed at least one CERS. Finally, this analysis revealed a statistically significant and moderate to strong association between ordinal measures of CERS and seven of the eighteen ‘indices of societal cooperation’, including five in the predicted direction, namely money (media of exchange) and credit, credit source, community size, mean size of local communities, loyalty to local community, loyalty to wider society, and sanctions. These findings provided strong statistical support in favour of the prediction that CERS are associated empirically with larger, more hierarchically-organised, agriculturally-intense, and highly-cooperative polities.

In sum, Chapter 5 demonstrated a robust empirical relationship between CERS and large and complex forms of socio-political organisation and outlined how CERS function to extend the efficacy of a number of cooperative tools provided to us by our evolved psychology.

7.4.2.2 The complex positive feedback loop between literate behaviour and first-generation state-level polities

What, if any, is the relationship between the cultural evolution of (1) literate behaviour and (2) large, complex forms of socio-political complexity? Social scientists frequently adopt a simple and intuitive model of causation when describing the relationship between literate behaviour and increases in group size and socio-political complexity. As noted in Chapter 5, literate behaviour is often seen as a cause and identifying feature of large, complex forms of socio-political organisation. Little attention has been paid to the potential complex feedback between literate behaviour and large, complex forms of socio-political organisation, including state-level polities. Chapter 6 used archaeological and historical data on ten, first-generation state-level polities – as defined by Flannery and Marcus (2012) – to test the prediction that literate behaviours and increasingly complex forms of socio-political organisation interact in a complex positive feedback loop (Barton and Hamilton 1997; Gaur 1984; Lock and Gers 2012). In other words, this chapter investigated whether the key factors of state formation facilitated the emergence, spread, or functional applications of CERS and whether the factors driving state formation were facilitated by the emergence, spread, or functional application of

CERS. If both conditions were met, then the relationship between these two sets of variables were said to constitute a complex positive feedback loop.

Taken together, the archaeological/historical survey in Chapter 6 provided evidence and argument in favour of the predictions that (1) CERS contributed greatly to the cooperative systems necessary for the emergence and persistence of state-level polities and (2) the factors that facilitated the emergence of state-level polities facilitated emergence, functional application, and diversification of CERS. Most crucially, evidence of a complex positive feedback loop between CERS and first-generation states was found in nine of the ten polities surveyed, including the Middle Uruk Period of the Susiana Plain, Late Uruk/Jemdet Nasr Period of Southern Iraq, Dynasty 0 of Egypt, Zapotec State of the Mexican highlands, Early Maya Kingdom of Calakmul of Guatemala, Hunza of Mir Silim Khan of the Pakistani-Kashmir borderlands, Kamehameha Kingdom of Hawai'i, and Zulu of Shaka of southern Africa. Thus, the simple and intuitive models that assume single cause-and-effect relationships between two sets of variables are insufficient to explain the historical relationship between first-generation state-level polities and literate behaviour. Instead, the factors involved in (1) state formation and (2) the emergence and functional application of CERS operated in a complex positive feedback loop (*i.e.,* a causal relationship in which 'an effect feeds back into its cause' (Erdi 2008: 357).

7.5 General recommendations for the study of literate behaviour

7.5.1 Recommendations towards a history of literate behaviour

To test the predictions that (1) literate behaviours emerged in polities as a result of blind and cumulative selection pressures facilitated by routinization (Chapter 3) and (2) the cross-cultural prevalence of CERS is attributable in part to its cultural transmission by classical religions (Chapter 4), additional cross-cultural, archaeological, palaeographic, and historical data are required. Measures of routinization and classical religions must be made alongside measures of the functional applications of literate behaviours.

Diachronic data are required to test causal predictions more directly and more rigorously. To construct a large-scale, cross-cultural historical database for a single research project, however, would be prohibitively expensive and time-consuming. Fortunately, 'The Historical Database of Sociocultural Evolution' (Turchin et al. 2012), which was set up during the course of my studies, is likely to facilitate future research into the history of literate behaviour greatly by providing variables related to ritual and group structure and scale over the last five millennia. Potentially fertile areas of exploration into the cultural transmission of CERS include analyses of the influence of the following: the development and expansion of increasingly complex political entities, such as kingdoms, states, and empires (Renn and Hyman 2012: 1); cultural beliefs concerning the value of particular CERS, such as the use of the Latin or Latinate scripts in the storage and transmission of Christian religious doctrine (Coulmas 2003); exchange and the elaboration of trade routes and ethnically-diverse

markets (Renn and Hyman 2012: 1); geographic features, topographic determinants, and other ecological factors; the evolution of transportation technologies (Basalla 1988); within-group social stratification, such as the restriction of CERS to certain groups, *e.g.*, social classes (Olson and Torrance 2009); and the capacity and efficiency of a given standardised script in encoding the linguistic content of neighbouring or interacting groups (Bright and Daniels 1996; DeFrancis 1989; Sampson 1985).

7.5.2 Towards an account of the role of literate behaviours in the cultural evolution of large-group human cooperation

Several additional steps were outlined to test the predictions that CERS (1) functioned to elaborate cooperative adaptations provided to us by our evolved psychology and (2) facilitated the levels of cooperation necessary for the development of socio-political complexity and large- scale human polities. First, given that the current ethnographic and historical record does not contain detailed cross-cultural data on the functional applications of specific CERS, these data must be collected. Second, given that societies often inherit suites of cultural traits together not isolated ones (*e.g.* a society may adopt writing along with a taxation system or police force), historical data are needed to identify precisely when these systems were employed, and to what end (*i.e.*, social function or functions). Third, while the 21 empirical measures of cooperation employed in the current study are indicative of societal-level cooperation, better between-group and within-group measures of cooperation are needed to test their functional relationship with CERS.

Many of these limitations are addressed by the aforementioned historical database (Turchin et al. 2012), which will facilitate future research into the functional applications of literate behaviours and their effects on large-group human cooperation greatly by providing variables related to ritual and group structure and scale over the last five millennia.

7.6 Benefits and limitations of this thesis' large-scale cross-cultural approach

The methodologies employed in large-scale cross-cultural research (*i.e.* holocultural analysis) have been both widely criticised (Barnes 1971; Eggan 1954; Fillitz 2002; Fox and Gingrich 2002b; Fox 2002; Kobben et al. 1967; Köbben 1952; Lewis 1955; Schapera 1953; Strathern 2002) and widely defended (Atkinson and Whitehouse 2011; Ember and Ember 2009; Jordan and Huber 2013; Levinson and Malone 2000; Levinson 1977, 1978; Naroll et al. 1974; Otterbein 1978; Rohner 1977; Schaefer and Levinson 1977; Whiting 1954, 1968). Several critical approaches to cross-cultural research have been constructive, making suggestions, for example, for the improvement of sampling strategies (Currie 2013; Denton 2007; Dobson and Gelade 2012; Eff 2004; Ember and Otterbein 1991; Herkenrath 2002; Lagacé 1979; Mace et al. 1994; Murdock 1949; Naroll 1965, 1967, 1965; Nettle 2009; Pollet et al. 2014; Ross and Homer 1976; Tylor 1889), the unit of analysis (Driver and Massey 1957; Harris 2001; Levinson and Malone 2000; Pollet et al. 2014), the quality and comparability of the ethnographic sources (Beierle and Witkowski 1974; Harris 2001; Levinson and Malone 2000; Murdock and White 1969; Pollet et al. 2014; Swanson 1980; White 2007), the methods employed in identifying, collecting, and coding

ethnographic materials (Ember and Ember 2009; Otterbein 1969), the statistical measures (Driver 1966; Hammel 1980), or the theoretical design (Bernard 2011; Wagner and Davis 1978) of cross-cultural analysis. As a result of this sustained critical engagement, large-scale cross-cultural research has become increasingly methodologically rigorous (Levinson and Malone 2000). The work in this thesis builds on insights garnered from this critical literature to address some of social science's most long-standing research questions.

Several other critics of cross-cultural research reject the utility of comparative social research more broadly, reflecting a broader theoretical shift in anthropology away from large-scale comparative research programmes, quantitative procedures, the acceptance of the ethnographic method in particular, and the objectivity of the scientific method in general (Boyer 2011; Mesoudi 2011)[150]. Still others, such as Fillitz (2002), Fox and Gingrich (2002b), and Eggan (1954), reject large-scale cross-cultural comparisons in favour of smaller or more regional controlled comparisons. Cultural evolutionary scholars, such as Dunbar and Barrett (2007), Mesoudi (2011; 2006), Brown et al. (2011), Mesoudi et al. (2013), Jordan and Huber (2013), Currie (2013), Atkinson and Whitehouse (2011), and Mullins et al. (2013), frequently stress

[150] Mesoudi (2011: 19) notes, '[a]s a result of these challenges to the validity of ethnographic fieldwork and to the objectivity of the scientific method in general, most contemporary cultural anthropologists have largely abandoned any attempt to quantify the behavior of people living in different societies and to scientifically test hypotheses concerning behavioral variation. Seemingly accepting the criticisms fully, many ethnographers do not now claim to be conducting scientific research and make no claims of even trying to achieve objective findings, instead producing subjective and qualitative descriptions ("thick descriptions") of people's lives in particular social contexts'.

the importance of taking cultural diversity seriously, lest inferences be drawn from relatively homogenous pools of Western-Education Industrialised Rich Democratic (WEIRD) peoples (Henrich et al. 2010; Jordan and Huber 2013). While individual ethnographies of one or a small number of societies can illustrate what is particular and unique about a given culture through thick description, the inferences derived from their construction and analysis in isolation cannot be generalised into cross-cultural statements. Instead, only when analysed collectively can ethnographic materials enable the systematic comparisons necessary for those who endeavour to answer questions about the incidence, distribution, and causes of cultural variation. As a result, cross-cultural research of the kind employed in this thesis provides 'the most generalizable [and therefore widely applicable] results of any kind of social scientific research' (Ember and Ember 2009: 13).

As noted in Chapter 2, the construction of a large-scale database of CERS presents several methodological challenges. While an exhaustive study of the cross-cultural patterning and distribution of CERS would require the development of a comprehensive typology of literate behaviours before tracing the functional applications of this behaviour, mapping such a large set of cultural traits cross-culturally is not feasible for a single study because it would be constrained greatly by the inherent partiality of the ethnographic record and would require copious amounts of time and financial resources.

While some practitioners of large-scale cross-cultural research advocate for increasingly high levels of methodological rigour (Naroll et al. 1974; Rohner et al. 1978), others, such as Murdock (1977) and Ember and Ember (2009), prefer more

cost-effective and less rigorous approaches (Levinson and Malone 2000). To ensure that the arguments of this thesis were as reliable and generalizable as possible, this thesis employed a multi-method design. Building on the methodological designs of Landauer and Whiting (1964), Roberts and Forman (1971), Rohner (1975), this thesis tested theories both cross-culturally with data constructed through a large-scale cross-cultural survey and intra-culturally with case studies and sample surveys (Levinson and Malone 2000), resulting in an objective[151], widely applicable, cultural evolutionary account of literate behaviour.

7.7 Concluding statement

The method, data, and argument in this thesis contributes to the wider goal of 'transforming cultural anthropology into rapid-discovery science characterised not by cyclic development [...] but by a cumulative growth of knowledge' (Turchin et al. 2012: 287). The cross-cultural database of literate behaviour and the historical and archaeological data provided in Appendix 3, Chapter 6, and the accompanying data file, for example, enable different teams of investigators to test empirical predictions with existing or novel datasets using improved methodologies. The full use of the tools provided by the scientific method, such as hypothesis testing, falsification, replication, and quantitative statistical analysis, allow future social scientists and

[151]As noted by Levinson and Malone (2000: 371), '[o]ther theory testing approaches such as case studies or experiments based on worldwide samples are often too costly and time consuming to be effective'.

cultural evolutionary theorists to engage in a knowledge transmission process in which the result of their research programmes is not an end, but a means (Renn 2012)[152]. This cumulative scientific approach will facilitate greatly our understanding of human behaviour and evolutionary history, enabling anthropologists to solve seemingly intractable social problems, impact the way professionals and the public think about human behaviour, and develop cumulative research programmes and sustained lines of theoretical inquiry based on precise and testable hypotheses (Boyer 2011). Anthropologists must begin by testing systematically scientific theories and integrating their findings with those of neighbouring human sciences (Mesoudi et al. 2006; Slingerland and Collard 2011; Whitehouse 2011). The success of this approach will extend greatly the intellectual scope, explanatory power, and, ultimately, the relevance of anthropology as an academic discipline.

[152]Boyer (2011: 93), who recently criticised the 'salient connections' mode of scholarship that has swept across sociocultural anthropology and left it far less relevant or informative as a result, makes a similar point, saying 'such scholarship does not in general solve any questions, contribute to a more precise or accurate description of the world, or even show us the limitations of our knowledge (nor does it aim to do any of these things). Salient connections are a sometime thing, not durable and useable information. They leave the world as they found it […].' In other words, '[t]hey only connect' (Boyer 2011: 92).

Bibliography

Adams, Robert McCormick 1981. *Heartland of cities: Surveys of ancient settlement and land use on the central floodplain of the Euphrates*. University of Chicago Press, Chicago.

Adams, Robert McCormick 1966. *The evolution of urban society: early Mesopotamia and prehispanic Mexico*. Weidenfeld and Nicolson, London.

Adams, Robert McCormick; Nissen, Hans Jörg 1972. *The Uruk countryside: The natural setting of urban societies*. University of Chicago Press, Chicago.

Ager, Simon 2012. “Omniglot - writing systems and languages of the world”. Retrieved 16/01/2012 from www.omniglot.com.

Aghababian, Valérie; Nazir, Tatjana A 2000. “Developing normal reading skills: aspects of the visual processes underlying word recognition”. *Journal of experimental child psychology,* 76 (2), pp. 123–150.

Alexander, Richard D 1987. *The biology of moral systems*. A. de Gruyter, Hawthorne, New York.

Algaze, Guillermo 2013. “The End of Prehistory and The Uruk Period”. In: Crawford, Harriet (ed.) *The Sumerian World*. Routledge, New York p. 68.

Algaze, Guillermo 1993. “Expansionary dynamics of some early pristine states”. *American Anthropologist*, (2), pp. 304–333.

Andersen, O 1989. “The Significance of Writing in Early Greece: A Critical Appraisal”. In: Schousboe, Karen and Larsen, Mogens Trolle (ed.) *Literacy and Society*. Akademisk Forlag, Copenhagen pp. 73–87.

Anderson, Benedict 1991. *Imagined Communities, revised edition*. Verso, London.

Anderson, C. Leigh; Swimmer, Eugene 1997. “Some empirical evidence on property rights of first peoples”. *Journal of Economic Behavior & Organization*, 33 (1), pp. 1–22.

Astle, Thomas 1784. *The Origin and Progress of Writing, as Well Hieroglyphic as Elementary, Illustrated by Engravings Taken from Marbles, Manuscripts and Charters Ancient and Modern (etc.)*. T. Payne, London.

Atkinson, Quentin D; Whitehouse, Harvey 2011. "The cultural morphospace of ritual form: Examining modes of religiosity cross-culturally". *Evolution and Human Behavior,* 32 (1), pp. 50–62.

Aveni, Anthony F 1989. *Empires of time: calendars, clocks and cultures*. Basic Books, New York.

Axelrod, Robert M 2006. *The evolution of cooperation*. Basic books, New York.

Axelrod, Robert M; Hamilton, William D 1981. "The evolution of cooperation". *Science,* 211 (4489), pp. 1390–1396.

Bagley, Robert 2004. "Anyang writing and the origin of the Chinese writing system". In: Houston, Stephen (ed.) *The First Writing: Script Invention as History and Process*. Cambridge University Press, Cambridge pp. 190-249.

Bagwell, Elizabeth A 2006. "Specialization, social complexity and vernacular architecture: A cross-cultural study of space construction". In: Robertson, Elizabeth C, Seibert; Jeffrey D; Fernandez, DC; Zender, Marc U (ed.) *Space and Spatial Analysis in Archaeology*. University of Calgary Press, Calgary pp. 29-35.

Baines, John 1983. "Literacy and ancient Egyptian society". *Man*, 18 (3), pp. 572–599.

Baines, John; Bennet, John; Houston, Stephen D 2008. *The Disappearance of Writing Systems: Perspectives of Literacy and Communications*. Equinox, London.

Baker, Chris I; Liu, Jia; Wald, Lawrence L 2007. "Visual word processing and experiential origins of functional selectivity in human extrastriate cortex". *Proceedings of the National Academy of Sciences*, 104 (21), pp. 9087–9092.

Banner, Stuart 2005. "Preparing to Be Colonized: Land Tenure and Legal Strategy in Nineteenth-Century Hawaii". *Law & society review*, 39 (2), pp. 273–314.

Banner, Stuart 2002. "Transitions between property regimes".*The Journal of Legal Studies,* 31 (S2), pp. S359–S371.

Barber, Nigel 1998. "Ecological and Psychosocial Correlates of Male Homosexuality A Cross-Cultural Investigation". *Journal of Cross-Cultural Psychology*, 29 (3), pp. 387–401.

Bard, Kathryn A. 2000. “The emergence of the Egyptian state (*c.*3200-2686 BC)”. In: Shaw, Ian (ed.) *The Oxford history of ancient Egypt.* Oxford University Press, Oxford pp. 57-82.

Barnes, John A. 1971. *Three styles in the study of kinship*. University of California Press, Berkeley, CA.

Barone, T Lynne 2000. “Is the siesta an adaptation to disease?”. *Human Nature,* 11 (3), pp. 233–258.

Barton, David; Hamilton, Mary 1997. “Social and cognitive factors in the historical elaboration of writing”. In: Lock, Andrew and Peters, Charles R. (ed.) *The handbook of human symbolic evolution*. Oxford University Press, Oxford pp. 793–858.

Barton, David; Hamilton, Mary; Ivanic, Roz 2005. *Situated literacies: Theorising reading and writing in context*. Routledge, London.

Basalla, George 1988. *The evolution of technology*. Cambridge University Press, Cambridge.

Basu, Sudipta; Kirk, Marcus; Waymire, Greg 2009. “Memory, transaction records, and The Wealth of Nations”. *Accounting, Organizations and Society,* 34 (8), pp. 895–917.

Bateson, Melissa; Nettle, Daniel; Roberts, Gilbert 2006. “Cues of being watched enhance cooperation in a real-world setting”. *Biology letters,* 2 (3), pp. 412–414.

Bateson, Patrick; Laland, Kevin N 2013. “Tinbergen’s four questions: an appreciation and an update”. *Trends in ecology & evolution,* 28 (12), pp. 712–718.

Beals, Kenneth L; Smith, Courtland L; Dodd, Stephen M; et al. 1984. “Brain size, cranial morphology, climate, and time machines [and comments and reply]”. *Current Anthropology,* pp. 301–330.

Beierle, John M; Witkowski, Stanley 1974. “HRAF coding reliability”. In: *Cross-Cultural Research*, 9 (1), pp. 57–65.

Bell, Graham 1997. *Selection: the mechanism of evolution*. 2nd. ed. Oxford University Press, Oxford.

Bernard, H Russell 2011. *Research methods in anthropology*. 4th ed. Rowman Altamira, Lanham, MD.

Billig, Michael; Tajfel, Henri 1973. “Social categorization and similarity in intergroup behaviour”. *European Journal of Social Psychology*, 3 (1), pp. 27–52.

Billman, Brian R 2002. “Irrigation and the origins of the southern Moche state on the north coast of Peru”. *Latin American Antiquity,* pp. 371–400.

Binford, Lewis R 1964. “A consideration of archaeological research design”. *American antiquity,* pp. 425–441.

Binmore, Ken 2005. *Natural justice*. Oxford University Press, Oxford.

Bloch, Maurice 1998. *How we think they think: Anthropological approaches to cognition, memory, and literacy*. Westview Press, Oxford.

Bloch, Maurice 1986. *From blessing to violence: history and ideology in the circumcision ritual of the Merina*. Cambridge University Press, Cambridge.

Bolhuis, Johan J; Luc-Alain, Giraldeau 2005. “The Study of Animal Behavior". In: Bolhuis, Johan J and Verhulst, Simon (ed.) *The behavior of animals: mechanisms, function, and evolution.* Blackwell, Oxford pp. 1–10.

Bolhuis, Johan J; Gahr, Manfred 2006. “Neural mechanisms of birdsong memory”. *Nature Reviews Neuroscience*, 7 (5), pp. 347–357.

Boltz, William G 1994. *The origin and early development of the Chinese writing system*. Eisenbrauns, Warsaw, IN.

Bonabeau, Eric; Theraulaz, Guy; Deneubourg, J; et al. 1998. “A model for the emergence of pillars, walls and royal chambers in termite nests”. *Philosophical Transactions of the Royal Society of London. Series B: Biological Sciences*. 353 (1375), pp. 1561–1576.

Bonner, John Tyler 1983. *The evolution of culture in animals*. Princeton University Press, Princeton, NJ.

Borgwaldt, Susanne R; Joyce, Terry 2011. “Typology of writing systems: Special issue introduction”. *Written Langauge & Literacy*, 14 (1), pp. 1-11.

Bosworth, Andrew 2003. “The Gentics of Civilization: An Empirical Classification of Civilizations Based on Writing Systems”. *Comparative Civilizations Review*, (49), pp. 9–27.

Bottéro, Jean 1995. *Mesopotamia: Writing, reasoning, and the gods*. University of Chicago Press, Chicago.

Bowles, Samuel 2006. “Group competition, reproductive leveling, and the evolution of human altruism”. *Science*, 314 (5805), pp. 1569–1572.

Bowles, Samuel; Gintis, Herbert 2011. *A cooperative species: Human reciprocity and its evolution*. Princeton University Press, Princeton, NJ.

Boyarin, Jonathan 1993. *The ethnography of reading*. University of California Press, Oxford.

Boyd, Robert; Richerson, Peter 1985. *Culture and the Evolutionary Process*. University of Chicago Press, Chicago, IL.

Boyd, Robert; Richerson, Peter J 2006. “Solving the puzzle of human cooperation”. In: Levinson, Stephen C and Jaisson, Pierre (ed.) *Evolution and culture: A Fyssen Foundation Symposium*. MIT Press, Cambridge, MA pp. 105–132.

Boyd, Robert; Silk, Joan B 2009. *How Humans Evolved*. WW Norton & Company, New York.

Boyer, Pascal 2011. “From studious irrelevancy to consilient knowledge: modes of scholarship and cultural anthropology”. In: Slingerland, Edward and Collard, Mark (ed.) *Creating Consilience: Integrating the Sciences and the Humanities*. Oxford University Press, New York pp. 85–97.

Boyer, Pascal 2005. “A Reductionistic Model of Distinct Modes of Religious Transmission”. In: Whitehouse, Harvey; McCauley, Robert (ed.) *Mind and Religion: Psychological and Cognitive Foundations of Religiosity.* Alta Mira Press, Walnut Creek, CA pp. 3–29.

Boyer, Pascal 2002. “Arguments and Icons: Divergent Modes of Religiosity”. *Journal of Ritual Studies*, 16 (2), pp. 8–13.

Boyer, Pascal 2001. *Religion explained: The evolutionary origins of religious thought*. Basic Books, New York.

Bradshaw, John L. 1997. *Human evolution: A neuropsychological perspective*. Psychology Press, New York.

Brandts, Jordi; Schram, Arthur 2001. “Cooperation and noise in public goods experiments: applying the contribution function approach”. *Journal of Public Economics,* 79 (2), pp. 399–427.

Brant, Charles S 1972. “A Preliminary Study of Cross-Sexual Joking Relationships in Primitive Society”. *Cross-Cultural Research*, 7 (4), pp. 313–329.

Breasted, James H. 1926. *Conquest of Civilization*. Harper and Brothers, New York.

Brewer, Marilynn B. 2007. “The importance of being we: Human nature and intergroup relations.”. *American Psychologist*, 62 (8), p. 728.

Breznitz, Zvia; Rubinsten, Orly; Molfese, Victoria J; et al. 2012. *Reading, Writing, Mathematics and the Developing Brain: Listening to Many Voices*. Springer, London.

Bright, William; Daniels, Peter T. 1996. *The world’s writing systems*. Oxford University Press, Oxford.

Broude, Gwen J. 1980. “Extramarital sex norms in cross-cultural perspective”. *Cross-Cultural Research,* 15 (3), pp. 181–218.

Browman, David 2001. “Encyclopedia of Prehistory: Volume 7: South America”. In: Peregrine, Peter N.; Ember, Melvin (ed.) *Encyclopedia of Prehistory*. Springer Science+Business Media, New York, pp. 1–17.

Brown, Gillian R; Dickins, Thomas E; Sear, Rebecca; et al. 2011. “Evolutionary accounts of human behavioural diversity”. *Philosophical transactions of The Royal Society B: biological sciences*, 366 (1563), pp. 313–324.

Buchan, Nancy R; Brewer, Marilynn B; Grimalda, Gianluca; et al. 2011. “Global social identity and global cooperation”. *Psychological Science*, 22 (6), pp. 821–828.

Buchan, Nancy R; Croson, Rachel TA; Dawes, Robyn M 2002. “Swift neighbors and persistent strangers: A cross-cultural investigation of trust and reciprocity in social exchanger”. *American journal of sociology*, 108 (1), pp. 168–206.

Buchan, Nancy R; Grimalda, Gianluca; Wilson, Rick; et al. 2009. “Globalization and human cooperation”. *Proceedings of the National Academy of Sciences,* 106 (11), pp. 4138–4142.

Burbank, Victoria K 1987. “Female aggression in cross-cultural perspective”. *Cross-Cultural Research*, 21 (1-4), pp. 70–100.

Burnham, Terence C; Johnson, Dominic DP 2005. “The biological and evolutionary logic of human cooperation”. *Analyse & Kritik*, 27 (2), pp. 113–135.

Buss, David M 1999. *Evolutionary psychology: The new science of the mind.* Allyn & Bacon, Needham Heights, MA.

Cann, Rebecca L.; Stoneking, Mark; Wilson, Allan C. 1987. “Mitochondrial DNA and human evolution”. *Nature*, 325 (January), pp. 31–36.

Carneiro, Robert L 1970. “A Theory of the Origin of the State”. *Science*, 169 (3947), pp. 733–738.

Carneiro, Robert L 1967. *The evolution of society: selections from Herbert Spencer’s Principles of sociology*. University of Chicago Press, Chicago.

Carpenter, Sandra 2000. “Effects of cultural tightness and collectivism on self-concept and causal attributions”. *Cross-Cultural Research*, 34 (1), pp. 38–56.

Carroll, Michael P 1978. “Freud on Homosexuality and the Super-Ego: Some Cross-Cultural Tests”. *Cross-Cultural Research*, 13 (4), pp. 255–271.

Catchpole, Clive K; Slater, Peter JB 2003. *Bird song: biological themes and variations*. Cambridge University Press, Cambridge.

Cattell, J McKeen 1900. “On relations of time and space in vision”. *Psychological Review*, 7 (4), p. 325.

Caulkins, D Douglas; Peters, Christina 2002. “Grid-group analysis, social capital, and entrepreneurship among North American ethnic groups”. *Cross-Cultural Research*, 36 (1), pp. 48–72.

Chandrasekaran, Vali 2012. “Correlation or Causation?”. Retrieved 18/05/2012 from http://www.businessweek.com/magazine/correlation-or-causation-12012.011-gfx.html.

Changizi, Mark A 2010. *The vision revolution: How the latest research overturns everything we thought we knew about human vision*. Benbella Books, Dallas.

Changizi, Mark A; Shimojo, Shinsuke 2005. “Character complexity and redundancy in writing systems over human history”. *Proceedings of the Royal Society B: Biological Sciences*, 272 (1560), pp. 267–275.

Changizi, Mark A; Zhang, Qiong; Ye, Hao; et al. 2006. “The structures of letters and symbols throughout human history are selected to match those found in objects in natural scenes”. *The American Naturalist,* 167 (5), pp. E117–E139.

Chase, Arlen F; Chase, Diane Z; Smith, Michael E 2010. “States and empires in ancient Mesoamerica”. *Ancient Mesoamerica*, (20), pp. 175-182.

Chauvin, Michael E 2000. “Useful and Conceptual Astronomy in Ancient Hawaii”. In: Selin, Helaine; Xiaochun, Sun (ed.) *Astronomy Across Cultures: The History of*

Non-Western Astronomy. Springer, London.

Chick, Garry; Shen, Xiangyou Sharon 2011. “Leisure and cultural complexity”. *Cross-Cultural Research*, 45 (1), pp. 59–81.

Childe, V Gordon 1950. “The urban revolution”. *The Town Planning Review*, 21 (1), pp. 3–17.

Choi, Jung-Kyoo; Bowles, Samuel 2007. “The coevolution of parochial altruism and war”. *Science*, 318 (5850), pp. 636–640.

Chrisomalis, Stephen 2009. “The Origins and Co-Evolution of Literacy and Numeracy”. In: Olson, David R and Torrance, Nancy (ed.) *The Cambridge handbook of literacy*. Cambridge University Press, Cambridge pp. 59–74.

Chun, Kyung-soo 1984. *Reciprocity and Korean society: An ethnography of Hasami*. Seoul National University Press, Seoul.

Cipolla, Carlo M 1969. *Literacy and Development in the West*. Penguin Books, Harmondsworth.

Cohen, Emma; Mundry, Roger; Kirschner, Sebastian 2014. “Religion, synchrony, and cooperation”. *Religion, Brain & Behavior*, London 4 (1), pp. 20–3.0.

Cohen, Jacob 1955. “A Theoretical Framework for Treasury Debt Management”. *The American Economic Review*, 45 (3), pp. 320–344.

Cohen, Laurent; Dehaene, Stanislas 2004. “Specialization within the ventral stream: the case for the visual word form area”. *Neuroimage*, 22 (1), pp. 466–476.

Cohen, Laurent; Dehaene, Stanislas; Naccache, Lionel; et al. 2000. “The visual word form area Spatial and temporal characterization of an initial stage of reading in normal subjects and posterior split-brain patients”. *Brain*, 123 (2), pp. 291–307.

Collins, James 1995. “Literacy and literacies”. *Annual Review of Anthropology*, 24 , pp. 75–93.

Colman, Andrew M 2006. “The puzzle of cooperation”. *Nature,* 440 (7085), pp. 744–745.

Cooper, Jerrold S 2004. “Babylonian beginnings: the origin of the cuneiform writing system in comparative perspective”. In: Houston, Stephen (ed.) *The First Writing: Script Invention as History and Process*. Cambridge University Press, Cambridge pp. 71–99.

Cosmides, Leda; Barrett, H Clark; Tooby, John 2010. “Adaptive specializations, social exchange, and the evolution of human intelligence”. *Proceedings of the National Academy of Sciences*, 107 (Supplement 2), pp. 9007–9014.

Cosmides, Leda; Tooby, John 1989. “Evolutionary psychology and the generation of culture, part II: Case study: A computational theory of social exchange”. *Ethology and sociobiology*, 10 (1), pp. 51–97.

Costa, Antony 1997. “Custom and common sense: The Zulu Royal succession dispute of the 1940s”. *African Studies*, 56 (1), pp. 19–4.2.

Coulmas, Florian 2009. “Evaluating merit—the evolution of writing reconsidered”. *Writing Systems Research*, 1 (1), pp. 5-17.

Coulmas, Florian 2003. *Writing systems: An introduction to their linguistic analysis*. Cambridge University Press, Cambridge.

Coulmas, Florian 1999. *The Blackwell encyclopedia of writing systems*. Blackwell Publishers, Oxford.

Coulmas, Florian 1989. *The writing systems of the world*. Blackwell, Oxford.

Cree, Anthony; Kay, Andrew; Steward, June 2012. “The Economic and Social Cost of Illiteracy: A Snapshot of Illiteracy in a Global Context”.

Crystal, David 2008. *Dictionary of linguistics and phonetics*. 6th. ed. Blackwell, Oxford.

Currie, Thomas E 2013. “Cultural Evolution Branches Out The Phylogenetic Approach in Cross-Cultural Research”. *Cross-Cultural Research*, 47 (2), pp. 102–130.

Curry, Oliver 2005. “Morality as natural history”.

Damerow, Peter 1999. *The Origins of Writing as a Problem of Historical Epistemology*. Max Plank Institute for the History of Science, Berlin.

Daniels, Peter T 1996a. “Introduction”. In: Daniels, Peter T and Bright, William (ed.) *The world’s writing systems*. Oxford University Press, Oxford pp. 1–2.

Daniels, Peter T. 1996b. “The Study of Writing Systems”. In: Daniels, Peter T and Bright, William (ed.) *The world’s writing systems*. Oxford University Press, Oxford pp. 3–18.

Daniels, Peter T 1990. “Fundamentals of grammatology”. *Journal of the American Oriental Society*, pp. 727–731.

Darwin, Charles 1871. *The Descent of Man and Selection in Relation to Sex*. John Murray, London.

Davis, Paul K 1996. *Encyclopedia of invasions and conquests from ancient times to the present*. ABC-CLIO, Santa Barbara, CA.

Dawkins, Richard 2006. *The selfish gene*. Oxford University Press, Oxford.

Deaner, Robert O; Smith, Brandt A 2013. “Sex differences in sports across 50 societies”. *Cross-Cultural Research*, 47 (3), pp. 268–309.

Deflem, Mathieu 1999. “Warfare, political leadership, and state formation: the case of the Zulu kingdom, 1808-1879”. *Ethnology*, 38 (4), pp. 371-391.

DeFrancis, John 1989. *Visible speech: The diverse oneness of writing systems*. University of Hawaii Press, Honolulu.

Dehaene, Stanislas 2013. “Inside the Letterbox: How Literacy Transforms the Human Brain”. *Cerebrum: the Dana forum on brain science*, June.

Dehaene, Stanislas 2009. *Reading in the brain: The new science of how we read*. Penguin, London.

Dehaene, Stanislas; Cohen, Laurent 2011. “The unique role of the visual word form area in reading”. *Trends in cognitive sciences*, 15 (6), pp. 254–262.

Dehaene, Stanislas; Pegado, Felipe; Braga, Lucia W; et al. 2010. “How learning to read changes the cortical networks for vision and language”. *Science*, 330 (6009), pp. 1359–1364.

Delton, Andrew W; Krasnow, Max M; Cosmides, Leda; et al. 2011. “Evolution of direct reciprocity under uncertainty can explain human generosity in one-shot encounters”. *Proceedings of the National Academy of Sciences*, 108 (32), pp. 13335–13340.

Denton, Trevor 2007. “Yet another solution to Galton’s problem”. *Cross-cultural research*, 41 (1), pp. 32–45.

Dewar, Robert E; Wright, Henry T 1993. “The culture history of Madagascar”. *Journal of World Prehistory*, 7 (4), pp. 417–466.

Diamond, Jared 1999. *Guns, Germs, and Steel: The Fates of Human Societies*. WW Norton & Company, New York.

Dickson, D Bruce; Olsen, Jeffrey; Dahm, P Fred; et al. 2005. “Where do you go when you die? A cross-cultural test of the hypothesis that infrastructure predicts individual eschatology”. *Journal of anthropological research*, 61 (1), pp. 53–79.

Dion, Kenneth L 1973. “Cohesiveness as a determinant of ingroup-outgroup bias”. *Journal of Personality and Social Psychology,* 28 (2), p. 163.

Diringer, David; Regensburger, Reinhold 1968. *The Alphabet: A Key to the History of Mankind*. Chronicle Books, London.

Dobson, Paul; Gelade, Garry A 2012. “Exploring the roots of culture using spatial autocorrelation”. *Cross-Cultural Research,* 46 (2), pp. 160–187.

Donald, Merlin 1991. *Origins of the modern mind: Three stages in the evolution of culture and cognition*. Harvard University Press, Cambridge, MA.

Driver, Harold E; Massey, William C 1957. “Comparative Studies of North American Indians”. *Transactions of the American Philosophical Society,* 47 (2), pp. 165–456.

Driver, Harold E. 1966. “Introduction to Statistics for Comparative Research”. In: Moore, Frank W. (ed.) *Readings in Cross-Cultural Methodology*. HRAF Press, New Haven, CT pp. 310–336.

Dunbar, Robin Ian MacDonald 2004. “Gossip in evolutionary perspective.”. *Review of general psychology*. Educational Publishing Foundation 8 (2), p. 100.

Dunbar, Robin Ian MacDonald 1998a. *Grooming, gossip, and the evolution of language*. Harvard University Press, Cambridge, MA.

Dunbar, Robin Ian MacDonald 1998b. “The social brain hypothesis”. *Evolutionary Anthropology*, 6(5), pp. 178–190.

Dunbar, Robin Ian MacDonald; Barrett, Louise 2007. *Oxford handbook of evolutionary psychology*. Oxford University Press, Oxford.

Dunbar, Robin Ian MacDonald 1992. “Neocortex size as a constraint on group size in primates”. *Journal of Human Evolution*, 22 (6), pp. 469–493.

Eff, E Anthon 2004. “Does Mr. Galton still have a problem? Autocorrelation in the standard cross-cultural sample”. *World Cultures*, 15 (2), pp. 153–170.

Eggan, Fred 1954. “Social Anthropology and the Method of Controlled Comparison”. *American Anthropologist*, 56 (5), pp. 743–763.

Ember, Carol; Ember, Melvin 2009. *Cross-cultural research methods*. Rowman Altamira, Plymouth.

Ember, Carol; Ember, Melvin 1997. “Violence in the Ethnographic Record: Results of Cross-Cultural Research on War and Aggression”. In: Martin, Debra L. and Frayer, David W. (ed.) *Troubled Times: Violence and Warfare in the Past*. Overseas Publishers Association, Amsterdam pp. 1–20.

Ember, Carol R 1990. “Bibliography of cross-cultural research methods”. *Cross-Cultural Research,* 24 (1-4), pp. 141–154.

Ember, Carol R 1983. “Toward explaining human culture: A critical review of the findings of worldwide cross-cultural research”. *American Anthropologist*, 85 (1), pp. 188-189.

Ember, Carol R; Ember, Melvin 1994. “War, Socialization, and Interpersonal Violence A Cross-Cultural Study”. *Journal of Conflict Resolution,* 38 (4), pp. 620–6.46.

Ember, Carol R; Levinson, David 1991. “The substantive contributions of worldwide cross-cultural studies using secondary data”. *Behavior Science Research,* 25 (1-4), pp. 79–140.

Ember, Carol R; Ross, Marc Howard; Burton, Michael L; et al. 1991. “Problems of measurement in cross-cultural research using secondary data”. *Cross-Cultural Research*, 25 (1-4), pp. 187–216.

Ember, Melvin 1988. “The human relations area files: Past and future”. *Cross-Cultural Research*, 22 (1-4), pp. 97–104.

Ember, Melvin; Ember, Carol R 1995. “Worldwide cross-cultural studies and their relevance for archaeology”. *Journal of Archaeological Research*, 3 (1), pp. 87–111.

Ember, Melvin; Otterbein, Keith F 1991. “Sampling in cross-cultural research”. *Cross-Cultural Research*, 25 (1-4), pp. 217–233.

Englund, Robert K 1988. “Administrative timekeeping in ancient Mesopotamia”. *Journal of the Economic and Social History of the Orient*, 31, pp. 121–185.

Erdi, Peter 2008. *Complexity Explained*. Springer-Verlag, Berlin.

Ernest-Jones, Max; Nettle, Daniel; Bateson, Melissa 2011. “Effects of eye images on everyday cooperative behavior: a field experiment”. *Evolution and Human Behavior*, 32 (3), pp. 172–178.

Fehr, Ernst; Fischbacher, Urs 2004. “Social norms and human cooperation”. *Trends in cognitive sciences*, 8 (4), pp. 185–190..

Fehr, Ernst; Gächter, Simon 2002. “Altruistic punishment in humans”. *Nature*, 415 (6868), pp. 137–140.

Feinman, Gary M; Marcus, Joyce 1998. *Archaic states*. School of American Research Press, Santa Fe, NM.

Fillitz, Thomas 2002. “The notion of art: From regional to distant comparison”. In: Fox, Richard G and Gingrich, Andre (ed.) *Anthropology, by comparison*. Routledge, London pp. 204–.224.

Finnegan, Ruth H 2006. “Not by Words Alone: Reclothing the Oral”. In: Cole, Michael and Olson, David (ed.) *Technology, Literacy and the Evolution of Society: Implications of the Work of Jack Goody*. Lawrence Erlbaum Associates, NJ pp. 265–287.

Finnegan, Ruth H 1988. *Literacy and orality: Studies in the technology of communication*. Blackwell, Oxford.

Finsten, Laura 2001. “Late Highland Mesoamerican Preclassic”. In: Peregrine, Peter N.; Ember, Melvin (ed.) *Encyclopedia of Prehistory: Volume 5 Middle Amerca.* Springer Science+Business Media, New York pp. 257–267.

Fischbacher, Urs; Gächter, Simon; Fehr, Ernst 2001. “Are people conditionally cooperative? Evidence from a public goods experiment”. *Economics Letters*, 71 (3), pp. 397–404.

Flad, Rowan K 2008. “Divination and Power”. *Current Anthropology*, 49 (3), pp. 403–437.

Flannery, Kent V 1999. “Process and agency in early state formation”. *Cambridge Archaeological Journal*, 9, pp. 3–21.

Flannery, Kent V 1998. “The ground plans of archaic states”. In: Feinman, Gary M. and Marcus, Joyce (eds.) *Archaic States.* School of American Research Press, Santa Fe, NM. pp. 15–57.

Flannery, Kent V 1972. “The cultural evolution of civilizations”. *Annual review of ecology and systematics*, 3 (1), pp. 399–426.

Flannery, Kent V; Marcus, Joyce 2012. *The Creation of Inequality: How Our Prehistoric Ancestors Set the Stage for Monarchy, Slavery, and Empire*. Harvard University Press, Cambridge, MA.

Foley, Robert 1995. “The adaptive legacy of human evolution: A search for the environment of evolutionary adaptedness”. *Evolutionary Anthropology: Issues, News, and Reviews*, 4 (6), pp. 194–203.

Fowler, James H 2005. “Human cooperation: second-order free-riding problem solved?”. *Nature*, 437 (7058), pp. E8–E8.

Fox, Richard G. 2002. “The study of historical transformation in American anthropology”. In: Fox, Richard G. and Gingrich, Andre (ed.) *Anthropology, by comparison*. Routledge, London pp. 167–184.

Fox, Richard G; Gingrich, Andre 2002a. *Anthropology, by comparison*. Routledge, London.

Fox, Richard G; Gingrich, Andre 2002b. “Introduction”. In: Fox, Richard G and Gingrich, Andre (ed.) *Anthropology, by comparison*. Routledge, London pp. 1–24.

Frank, Steven A 1997. “The Price equation, Fisher’s fundamental theorem, kin selection, and causal analysis”. *Evolution*, 51 (6), pp. 1712–1729.

Frey, Bruno S; Osterloh, Margit 2002. *Successful management by motivation: Balancing intrinsic and extrinsic incentives*. Springer-Verlag, Berlin.

Fried, Morton H 1967. *The evolution of political society: An essay in political anthropology*. Random House, New York.

Gächter, Simon; Herrmann, Benedikt; Thöni, Christian 2010. “Culture and cooperation”. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 365 (1553), pp. 2651–2661.

Gardner, Andy; West, Stuart A 2004. “Cooperation and punishment, especially in humans”. *The American Naturalist*, 164 (6), pp. 753–764.

Gaur, Albertine 1984. *A history of writing*. British Library, London.

Gelb, Ignace Jay 1963. *A study of writing*. University of Chicago Press, Chicago.

Gellner, Ernest 1988. *Plough, book and sword: The structure of human history*. Paladin, London.

Gervais, Will M; Norenzayan, Ara 2012. “Like a camera in the sky? Thinking about God increases public self-awareness and socially desirable responding”. *Journal of Experimental Social Psychology*, 48 (1), pp. 298–302.

Gibbon, Edward 1776. *The History of the Decline and Fall of the Roman Empire*. Strahan & Cadell, London.

Gintis, Herbert; Bowles, Samuel; Boyd, Robert; et al. 2005. *Moral sentiments and material interests: The foundations of cooperation in economic life*. MIT Press, Cambridge, MA.

Gluckman, Max 1960. “The rise of a Zulu empire”. *Scientific American*. 202, pp. 157–168.

Goldberg, Jolande E; Gawdiak, Natalie 2005. *Library of Congress Law Library: an illustrated guide*. Government Printing Office, Washington, D.C.

Goody, Jack 2010. *Myth, ritual and the oral*. Cambridge University Press, Cambridge.

Goody, Jack 2004. “Is Image to Doctrine as Speech to Writing? Modes of Communication and the Origins of Religion”. In: Whitehouse, Harvey; Laidlaw, James (ed.) *Ritual and memory: Toward a comparative anthropology of religion*. Rowman Altamira, Oxford pp. 49–64.

Goody, Jack 2000a. *The power of the written tradition*. Smithsonian Institution Press, Washington, DC.

Goody, Jack 2000b. “Watt, War, and Writing”. *Stanford Humanities Review*. 8 (1), pp. 223–225.

Goody, Jack 1998. “Memory in Oral Tradition”. In: Fara, Patricia and Patterson, Karalyn (ed.) *Memory*. Cambridge University Press, Cambridge pp. 73–94.

Goody, Jack 1987. *The Interface between the Written and the Oral*. Cambridge University Press, Cambridge.

Goody, Jack 1986a. *The logic of writing and the organization of society*. Cambridge University Press, Cambridge.

Goody, Jack 1986b. “Writing, Religion and Revolt in Bahia”. *Visible Language*, 20 (3), pp. 318–43.

Goody, Jack 1981. “Alphabets and writing”. In: Williams, Raymond (ed.) *Contact: human communication and its history*. Thames & Hudson, London pp. 105–126.

Goody, Jack 1977. *The domestication of the savage mind*. Cambridge University Press, Cambridge.

Goody, Jack 1968. *Literacy in traditional societies*. Cambridge University Press, Cambridge.

Goody, Jack; Watt, Ian 1963. “The consequences of literacy”. *Comparative studies in society and history*, 5 (3), pp. 304–345.

Graff, Harvey J 1987. *The labyrinths of literacy: Reflections on literacy past and present*. Falmer Press, Barcombe, UK.

Gray, J Patrick 1996. “Is the standard cross-cultural sample biased? A simulation study”. *Cross-Cultural Research*, 30 (4), pp. 301–315.

Gray, J Patrick 1984. “The influence of female power in marriage on sexual behaviors and attitudes: a holocultural study”. *Archives of sexual behavior*, 13 (3), pp. 223–231.

Gray, J Patrick 1980. “Cross-cultural factors associated with sexual foreplay”. *The Journal of Social Psychology*. Taylor & Francis 111 (1), pp. 3–8.

Gray, J Patrick; Ellington, Jane E 1984. “Institutionalized male transvestism, the couvade, and homosexual behavior”. *Ethos*, 12 (1), pp. 54–63.

Gray, J Patrick; Wolfe, Linda D 1980. “Height and sexual dimorphism of stature among human societies”. *American Journal of Physical Anthropology*, 53 (3), pp. 441–456.

Gray, J Patrick; Wolfe, Linda D 1981. “Parental certainty, subsistence and inheritance revisited”. *Journal of Human Evolution*, 10 (3), pp. 277–280.

Gray, Peter B; Young, Sharon M 2011. “Human-Pet Dynamics in Cross-Cultural Perspective”. *Anthrozoos*, 24 (1), pp. 17–30.

Greenfield, Patricia M 1972. “Oral or written language: The consequences for cognitive development in Africa, the United States and England”. *Language and speech*, 15 (2), pp. 169–178.

Hagmayer, Y.; Sloman, S. A.; Lagnado, D. A. 2007. “Causal reasoning through intervention”. In: Gopnik, Allison and Schulz, L. (ed.) *Causal learning: Psychology,*

philosophy, and computation. Oxford University Press, Oxford pp. 86–100.

Haidt, Jonathan 2012. *The righteous mind: Why good people are divided by politics and religion*. Pantheon Books, New York.

Halverson, John 1992a. “Goody and the Implosion of the Literacy Thesis”. *Man*, 27 (2), pp. 301–317.

Halverson, John 1992b. “Havelock on Greek orality and literacy”. *Journal of the History of Ideas*, 53 (1), pp. 148–163.

Hamilton, Carolyn 1998. *Terrific majesty: the powers of Shaka Zulu and the limits of historical invention*. Harvard University Press, Cambridge.

Hamilton, William D 1997. *Narrow Roads of Gene Land: The Collected Papers of WD Hamilton Vol 1-Evolution of Social Behaviour*. Macmillan Press, New York.

Hamilton, William D 1972. “Altruism and related phenomena, mainly in social insects”. *Annual Review of Ecology and systematics*, 3 (1), pp. 193–232.

Hamilton, William D 1964. “The genetical evolution of social behaviour. II”. *Journal of theoretical biology*, 7 (1), pp. 17–52.

Hammel, Eugene A 1980. “The comparative method in anthropological perspective”. *Comparative Studies in Society and History*, 22 (2), pp. 145–155.

Hamnett, Brian R 2004. *A concise history of Mexico*. Cambridge University Press, Cambridge.

Han, Chungnim C 1949. “Social organization of Upper Han Hamlet in Korea”.

Hardin, Garrett 1968. “The tragedy of the commons”. *Science*, 162 (3859), pp. 1243–1248.

Harris, Marvin 2001. *The rise of anthropological theory: A history of theories of culture*. AltaMira Press, New York.

Harris, William V 1989. *Ancient literacy*. Harvard University Press, Cambridge, MA.

Hatfield, Julie; Faunce, Gavin J; Job, RF Soames 2006. 'Avoiding confusion surrounding the phrase “correlation does not imply causation.". *Teaching of Psychology,* 33, pp. 49-51.

Havelock, Eric A 1963. *Preface to Plato* 1963. Harvard University Press, Cambridge, MA.

Heath, Shirley Brice 1991. “The sense of being literate”. In: Pearson, P David and Barr, Rebecca and Kamil, Michael L (ed.) *Handbook of reading research*. Longman, New York pp. 3–26.

Heath, Shirley Brice 1983. *Ways with words: Language, life and work in communities and classrooms*. Cambridge University Press, Cambridge.

Henrich, Joseph 2009. “The evolution of costly displays, cooperation and religion: Credibility enhancing displays and their implications for cultural evolution”. *Evolution and Human Behavior*, 30 (4), pp. 244–260.

Henrich, Joseph; Gil-White, Francisco J 2001. “The evolution of prestige: Freely conferred deference as a mechanism for enhancing the benefits of cultural transmission”. *Evolution and human behavior*, 22 (3), pp. 165–196.

Henrich, Joseph; Heine, Steven J; Norenzayan, Ara; et al. 2010. “The weirdest people in the world”. *Behavioral and Brain Sciences*, 33 (2-3), pp. 61–83.

Henrich, Joseph; Henrich, Natalie 2007. *Why humans cooperate: A cultural and evolutionary explanation*. Oxford University Press, Oxford.

Henrich, Joseph; Henrich, Natalie 2006. “Culture, evolution and the puzzle of human cooperation”. *Cognitive systems research*, 7 (2), pp. 220–245.

Herkenrath, Mark 2002. “Quantitative Cross-National Analysis as a Research Tool in the Sociology of Developing Countries: A Critical Examination”. *Current Sociology*, 50 (4), pp. 517–530.

Hessler, Peter 2006. *Oracle bones: a journey between China’s past and present*. HarperCollins, London.

Higham, Charles 2013. “Complex Societies of East and Southeast Asia”. In: Scarre, Chris (ed.) *The Human Past: World Prehistory and the Development of Human Societies*. Thames and Hudson, London pp. 553–593.

Hobbes, Thomas; Richard Tuck (ed.) 1991. *Leviathan*. Cambridge University Press, Cambridge.

Hoefnagels, Mariëlle 2009. *Biology: concepts and investigations*. McGraw-Hill Higher Education, New York.

Hogan, Jerry A; Bolhuis, Johan J 2009. *Causal mechanisms of behavioural development*. Cambridge University Press, Cambridge.

Hooker, James T 1990. *Reading the past: Ancient writing from cuneiform to the alphabet*. University of California Press, Oxford.

Houston, Stephen 2004a. “Overture to “The First Writing”“. In: Houston, Stephen (ed.) *The First Writing: Script Invention as History and Process*. Cambridge University Press, Cambridge pp. 3–15.

Houston, Stephen 2004b. “Writing in Early Mesoamerica”. In: Houston, Stephen (ed.) *The First Writing: Script Invention as History and Process*. Cambridge University Press, Cambridge pp. 274–309.

Høyrup, Jens 1991. *Mathematics and early state formation, or, the janus face of early mesopotamian mathematics: Bureaucratic tool and expression of scribal professional autonomy*. Roskilde University Centre, Institute of Communication Research, Educational Research and Theory of Science, Roskilde.

Huber, Brad R; Breedlove, William L 2007. “Evolutionary theory, kinship, and childbirth in cross-cultural perspective”. *Cross-Cultural Research*, 41 (2), pp. 196–219.

Huber, Brad R; Danaher, William F; Breedlove, William L 2011. “New Cross-Cultural Perspectives on Marriage Transactions”. *Cross-Cultural Research*, 45 (4), pp. 339–375.

Huey, Edmund Burke 1908. *The psychology and pedagogy of reading*. The Macmillan Company, New York.

Hull, Brooks B; Bold, Frederick 1994. “Hell, religion, and cultural change”. *Journal of Institutional and Theoretical Economics*, pp. 447–464.

Hume, David 1888. "A Treatise on Human Nature". In: Leby-Bigge, Sir Lewis Amherst (ed.) *Hume’s treatise of human nature*. Clarendon Press, Oxford.

Hupka, Ralph B; Lenton, Alison P; Hutchison, Keith A 1999. “Universal development of emotion categories in natural language”. *Journal of personality and social psychology*, 77 (2), p. 247.

Hutchinson, John 2002. “Two explanations of the dawn chorus compared: how monotonically changing light levels favour a short break from singing”. *Animal Behaviour*, 64 (4), pp. 527–539.

Hyman, Malcolm; Renn, Jürgen 2012. “Survey: From Technology Transfer to the Origins of Science”. In: Renn, Jürgen (ed.) *The Globalization of Knowledge in History*. epubli GmbH.

Izady, Mehrdad R 1992. *The Kurds: A concise handbook*. Crane Russak, Washington, D.C.

Janik, Vincent M; Slater, Peter JB 2000. “The different roles of social learning in vocal communication”. *Animal Behaviour*, 60 (1), pp. 1–11.

Janik, Vincent M; Slater, Peter JB 1997. “Vocal learning in mammals”. *Advances in the Study of Behavior*, 26, pp. 59–99.

Jankowiak, W; Nell, D; Buckmaster, A 2002. “Extra marital affairs: a reconsideration of the meaning and universality of the double standard”. *Journal of Comparative and Cross Cultural Research*, 13 (2), p. 21.

Jarvis, Erich D 2007. “Neural systems for vocal learning in birds and humans: a synopsis”. *Journal of Ornithology*, 148 (1), pp. 35–44.

Johnson, Allen W; Earle, Timothy 2000. *The evolution of human societies: from foraging group to agrarian state*. 2nd. ed. Stanford University Press, Stanford.

Johnson, Dominic 2005. “God’s punishment and public goods”. *Human Nature*, 16 (4), pp. 410–446.

Johnson, Gregory A 1975. “Locational analysis and the investigation of Uruk local exchange systems”. In: Sabloff, Jeremy A. and Lamberg-Karlovsky, C.C. *Ancient Civilization and Trade*. University of New Mexico Press, Albuquerque, pp. 285–339.

Johnson, Gregory Alan 1973. *Local exchange and early state development in southwestern Iran*. Museum of Anthropology, University of Michigan, Ann Arbor.

Johnson, Karen 2004. “Primary emergence of the doctrinal mode of religiosity in prehistoric southwestern Iran”. In: Whitehouse, Harvey and Martin, Luther (ed.) *Theorizing religions past: Historical and archaeological perspectives*. AltaMira Press, Walnut Creek, CA pp. 45–66.

Jordan, Fiona M; Huber, Brad R 2013. “Evolutionary Approaches to Cross-Cultural Anthropology”. *Cross-Cultural Research*, 47 (2), pp. 91–101.

Jordan, Fiona M; van Schaik, Carel; François, Pieter; et al. 2013. “Cultural Evolution of the Structure of Human Groups”. In: Richerson, Peter J, Christiansen, Morten H (ed.) *Cultural Evolution: Society, Technology, Language, and Religion*. MIT Press,

Cambridge, MA pp. 87–116.

Joyce, Arthur A; Winter, Marcus 1996. “Ideology, power, and urban society in pre-Hispanic Oaxaca”. *Current Anthropology*, pp. 33–47.

Justeson, John S 1986. “The origin of writing systems: Preclassic Mesoamerica”. *World Archaeology*, 17 (3), pp. 437–458.

Kaestle, Carl F; Damon-Moore, Helen 1993. *Literacy in the United States: Readers and reading since 1880*. Yale University Press, New Haven, CT.

Keahiolalo-Karasuda, R 2010. “A genealogy of punishment in Hawaii: The public hanging of Chief Kamanawa II”. *Hulili: Multidisciplinary Research on Well-Being*, 6, pp. 147–167.

Keech McIntosh, Susan 1999. “Pathways to complexity: An African perspective”. In: Keech McIntosh, Susan (ed.) *Beyond Chiefdoms: Pathways to Complexity in Africa*. Cambridge University Press, Cambridge pp. 1–30.

Kennedy, GE 2005. “From the ape’s dilemma to the weanling’s dilemma: early weaning and its evolutionary context”. *Journal of Human Evolution*, 48 (2), pp. 123–145.

Kennett, Douglas J; Breitenbach, Sebastian FM; Aquino, Valorie V 2012. “Development and disintegration of Maya political systems in response to climate change”. *Science*, 338 (6108), pp. 788–791.

Keser, Claudia; Van Winden, Frans 2000. “Conditional cooperation and voluntary contributions to public goods”. *The Scandinavian Journal of Economics*, 102 (1), pp. 23–39.

Khaldun, Ibn; Rosenthal, Franz (ed.) 1958. *The Muqaddimah: An Introduction to History*. Pantheon Books, New York.

Kirch, Patrick Vinton 2010. *How chiefs became kings: divine kingship and the rise of archaic states in ancient Hawai’i*. University of California Press, Oakland.

Kirch, Patrick Vinton; Sahlins, Marshall 1994. *Anahulu: The Anthropology of History in the Kingdom of Hawaii, Volume 1: Historical Ethnography*. University of Chicago Press, Chicago.

Kline, Michelle A; Boyd, Robert 2010. “Population size predicts technological complexity in Oceania”. *Proceedings of the Royal Society B: Biological Sciences*, 277 (1693), pp. 2559–2564.

Kobben, AJF; Altschuler, Milton; Bailey, Wilfrid C; et al. 1967. “Why Exceptions? The Logic of Cross-Cultural Analysis [and Comments and Reply]”. *Current Anthropology*, pp. 3–34.

Koch, Klaus-Friedrich; Sodergren, John A; Campbell, Susan 1975. “Political and Psychological Correlates of Conflict Management: A Cross-Cultural Study”. *Law & Society Review*, 10 , p. 445.

Korotayev, Andrey 2007. “Compact mathematical models of World-System development”. In: Modelski, G., Devezas, T., and Thompson, W.R. (ed.) *Globalization as Evolutionary Process: Modeling Global Change*. Routledge, London p. 133.

Kowalewski, Stephen A; Drennan, Robert D 1989. *Prehispanic Settlement Patterns in Tlacolula, Etla, and Ocotlan, the Valley of Oaxaca, Mexico*. Regents of the University of Michigan, the Museum of Anthropology, Ann Arbor.

Kramer, R; Brewer, Marilynn 1986. “Social group identity and the emergence of cooperation in resource conservation dilemmas”. In: Schroeder, D (ed.) *Social Dilemmas: Perspectives on Individuals and Groups*. Praeger, New York pp. 49–67.

Krasnow, Max M; Delton, Andrew W; Tooby, John; et al. 2013. “Meeting now suggests we will meet again: Implications for debates on the evolution of cooperation”. *Scientific reports*, 3, pp. 1–8.

Kristiansen, Kristian; Larsson, Thomas B 2005. *The rise of Bronze Age society*. *Travels, transmissions and transformations*. Cambridge University Press, Cambridge.

Köbben, Andre J 1952. “New ways of presenting an old idea: the statistical method in social anthropology”. *Journal of the Anthropological Institute of Great Britain and Ireland*, pp. 129–146.

Lagacé, Robert O 1979. “The HRAF probability sample: Retrospect and prospect”. *Cross-Cultural Research*, 14 (3), pp. 211–229.

Lagacé, Robert O 1974. *Nature and Use of the HRAF Files: A Research and Teaching Guide.* Human Relations Area Files, New Haven, CT.

Landauer, Thomas K; Whiting, John WM 1964. “Infantile Stimulation and Adult Stature of Human Males1”. *American Anthropologist,* 66 (5), pp. 1007–1028.

Laurin, Kristin; Shariff, Azim F; Henrich, Joseph; et al. 2012. “Outsourcing punishment to God: beliefs in divine control reduce earthly punishment”.

Proceedings of the Royal Society B: Biological Sciences. p. rspb2012.0615.

Lehmann, Laurent; Feldman, Marcus W 2008. “War and the evolution of belligerence and bravery”. *Proceedings of the Royal Society B: Biological Sciences*. The Royal Society 275 (1653), pp. 2877–2885.

Lehmann, Laurent; Rousset, François; Roze, Denis; et al. 2007. “Strong reciprocity or strong ferocity? A population genetic view of the evolution of altruistic punishment”. *The American Naturalist*, 170 (1), pp. 21–36.

LeHoullier, Sara 2010. *Madagascar (Travel Companion)*. Other Places Publishing.

Leimar, Olof; Hammerstein, Peter 2001. “Evolution of cooperation through indirect reciprocity”. *Proceedings of the Royal Society of London. Series B: Biological Sciences*, 268 (1468), pp. 745–753.

Levinson, David 1996. *Encyclopedia of world cultures: Indexes*. G.K. Hall & Company, Boston.

Levinson, David 1990. “Bibliography of substantive worldwide cross-cultural studies”. *Cross-Cultural Research*, 24 (1-4), pp. 105–140.

Levinson, David 1981. “Physical punishment of children and wifebeating in cross-cultural perspective”. *Child Abuse & Neglect*, 5 (2), pp. 193–195.

Levinson, David 1979. “population density in cross-cultural perspective”. *American Ethnologist*, 6 (4), pp. 742–749.

Levinson, David 1978. “Holocultural studies based on the Human Relations Area Files.”. *Behaviour Science Research*, p. 13.

Levinson, David 1977. “What Have We Learned from Cross-Cultural Surveys?”. *American Behavioral Scientist*, 20 (5), pp. 757–92.

Levinson, David; Bennett, Linda A 1992. *Encyclopedia of World Cultures: Europe*. Macmillan, Boston.

Levinson, David; Dow, James W.; Van Kemper, Robert 1995a. *Encyclopedia of world cultures: Middle America and the Caribbean*. G.K. Hall & Company, Boston.

Levinson, David; Middleton, John; Rassam, Amal; et al. 1995b. *Encyclopedia of World Cultures: Africa and the Middle East*. G. K. Hall & Company, New York.

Levinson, David; Friedrich, Paul; Diamond, Norma 1994. *Encyclopedia of World Cultures: Russia and Eurasia, China*. G.K. Hall & Company, Boston.

Levinson, David; Hays, Terence 1991. *Encyclopedia of world cultures: Oceania*. G.K. Hall & Company, Boston.

Levinson, David; Hockings, Paul 1992a. *Encyclopedia of world cultures: East and Southeast Asia*. G.K. Hall & Company, Boston.

Levinson, David; Hockings, Paul 1992b. *Encyclopedia of world cultures: South Asia*. G.K. Hall & Company, New York.

Levinson, David; Malone, Martin J 1980. “Cross-cultural Research”. In: Levinson, David and Malone, Martin J and Brown, Cecil H and Witkowski, Stanley R (ed.) *Toward explaining human culture: A critical review of the findings of worldwide cross-cultural research*. HRAF Press, New Haven, CT pp. 371–377.

Levinson, David; Malone, Martin J. 2000. “Cross-Cultural Research”. In: Sanderson, Stephen (ed.) *Sociological Worlds: Comparative and Historical Readings in Society*. Routledge, London pp. 371–377.

Levinson, David; O’Leary, David 1991. *Encyclopedia of World Cultures: North America*. G. K. Hall & Company, New York.

Levinson, David; Wilbert, Johannes 1994. *Encyclopedia of World Cultures: South America*. G.K. Hall & Company, Boston.

Lévi-Strauss, Claude 1973. *Tristes Tropiques: Translated from the French by John and Doreen Weightman*. Penguin, London.

Lewis, M Paul; others 2009. *Ethnologue: Languages of the world*. SIL International, Dallas, TX.

Lewis, Oscar 1955. “Comparisons in cultural anthropology”. *Yearbook of anthropology*, pp. 259–292.

Lewis-Williams, J David; Pearce, David G 2005. *Inside the Neolithic mind: Consciousness, cosmos and the realm of the gods*. Thames & Hudson, London.

Lieberman, Erez; Hauert, Christoph; Nowak, Martin A 2005. “Evolutionary dynamics on graphs”. *Nature*, 433 (7023), pp. 312–316.

Lincoln, Abraham; Basler, Roy P. (ed.) 1953. *Collected works. The Abraham Lincoln Association, Springfield, Illinois*. Rutgers University Press, New Brunswick, NJ.

Linnekin, Jocelyn 1991. “Hawaii”. In: Levinson, David; Hays, Terence (ed.) *Encyclopedia of world cultures.* GK Hall, Boston pp. 95–97.

Lock, Andy; Gers, Matt 2012. “The Cultural Evolution of Written Language and Its Effects: A Darwinian Process from Prehistory to the Modern Day”. In: Grigorenko, Elena and Mambrino, Elisa and Preiss, David (ed.) *Writing: A mosaic of new perspectives*. Psychology Press, New York pp. 11–36.

Lockridge, Kenneth A 1974. *Literacy in colonial New England: An enquiry into the social context of literacy in the early modern West*. Norton, New York.

Mace, Ruth; Pagel, Mark; Bowen, John R; et al. 1994. “The comparative method in anthropology [and comments and reply]”. *Current Anthropology*, 35 (5), pp. 549–564.

MacGregor, Neil 2012. “Early Writing Tablet”. Retrieved 1/5/2012 from http://www.bbc.co.uk/programmes/b00qb5y1.

Maiskii, I 1921. “Sovremennaia Mongolia (Contemporary Mongolia)”. In: *Irkutsk: Gosudarstvennoe Izdatel’stvo, Irkutskoe Otedelenie*.

Malpass, Roy S 1979. “Theory and method in cross-cultural psychology clarified: Response to Otterbein and to Wagner & Davis.”. *American Psychologist*, 34 (5), p. 444.

Mann, Michael 1986. *The Sources of Social Power, Volume 1: A History of Power from the Beginning to A. D. 1760.* Cambridge University Press, Cambridge.

Marcus, Joyce 1992. *Mesoamerican writing systems: Propaganda, myth, and history in four ancient civilizations*. Princeton University Press, Princeton.

Marcus, Joyce 1976. “The origins of Mesoamerican writing”. *Annual Review of Anthropology*, pp. 35–67.

Marcus, Joyce 1973. “Territorial organization of the lowland Classic Maya”. *Science*, 180 (4089), pp. 911–916.

Marlowe, Frank W 2005. “Hunter-gatherers and human evolution”. *Evolutionary Anthropology: Issues, News, and Reviews*, 14 (2), pp. 54–67.

Martin, Henri-Jean 1995. *The history and power of writing*. University of Chicago Press, Chicago.

Marx, Karl; Friedrich, Engels 1998. *The German Ideology*. Prometheus, Amherst, MA.

Masumura, Wilfred T 1977a. “Law and violence: A cross-cultural study”. *Journal of Anthropological Research and Southwestern Journal of Anthropology*, 33 (4), pp. 388–399.

Masumura, Wilfred T 1977b. “Social Integration and Suicide: A Test of Durkheim’s Theory”. *Cross-Cultural Research*, 12 (4), pp. 251–269.

Mayr, Ernst 1961. “Cause and Effect in Biology Kinds of causes, predictability, and teleology are viewed by a practicing biologist”. *Science,* 134 (3489), pp. 1501–1506.

McCall, Lauren W 2009. “Studying Cultural Evolution at the Tips: Human Cross-cultural Ecology”. *Evolution: Education and Outreach*, 2 (1), pp. 55–62.

McCandliss, Bruce D; Cohen, Laurent; Dehaene, Stanislas 2003. “The visual word form area: expertise for reading in the fusiform gyrus”. *Trends in cognitive sciences*, 7 (7), pp. 293–299.

McCauley, Robert N 2000. “The naturalness of religion and the unnaturalness of science”. In: Keil, Frank C. and Wilson, Robert Andrew (ed.) *Explanation and cognition*. MIT Press, Cambridge, MA pp. 61–85.

McElreath, Richard; Henrich, Joseph 2007. “Modelling cultural evolution”. In: Dunbar, RIM; Barrett, L. (eds.) *Oxford handbook of evolutionary psychology*. Oxford University Press, Oxford pp. 571–585.

McGrath, Janet W 1991. “Biological impact of social disruption resulting from epidemic disease”. *American Journal of Physical Anthropology*, 84 (4), pp. 407–419.

McGregor, Davianna 2007. *Na Kua’aina: Living Hawaiian Culture*. University of Hawaii Press, Honolulu.

McLuhan, Marshall 1963. *The Gutenberg Galaxy*. University of Toronto, Toronto.

McLuhan, Marshall; Fiore, Quentin 1967. *The medium is the message*. Bantam Books, New York.

Melis, Alicia P; Semmann, Dirk 2010. “How is human cooperation different?”. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 365 (1553), pp. 2663–2674.

Mesoudi, Alex 2011. *Cultural evolution: how Darwinian theory can explain human culture and synthesize the social sciences*. University of Chicago Press, Chicago.

Mesoudi, Alex; Laland, Kevin N.; Boyd, Robert; et al. 2013. “The Cultural Evolution of Technology and Science”. In: Richerson, Peter J. and Christiansen, Morten H. (ed.) *Cultural Evolution: Society, Technology, Language, and Religion*. MIT Press, Cambridge, MA pp. 193–.216.

Mesoudi, Alex; Whiten, Andrew; Laland, Kevin N; et al. 2006. “Towards a unified science of cultural evolution”. *Behavioral and Brain Sciences*, 29 (4), pp. 329–346.

Michalowski, Piotr 2003. “The Earliest Scholastic Tradition?”. In: Aruz, Joan and Wallenfels, Ronald (ed.) *Art of the First Cities: The Third Millennium B. C. from the Mediterranean to the Indus*. Yale University Press, New Haven pp. 451–478.

Michalowski, Piotr 1994. “Writing and literacy in early states: A Mesopotamianist perspective”. In: Keller-Cohen, Deborah (ed.) *Literacy: Interdisciplinary Conversations*. Hampton Press, Cresskill, NJ pp. 49–70.

Middleton, John; Miller, Joseph Calder 2007. *New encyclopedia of Africa*. Charles Scribner’s Sons, Detroit.

Mitani, John C 1994. “Ethological studies of chimpanzee vocal behavior”. In: Wrangham, Richard W. and McGrew, W.C. and de Waal, Frans and Heltne, Paul (ed.) *Chimpanzee cultures*. Chicago Academy of Sciences, Chicago pp. 195–.210.

Mitani, John C; Hasegawa, Toshikazu; Gros-Louis, Julie; et al. 1992. “Dialects in wild chimpanzees?”. *American Journal of Primatology*, 27 (4), pp. 233–243.

Mitani, John C; Hunley, KL; Murdoch, ME 1999. “Geographic variation in the calls of wild chimpanzees: a reassessment”. *American Journal of Primatology*, 47, pp. 133–151.

Mithen, Steven 2004. “From Ohalo to Çatalhöyük: The development of religiosity during the early prehistory of western Asia, 20,0.00-7,000 BCE”. In: Whitehouse, Harvey; Martin, Luther (ed.) *Theorizing religions past: Archaeology, history and cognition*. AltaMira Press, Walnut Creek, CA pp. 17–43.

Moor, Nienke; Ultee, Wout; Need, Ariana 2009. “Analogical Reasoning and the Content of Creation Stories Quantitative Comparisons of Preindustrial Societies”. *Cross-Cultural Research*, 43 (2), pp. 91–122.

Moore, Fhionna R; Cassidy, Clare 2007. “Female status predicts female mate preferences across nonindustrial societies”. *Cross-Cultural Research*. Sage

Publications 41 (1), pp. 66–74.

Morgan, Lewis Henry 1877. *Ancient Society: Or, Researches in the Lines of Human Progress from Savagery, Through Barbarism to Civilization*. Charles H. Kerr & Company, Chicago.

Moritz, Mark; Giblin, Julia; Ciccone, Miranda; et al. 2011. “Social risk-management strategies in pastoral systems: a qualitative comparative analysis”. *Cross-Cultural Research*, 45 (3), pp. 286–317.

Morley, Ian 2012. “Hominid physiological evolution and the emergence of musical capacities”. In: Bannan, N (ed.) *Music, Language, and Human Evolution*. Oxford University Press, Oxford pp. 109–141.

Morris, Ian 2013. *The Measure of Civilization: How Social Development Decides the Fate of Nations*. Princeton University Press, Princeton, NJ.

Morse, Janice M; Jehle, Corinne; Gamble, Diane 1990. “Initiating breastfeeding: a world survey of the timing of postpartum breastfeeding”. *International Journal of Nursing Studies*, 27 (3), pp. 303–313.

Mullins, Daniel A; Whitehouse, Harvey; Atkinson, Quentin D 2013. “The role of writing and recordkeeping in the cultural evolution of human cooperation”. *Journal of Economic Behavior & Organization*, 90 (S), pp. S141–S151.

Munroe, Robert L; Munroe, Ruth H 1991. “Comparative field studies: Methodological issues and future possibilities”. *Cross-Cultural Research*, 25 (1-4), pp. 155–185.

Murdock, George P; Provost, Caterina 1973. “Measurement of cultural complexity”. *Ethnology*, 12 (4), pp. 379–392.

Murdock, George P; White, Douglas R 1969. “Standard cross-cultural sample”. *Ethnology*, 8 (4), pp. 329–369.

Murdock, George Peter 1981. *Atlas of world cultures*. University of Pittsburgh Press, Pittsburgh.

Murdock, George Peter 1967. “Ethnographic atlas: A summary”. *Ethnology*, 6 (2), pp. 109–236.

Murdock, George Peter 1977. “Major emphases in my comparative research”. *Cross-Cultural Research*, 12 (4), pp. 217–221.

Murdock, George Peter 1949. *Social structure*. Collier-Macmillan Limited, London.

Naroll, Raoul 1965. “Galton’s problem: The logic of cross-cultural analysis”. *Social Research*, pp. 428–451.

Naroll, Raoul 1967. “The proposed HRAF probability sample”. *Cross-Cultural Research*, 2 (2), pp. 70–80.

Naroll, Raoul; Michik, Gary L.; Naroll, Frada 1974. “Comparative Studies by Harold E. Driver and Essays in His Honor”. In: Jorgensen, Joseph G. (ed.) *Hologeistic Theory Testing*. HRAF Press, New Haven, CT pp. 121–148.

Nelson, Edmund Anthony Severn; Schiefenhoevel, Wulf; Haimerl, Felizitas 2000. “Child care practices in nonindustrialized societies”. *Pediatrics*, 105 (6), pp. e75–e75.

Nesse, Randolph M 2013. “Tinbergen’s four questions, organized: a response to Bateson and Laland.”. *Trends in ecology & evolution*. 28 (23), pp. 681–682.

Nettle, Daniel 2009. “Ecological influences on human behavioural diversity: a review of recent findings”. *Trends in ecology & evolution*, 24 (11), pp. 618–624.

Nissen, Hans 2002. “Uruk: key site of the period and key site of the problem”. In: Postgate, N. (ed.) *Artefacts of Complexity: Tracking the Uruk in the Near East*. British School fo Archaeology in Iraq, Baghdad, Iraq.

Nissen, Hans J 1986. “The archaic texts from Uruk”. *World Archaeology*, 17 (3), pp. 317–334.

Nissen, Hans J; Damerow, Peter; Englund, Robert K 1993. *Archaic bookkeeping: writing and techniques of economic administration in the ancient Near East. Translated by Paul Larsen*. University of Chicago Press, Chicago, IL.

Norenzayan, Ara 2013. *Big gods: How religion transformed cooperation and conflict*. Princeton University Press, Oxford.

Nowak, Martin A; Sigmund, Karl 1998. “Evolution of indirect reciprocity by image scoring”. *Nature*, 393 (6685), pp. 573–577.

OED 2014. ““shibboleth, n.””. Oxford University Press, Oxford. Retrieved 15/5/2014 from http://www.oed.com/view/Entry/178050?redirectedFrom=shibboleth .

Olivero, J Michael 1990. “Research notes—A new look at the evolution of police structure”. *Journal of Criminal Justice*, 18 (2), pp. 171–175.

Olson, David R; Torrance, Nancy 2009. *The Cambridge handbook of literacy*. Cambridge University Press, Cambridge.

Ong, Walter 1982. *Orality and literacy: The technologization of the word*. Methuen, London.

Ostrom, Elinor; Gardner, Roy; Walker, James 1994. *Rules, games, and common-pool resources*. University of Michigan Press, Ann Arbor.

Otterbein, Charlotte S 1978. “Methods in cross-cultural psychology”. *American Psychologist*, 33 (9), p. 857.

Otterbein, Keith F 1969. “Basic steps in conducting a cross-cultural study”. *Cross-Cultural Research*, 4 (3), pp. 221–236.

Owens, Patrick A 2008. “A Case Study of the eHRAF Collection of Ethnography Database in the Middle East”. *Behavioral & Social Sciences Librarian*, 26 (3), pp. 21–32.

Panchanathan, Karthik; Boyd, Robert 2004. “Indirect reciprocity can stabilize cooperation without the second-order free rider problem”. *Nature*, 432 (7016), pp. 499–502.

Parman, Susan 2002. “Lot’s wife and the old salt: Cross-cultural comparisons of attitudes toward salt in relation to diet”. *Cross-Cultural Research*, 36 (2), pp. 123–150.

Parry, Jonathan; Bloch, Maurice 1989. *Money and the Morality of Exchange*. Cambridge University Press, Cambridge.

Pelto, Gretel H; Zhang, Yuanyuan; Habicht, Jean-Pierre 2010. “Premastication: the second arm of infant and young child feeding for health and survival?”. *Maternal & Child Nutrition*, 6 (1), pp. 4–18.

Perry, Linda; Flannery, Kent V 2007. “Precolumbian use of chili peppers in the Valley of Oaxaca, Mexico”. *Proceedings of the National Academy of Sciences*, 104 (29), pp. 11905.–11909..

Petersen, Larry R; Lee, Gary R; Ellis, Godfrey J 1982. “Social structure, socialization values, and disciplinary techniques: A cross-cultural analysis”. *Journal of Marriage and the Family*, pp. 131–142.

Pfaffenberger, Bryan 1992. “Social anthropology of technology”. *Annual review of Anthropology*, pp. 491–516.

Plato 2004. *Phaedrus*. Digibooks.

Platt, Michael L; Adams, Geoffrey K 2012. “Monkey see, monkey read”. *Science*, 336 (6078), pp. 168–169.

Pollet, Thomas V; Tybur, Joshua M; Frankenhuis, Willem E; et al. 2014. “What can cross-cultural correlations teach us about human nature?”. *Human Nature*, pp. 1–20.

Postgate, Nicholas; Wang, Tao; Wilkinson, Toby 1995. “The evidence for early writing: utilitarian or ceremonial?”. *Antiquity*, 69 (264), pp. 459–480.

Powell, Barry B 2012. *Writing: theory and history of the technology of civilization*. John Wiley & Sons, Oxford.

Powell, Marvin A 1981. “Three problems in the history of Cuneiform Writing: Origins, Direction of Script, Literacy”. *Visible Language,* 15 (4), pp. 419–4.40.

Price, J Jordan; Friedman, Nicholas R; Omland, Kevin E 2007. “Song and plumage evolution in the new world orioles (Icterus) show similar lability and convergence in patterns”. *Evolution*, 61 (4), pp. 850–863.

Proussakov, Dmitry 2001. “Early Dynastic Egypt”. In: Peregrine, Peter N.; Ember, Melvin (ed.) *Encyclopedia of Prehistory.* Springer Science+Business Media, New York pp. 77–85.

Pyysiäinen, Iikka 2009. *Supernatural agents: Why we believe in souls, gods, and Buddhas*. Oxford University Press, Oxford.

Pyysiäinen, Ilkka 1999. “Holy Book-A Treasury of the Incomprehensible. The Invention of Writing and Religious Cognition”. *NUMEN*, 46 (3), pp. 269–290.

Quilter, Jeffrey 2010. *The Moche of ancient Peru: Media and messages*. Peabody Museum Press, Cambridge, MA.

Quinlan, Robert J; Quinlan, Marsha B 2007. “Cross-cultural analysis in evolution and human behavior studies”. *Cross-Cultural Research: The Journal of Comparative Social Science*, 41 (2), pp. 91–95.

Raven, Diederick 2001. “How not to explain the Great Divide”. *Social science information*, 40 (3), pp. 373–409.

Raybeck, Douglas; Ngo, Paul YL 2011. “Behavior and the Brain: Mediation of Acquired Skills”. *Cross-Cultural Research*, 45 (2), pp. 178–207..

Rayner, Keith; Pollatsek, Alexander W 2012. *The psychology of reading: 2nd Edition*. Routledge, New York.

Reddish, Paul; Bulbulia, Joseph; Fischer, Ronald 2013. “Does synchrony promote generalized prosociality?”. *Religion, Brain and Behavior*, 4 (1), pp. 3–19.

Reece, Jane B; Urry, Lisa A; Cain, Michael Lee; et al. 2011. *Campbell Biology*. 9th. ed. Pearson, Boston.

Reichenbach, Hans 1956. *The Direction of Time*. University of California Press, Berkeley.

Renfrew, Colin; Todd, Ian; Tringham, Ruth 1974. “Beyond a subsistence economy: The evolution of social organization in prehistoric Europe”. *Bulletin of the American Schools of Oriental Research. Supplementary Studies*, pp. 69–95.

Renn, Jürgen 2012. *The Globalization of Knowledge in History*. epubli GmH.

Renn, Jürgen; Hyman, Malcolm 2012. “Introduction”. In: Renn, Jürgen (ed.) *The Globalization of Knowledge in History*. epubli GmbH.

Richerson, Peter; Boyd, Robert 1998. “The evolution of human ultrasociality”. In: Eibl-Eibesfeldt, I. and Salter F. K. (eds.) *Ethnic Conflict and Indoctrination*. Berghahn Books, Oxford pp. 71–95.

Richerson, Peter J; Boyd, Robert 2000. “Evolution: The Darwinian Theory of Social Change, An Homage to Donald T. Campbell”. In: Schelkle, Waltraud; Krauth, Wolf-Hagan; Kohli, Martin; Elwert, Goerg (ed.) *Social Change: Modernization, Development, Transformation, Evolution*. St. Martin’s Press, New York pp. 257–282.

Richerson, Peter J; Boyd, Robert 2005. *Not by genes alone: How culture transformed human evolution*. University of Chicago Press, Chicago.

Rintamäki, Hannu 2007. “Human responses to cold”. *Alaska medicine*. 49 (2 Supplement), pp. 29–31.

Roberts, John M; Forman, Michael L 1971. “Riddles: Expressive models of interrogation”. *Ethnology*, pp. 509–533.

Robinson, Alonford James 2005. “Zulu”. In: Appiah, Kwame Anthony and Gates Jr, Henry Louis (eds.) *Africana: The encyclopedia of the African and African American experience*. Oxford University Press.

Roes, Frans L; Raymond, Michel 2003. “Belief in moralizing gods”. *Evolution and human behavior*, 24 (2), pp. 126–135.

Rogers, Henry 2004. *Writing Systems: A Linguistic Approach*. Blackwells, Oxford.

Rogoff, Barbara; Sellers, Martha Julia; Pirrotta, Sergio; et al. 1975. “Age of assignment of roles and responsibilities to children”. *Human Development*, 18 (5), pp. 353–369.

Rohde, Douglas LT; Olson, Steve; Chang, Joseph T 2004. “Modelling the recent common ancestry of all living humans”. *Nature*, 431 (7008), pp. 562–566.

Rohner, Ronald P 1977. “Advantages of the comparative method of anthropology”. *Cross-Cultural Research*, 12 (2), pp. 117–144.

Rohner, Ronald P; Naroll, Raoul; Barry, Herbert; et al. 1978. “Guidelines for holocultural research”. *Current Anthropology*, pp. 128–129.

Rohner, Ronald Preston 1975. *They love me, they love me not: A worldwide study of the effects of parental acceptance and rejection*. HRAF Press, New Haven, CT.

Ross, Marc Howard; Homer, Elizabeth 1976. “Galton’s problem in cross-national research”. *World Politics*, 29 (1), pp. 1–28.

Rousseau, Jean-Jacques; Cranston, Maurice (eds.) 1984. *Discourse on Inequality*. Penguin Books Ltd, London.

Rubenstein, D; Kealey, J 2012. “Cooperation, conflict, and the evolution of complex animal societies”. *Nature Education Knowledge*. 3, p. 78.

Russell, James A 1991. “Culture and the categorization of emotions.”. *Psychological bulletin*. American Psychological Association 110 (3), p. 426.

Sampson, Geoffrey 1985. *Writing systems: A linguistic introduction*. Stanford University Press, Stanford.

Sanderson, Stephen K; Roberts, Wesley W 2008. “The Evolutionary Forms of the Religious Life: A Cross-Cultural, Quantitative Analysis”. *American Anthropologist*, 110 (4), pp. 454–466.

Scarre, Chris 2013. “The World Transformed: From Foragers and Farmers to States and Empires”. In: Scarre, Chris (ed.) *The Human Past: World Prehistory and the Development of Human Societies*. Thames & Hudson Ltd, London pp. 176–199..

Schacht, Robert M 1988. “Circumscription Theory A Critical Review”. *American Behavioral Scientist*, 31 (4), pp. 438–448.

Schaefer, James M; Levinson, David 1977. “The growth of hologeistic studies: 1889-1975.”. *Cross-Cultural Research*, 12 (2), pp. 71–108.

Schapera, Isaac 1953. “Some comments on comparative method in social anthropology”. *American Anthropologist*, 55 (3), pp. 353–362.

Schmandt-Besserat, Denise 1996. *How writing came about*. University of Texas Press, Austin.

Schmandt-Besserat, Denise 1986. “An ancient token system: The precursor to numerals and writing”. *Archaeology*. Archaeological Institute of America, 39 (6), pp. 32–39.

Schrauf, Robert W 1999. “Mother tongue maintenance among North American ethnic groups”. *Cross-Cultural Research*, 33 (2), pp. 175–192..

Schwabach, Aaron 2003. “Non-Western Philosophies of Law”. In: Schwabach, Aaron and Cockfield, Arthur John (ed.) *Encyclopedia of Life Support Systems (EOLSS)*. Eolss Publishers, Oxford.

Schwartz, G 1992. “Rice and Population in Eighteenth Century Madagascar, Analyzing Archaeological Evidence of the Subsistence Economy on the Central Highlands”.

Scott-Phillips, Thomas C; Dickins, Thomas E; West, Stuart A 2011. “Evolutionary theory and the ultimate-proximate distinction in the human behavioral sciences”. *Perspectives on Psychological Science*, 6 (1), pp. 38–47.

Scribner, Sylvia; Cole, Michael 1981. *The psychology of literacy*. Harvard University Press, Cambridge, MA.

Seeley, Thomas D 2009. *The wisdom of the hive: the social physiology of honey bee colonies*. Harvard University Press, Cambridge, MA.

Seeley, Thomas D; Camazine, Scott; Sneyd, James 1991. “Collective decision-making in honey bees: how colonies choose among nectar sources”. *Behavioral Ecology and Sociobiology*, 28 (4), pp. 277–290.

Senner, Wayne M 1989. “Theories and myths on the origins of writing: A historical overview”. In: Senner, Wayne M (ed.) *The origins of writing*. University of Nebraska Press, Lincoln pp. 1–26.

Service, Elman Rogers 1977. “Classical and modern theories of the origins of government”. In: Service, ER and Cohen, R (ed.) *Origins of the State: The Anthropology of Social Evolution*. Institute for the Study of Human Issues, Philadelphia pp. 21–34.

Service, Elman Rogers 1962. *Primitive social organization: An evolutionary perspective*. Random House, New York.

Shalinsky, Audrey; Glascock, Anthony 1988. “Killing infants and the aged in nonindustrial societies: Removing the liminal”. *The Social Science Journal*, 25 (3), pp. 277–287.

Sharer, Robert 2001. “Classic Maya”. In: Peregrine, Peter N. and Ember, Melvin (eds.) *Encyclopedia of Prehistory*. Springer Science+Business Media, New York pp. 69–81.

Sharer, Robert J 2006. *The Ancient Maya*. Stanford University Press, Stanford, CA.

Shariff, Azim F; Norenzayan, Ara 2011. “Mean gods make good people: Different views of God predict cheating behavior”. *The International Journal for the Psychology of Religion*, 21 (2), pp. 85–96.

Shaw, Ian 2000. *The Oxford history of ancient Egypt*. Oxford University Press, Oxford.

Shay, Talia 1985. “Differentiated treatment of deviancy at death as revealed in anthropological and archeological material”. *Journal of anthropological archaeology*, 4 (3), pp. 221–241.

Sidky, MH 1993. “Irrigation and the political evolution of the high-mountain kingdom of Hunza”. *Asian Affairs*, 24 (2), pp. 131–144.

Simmons, Beth A 1998. “Compliance with international agreements”. *Annual Review of Political Science*, 1 (1), pp. 75–93.

Sipes, Richard G 1973. “War, Sports and Aggression: An Empirical Test of Two Rival Theories”. *American Anthropologist*, 75 (1), pp. 64–86.

Sithole, Mpilo Pearl 2002. “Encyclopedia of World Cultures”. In: Ember, Melvin; Ember, Carole R.; Skoggard, Ian (eds.) Macmillan Reference USA, New York pp. 389–393.

Sjoberg, Gideon 1960. *The preindustrial city: past and present*. Free Press, New York.

Skelton, Christina 2008. “Methods of Using Phylogenetic Systematics to Reconstruct the History of the Linear B Script”. *Archaeometry*, 50 (1), pp. 158–176.

Skoggard, Ian; Ember, Carol R; Ember, Melvin 2002. *Encyclopedia of World Cultures: Supplement*. Macmillan Reference USA, London.

Slingerland, Edward; Collard, Mark 2011. *Creating Consilience: Integrating the Sciences and the Humanities*. Oxford University Press, Oxford.

Smith, Adam Daniel 2013. “Are Writing Systems Intelligently Designed?”. In: Englehardt, Joshua (ed.) *Agency in Ancient Writing*. University Press of Colorado, Boulder pp. 71–94.

Smith, Adam Daniel 2008. “Writing at Anyang: the role of the divination record in the emergence of Chinese literacy”. ProQuest.

Snedegar, KV 1995. “Stars and seasons in Southern Africa”. *Vistas in Astronomy*, 39 (4), pp. 529–538.

Snowdon, Charles T 2001. “Social processes in communication and cognition in callitrichid monkeys: a review”. *Animal Cognition*, 4 (3-4), pp. 247–257.

Snowling, Margaret J; Hulme, Charles 2005. *The science of reading: A handbook*. Blackwell, Oxford.

Sober, Elliott; Wilson, David Sloan 1999. *Unto others: The evolution and psychology of unselfish behavior*. Harvard University Press, Cambridge, MA.

Sobiech, Cilli 2012. *Agent-based Simulation of Vulnerability Dynamics: A Case Study of the German North Sea Coast*. Springer, London.

Somersan, Semra 1984. “Death symbolism in matrilineal societies”. *Ethos*, 12 (2), pp. 151–164.

Somervill, Barbara A 2009. *Empires of Ancient Mesopotamia*. Infobase Publishing, New York.

Sosis, Richard; Kress, Howard C; Boster, James S 2007. “Scars for war: Evaluating alternative signaling explanations for cross-cultural variance in ritual costs”. *Evolution and Human Behavior*, 28 (4), pp. 234–247.

Spencer, Charles S 1998. “A mathematical model of primary state formation”. *Cultural Dynamics*, 10 (1), pp. 5–20.

Spencer, Charles S; Redmond, Elsa M 2004. “Primary state formation in Mesoamerica”. *Annual Review of Anthropology*, pp. 173–199..

Spiegelman, Donna 2010. “Commentary: some remarks on the seminal 1904 paper of Charles Spearman “The proof and measurement of association between two things”“. *International journal of epidemiology*, 39 (5), pp. 1156–1159.

Sproat, Richard William 2000. *A computational theory of writing systems*. Cambridge University Press, Cambridge.

Stanish, Charles 2001. “The origin of state societies in South America”. *Annual Review of Anthropology*, pp. 41–64.

Stein, Gil 2009. “Foreword”. In: Powell, Barry B (ed.) *Writing: theory and history of the technology of civilization*. John Wiley & Sons, Oxford p. 7.

Steward, Julian Haynes 1972. *Theory of culture change: The methodology of multilinear evolution*. University of Illinois Press, Urbana-Champaign.

Strathern, Marilyn 2002. “Foreword: Not giving the game away”. In: Fox, Richard G and Gingrich, Andre (ed.) *Anthropology, by comparison*. Routledge, London pp. xiii–xvii.

Street, Brian V 2011. “Literacy inequalities in theory and practice: The power to name and define”. *International Journal of Educational Development*, 31 (6), pp. 580–586.

Street, Brian 2009. “Ethnography of Writing and Reading”. In: Olson, David R and Torrance, Nancy (eds.) *The Cambridge handbook of literacy*. Cambridge University Press, Cambridge pp. 329–345.

Street, Brian V 2006a. “Understanding and defining literacy”. In: *Background Paper for EFA Global Monitoring Report*.

Street, Brian V 2006b. “Autonomous and ideological models of literacy: Approaches from New Literacy Studies”. *Media Anthropology Network*. pp. 17–24.

Street, Brian V 1993. *Cross-cultural approaches to literacy*. Cambridge University Press, Cambridge.

Street, Brian V 1984. *Literacy in theory and practice*. Cambridge University Press, Cambridge.

Street, Brian; Besnier, Niko 1994. “Aspects of literacy”. In: Ingold, Tim (ed.) *Companion Encyclopedia of Anthropology: Humanity, Culture, and Social Life*. Routledge, London pp. 527–562.

Sumpter, David JT 2006. “The principles of collective animal behaviour”. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 361 (1465), pp. 5–22.

Swann, William B; Jetten, Jolanda; Gómez, Angel; et al. 2012. “When group membership gets personal: A theory of identity fusion”. *Psychological Review*, 119 (3), p. 441.

Swanson, Eleanor C 1980. “A Note about Temporal Foci in the HRAF Probability Sample Files”. *Cross-Cultural Research*. Sage Publications 15 (4), pp. 295–307.

Swanson, Guy E 1964. *The birth of the gods: the origin of primitive beliefs*. University Michigan Press, Ann Arbor.

Taylor, Isaac 1883. *The alphabet: an account of the origin and development of letters*. K. Paul, Trench & Company, London.

Theraulaz, Guy; Bonabeau, Eric; Nicolis, Stamatios C; et al. 2002. “Spatial patterns in ant colonies”. *Proceedings of the National Academy of Sciences,* 99 (15), pp. 9645–9649.

Thomas, Rosalind 1992. *Oral tradition and written record in classical Athens*. Cambridge University Press, Cambridge.

Thornhill, Nancy Wilsem 1991. “An evolutionary analysis of rules regulating human inbreeding and marriage”. *Behavioral and Brain Sciences*. 14, pp. 247–293.

Tinbergen, Niko 1963. “On aims and methods of ethology”. *Zeitschrift für Tierpsychologie*, 20 (4), pp. 410–433.

Toliver, Susan D 2004. “Zulu”. In: Salamone, Frank A. (ed.) *Encyclopedia of religious rites, rituals, and festivals*. Routledge, London pp. 455–457.

Tooby, John; Cosmides, Leda 2005. “Conceptual Foundations of Evolutionary Psychology”. In: Buss, David M (ed.) *The handbook of evolutionary psychology*. John Wiley & Sons, Hoboken, NJ pp. 5–63.

Tracey, Diane H; Morrow, Lesley Mandel 2012. *Lenses on reading: An introduction to theories and models*. Guilford Press, New York.

Trigger, Bruce G 2003. *Understanding early civilizations: A comparative study*. Cambridge University Press, Cambridge.

Trigger, Bruce G 1998. “Writing systems: A case study in cultural evolution”. *Norwegian archaeological review*, London 31 (1), pp. 39–62.

Trigger, Bruce G 2004. “Writing systems: a case study in cultural evolution”. In: Houston, Stephen (ed.) *The First Writing: Script Invention as History and Process.* Cambridge University Press, Cambridge pp. 39–70.

Trivers, Robert L 1971. “The evolution of reciprocal altruism”. *Quarterly review of biology*, 46 (1), pp. 35–57.

Turchin, Peter 2013a. “Chiefs and Indians”. *The Times Literary Supplement*.

Turchin, Peter 2013b. “The Puzzle of Human Ultrasociality: How Did Large-Scale Complex Societies Evolve?”. In: Richerson, Peter and Christiansen, Morten (ed.) *Cultural Evolution: Society, Technology, Language, and Religion*. MIT Press, Cambridge, MA pp. 61–73.

Turchin, Peter 2007. *War and Peace and War: The Rise and Fall of Empires*. Plume, New York.

Turchin, Peter 2003. *Historical Dynamics: Why States Rise and Fall*. Princeton University Press, Princeton, NJ.

Turchin, Peter; Whitehouse, Harvey; Francois, Pieter; et al. 2012. “A Historical Database of Sociocultural Evolution”. *Cliodynamics: The Journal of Theoretical and Mathematical History*, 3 (2), pp. 271–293.

Tyler, Tom R 2010. *Why people cooperate: The role of social motivations*. Princeton University Press, Princeton.

Tyler, Tom R; Huo, Yuen 2002. *Trust in the Law: Encouraging Public Cooperation with the Police and Courts Through*. Russell Sage Foundation, New York.

Tylor, Edward B 1889. “On a method of investigating the development of institutions; applied to laws of marriage and descent”. *Journal of the Anthropological Institute of Great Britain and Ireland*, pp. 245–272.

Vaughn, Keven J.; Eerkens, Jelmer W.; Kantner, John 2010. *The Evolution of Leadership: Transitions in Decision Making from Small-Scale to Middle-Range Societies*. SAR Press, Santa Fe.

Veneziano, Rob 2000. “Are Cross-Cultural Codes FOR Paternal Proximity AND Paternal Warmth Measuring Similar Phenomena?”. *World Cultures*, 11 (2), pp. 138–151.

Wagner, Daniel A; Davis, Douglas A 1978. “The necessary and the sufficient in cross-cultural research”. *The American psychologist*, 33 (9), p. 857.

Walker, Mike; Johnsen, Sigfus; Rasmussen, Sune Olander; et al. 2009. “Formal definition and dating of the GSSP (Global Stratotype Section and Point) for the base of the Holocene using the Greenland NGRIP ice core, and selected auxiliary records”. *Journal of Quaternary Science*, 24 (1), pp. 3–17.

Walker, Willard 1981. “Native American writing systems”. In: Ferguson, C. A. and Heath, Shirley Brice (eds.) *Language in the USA*. Cambridge University Press, New York pp. 145–174.

Wang, Haicheng 2007. “Writing and the state in early China in comparative perspective”.

Watson, Robert I 1973. “Investigation into deindividuation using a cross-cultural survey technique.”. *Journal of personality and social psychology*, 25 (3), p. 342.

Wells, Andrew 2012. *The Literate Mind: A Study of Its Scope and Limitations*. Palgrave Macmillan, London.

West, Stuart A; El Mouden, Claire; Gardner, Andy 2011. “Sixteen common misconceptions about the evolution of cooperation in humans”. *Evolution and Human Behavior*, 32 (4), pp. 231–262.

West, Stuart A; Griffin, Ashleigh S; Gardner, Andy 2007. “Evolutionary explanations for cooperation”. *Current Biology*, 17 (16), pp. R661–R672.

Whisenant, Jessica N 2008. *Writing, Literacy, and Textual Transmission: The Production of Literary Documents in Iron Age Judah and the Composition of the Hebrew Bible*. ProQuest.

White, Douglas R 2007. “Standard Cross-Cultural Sample”. In: Darity Jr., William A. (ed.) *International Encyclopedia of the Social Sciences.* Macmillan Reference USA, New York pp. 88–95.

White, Leslie 1959. *The evolution of culture*. McGraw-Hill, New York.

Whitehouse, Harvey 2012. “Ritual, Cognition, and Evolution”. In: Sun, Ron (ed.) *Grounding social sciences in cognitive sciences*. MIT Press, Cambridge, MA pp.

265–284.

Whitehouse, Harvey 2011. “Whence and whither sociocultural anthropology”. In: Slingerland, E; Collard, M (eds.) *Creating Consilience: Integrating the Sciences and the Humanities*. Oxford University Press, Oxford p. 130.

Whitehouse, Harvey 2004. *Modes of religiosity: A cognitive theory of religious transmission*. Rowman Altamira, Walnut Creek, CA.

Whitehouse, Harvey 2000. *Arguments and Icons: Divergent Modes of Religiosity*. Oxford University Press, Oxford.

Whitehouse, Harvey 1996. “Rites of terror: Emotion, metaphor and memory in Melanesian initiation cults”. *Journal of the Royal Anthropological Institute*, pp. 703–715.

Whitehouse, Harvey 1995. *Inside the cult: Religious innovation and transmission in Papua New Guinea*. Oxford University Press, Oxford.

Whitehouse, Harvey; Hodder, Ian 2010. “Modes of religiosity at Çatalhöyük”. In: Hodder, Ian (ed.) *Religion in the emergence of civilization: Çatalhöyük as a case study*. Cambridge University Press, Cambridge pp. 122–145.

Whitehouse, Harvey; MacCauley, Robert N 2005. *Mind and religion: Psychological and cognitive foundations of religiosity*. Rowman Altamira, Walnut Creek, CA.

Whitehouse, Harvey; Mazzucato, Camilla; Hodder, Ian; et al. 2014. “Modes of Religiosity and the Evolution of Social Complexity at Çatalhöyük”. In: Hodder, Ian (ed.) *Religion at Work in a Neolithic Society*. Cambridge University Press, Cambridge.

Whitehouse, Harvey; McQuinn, Brian 2012. “Ritual and violence: Divergent modes of religiosity and armed struggle”. In: Juergensmeyer, M.; Kitts, M; Jerryson, M (eds.) *Oxford Handbook of Religion and Violence.* Oxford University Press, Oxford.

Whiting, John W. M. 1968. “Methods and Problems in Cross-Cultural Research”. In: Lindzey, Gardner and Aronson, E. (eds.) *Handbook in Social Psychology*. Addison-Wesley, Reading, MA pp. 693–728.

Whiting, John W. M. 1954. “The Cross-Cultural Method”. In: Lindzey, Gardiner (ed.) *Handbook of Social Psychology*. Addison-Wesley, Reading, MA pp. 523–531.

Wilson, David Sloan 2003. *Darwin’s cathedral: Evolution, religion, and the nature of society*. University of Chicago Press, Chicago.

Wilson, Edward O 1975. *Sociobiology, the modern synthesis*. Harvard University Press, Cambridge, MA.

Wiltermuth, Scott S 2012. “Synchronous activity boosts compliance with requests to aggress”. *Journal of Experimental Social Psychology*, 48 (1), pp. 453–456.

Wiltermuth, Scott S; Heath, Chip 2009. “Synchrony and cooperation”. *Psychological Science*, 20 (1), pp. 1–5.

Winkelman, Michael 1986a. “Trance States: A Theoretical Model and Cross-Cultural Analysis”. *Ethos*, 14 (2), pp. 174–203.

Winkelman, Michael James 1986b. “Magico-religious practitioner types and socioeconomic conditions”. *Cross-Cultural Research*, 20 (1-4), pp. 17–46.

Winkelman, Michael James 1990. “Shamans and Other “Magico-Religious” Healers: A Cross-Cultural Study of Their Origins, Nature, and Social Transformations”. *Ethos*, 18 (3), pp. 308–352.

Wolf, Maryanne 2008. *Proust and the Squid*. Icon Books Ltd, London.

Wolfe, Linda D; Gray, J Patrick 1981. “Comment on Gaulin and Schlegel 1980.”. *Ethology and Sociobiology*, 2 (2), pp. 95–98.

Woods, Christopher (ed.) 2010. *Visible Language: Inventions of Writing in the Ancient Middle East and Beyond*. Oriental Institute of the University of Chicago, Chicago.

Wright, Henry T 1977. “Recent research on the origin of the state”. *Annual Review of Anthropology*, pp. 379–397.

Wright, Henry T; Johnson, Gregory A 1975. “Population, exchange, and early state formation in southwestern Iran”. *American Anthropologist*, 77 (2), pp. 267–289.

Yoffee, Norman 2004. *Myths of the archaic state: Evolution of the earliest cities, states, and civilizations*. Cambridge University Press, Cambridge.

Zaslavsky, Claudia 1999. *Africa counts: Number and pattern in African cultures*. Chicago Review Press, Chicago.

Zeifman, Debra M 2001. “An ethological analysis of human infant crying: Answering Tinbergen’s four questions”. *Developmental psychobiology*, 39 (4), pp. 265–285.

Zeigler, Harris Philip; Marler, Peter 2008. *Neuroscience of birdsong*. Cambridge University Press, Cambridge.

Zern, David 1969. “The Relevance of Family Cohesiveness as a Determinant of Premarital Sexual Behavior in a Cross-Cultural Sample”. *The Journal of Social Psychology*, 78 (1), pp. 3–9.

Appendix 1

Human Relations Area Files Subject Codes, Titles, and Definitions

Subject	eHRAF Subject Definitions
Gestures and signs (201).	Patterned expressions of emotion (*e.g.*, affection, aggression, derision, fear, disgust); gestures of affirmation and negation; indications of size and shape; directive signs (*e.g.*, beckoning, warning); sign languages in intertribal communication); etc.
Transmission of messages (202).	This category is used for to index information on the technologically simple transmission of messages. The category includes information on signaling devices (*e.g.*, fire, smoke, blinker, semaphore); signal codes (*e.g.*, drum language, flag codes, Morse code); cryptography; use of carrier birds and animals; messenger and human courier systems; etc. For information on more technologically advanced transmission of messages use "Mail" (205)., "Telephone and Telegraph" (206)., "Radio and Television" (207)., and "Internet Communications" (2010.).
Press (204).	This category is used to index information on newspapers and magazines; gathering of news and information (*e.g.*, reporters, press releases, news services); content (*e.g.*, news, stories, features); publication and distribution (including Internet distribution); ownership, organition, and personnel; financial support (*e.g.*, subscriptions, advertising, subsidies); regulation; etc.
Mail (205).	This category is used to index information on traditional mail services for paper documents and packages (*e.g.*, collection, delivery); transportation of mail (*e.g.*, by pony express, rail, air); special equipment; parcel post; mail delivery services (*e.g.*, United Parcel Service, Federal Express); postal organization and personnel; finance (*e.g.*, postal rates, subsidies). The category also contains information on electronic mail services (personal, listservs), service providers, and fees; e
Public opinion (208).	This category is used to index information on attitudes; importance accorded them; modes of expression; measurements (*e.g.*, informal means, public opinion polls and surveys); molding of public opinion (*e.g.*, publicity propaganda); influence of various media; specialized personnel etc. This category is designed primarily to cover the expression and molding of public opinions and attitudes; in nearly all instances information on specific attitudes will be classified elsewhere under the relevant subject categories
Proxemics (209).	This category is used to index information on conscious and unconscious structuring of space between individuals in interpersonal communication; ideas and knowledge about and interpretation of such space as a special elaboration of culture; etc.
Mnemonic devices (211)	Aids to memory; elaborated devices (*e.g.*, wampum, quipu); uses; interpretation; commemorative monuments (*e.g.*, statues); etc.
Writing (212)	Picture writing (*e.g.*, type, technique, use); written symbols (*e.g.*,

	ideograms, phonograms); systematization (*e.g.*, syllabary, alphabet); reading and spelling; incidence of literacy; writing materials (*e.g.*, parchment, tablets, paper, ink); instruments (*e.g.*, pen, brush); methods (*e.g.*, shorthand, chirography); products (*e.g.*, inscriptions, diaries, letters, personal records, manuscripts); clerical specialists (*e.g.*, scribes, stenographers); etc.
Printing (213)	Methods (*e.g.*, block printing, movable type, linotype, photographic reproduction); materials (*e.g.*, paper, ink); typography; binding; products (*e.g.*, sheet music, maps, pamphlets); specialists; etc.
Publishing (214)	Organized production and distribution of records; products (*e.g.*, books, sheet music, phonograph records); personnel and organization; selection of material to be published; business arrangements with authors (*e.g.*, advances, royalties); sales promotion; finance (*e.g.*, profits, subsidies); etc.
Archives (217)	Collections and repositories of institutional or personal records (*e.g.*, libraries, art galleries, museums); state archives (*e.g.*, court records, administrative records); making collections; accessions; filing and indexing; curatorial activities; services (*e.g.*, exhibits, loans); organization and specialized personnel; sources of support (*e.g.*, public, private); etc.
Writing and printing supplies (218)	Miscellaneous materials and supplies for offices, libraries, and museums; description and manufacture of expendable supplies not elsewhere classified (*e.g.*, stationery, index cards); etc.
Ornament (301)	Types of ornament worn (*e.g.*, necklaces, bracelets, rings, anklets, earrings, labrets, hair ornaments); mode of attachment of suspension; age, gender, and status differences; materials and manufacture; occasions of use; etc.
Body alterations (304)	Scarification and tattooing; cranial deformations; tooth filing and removal; piercing of ears, nose, and lips; genital mutilation (*e.g.*, castration, circumcision, clitoridectomy); age, gender, and status differences; special techniques and apparatus; associated beliefs; etc. The term was changed from "Mutilation" to "Body Alterations" in 2000..
Acquisition and relinquishment of property (425)	Recognized means by which property rights may be acquired (*e.g.*, appropriation, forceful seizure, gift, purchase); creation of new property rights (*e.g.*, by physical appropriation, by priority of claim, by expenditure of labor in manufacture); rituals and symbols of appropriation; recognized means by which property rights may be extinguished, (*e.g.*, destruction, abandonment, confiscation, gift, sale); rights, privileges, and powers of the finders and losers of objects of property; etc
Borrowing and lending (426)	Bailment; rights, privileges, and powers of bailor and bailee; loans and debts; pawning rights, privileges, and powers of debtor and creditor;

	formalities in the arrangement and repayment of loans (*e.g.*, witnesses, surety, sponsors); security; interest; notes and mortgages; specialization (*e.g.*, pawn shops); bankruptcy (*e.g.*, law, administration) et
Inheritance (428)	Forms of property and types of title subject and not subject to inheritance; disposition of non-inherited property (*e.g.*, destruction, abandonment, distribution by gift , reversion to a prior owner or his heirs); non-distribution (*e.g.*, maintenance of estates intact within an extended family); preferred or natural heirs and relatives excluded from inheritance (*e.g.*, children, siblings, spouses, parents); gender and age preferences (*e.g.*, exclusion of females, primogeniture, ultimogeniture); persons who inherit in default of preferred heirs; types of ownership acquired by heirs; variant rules for different possessions and type of title; characterization of inheritance systems (*e.g.*, as matrilineal, patrilineal, testamentary); dower (*e.g.*, special provision for widow or widower); testamentary disposition (*e.g.*, wills, bequests, legacies); formalities (*e.g.*, probate procedure); probate law; etc.
Exchange and transfers (430)	General statements dealing with several aspects of the mechanisms of transferring economic goods and the titles to them, with the volume of such transactions, and with the determination of prices and economic values. The term was changed from "Exchange" to "Exchange and Transfers" in 2005..
Gift giving (431)	Alienation of property by gift; rights, privileges, and powers of donor and recipient; frequency, types, occasions (*e.g.*, ceremonial, religious, secular holidays, ritual) and purposes of gifts; social relationships within which gifts are given; formalities of giving and receiving; potlatches; reciprocal gift exchange (*e.g.*, kula); role of gifts in the distribution of economic goods; etc.
Buying and selling (432)	Alienation of property by sale; rights, privileges, and powers of buyer and seller; law of sales; frequency of sales in comparison with gifts; cultural limitations on the sale of property; etc.
Medium of exchange (436)	Articles circulating in exchange at their intrinsic value as standard money (*e.g.*, salt, cattle, grain, shells, metal bars or coins); forms of representative money (*e.g.*, warehouse receipts, certificates of deposit of standard money); credit money (*e.g.*, government notes, bank notes); token money (*e.g.*, subsidiary coins, shell money, bead money); coinage and mints; right of issuance; counterfeiting, etc.
Exchange transactions (437)	Types of exchange (*e.g.*, barter, purchase of goods with money, exchange of services for goods); negotiations (*e.g.*, haggling, auctioning); formalities; guarantees; trading expeditions; special trading relationships; etc.
Internal trade (438)	Local and regional specialization in production within the society or

	region (*e.g.*, home and cottage industry, location of particular industries, between town and country); volume of trade; articles entering into domestic commerce; motivation (*e.g.*, profit, prestige); other patterns of internal trade; etc. The term was changed from "Domestic Trade" to "Internal Trade" and the scope note was rewritten in 2005.
External trade (439)	Intergroup specialization in production for export; articles entering into inter-group trade; volume of foreign trade (*e.g.*, statistics of imports and exports); international trade agreements; smuggling; embargoes; etc. The term was changed from "Foreign Trade" to "External Trade" in 2005..
Accounting (451)	Bookkeeping methods (*e.g.*, double entry); principles and techniques of business accounting; preparation of financial statements (*e.g.*, debits and credits, income and expenditures, profit and loss); methods of dealing with intangible factors (*e.g.*, good will, depreciation); specialists (*e.g.*, accountants, financial counselors); financial records; etc.
Credit (452)	Extension of credit by producers and middlemen; methods and terms; advances and discounts; bills of exchange; credit ratings and rating services; credit institutions other than banks (*e.g.*, loan associations, finance companies); installment buying; etc.
Banking (453)	Commercial banks; deposits and accounts; checks and drafts; bank loans and discounts; banking services and fees; clearing houses; specialized personnel; regulation; etc.
Saving and investment (454)	Saving; hoarding; safekeeping (*e.g.*, safes, safe deposit boxes); savings in relation to income; funds available for investment; available and preferred forms of investment (*e.g.*, in land, buildings, cattle, business and productive enterprises, corporate securities, government obligations); savings accounts, postal savings, and savings banks; underwriting and issuance of corporate securities; investment banking; specialized personnel (*e.g.*, investment brokers); regulation; etc.
Insurance (456)	Distribution of risks through mutual aid; associations with insurance functions (*e.g.*, lodges, mutual benefit societies); insurance organizations (*e.g.*, private, mutual, governmental); types of insurance (*e.g.*, life, health and casualty, fire, marine, old age); annuities, actuarial practice; insurance contracts; premiums; specialized personnel (*e.g.*, adjustors, agents, salesmen); regulation; etc.

Literature (538)	Literary styles; poetry (*e.g.*, epic, lyric); verse forms (*e.g.*, couplets, stanzas); poetic techniques (*e.g.*, meter, rhyme, alliteration); prose forms (*e.g.*, tales, sagas, proverbs, fiction, short stories, essays); narrative plot and structure; literary subjects and themes; characters (*e.g.*, animals, men, gods); treatment (*e.g.*, realism, fantasy, allegory, satire); composition; literary conventions; recitation and narration (*e.g.*, occasions, audiences); specialists (*e.g.*, poets, prose authors, story tellers, ghost writers); etc. This category is reserved for generalized descriptions of literature. This term was used until 1997 when it was replaced with the term "Verbal Arts" (5310). See "Verbal Arts" (5310) for information on the subjects listed here in material that was indexed after 1996.
Literary texts (539)	Texts, translations, and abstracts of folktales, myths, songs, and other individual literary products; critical analyses and commentaries thereupon; etc. This term was used until 1997 when it was replaced with the terms listed under "Texts" (900). For information on texts indexed after 1997 use "Texts" (900) and its subterms.
Legal norms (671)	Extent of differentiation of social norms enforceable by some organ of politically constituted society from those enforced only by informal social control; conception of law (*e.g.*, as precedent, as a body of absolute or relative principles); comparative prevalence of customary or common law and of "made" laws (*e.g.*, edicts, decrees, ordinances, statutes, constitutions, binding judicial or administrative decisions, imposed taboos, divine revelations); lawgivers; law codes; legal categories (*e.g.*, civil and criminal law); legal rules and administrative law; jurisprudence; uniform and multiple systems of law; etc.
Liability (672)	Conception of the liability of individuals and groups for breaches of legal norms; extension of liability to others (*e.g.*, parents, spouse, sibmates); exemptions from legal responsibility (*e.g.*, minors, insane persons, chiefs); recognition of extenuating or aggravating circumstances (*e.g.*, youth or old age, gender or class status of aggressor or victim, accident, self-defense, intent, negligence, recidivism); liability of animals or inanimate objects (*e.g.*, "the ox that gored); etc.
Wrongs (673)	General definitions of acts which violate legal norms; major categories of breaches (*e.g.*, crimes, torts, violations of contract, sins); recognized graduations in the gravity of offenses (*e.g.*, malum prohibitum and malum in se, misdemeanors and felonies, venial and deadly sins); etc.
Crime (674)	Prevalence and incidence of crime; common and rare offenses; crime statistics (*e.g.*, number of reported violations, arrests, and convictions for various offenses); types of offenders (*e.g.*, juvenile delinquents, criminal castes; narcotic addicts, professional criminals); motives in crime (*e.g.*, greed, frustration, sexual jealousy); contributory social

	factors (*e.g.*, poverty, oppression); criminology; etc.
Contracts (675)	Conception of contractual relations; agreements, bargains, promises, and their enforceability; consideration; rights, privileges, and powers of contracting parties; procedure in the conclusion of contracts (*e.g.*, presence of witnesses); terms and stipulations; types of contracts (*e.g.*, legal forms, oral agreements, covenants); etc.
Offenses and sanctions (680)	General statements covering several distinct definitions, in legal or other form, of specific actionable or punishable offenses and for data on the general and specific incidence of punitive sanctions.
Sanctions (681)	Incidence and distribution of the major types of sanctions; capital punishment (*e.g.*, hanging, decapitation, strangling, burning, dismembering); corporal punishment (*e.g.*, flogging, mutilation, torture); property sanctions (*e.g.*, damages, fines, confiscation); public humiliation (*e.g.*, ridicule, pillory); deprivation of civil rights (*e.g.*, enslavement, outlawry, imprisonment); theory of sanctions; systematization of sanctions (*e.g.*, wergild, criminal codes); purpose of sanctions (*e.g.*, compensation, punishment, prevention); penology; recipient of fines, damages, confiscated property (*e.g.*, state, injured party); etc.
Offenses against life (682)	Definitions, incidence of, and sanctions for homicide (*e.g.*, murder, manslaughter); punishments for attempted homicide and attempted suicide; penalties for abortion and infanticide; etc.
Offenses against the person (683)	Definitions, incidence of, and sanctions for acts of physical and verbal aggression (*e.g.*, assault, battery, mayhem, slander, libel); penalties for sorcery; offenses agains an individual's civil rights; etc.
Sex and marital offenses (684)	Definitions, incidence of, and penalties for sex offenses (*e.g.*, fornication, seduction, adultery, prostitution, incest, miscegenation, rape, sodomy, bestiality); punishments for marital and family offenses (*e.g.*, nonsupport, desertion, neglect of children); etc.
Property offenses (685)	Definitions, incidence of, and penalties for stealing (*e.g.*, theft, poaching, robbery, burglary, fraud, embezzlement); definitions of and punishment for property damage (*e.g.*, trespass, arson, malicious mischief); etc.
Nonfulfillment of obligations (686)	Penalties for breach of contract and nonpayment of debts; definitions, incidence of, and sanctions for criminal negligence; etc.
Offenses against the state (687)	Definitions, incidence of, and punishments for political offenses (*e.g.*, treason, espionage, illegal entry, conspiracy, lese majesty, electoral fraud, malfeasance in office); penalties for military offenses (*e.g.*, insubordination, cowardice, desertion, mutiny); definitions of and punishments for judicial offenses (*e.g.*, giving or receiving bribes, perjury, subornation, barratry, contempt of court); penalties for monetary or fiscal offenses (*e.g.*, counterfeiting, falsification of records or documents, smuggling, tax evasion); etc.

Religious offenses (688)	Definitions, incidence of, and punishments for blasphemy and impiety; penalties for specific sins of omission and commission (*e.g.*, ritual offenses, violation of taboos); etc.
Social offenses (689)	Definitions, incidence of, and punishments for quarrelsomeness, disorderly conduct, and commission of nuisances; penalties for drunkenness, prohibited drug use, and abnormal behavior; patterned punishments for lying and other breaches of ethics; punishments for indolence and non-cooperation; etc.
Justice (690)	General statements dealing with several aspects of the formal procedures and the authorized agents of the community or state through which violations of legal norms are determined and sanctions imposed.
Litigation (691)	Incidence of civil actions; statistics of civil cases; causes and types of litigation; abuses (*e.g.*, barratry, ambulance chasing); etc.
Judicial authority (692)	Extent to which the settlement of disputes, redress of injuries, and application of sanctions is withdrawn from the parties concerned and vested in some constituted authority; degree of identification or separation of judicial and other constituted authority; specialized judges and courts; judicial system (*e.g.*, courts of original and appellate jurisdiction, courts of law and equity, civil and criminal courts); jurisdiction of each type of court; judicial powers and prerogatives; etc.
Legal and judicial personnel (693)	Specialized law- enforcement personnel other than police (*e.g.*, sheriffs, bailiffs, constables, posses, coroners); attorneys at law (*e.g.*, counselors, barristers); bar associations; justices of the peace; court officials (*e.g.*, judges, prosecuting attorneys, public defenders, clerks, court reporters); grand and petit jurors; parole and probation officers; executioners; qualifications, selection, functions, and prerogatives of each; payment (*e.g.*, fees, commissions, salaries); legal ethics; etc.
Initiation of judicial proceedings (694)	Complaints and accusations; methods of detection; bringing suit; indictments (*e.g.*, by grand jury); warrants and summonses; arrests and detention; bail; writs (*e.g.*, of habeas corpus); pleas and demurrers; etc.
Trial procedure (695)	Types of court procedure (*e.g.*, summary, criminal, civil, appellate); arraignment; testimony (*e.g.*, witnesses, rules of evidence); arguments and summations; special tests (*e.g.*, oaths, ordeals, torture, judicial duels); judicial decisions (*e.g.*, by judge, jury, arbitration); judgments and sentences; appeals; etc.
Execution of justice (696)	Manner in which judgments and sentences are executed (*e.g.*, self-help, execution by special officials); enforcement of contracts and debts; writs (*e.g.*, of execution, attachment, replevin); probation; evasions of justice (*e.g.*, procedural loopholes, bribery, flight, asylum); etc.

Prisons and jails (697)	Places of imprisonment and detention; precautions against escape; personnel (*e.g.*, jailers, wardens, chaplains, guards); differential treatment of inmates (*e.g.*, women, trusties); organization of penal institutions; prison rules an routines; rewards and punishments for behavior; terms; paroles and pardons; prison labor; penal labor camps; special prisons (*e.g.*, prisons for political offenders, military prisons); etc.
Special courts (698)	Courts with special functions (*e.g.*, courts-martial, claims courts, probate courts, juvenile courts, admiralty courts); arbitration tribunals; commissions with judicial authority; special personnel, jurisdiction, powers, and procedure of each type; etc.
Numeration (802)	Words for numerals (*e.g.*, cardinal, ordinal); numerical signs and gestures; written numerals (*e.g.*, Roman, Arabic); numerical system (*e.g.*, quinary, decimal, vigesimal); methods of counting (*e.g.*, on digits); aids to numeration (*e.g.*, tallies, counters, abacus); upper limit of numerical reckoning; fractions and decimals; tabulations; etc.
Weights and measures (804)	Methods of measurement (*e.g.*, comparison with parts of the body, use of mensurating tools, use of weighing and measuring machines); customary and standardized units (*e.g.*, of length, area, volume, weight, heat, angles, electrical energy); complex techniques of measurement (*e.g.*, surveying); governmental supervision of weights and measures; etc.
Ordering of time (805)	Sense of time; Conception of a minimal unit of time (*e.g.*, a moment); divisions of the day and night (*e.g.*, hours); divisions of the year (*e.g.*, weeks, months, seasons); longer time spans; solar, lunar, and stellar reckoning of time; methods of dating; calendar and calendric knowledge; use of aids to measure the passage of time (*e.g.*, sundials, clocks); etc.
Transmission of skills (868)	Acquisition of language; teaching children to walk and swim; techniques for teaching manual dexterity and technological skills; teaching and learning of economic skills appropriate to each gender; informal instruction in occupational skills; acquisition of artistic skills (*e.g.*, playing of musical instruments); relative importance of imitation, practice, and instruction in the transmission of skills; etc.
Transmission of beliefs (869)	Special techniques for the instilling of beliefs, knowledge, attitudes and values not covered elsewhere in this section (*e.g.*, supernatural beliefs, beliefs concerning phenomena of the external world); manipulation of anxiety in support of beliefs (*e.g.*, arousing it for motivation, relieving it for reinforcement); role of accident and coincidence in confirming supernatural beliefs (*e.g.*, rain following a rain-making rite, winning a race while wearing a luck charm); extent to which reality testing is inhibited or encouraged in children; etc.
Education (870)	General statements dealing with several aspects of the more formal

	and institutionalized aspects to the educational process, especially instruction conducted in schools, by specialized tutors, or through formal apprenticeship.
Education system (871)	Degree of development and elaboration of formal education; prevalent types of educational specialization (*e.g.*, schools, tutors, apprenticeship); source of support of teachers and educational institutions (*e.g.*, fees from students, ecclesiastical aid, private gifts and endowments); systematization of education (*e.g.*, local schools boards, state educational agencies, voluntary organizations of educational administrators); degree of standardization as to levels, policies, language, and curricula; primary objectives of formal education (*e.g.*, piety, morality, citizenship, vocational skills, intellectual leadership); diffusion of education (*e.g.*, educational statistics); attitudes toward education; etc.
Elementary education (872)	Tutorial education; primary schools (*e.g.*, private, parochial, public); periods of instruction (*e.g.*, terms, vacations, hours per day, days per week, weeks per year, years required for graduation); compulsory or voluntary attendance; objectives (*e.g.*, universal literacy); curricula (*e.g.*, subjects and their progression); grading and advancement; educational aids (*e.g.*, textbooks, stationery, blackboards); ceremonial (*e.g.*, graduation); special institutions for very young children (*e.g.*, nursery schools, kindergartens); etc.
Educational theory and methods (876)	Dominant and alternative theories of education; favored methods of instruction (*e.g.*, collective recitation, rote memorizing, systematic classification case analysis); system of rewards (*e.g.*, praise, prizes); prevalent and eschewed methods of punishment (*e.g.*, ridicule, corporal punishment, deprivation of privileges); special techniques for disabled and challenged pupils; educational psychology; examining and testing methods; use of visual and auditory aids, degree of individuation in instruction (*e.g.*, cultivation of uniformity, encouragement of independence and initiative); educational experiments and innovations (*e.g.*, progressive education); etc.
Texts in the speaker's language (901)	Texts, narratives, verbatim transcriptions, or verbal discourse in the language in which it was originally spoken or written. This category, term, and scope note were introduced in 1997.

Appendix 2

Codebooks and Human Relations Area Files Search Query Syntax

Codebooks for variables taken from other large-scale cross-cultural ethnographic surveys

In all variables regardless of source, 999 = Missing Data.

Source	Variable	Codebook
Ritual Database From Atkinson and Whitehouse (2011.)	Ritual frequency	1 = daily; 2 = less often than daily but more often than monthly; 3 =monthly; 4 = seasonally (less often than monthly but more often than annually); 5= annually; 6 = less often than annually but usually more often than once in a lifetime; 7 = usually once in a lifetime
	Dysphoric ritual arousal	Absent (0)/ Low (1)/ Low-Med (2)/ Med (3)/ Med-High (4)/ High (5)
	Euphoric ritual arousal	Absent (0)/ Low(1)/ Low-Med (2)/ Med(3)/ Med-High(4)/ High (5)
	Classical religion	1 = Pre-classical, no contact with classical religion or no evidence of ideas being adopted; 2 = Mixture, some elements of classical religion mixed with indigenous beliefs and practices; 3 = Classical, classical religion in the indigenous religion or has been adopted by all or almost all in the culture.
SCCS From Murdock and White (1969) as cited in Johnson (2005.)	Money (media of exchange) and credit	1 = No media of exchange or money; 2 = Domestically usable articles as media of exchange; 3 = Tokens of conventional value as media of exchange; 4 = Foreign, coinage or paper currency; 5 = Indigenous coinage or paper currency
	Credit source	1 = Personal loans between friends or relatives; 2 = Internal money lending specialists; 3 = External money lending specialists; 4 = Banks or comparable institutions
	Community size	1 = < 50; 2 = 50-99; 3 = 100-199; 4 = 200-.399; 5 = 400-999; 6 = 1,000-4,999, 7 = 5,000-49,999; 8 = > 50,000
	Police	1 = Not specialized; 2 = Incipient specialization; 3 = Retainers of chiefs; 4 = Military; 5 = Specialized
	Mean size of local communities	1 = Fewer than 50; 2 = 50-99; 3 = 100-199; 4 = 200-.399; 5 = 400-1000; 6 = 1,000 without any town of more than 5000; 7 = One or more towns of 5,000-50,000; 8 = One or more cities of more than 50,000
	Jurisdictional hierarchy beyond local community	1 = No levels (no political authority beyond community); 2 = One level (*e.g.*, petty chiefdoms); 3 = Two levels (*e.g.*, larger chiefdoms); 4 = Three levels (*e.g.*, states); 5 = Four levels (*e.g.*, large states)
	Compliance of individuals with	1 = High; 2 = Moderate; 3 = Highly Variable

	community norms and decisions	
	Formal sanctions and enforcement for community decisions	1 = Great sanctioning power available; 2 = Some; 3 = Little or none
	Enforcement specialists (police, tax collectors)	1 = Present; 2 = Not specialized but done by leaders who do other things as well; 3 = Absent, or carried out by social pressure of wider community
	Loyalty to the local community	1 = Especially high; 2 = High; 3 = Moderate; 4 = Low
	Loyalty to the wider society (in some cases indistinguishable from the local community)	1 = Especially high -- uniformly high across groups; 2 = High for the most part across groups in the society; 3 = Moderate -- some noticeable variation across groups in society; 4 = Low -- not terribly salient or rarely important as a concern
	Taxation paid to community (*e.g.*, in agricultural produce, labor, finished goods)	1 = Regular and non-negligible taxes to community; 2 = Only in special situations or Modest level; 3 = None
	Frequency of internal warfare (resolved)	1 = Internal warfare seems to be absent or rare (original code 1); 2 = original code 1.25; 3 = original code 1.5; 4 = original code 1.75; 5 = Internal warfare seems to occur once every 3 to 10 years (original code 2); 6 = original code 2.25; 7 = original code 2.5; 8 = original code 2.75; 9 = Internal warfare seems to occur once every 2 years (original code 3); 10 = original code 3.25; 11 = original code 3.5; 12 = original code 3.75; 13 = Internal warfare seems to occur every year, but usually only during a particular season (original code 4); 14 = original code 4.25; 15 = original code 4.5; 16 = original code 4.75; 17 = Internal warfare seems to occur almost constantly and at any time of the year (original code 5); 88 = Don't know or unclear (original code 8)
	Sharing of food	1 = sharing of food among nuclear family; 2 = sharing of food among kin residing in local community; 3 = sharing of food among kin, not restricted to local community; 4 = sharing of food among non-kin within local community; 5 = sharing of food among all members of local community; 6 = sharing of food among groups within unit of maximal political authority or ethnic group; 7 = sharing of food among other than mentioned groups

	Sanctions	0 = no formal political office present (variable 1740 coded as 1) (original code 88); 1 = no or few means of coercion; 2 = restricted means of coercion, *e.g.* only for certain types of decisions; 3 = coercive means to enforce all decisions
	Frequency of internal warfare involving non-territorially	0 = no political office above the level of the local community (variable 1740 coded as 1, 2, or 7) (original code 88); 1 = rare or never; 2 = occasional; 3 = often; 4 = permanent
	Frequency of internal warfare involving non-territorially organized groups within unit of maximal political authority	0 = no political office above the level of the local community (variable 1740 coded as 1, 2, or 7) (original code 88); 1 = rare or never; 2 = occasional; 3 = often; 4 = permanent
	Frequency of violent conflict between groups within local communities	1 = rare or never; 2 = occasional; 3 = often; 4 = permanent
Ethnographic Atlas	Community Size	1 = Fewer than 50; 2 = 50-99; 3 = 100-199; 4 = 200-.399; 5 = 400-1000; 6 = 1,000 without any town of more than 5,000; 7 = Towns of 5,000-50,000 (one or more); 8 = Cities of more than 50,000 (one or more)
	Belief in moralising gods	1 = Absent or not reported (O); 2 = Not active in human affairs (A); 3 = Active in human affairs but not supportive of human morality (B); 4 = Supportive of human morality (C)
	Regional jurisdictional hierarchy	1 = No levels (no political authority beyond community) (.0); 2 = One levels (*e.g.*, petty chiefdoms) (.1); 3 = Two levels (*e.g.*, larger chiefdoms) (.2); 4 = Three levels (*e.g.*, states) (.3); 5 = Four levels (*e.g.*, large states) (.4)
	Agricultural intensity	1 = No agriculture (O); 2 = Casual agriculture, incidental to other subsistence modes (C.); 3 = Extensive or shifting agriculture, long fallow, and new fields cleared; 4 = Horticulture, vegetal gardens or groves of fruit trees (H.); 5 = Intensive agriculture, using fertilization, crop rotation, or other techniques to shorten or eliminate fallow period (I.); 6 = Intensive irrigated agriculture (J.)

Coding guide for cross-cultural database of complex external representational systems

Compiled by Daniel A. Mullins and Harvey Whitehouse

Constraints

These codes are constrained by whether and to what extent they are described in the respective ethnographies and ethnographic descriptions included in the eHRAF database, the *Encyclopedia of World Cultures*, the *World's Writing Systems*, the *Ethnologue*, 'Omniglot', and other cross-cultural data sources. There may be cases in which traits are present in HRAF-societies in practice, but due to the incompleteness of ethnographic recording and/or our imperfect reading of the ethnography, these traits may be listed as 'absent' in the data table. Whilst coding, every effort was made to ensure that traits were recorded as accurately and fully as possible.

Definitions

1 means the trait is present

0 means the trait is absent

Unless specified 999 means not reported or unclear

Codes

1. Type of complex external representational system

1.1. Standardised script: A repertoire of easily distinguishable visual signs which stimulate specialised, high-speed, high-fidelity, non-reflexive lexical access in readers and writers (*e.g.*, Arabic, Cyrillic).

1.2. Standardised calendrical and timekeeping: A standardised system by which time is divided and events are recorded, planned, or performed (*e.g.*, solar, lunar, or celestial calendars).

1.3. Written literature: A collective body of written works codified in one or more standardised script (*e.g.*, epic, history).

1.4. Codified laws and punishments: A body of rules and standards concerning specific human behaviours and the appropriate consequences thereof that has been codified in one or more standardised script (*e.g.*, the Code of Hammurabi).

1.5. Criminal records: An external visual sign regarding the reputational history of a particular individual who has been convicted of transgressing norms, rules, or standards (*e.g.*, branding of deviants, archives of illegal behaviour).

1.6. Transactional records: A collection of visual signs containing records of economic or financial exchange, debt, or credit (*e.g.*, ledgers, written contracts, receipts).

1.7. Printing: The mechanical codification or replication of standardised scripts and other standardised visual sign systems (*e.g.*, Guttenberg Bible).

System	Paragraphs	eHRAF Search Syntax
Standardised Scripts	3,321	(Text = (standard*))) AND ((Subjects = (Any Subject)) AND (Text = ("code" OR "number" OR "writing system" OR “log” OR almanac* OR annal* OR archiv* OR book* OR calendar* OR catalog* OR character* OR chronicl* OR codex* OR contract* OR document* OR glyph* OR inscri* OR ledger* OR list* OR manuscript* OR mark* OR notation* OR paper* OR receipt* OR record* OR register* OR report* OR script* OR seal* OR stamp* OR table* OR tabulat* OR tattoo* OR writ*)
Standardised Calendrical & Timekeeping Systems	2,141	(Text = (calen*))) AND ((Subjects = (Any Subject)) AND (Text = ("code" OR "number" OR "writing system" OR “log” OR almanac* OR annal* OR archiv* OR book* OR catalog* OR chronicl* OR codex* OR contract* OR register* OR report* OR script* OR seal* OR stamp* OR table* OR tabulat* OR writ*)
		(Text = (chron*))) AND ((Subjects = (Any Subject)) AND (Text = ("code" OR "number" OR "writing system" OR “log” OR almanac* OR annal* OR archiv* OR book* OR calendar* OR catalog* OR chronicl* OR codex* OR contract* OR document* OR inscri* OR ledger* OR list* OR manuscript* OR mark* OR notation* OR paper* OR receipt* OR record* OR register* OR report* OR script* OR seal* OR stamp* OR table* OR tabulat* OR writ*)
Written Literature	26,089	(Text = (“fairytale”))) AND ((Subjects = (Any Subject)) AND (Text = ("code" OR "number" OR "writing system" OR “log” OR almanac* OR annal* OR archiv* OR book* OR calendar* OR catalog* OR chronicl* OR codex* OR contract* OR document* OR inscri* OR ledger* OR list* OR manuscript* OR mark* OR notation* OR paper* OR receipt* OR record* OR register* OR report* OR script* OR seal* OR stamp* OR table* OR tabulat* OR tattoo* OR writ*)
		(Text = (folklor*))) AND ((Subjects = (Any Subject)) AND (Text = ("code" OR "number" OR "writing system" OR “log” OR almanac* OR annal* OR archiv* OR book* OR calendar* OR catalog* OR chronicl* OR codex* OR contract* OR document* OR inscri* OR ledger* OR list* OR manuscript* OR mark* OR notation* OR paper* OR receipt* OR record* OR register* OR report* OR script* OR seal* OR stamp* OR table* OR tabulat* OR tattoo* OR writ*)
		(Text = (histor*))) AND ((Subjects = (Any Subject)) AND (Text = ("code" OR "number" OR "writing system" OR “log” OR almanac* OR annal* OR archiv* OR book* OR calendar* OR catalog* OR chronicl* OR codex* OR contract* OR document* OR inscri* OR ledger* OR list* OR manuscript* OR mark* OR notation* OR paper* OR receipt* OR record* OR register* OR report* OR script* OR seal* OR stamp* OR table* OR tabulat* OR tattoo* OR writ*)
		(Text = (legend*))) AND ((Subjects = (Any Subject)) AND (Text = ("code" OR "number" OR "writing system" OR “log” OR almanac* OR annal* OR archiv* OR book* OR calendar* OR catalog* OR chronicl* OR codex* OR contract* OR document* OR inscri* OR ledger* OR list*

		OR manuscript* OR mark* OR notation* OR paper* OR receipt* OR record* OR register* OR report* OR script* OR seal* OR stamp* OR table* OR tabulat* OR tattoo* OR writ*)
		(Text = ("literary"))) AND ((Subjects = (Any Subject)) AND (Text = ("code" OR "number" OR "writing system" OR “log” OR almanac* OR annal* OR archiv* OR book* OR calendar* OR catalog* OR chronicl* OR codex* OR contract* OR document* OR inscri* OR ledger* OR list* OR manuscript* OR mark* OR notation* OR paper* OR receipt* OR record* OR register* OR report* OR script* OR seal* OR stamp* OR table* OR tabulat* OR tattoo* OR writ*)
		(Text = ("literature"))) AND ((Subjects = (Any Subject)) AND (Text = ("code" OR "number" OR "writing system" OR “log” OR almanac* OR annal* OR archiv* OR book* OR calendar* OR catalog* OR chronicl* OR codex* OR contract* OR document* OR inscri* OR ledger* OR list* OR manuscript* OR mark* OR notation* OR paper* OR receipt* OR record* OR register* OR report* OR script* OR seal* OR stamp* OR table* OR tabulat* OR tattoo* OR writ*)
		(Text = (myth*))) AND ((Subjects = (Any Subject)) AND (Text = ("code" OR "number" OR "writing system" OR “log” OR almanac* OR annal* OR archiv* OR book* OR calendar* OR catalog* OR chronicl* OR codex* OR contract* OR document* OR inscri* OR ledger* OR list* OR manuscript* OR mark* OR notation* OR paper* OR receipt* OR record* OR register* OR report* OR script* OR seal* OR stamp* OR table* OR tabulat* OR tattoo* OR writ*)
		(Text = (narrative*))) AND ((Subjects = (Any Subject)) AND (Text = ("code" OR "number" OR "writing system" OR “log” OR almanac* OR annal* OR archiv* OR book* OR calendar* OR catalog* OR chronicl* OR codex* OR contract* OR document* OR inscri* OR ledger* OR list* OR manuscript* OR mark* OR notation* OR paper* OR receipt* OR record* OR register* OR report* OR script* OR seal* OR stamp* OR table* OR tabulat* OR tattoo* OR writ*)
		(Text = (novel*))) AND ((Subjects = (Any Subject)) AND (Text = ("code" OR "number" OR "writing system" OR “log” OR almanac* OR annal* OR archiv* OR book* OR calendar* OR catalog* OR chronicl* OR codex* OR contract* OR document* OR inscri* OR ledger* OR list* OR manuscript* OR mark* OR notation* OR paper* OR receipt* OR record* OR register* OR report* OR script* OR seal* OR stamp* OR table* OR tabulat* OR tattoo* OR writ*)
		(Text = (poet*))) AND ((Subjects = (Any Subject)) AND (Text = ("code" OR "number" OR "writing system" OR “log” OR almanac* OR annal* OR archiv* OR book* OR calendar* OR catalog* OR chronicl* OR codex* OR contract* OR document* OR inscri* OR ledger* OR list* OR manuscript* OR mark* OR notation* OR paper* OR receipt* OR record* OR register* OR report* OR script* OR seal* OR stamp* OR table* OR tabulat* OR tattoo* OR writ*)
		(Text = ("prose"))) AND ((Subjects = (Any Subject)) AND (Text = ("code" OR "number" OR "writing system" OR “log” OR almanac* OR annal* OR archiv* OR book* OR calendar* OR catalog* OR chronicl*

		OR codex* OR contract* OR document* OR inscri* OR ledger* OR list* OR manuscript* OR mark* OR notation* OR paper* OR receipt* OR record* OR register* OR report* OR script* OR seal* OR stamp* OR table* OR tabulat* OR tattoo* OR writ*)
		(Text = ("story"))) AND ((Subjects = (Any Subject)) AND (Text = ("code" OR "number" OR "writing system" OR “log” OR almanac* OR annal* OR archiv* OR book* OR calendar* OR catalog* OR chronicl* OR codex* OR contract* OR document* OR inscri* OR ledger* OR list* OR manuscript* OR mark* OR notation* OR paper* OR receipt* OR record* OR register* OR report* OR script* OR seal* OR stamp* OR table* OR tabulat* OR tattoo* OR writ*)
		(Text = (tale*))) AND ((Subjects = (Any Subject)) AND (Text = ("code" OR "number" OR "writing system" OR “log” OR almanac* OR annal* OR archiv* OR book* OR calendar* OR catalog* OR chronicl* OR codex* OR contract* OR document* OR inscri* OR ledger* OR list* OR manuscript* OR mark* OR notation* OR paper* OR receipt* OR record* OR register* OR report* OR script* OR seal* OR stamp* OR table* OR tabulat* OR tattoo* OR writ*)
Codified Laws & Punishments	5,301	(Text = (judicia*))) AND ((Subjects = (Any Subject)) AND (Text = ("code" OR "number" OR "writing system" OR “log” OR almanac* OR annal* OR archiv* OR book* OR calendar* OR catalog* OR chronicl* OR codex* OR contract* OR register* OR report* OR script* OR seal* OR stamp* OR table* OR tabulat* OR writ*)
		(Text = (law*))) AND ((Subjects = (Any Subject)) AND (Text = ("code" OR "number" OR "writing system" OR “log” OR almanac* OR annal* OR archiv* OR book* OR calendar* OR catalog* OR chronicl* OR codex* OR contract* OR document* OR inscri* OR ledger* OR list* OR manuscript* OR mark* OR notation* OR paper* OR receipt* OR record* OR register* OR report* OR script* OR seal* OR stamp* OR table* OR tabulat* OR writ*))))
		(Text = ("legal"))) AND ((Subjects = (Any Subject)) AND (Text = ("code" OR "number" OR "writing system" OR “log” OR almanac* OR annal* OR archiv* OR book* OR calendar* OR catalog* OR chronicl* OR codex* OR contract* OR register* OR report* OR script* OR seal* OR stamp* OR table* OR tabulat* OR writ*)
		(Text = (punishment*))) AND ((Subjects = (Any Subject)) AND (Text = ("code" OR "number" OR "writing system" OR “log” OR almanac* OR annal* OR archiv* OR book* OR calendar* OR catalog* OR chronicl* OR codex* OR contract* OR document* OR inscri* OR ledger* OR list* OR manuscript* OR mark* OR notation* OR paper* OR receipt* OR record* OR register* OR report* OR script* OR seal* OR stamp* OR table* OR tabulat* OR tattoo* OR writ*)
Criminal Records	1,143	(Text = (criminal*))) AND ((Subjects = (Any Subject)) AND (Text = ("code" OR "number" OR "writing system" OR “log” OR almanac* OR annal* OR archiv* OR book* OR calendar* OR catalog* OR chronicl* OR codex* OR contract* OR document* OR inscri* OR ledger* OR list*

		OR manuscript* OR mark* OR notation* OR paper* OR receipt* OR record* OR register* OR report* OR script* OR seal* OR stamp* OR table* OR tabulat* OR tattoo* OR writ*)
		(Text = (penal*))) AND ((Subjects = (Any Subject)) AND (Text = ("code" OR "number" OR "writing system" OR “log” OR almanac* OR annal* OR archiv* OR book* OR calendar* OR catalog* OR chronicl* OR codex* OR contract* OR document* OR inscri* OR ledger* OR list* OR manuscript* OR mark* OR notation* OR paper* OR receipt* OR record* OR register* OR report* OR script* OR seal* OR stamp* OR table* OR tabulat* OR tattoo* OR writ*)
Transactional Records	23,245	(Text = (account*))) AND ((Subjects = (Any Subject)) AND (Text = ("code" OR "number" OR "writing system" OR “log” OR almanac* OR annal* OR archiv* OR book* OR calendar* OR catalog* OR chronicl* OR codex* OR contract* OR document* OR inscri* OR ledger* OR list* OR manuscript* OR mark* OR notation* OR paper* OR receipt* OR record* OR register* OR report* OR script* OR seal* OR stamp* OR table* OR tabulat* OR writ*)
		(Text = (bank*))) AND ((Subjects = (Any Subject)) AND (Text = ("code" OR "number" OR "writing system" OR “log” OR almanac* OR annal* OR archiv* OR book* OR calendar* OR catalog* OR chronicl* OR codex* OR contract* OR document* OR inscri* OR ledger* OR list* OR manuscript* OR mark* OR notation* OR paper* OR receipt* OR record* OR register* OR report* OR script* OR seal* OR stamp* OR table* OR tabulat* OR writ*)
		(Text = (fiscal*))) AND ((Subjects = (Any Subject)) AND (Text = ("code" OR "number" OR "writing system" OR “log” OR almanac* OR annal* OR archiv* OR book* OR calendar* OR catalog* OR chronicl* OR codex* OR contract* OR document* OR inscri* OR ledger* OR list* OR manuscript* OR mark* OR notation* OR paper* OR receipt* OR record* OR register* OR report* OR script* OR seal* OR stamp* OR table* OR tabulat* OR writ*)
		(Text = (transaction*))) AND ((Subjects = (Any Subject)) AND (Text = ("code" OR "number" OR "writing system" OR “log” OR annal* OR archiv* OR book* OR catalog* OR chronicl* OR contract* OR document* OR inscri* OR ledger* OR list* OR mark* OR notation* OR paper* OR receipt* OR record* OR register* OR report* OR script* OR seal* OR stamp* OR table* OR tabulat* OR writ*)
		(Text = (contract*))) AND ((Subjects = (Any Subject)) AND (Text = ("code" OR "number" OR "writing system" OR “log” OR annal* OR archiv* OR book* OR catalog* OR chronicl* OR contract* OR document* OR inscri* OR ledger* OR list* OR mark* OR notation* OR paper* OR receipt* OR record* OR register* OR report* OR script* OR seal* OR stamp* OR table* OR tabulat* OR writ*)
		(Text = (exchange*))) AND ((Subjects = (Any Subject)) AND (Text = ("code" OR "number" OR "writing system" OR “log” OR annal* OR archiv* OR book* OR catalog* OR chronicl* OR contract* OR document* OR inscri* OR ledger* OR list* OR mark* OR notation* OR paper* OR receipt* OR record* OR register* OR report* OR script* OR

		seal* OR stamp* OR table* OR tabulat* OR writ*)
		(Text = ("receipt"))) AND ((Subjects = (Any Subject)) AND (Text = ("code" OR "number" OR "writing system" OR “log” OR annal* OR archiv* OR book* OR catalog* OR chronicl* OR contract* OR document* OR inscri* OR ledger* OR list* OR mark* OR notation* OR paper* OR receipt* OR record* OR register* OR report* OR script* OR seal* OR stamp* OR table* OR tabulat* OR writ*)
Printing Systems	3,095	(Text = (lithograph*))) AND ((Subjects = (Any Subject)) AND (Text = ("code" OR "number" OR "writing system" OR “log” OR almanac* OR annal* OR archiv* OR book* OR calendar* OR catalog* OR chronicl* OR codex* OR contract* OR document* OR inscri* OR ledger* OR list* OR manuscript* OR mark* OR notation* OR paper* OR receipt* OR record* OR register* OR report* OR script* OR seal* OR stamp* OR table* OR tabulat* OR tattoo* OR writ*)
		(Text = ("press"))) AND ((Subjects = (Any Subject)) AND (Text = ("code" OR "number" OR "writing system" OR “log” OR almanac* OR annal* OR archiv* OR book* OR calendar* OR catalog* OR chronicl* OR codex* OR contract* OR document* OR inscri* OR ledger* OR list* OR manuscript* OR mark* OR notation* OR paper* OR receipt* OR record* OR register* OR report* OR script* OR seal* OR stamp* OR table* OR tabulat* OR tattoo* OR writ*)
		(Text = (print*))) AND ((Subjects = (Any Subject)) AND (Text = ("code" OR "number" OR "writing system" OR “log” OR almanac* OR annal* OR archiv* OR book* OR calendar* OR catalog* OR chronicl* OR codex* OR contract* OR document* OR inscri* OR ledger* OR list* OR manuscript* OR mark* OR notation* OR paper* OR receipt* OR record* OR register* OR report* OR script* OR seal* OR stamp* OR table* OR tabulat* OR tattoo* OR writ*)

Appendix 3

Cross-cultural ethnographic database of CERS

Bibliography of cross-cultural ethnographic database of CERS

Aberle, D.F. 1951. The psychosocial analysis of a Hopi life-history: Berkeley and Los Angeles: University of California Press, 1951. 6, 133 p. 105

Adair, J; Deuschle, Kurt W; Barnett, Clifford R; Rabin, David L. 1970. The people's health: medicine and anthropology in a Navajo community: New York, Appleton-Century-Crofts [1970]: Appleton-Century-Crofts, [1970]. xvi, 188 p.: ill. 16

Adams, W.Y. 1963. Shonto: a study of the role of the trader in a modern Navaho community: Washington: U.S. Govt. Print. Off., 1963. xi, 329 p.: ill. 190

Adriani, N. 1951. The Bare'e-speaking Toradja of central Celebes (the East Toradja): Amsterdam: Noord-Hollandsche Uitgevers Maatschappij 22

Adriani, N; Kruijt, Albertus Christiaan 1951. The Bare'e-speaking Toradja of central Celebes (the East Toradja): Amsterdam: Noord-Hollandsche Uitgevers Maatschappij, 1951. HRAF MS: vii, 651 p. [original: viii, 484 p.] 619

Adriani, N. 1951. The Bare'e-speaking Toradja of central Celebes (the East Toradja): third volume: Amsterdam: Noord-Hollandsche Uitgevers Maatschappij, 1951. HRAF MS: vii, 651 p. [original: viii, 484 p.] 176

Afigbo, A.E. 1981. Ropes of sand: studies in Igbo history and culture: Ibadan [Nigeria]; New York: University Press in association with Oxford University Press, 1981. xii, 387 p.: ill. 369

Ager, S. 2013. Omniglot - writing systems and languages of the world

Ahern, E.M. 1973. The cult of the dead in a Chinese village: Stanford,Calif.: Stanford University Press, 1973. 14, 280 p., plates: ill., maps 5

Ahern, E.M. 1979. Domestic architecture in Taiwan : continuity and change.: New York, Praeger, 1979. 164

Ahmed, A.S. (N.D.). Millenium and charisma among Pathans: a critical essay in social anthropology

Ahmed, A.S. 1980. Pukhtun economy and society: traditional structure and economic development in a tribal society: London ; Boston: Routledge & Kegan Paul, 1980. 16, 406 p.: ill., maps 58

Ahmed, A.S. 2002. Culture summary: Pashtun: New Haven, Conn.:HRAF 2

Alvarsson, J.Å. 1988. The Mataco of the Gran Chaco: an ethnographic account of change and continuity in Mataco socio-economic organization: Uppsala, Sweden; Stockholm, Sweden: Academiae Upsaliensis; Distributed by Almquistamp; Wiskell International, 1988. XVI, 314 p.: ill. 58

Amadiume, I. 1987. Afrikan matriarchal foundations: the Igbo case: London: Karnak House, 1987. 87 p.: ill. 64

Ames, D.W. 1955. The use of a transitional cloth-money token among the Wolof: Washington, etc.: American Anthropological Association 1021

Archer, W.G. 1984. Tribal law and justice: a report on the Santal: New Delhi: Concept, 1984. 3 v. in 1 (xxxvi, a-k, 741 p.): ill. 14

Austen, L. 1939. The seasonal gardeningCalendar of Kiriwina, Trobriand Islands: 1939. 237-253 p. 246

Austen, L. 1945. Cultural changes in Kiriwina: Oceania -- Vol. 16 1945. 15-60 p.: ill. 49

Azevedo, F. 1953. The colored elite in a Brazilian city: Paris: UNESCO, 1953 67

Balzer, M.M. (N.D.). Culture summary: Yakut 2

Banerjee, S. 1962. The Khasi festival of 'pomblang': Calcutta: [s.n.], 1962. 53-59 p. 53

Barghouthi, A. 1996. Arab folksongs and Palestinian identity: Msida, Malta: Mediterranean Institute, University of Malta, 1996. 147-172 p. 147

Barnett, W.K. 1971. An ethnographic description of Sanlei Ts'un, Taiwan, with emphasis on women's roles: overcoming research problems caused by the presence of a great tradition: Ann Arbor, Mich.: University Microfilms, 1971. 3, 15, 565 leaves: ill. 466

Barth, F. 1965. Political leadership among Swat Pathans: London: University of London, The Athlone Press, 1965. 8, 143 p.: ill., maps 25

Barton, R.F. 1919. Ifugao law: Berkeley: University of California Press 45

Basedow, H. 1925. The Australian aboriginal. Adelaide: F. W. Preece and sons.

Beaglehole, E; Beaglehole, Pearl 1937. Notes on Hopi economic life: New Haven ; London: Pub. for the Section of Anthropology, Department of the Social Sciences, Yale University, by the Yale University Press ; H. Milford, Oxford University Press 1937. 2, 88 p. 23

Beaglehole, E; Beaglehole, Pearl 1941. Pangai: village in Tonga: Wellington, N.Z.: The Polynesian Society, 1941. iii-iv, 3-145, [1] p.: ill., maps 49

Beattie, J.H.M. 1958. Nyoro marriage and affinity. *Africa -- Vol. 28, no. 1.* London: Pub. for the International African Institute by the Oxford University Press.

Beik, J. 1984. Hausa theatre in Niger: a contemporary oral art. Ann Arbor, Mich.: University Microfilms International.

Benedict, Sandin 1976. Tusun Pandiau. English|Iban way of life: a translation from Tusun Pandiau: Kuching: Borneo Literature Bureau, 1976. 64 p.: ill. 9

Bennett, B.C. 1974. Sutivan: a Dalmatian village in social and economic transition: San Francisco: R and E Research Associates 73

Bennett, W.C. 1935. The Tarahumara: an Indian tribe of northern Mexico: Chicago, Illinois: The University of Chicago Press 349

Bernardi, B. 1955. The age-system of the Masai. *Annali Lateranensi -- Vol. 18.* Citta del Vaticano: Pontificio Museo Missionario Etnologico.

Berque, J.B. 1955. Social structures of the High Atlas: Paris: Presses Universitaires de France, 1955. 8, 471 p., plates [HRAF ms.: 670 leaves]: ill. 463

Beyer, H.O. 1911. An Ifugao burial ceremony. *Philippine journal of science -- Vol. 6, sec. D.* D Manila: Science and Technology Information Institute

Biernatzki, W.E. 1967 [1973]). Varieties of Korean lineage structure: Ann Arbor, Mich.: University Microfilms, Inc., 1967 [1973 copy]. ix, 626 p.: ill. 18

Bishop, C.A. 1974. The Northern Ojibwa and the fur trade: an historical and ecological study: Toronto: Holt, Rinehart and Winston of Canada 82

Biswas, P.C. 1984b. Santals of the Santal Parganas Delhi: Bharatiya Adimjati Sevak Sangh, 1956. xii, x, 230 p., plates: map 9999

Blom, F; Lafarge, Oliver 1927. Tribes and temples: a record of the expedition to Middle America conducted by the Tulane University of Louisiana in 1925: New Orleans, La.: Tulane University, 1927. 4, 239-536, [16] p.: map 325

Bodding, P.O. 1921-1940. A chapter of Santal folklore: Oslo: A. W. Broggers Boktrykkeri A/S 42

Bohannan, P. 1968. Justice and judgment among the Tiv: London, New York [etc.]: Published for the International African Institute by the Oxford University Press, 1968. xx, 221 p.: ill. 23

Bohannan, P.B., Laura. 1968. Tiv economy: Evanston [Ill.]: Northwestern University Press, 1968. viii, 265 p.: ill. 193

Bohannan, P.S; Ian, A. 1998. Culture summary: Tiv: New Haven, Conn.: HRAF, 1998 3

Bold, B.B.O. 2001. Mongolian nomadic society: a reconstruction of the 'medieval' history of Mongolia: Richmond, Surrey [England]: Curzon, 2001.. xvii, 204 .p.: ill., maps 5

Borges, D. 1994. The family in Bahia, Brazil, 1870-1945: Stanford, Calif.: Stanford University Press 7

Bowman, G. 1993. Nationalizing the sacred: shrines and shifting identities in the Israeli-occupied territories: [London]: [Royal Anthropological Institute of Great Britain and Ireland, etc.], 1993. 431-460 p. 450

Bradfield, M. 1973. A natural history of associations: a study in the meaning of community: New York: International Universities Press, [1973]. 2 v.: ill. [incomplete] 19

Bringa, T. 1995. Being Muslim the Bosnian way: identity and community in a central Bosnian village: Princeton, New Jersey: Princeton University Press, 1995. xxi, 281 p.: ill., map 218

Bulag, U.E. 1998. Nationalism and hybridity in Mongolia: Oxford ; New York: Clarendon Press ; Oxford University Press, 1998. xv, 302 p.: ill., map 252

Bumroongsook, S. 1995. Love and marriage: mate selection in twentieth-century Thailand: Bangkok, Thailand: Produced by Thai Studies Section Faculty of Arts, Chulalongkorn University, Chulalongkorn University Press, 1995. xii, 252 p.: ill. 17

Burling, R. 1963. Rengsanggri: family and kinship in a Garo village: Philadelphia: University of Pennsylvania Press, 1963. 377 p., plates: ill., maps 199

Buxbaum, D.C. 1978. A case study of the dynamics of family law and social change in rural China: Chinese family law and social change, edited by David C. Buxbaum Seattle ; London: University of Washington Press, 1978. 217-260, 503-527 p. 223

Calonne-Beaufaict, A.D. 1921. Azande: introduction to a general ethnography of Ubangi-Uele and Aruwimi basins: Bruxelles: Instituts Solvay, Travaux de l'Institut de Sociologie xxii

Capo, J; Jakov, J; Macan, Trpimir; Supek, Olga; Beierle, John. 1997. Culture summary: Croats: New Haven, Conn.: HRAF, 1997 9

Carter, W.E. 1965. Aymara communities and the Bolivian agrarian reform: Gainsville, Fla.: University of Florida Press 69

Cerulli, E. 1923-1925. Observations on the Moslem movement in Somaliland: Roma: G. Bardi [etc.], 1923-1925. HRAF MS: 1-45 p. [original: 1-36 p.] 11

Cerulli, E. 1957. The lunar stations in the astronomical ideas of the Somalis and the Danaki: Roma: A Cura dell'Amministrazione Fiduciaria Italiana della Somalia; Instituto poligrafico dello Stato P.V., 1957. HRAF Ms: 13 p. [original: 211-218 p.] 9

Cerulli, E. 1959. The consuetudinary law of northern Somalia (Mijirtein): Somalia, scritti vari editi ed inediti, Vol. 2, edited by Enrico Cerulli Roma: A Cura dell'Amministrazione Fiduciaria Italiana della Somalia ; Instituto poligrafico

dello Stato P.V., 1959. HRAF Ms: 121 p. [original: 1-74, 382-384 p.] 113 and 116

Cerulli, E. 1964. The Somali tribe: Roma: Ministero degli Affari Esteri ; Instituto poligrafico dello Stato P.V., 1964. HRAF Ms: 108 p. [original: 45-113, 225-226, 229 p.] 29

Chamberlain, V.D. 1982. When stars came down to earth: cosmology of the Skidi Pawnee Indians of North America: Los Altos,Calif. ; College Park, Md.: Ballena Press ; Center for Archaeoastronomy, University of Maryland, 1982. 270 p.: ill. 208

Champion, J.R. 1970. A study in culture persistence: the Tarahumaras of northwestern Mexico: Ann Arbor, Michigan: University Microfilms, 1963 [1970]. iii, iii, x, 566 leaves: ill., maps 374

Chernela, J.M. 1993. The Wanano Indians of the Brazilian Amazon: a sense of space Austin: University of Texas Press 82

Childs, G.M. 1949. Umbundu kinship & character: London ; New York: Published for the International African Institute by the Oxford University Press 86

Cho, O.L. 1986. The system of belief in Korean rural communities: Seoul, Korea: Seoul National University Press, 1986. 185-199 p. 190

Chun, K.S. 1984. Reciprocity and Korean society: an ethnography of Hasami: Seoul: Seoul National University Press, 1984. xviii, 232 p.: ill. 174

Clark, C.A. 1932. Religions of old Korea: New York: Fleming H. Revell Company, 295 p., ill. [incomplete] 1932 285

Clastres, H. 1995. The land without evil: Tupí-Guaraní prophetism. Urbana and Chicago: University of Illinois Press.

Cohen, A. 1969. Custom & politics in urban Africa: a study of Hausa migrants in Yoruba towns. Berkeley, Calif.: University of California Press.

Cohen, A. 1972. Arab border villages in Israel: a study of community and change in a social organization: Manchester ; New York, N. Y.: Manchester University Press ; Distributed in the U.S.A. by Humanities Press, 1972. xiv, 194 p.: ill., maps 134

Cohen, R. 1960. The structure of Kanuri society. Ann Arbor, Michigan: University Microfilms.

Cohen, R. 1967. The Kanuri of Bornu. New York: Holt, Rinehart and Winston, Inc.

Colbacchini, A. 1942. The eastern Bororo Orarimogodogue of the eastern plateau of Mato Grosso: Rio de Janiero, Brazil: Companhia Editora Nacional 184

Coleman, J.D.B., 1984. Language shift in a bilingual Hebridean crofting community: Ann Arbor, Mich.: Xerox University Microfilms, 1976 [1984 copy]. 3, 10, 300 leaves: ill. 226

Cooper, J. 1917. Analytical and critical bibliography of the tribes of Tierra del Fuego and adjacent territory. Washington D.C.: Government printing Office.

Cooper, J. 1946. The Ona. *The Marginal tribes, edited by Julian H. Steward.* Washington, D.C.: Government Printing Office.

Cory, C.B. 1896. Hunting and fishing in Florida, including a key to the water birds known to occur in the state: Boston, Mass.: Estes & Lauriat, 1896. 3-40 p.: ill. 16

Coulmas, F. 1999. "Hausa writing." in The Blackwell Encyclopedia of Writing Systems: Blackwell

Coulmas, F. 1999. "Wolof alphabet." in The Blackwell Encyclopedia of Writing Systems: Blackwell

Cubberly, P. 1996. The Slavic Alphabets in The world's writing systems Edited by Peter T. Daniels and William Bright: Oxford University Press, Oxford, UK 349

Culshaw, W.J. 1949. Tribal heritage: a study of the Santals: London: Lutterworth Press 25

Daguio, A.T. 1952. Hudhud Hi Aliguyon: a translation of an Ifugao harvest song with introduction and notes. *Philippine journal of science -- Vol. 6, sec. D.* [s.l.]: [s.n.].

Dalbello, M. 2013. Architectures of Knowledge and Literary Tradition: A History of the Almanac in Croatia. *Slavic & East European Information Resources.* Routledge.

Dallet, C.M; Charles, A. 1874. A history of the church in Korea: vol. 1: Paris: Victor Palmé, 1874. cxcii, 387 p.: ill., maps 14 and 78

Daniels, P. 1996. Part I: Grammatology in The world's writing systems Edited by Peter T. Daniels and William Bright: Oxford University Press, Oxford, UK 2

Daniels, P. 1996. Part VIII: Middle Eastern Writing Systems in The world's writing systems Edited by Peter T. Daniels and William Bright: Oxford University Press, Oxford, UK 486

Danquah, J.B. 1928. Gold Coast: Akan laws and customs and the Akim Abuakwa constitution: London: George Routledge & Sons, Ltd., 1928. x, 272 p.: ill. 97

Dauenhauer, R. 1975. Text and context of Tlingit oral tradition: Ann Arbor, Michigan: University Microfilms 1

De Laguna, F. 1960. The story of a Tlingit community: a problem in the relationship between archaeological, ethnological and historical methods: Washington, D.C.: Smithsonian Institution 128

De Laguna, F. 1972. Under Mount Saint Elias: the history and culture of the Yakutat Tlingit: Washington, D.C.: Smithsonian Institution Press; [for sale by the Supt. of Docs., U.S. Govt. Print. Off.], 1972. 3 v. [i-xxiv, 1-548 p.; xxix-xli, 549-914 p.; xlvii-xlix, 915-1395 p.], plates: ill., maps 798

De Vidas, J. 1947. Childbirth among the Aranda, central Australia. *Oceania -- Vol. 18.* Sydney, Australia: The Australian National Research Council.

Deuchler, M. 1980. Neo-Confucianism: the impulse for social action in early Yi Korea: Seattle, Washington: University of Washington, 1980. 71-111 p. 88

Dieterlen, G. 1941. The souls of the Dogons: Paris: Institut d'Ethnologie 250

Diller, A. 1996. Thai and Lao Writing in The world's writing systems Edited by Peter T. Daniels and William Bright: Oxford University Press, Oxford, UK 457

Dix, G. 1987. The New Year's ritual and village social structure: Berkeley,Calif.: Institute of East Asian Studies, University of California, 1987. 93-117 p. 97

Donia, R.J. 1986. Islam under the double eagle: the Muslims of Bosnia and Herzegovina: New York: Columbia University Press 50

Ducey, P.R. 1971. Cultural continuity and population change on the Isle of Skye: Ann Arbor, Mich.: University Microfilms, 1956 [1971]. 3, 9, 405 leaves: ill., maps 62

Early, J.D.P; John, F. 1990. The population dynamics of the Mucajai Yanomama: San Diego,Calif.: Academic Press, 1990. xv, 152 p. [155]: ill. ; maps on lining papers 53

Emmons, G.T; De Laguna, Frederica 1991. The Tlingit Indians: Seattle ; New York: University of Washington Press ; American Museum of Natural History, 1991. xl, 488 p.: ill., maps 424

Ennew, J. 1980. The western Isles today: Cambridge, England ; New York: Cambridge University Press, 1980. 14, 128 p., plates: ill., map 107

Evaneshko, V. 1974. Tonawanda Seneca ethnic identity: functional and processual analysis: Ann Arbor, Mich.: University Microfilms International 192

Fabian, S.M. 1992. Space-time of the Bororo of Brazil: Gainesville, Fla.: University Press of Florida, 1992. xiii, 253 p.: ill., maps (including a fold-out map) 99

Faulkingham, R. 1971. Political support in a Hausa village. Ann Arbor, Michigan: University Microfilms.

Faulkingham, R.H. 1971. Political support in a Hausa village: Ann Arbor, Michigan: University Microfilms 56

Feldman, L.B.B; Dragana, C. 1996. Serbo-Croatian: A Biscriptal Langauge in The world's writing systems Edited by Peter T. Daniels and William Bright: Oxford University Press, Oxford, UK 769

Filipovic, M.S. 1982. Among the people, native Yugoslav ethnography: selected writing of Milenko S. Filipovic: Ann Arbor, Mich.: Michigan Slavic Publications, Dept. of Slavic Languages and Literatures, 1982. xx, 295 p., 2 leaves of plates: ill. [incomplete] 62

Firth, R.W. 1940. The work of the gods in Tikopia: London, England: The London School of Economics and Political Science, 1940. ii, 377 p., plates: ill. 2

Firth, R.W. 1940. The work of the gods in Tikopia: London, England: The London School of Economics and Political Science, 1940. ii, 377 p., plates: ill. 2

Firth, R.W. 1949. Authority and public opinion in Tikopia: Oxford, England: Clarendon Press 185

Fischer, A.M. 1950. The role of Trukese mother and its effect on child training: Washington, D.C.: Pacific Science Board 7

Fischer, M.M.J. 1980. Bibliography: Cambridge, Mass.: Harvard University Press, 1980. 289-303 p. 293

Fletcher, A.C; Murie, James R; Tracy, Edwin S. 1904. The Hako: a Pawnee ceremony: Washington: Smithsonian Institution, 1904. 372 p., plates: ill. 256

Foning, A.R. 1987. Lepcha: my vanishing tribe: New Delhi: Sterling Publishers, 1987. xxiii, 314 p. 160

Foster, M.K. 1974. From the earth to beyond the sky: an ethnographic approach to four Longhouse Iroquois speech events: Ottawa, Ont.: National Museums of Canada, National Museum of Man, 1974. xi, 448 p. 109

Galaal, M.H.I. 1968. The terminology and practice of Somali weather lore, astronomy, and astrology: Mogadishu, Somalia: Published by the author, 1968. HRAF Ms: iv, 72 p. [original: vii, 77 p.]: ill. 5

Gallin, B. 1966. Hsin Hsing, Taiwan: a Chinese village in change: Berkeley ; Los Angeles: University ofCalifornia Press, 1966. xi, 324 p.: ill., maps 247

Gamble, D. P. (N.D). The Wolof of Senegambia: together with notes on the Lebu and the Serer 24

Ganson, B.A. 1994. Better not take my manioc: Guarani religion, society, and politics in the Jesuit missions of Paraguay: Ann Arbor, Michigan: UMI 131

Geddes, A. 1955. The Isle of Lewis and Harris: a study in British community: Edinburgh: At the University Press, 1955. 16, 340 p., plates: ill., maps 163

Gifford, E.W. 1929. Tongan Society: Honolulu, Hawaii: The Museum, 1929. iv, 366 p.: ill., map [n.p.]

Gilbert, M. 1994. Encyclopedia of world cultures: Vol IX Africa and the Middle East. New York: G.K. Hall & Company.

Gilliland, M.K. 1986. The maintenance of family values in a Yugoslav town Ann Arbor, Michigan: University Microfilms International.

Gluckman, M. 1941. Economy of the central Barotse plain: Livingstone, Northern Rhodesia: The Rhodes-Livingstone Institute, 1941. 22, 130 [charts repaginated as pp. 131-140] p., plates: ill., maps 75

Gluckman, M. 1967. The judicial process among the Barotse of Northern Rhodesia: Manchester: Manchester University Press, published on behalf of the Institute for Social Research, University of Zambia, 1967. 25, 469 p., plates: ill., maps 108 and 253

Goerwitz, R. 1996. The Jewish Scripts in The world's writing systems Edited by Peter T. Daniels and William Bright: Oxford University Press, Oxford, UK 489

Goodenough, W.H. 1953. Native astronomy in the Central Carolines: Philadelphia: The University Museum, Universty of Pennsylvania, 1953. v, 46 p.: ill., maps 43

Goodenough, W.H. 1974. Changing social organization on Romónum, Truk. *Social organization and the applications of anthropology: essays in honor of Lauriston Sharp.* Ithaca, N. Y.: Cornell University Press.

Gorer, G; Hutton, J.H. 1938. Himalayan village: an account of the Lepchas of Sikkim: London: Michael Joseph, Ltd., 1938. 510 p., plates 272

Granqvist, H.N. 1947. Child problems among the Arabs: Helsingfors, Finland: Söderström and Co., 1947. 339 p.: ill. 150

Green, M.M. 1964. Ibo village affairs: New York: Praeger, [1964]. xvii, 262 p.: ill., map 132

Griaule, M; Dieterlen, Germaine 1986. The pale fox: China Valley, Ariz.: Continuum Foundation, 1986. 562 p.: ill. [some graphics not included] 521

Grinnell, G.B. 1962. Blackfoot lodge tales: the story of a prairie people: Lincoln: University of Nebraska Press, 1962. 310 p.: ill. 248

Gullick, C.J.M.R. 1976. Exiled from St. Vincent: the development of Black Carib culture in Central America up to 1945: Malta: Progress Press, 1976. 152 p.: ill., maps 92

Gusinde, M. 1931. The Fireland Indians: Vol. 1. The Selk'nam, on the life and thought of a hunting people of the Great Island of Tierra del Fuego. Mödling bei Wien: Verlag der Internationalen Zeitschrift.

Hambly, W.D. 1934. The Ovimbundu of Angola: Chicago: [s. n.] 203

Hamel, H. 1918. The description of the kingdom of Corea: Transactions of the Korea Branch of the Royal Asiatic Society - Vol. 9 147

Han, C.C. 1970. Social organization of Upper Han Hamlet in Korea: Ann Arbor, Mich.: University Microfilms, 1949 [1970 copy]. 3, 227 leaves: ill., maps 24

Harner, M.J. 1973. The Jívaro: people of the sacred waterfalls: Garden City, N.Y.: Anchor Press / Doubleday 130

Hassanpour, A. 2007. The Oral and Written Traditions of Kurdistan: Taylor & Francis Ltd [n.p]

Hatt, D.G. 1993. Skullcaps and turbans: domestic authority and public leadership among the Idaw Tanan of the western High Atlas, Morocco: Ann Arbor, Mich.: University Microfilms, 1974 [1993 copy]. [iii], xiii, 528 leaves: maps 390

Heinen, H.D. 1973. Adaptive changes in a tribal economy: a case study of the Winikina-Warao: Ann Arbor, Mich.: University Microfilms, 1973. 2, 15, 665 leaves: ill., maps 100

Henderson, H.K. 1980. Ritual roles of women in Onitsha Ibo society: Ann Arbor, Mich.: University Microfilms, 1970 [1980 copy]. 2, 8, 526 leaves: ill. 390

Henderson, R.N. 1972. The king in every man: evolutionary trends in Onitsha Ibo society and culture: New Haven: Yale University Press, 1972. xvi, 576 p.: ill. 258

Hilger, M.I. 1951. Chippewa child life and its cultural background: Washington: U.S. Govt. Print. Off., 1951. xiv, 204 .p.: ill., map 4

Hocart, A.M. 1929. Lau Islands, Fiji: Honolulu, Hawaii: Bernice P. Bishop Museum, 1929. 240 p., 4 plates 183

Hoffman, B.G. 1967. The structure of traditional Moroccan rural society: The Hague: Mouton & Co., 1967. 223 p.: ill., maps [61 pages included here] 103

Hooglund, E.J. 1989. The society and its environment: Washington D.C.: The Division : For sale by the Supt. of Docs., U.S. G.P.O., 1989. 71-136, 315-317 p.: ill., maps 84

Horne, L. 1994. Village spaces: settlement and society in northeastern Iran: Washington ; London: Smithsonian Institution Press, 1994. xvi, 246 p. 101

Howe, J. 1986. The Kuna gathering: contemporary village politics in Panama: Austin, Texas: University of Texas Press, 1986. xvi, 326 p.: ill. 112

Hrdlicka, A. 1946. The Koreans: [s.l.]: Korean American Cultural Association, 1946. 33-43 p. [incomplete] 35-36

Hugh-Jones, S. 1979. The palm and the Pleiades: initiation and cosmology in northwest Amazonia: Cambridge ; New York: Cambridge University Press, 1979. xvi, 332 p., plates: ill. 35

Hugh R; Page, J. 1992. Encyclopedia of world cultures: Vol III SOUTH ASIA. New York: G.K. Hall & Company.

Hulbert, H.B. 1906. The passing of Korea: New York: Doubleday, Page and Co., 1906. 12, 473 p.: ill. [incomplete] 47-49

Hunt, M.E.V. 1962. The dynamics of the domestic group in two Tzeltal villages: a contrastive comparison: Chicago, Ill.: University of Chicago Library, 1962. 7, 223 leaves: ill. 31

Igwebuike, R.U. 1980. Barriers to agricultural development: a study of the economics of agriculture in Abakaliki area, Nigeria: Ann Arbor, Mich.: Xerox University Microfilms, 1975 [1980 copy]. 3, 14, 266 leaves: ill., maps 217

Izady, M. 1992. The Kurds: a concise handbook: Washington, D.C.: Crane Russak, Taylor & Francis International Publishers, 1992. xvii, 268 p.: ill., maps 25

Jackson, J.B. 2003. Culture summary: Seminole: New Haven, Conn.: HRAF 10

Jackson, J.E. 1983. The fish people: linguistic exogamy and Tukanoan identity in northwest Amazonia: Cambridge [Cambridgeshire] ; New York: Cambridge University Press, 1983. xix, 287 p.: ill. 16

Jankowiak, W.R. (N.D.). Culture summary: Mongolia: HRAF Website. Accessed 2 June 2013.. 6

Jasna Capo, J.G.; Trpimir Macan; Olga Supek (1992). Encyclopedia of world cultures: Vol IV EUROPE. New York: G.K. Hall & Company.

Jochelson, W. 1933. The Yakut: New York: Published by order of the Trustees, 1933. 33-225 p.: ill., maps 101

Kara, G. 1996. Aramaic Scripts for Altaic Languages in The world's writing systems Edited by Peter T. Daniels and William Bright: Oxford University Press, Oxford, UK 536

Karsten, R. 1932. Indian tribes of the Argentine and Bolivian Chaco: ethnological studies Helsingfors: Akademische Buchhandlung.

Karsten, R. 1935. The head-hunters of Western Amazonas: the life and culture of the Jibaro Indians of eastern Ecuador and Peru: Helsingfors: Centraltryckeriet 503-504

Kaye, A.S. 1996. Adaptations of Arabic Script in The world's writing systems Edited by Peter T. Daniels and William Bright: Oxford University Press, Oxford, UK 744

Kemp, J. 1992. Hua Kok: social oragnization in North-Central Thailand: Canterbury, United Kingdom: Centre for Social Anthropology and Computing and the Centre of South-East Asian Studies, University of Kent at Canterbury, 1992. xii, 212 p.: ill., map 119

Kerns, V. 1983. Women and the ancestors: Black Carib kinship and ritual: Urbana ; Chicago ; London: University of Illinois Press, 1983. 16, 229 p.: ill., maps 162

Kersey, H.A. 1996. An assumption of sovereignty: social and political transformation among the Florida Seminoles. Lincoln: University of Nebraska Press.

King, R. 1996. Korean writing in The world's writing systems Edited by Peter T. Daniels and William Bright: Oxford University Press, Oxford, UK 218

Koch, G. 1955. The South Seas -- yesterday and today: cultural change among the Tongans and an attempt to interpret this development: Braunschweig: A. Limbach, [1955]. HRAF Ms.: 1, 518 leaves [Original: 1-331, 352-359 p.]: ill., map 415

Kral, I. 2000. The socio-historical development of literacy in Arrernte : a case study of the introduction of writing in an aboriginal language and the implications for current vernacular literacy practices. Thesis (M.A.)--Dept. of Linguistics and Applied Linguistics, University of Melbourne, 2000..

Krieger, H.W. 1926. Material culture of the people of southeastern Panama, based on specimens in the United States National Museum: Washington: Govt. Print. Off., 1926. v, 141 p., plates: map [incomplete] 128-131

La Barre, W. 1948. The Aymara Indians of the Lake Titicaca Plateau: Menasha, Wis.: American Anthropological Association, 1948. 250 p., plates 117

Lambton, A.K.S. 1953. Landlord and peasant in Persia: a study of land tenure and land revenue administration: London ; New York: Oxford University Presss, 1953. xxxi, 459 p.: ill., maps 41

Lātūkefu, S. 1974. Church and state in Tonga: the Wesleyan Methodist missionaries and political development, 1822-1875: Honolulu: University Press of Hawaii, [1974]. xvii, 302 p.: maps 56

Lebzelter, V; Neuse, R. 1934. Native cultures in southwest and south Africa: Vol. 2: Leipzig: Karl W. Hiersemann, 1934. HRAF ms: iii, 168 p. [Original: x, 306 p.]: ill. 73

Lee, R.B. 1979. The !Kung San: men, women, and work in a foraging society: Cambridge, [Eng.] ; New York: Cambridge University Press, 1979. xxv, 526 p.: ill., maps 43

Lewis, I.M. 1955. Peoples of the Horn of Africa: Somali, Afar, and Saho: London: International African Institute, 1955. ix, 200 .p.: ill., maps [incomplete] 62

Lewis, M.P. 2013. Ethnologue: Languages of the World, Seventeenth edition: Dallas, Texas: SIL International.

Lindisfarne, N. 1981. Direct exchange and brideprice: alternative forms in a complex marriage system: London: Royal Anthropological Institute 395

Lockwood, W.G. 1975. European Moslems: economy and ethnicity in western Bosnia: New York: Academic Press, 1975. xi, 241 p.: ill. 26

Lodge, O. 1941. Peasant life in Jugoslavia: London: Seeley, Service & Co. 48

Loeb, E.M. 1928. Mentawei social organization: American anthropologist, N. S. -- Vol. 30 Menasha, Wisconsin: American Anthropological Association, 1928 [1962 reprint]. 408-433 p. 425

Lyster, G.O.E. 2007. Christianity and rural community literacy practices in Uganda. *Journal of Research in Reading.* Blackwell Publishing Ltd.

Macri, M.J. 1996. Maya and Other Mesoamerican Scipts in The world's writing systems Edited by Peter T. Daniels and William Bright: Oxford University Press, Oxford, UK 172

Maiskii, I.M; Dayton, Kunitz, J. 1921. Contemporary Mongolia: Irkutsk: Gosudarstvennoe Izdatel'stvo, Irkutskoe Otdelenie, 1921. HRAF ms.: x, 782 p. [original: 332 p.]: ill., maps 518

Malinowski, B. 1922. Argonauts of the western Pacific: an account of native enterprise and adventure in the archipelagoes of Melanesian New Guinea: London: George Routledge & Sons, Ltd., 1922. xxv, 526 p., plates: ill., maps 68

Malinowski, B. 1929. The sexual life of savages in northwestern Melanesia: Vol. 1 and 2: New York: Horace Liveright, 1929. 2 vols. (xxviii, 1-278; ix, 281-603 p., plates: ill.) 249

Malinowski, B. 1935. Coral gardens and their magic: a study of the methods of tilling the soil and of agricultural rites in the Trobriand Islands. Vol. one, The description of gardening: New York: American Book Company, 1935. xxxv, 500 p., plates: ill., maps 456

Malone, M.J.S; Ian, A. 1998. Culture summary: Kanuri: New Haven, Conn.: HRAF, 1998 9

Man, E.H. 1932. On the aboriginal inhabitants of the Andaman Islands: London: The Royal Anthropological Institute of Great Britain and Ireland, 1932. xxxii, 256 p., 17 plates: ill., map 46

Marcus, G.E. 1978. The nobility and the chiefly tradition in the modern Kingdom of Tonga: Wellington: The Polynesian Society, 1978. 166 p. 139

Marshall, D.S. (N.D.) Cuna folk: a conceptual scheme involving the dynamic factors of culture, as applied to the Cuna Indians of Darien: [s.l.]: [s.n.], [n.d.]. xii, 436 p. plates: ill. [incomplete] 88-89

Massé, H. Messner, Charles A. 1954. Persian beliefs and customs: New Haven [Conn.]: Human Relations Area Files, 1954. 527 p. 138

Masters, W.M. 1953. Rowanduz: a Kurdish administrative and mercantile center: [s.l.]: [s.n.] 341

Maxwell, K.B. 1983. Bemba myth and ritual: the impact of literacy on an oral culture: New York: P. Lang, 1983. xxiii, 197 p. xvi

McCall, J.C. 2000. Dancing histories: heuristic ethnography with the Ohafia Igbo: Ann Arbor: University of Michigan Press, 2000.. xiv, 192 p.: ill. 34

McKim, F; Wassén, Henry 1947. San Blas: an account of the Cuna Indians of Panama; the forbidden land: reconnaissance of upper Bayano River, R.P., in 1936: two posthumous works: Göteborg: Etnografiska Museet, 1947. 186 p.: ill., map 55

McManus, D. 1996. Celtic languages in The world's writing systems Edited by Peter T. Daniels and William Bright: Oxford University Press, Oxford, UK 655

Michalowski, P. 1996. Mesopotamian Cuneiform in The world's writing systems Edited by Peter T. Daniels and William Bright: Oxford University Press, Oxford, UK 36

Moisley, H. A. 1962. Uig: a Hebridean parish: Glasgow: The University, Department of Geography, 1962. 5, 4, 158 p.: ill., maps 9

Montagne, R. 1930. The Berbers and the Makhzen in the south of Morocco: essay on the political transformation of the sedentary Berbers (the Chleuh group): Paris: Librarie Félix Alcan, vi

Moors, A. 1995. Women, property, and Islam: Palestinian experiences, 1920-1.990: New York: Cambridge University Press, 1995. xi, 274 p 84

Mulder, N. 1996. Inside Thai society: interpretations of everyday life: Amsterdam ; Kuala Lumpur: The Pepin Press 7

Murie, J.R.P; Douglas R. 1989. Ceremonies of the Pawnee: Lincoln: University of Nebraska Press for the American Indian Studies Research Institute, Indiana University, 1989. xiv, 497 p.: ill. 19

Nash, J.C. 1970. In the eyes of the ancestors: belief and behavior in a Mayan community: New Haven, Conn. ; London: Yale University Press, 1970. 24, 368 p., plates: map 237

Newcomb, F.J.F; Wheelwright, Mary C. 1956. A study of Navajo symbolism: Cambridge: The Museum, 1956. viii, 100 p.: ill. 12

Nooy-Palm, C.H.M. 1968. The culture of the Pagai Islands and Sipora, Mentawei: Leiden: E. J. Brill 162

Nordenskiöld, E.F; Pérez Kantule, Ruben; Wassén, Henry 1938. An historical and ethnological survey of the Cuna Indians: Göteborg, Sweden: Göteborg Museum, 1938. xxvii, 686 p., plates: ill., maps xxv

Oberg, K. (N.D). The social economy of the Tlingit Indians: [s.l.]: [s.n.], [n.d.]. 3, 170 leaves [HRAF MS: 3, 153 leaves]: ill. 77

Okere, L.C. 1980. Socio-economic and cultural aspects of food and food habits in rural Igboland: Ann Arbor, Mich.: University Microfilms, 1979 [1980 copy]. 3, 10, 465 leaves: ill., maps 297

Orans, M. 1965. The Santal: a tribe in search of a great tradition: Detroit, Mich.: Wayne State University Press, 1965. xiv, 154 p.: ill. 105

Palacio, J.O. 1982. Food and social relations in a Garifuna village: Ann Arbor, Mich.: University Microfilms International 120

Parman, S. 1990. Scottish crofters: an historical ethnography of a Celtic village: New York: Holt, Rinehart and Winston, 1990. xii, 175 p.: ill., maps 159

Paulme, D.S. Freida. 1940. Social organization of the Dogon (French Sudan): Paris: Éditions Domat-Montchrestien, F. Loviton et Cie, 1940. HRAF ms: 558 leaves [original: 603 p.]: ill. 129

Pavlovic, J.M. 1973. Folk life and customs in the Kragujevac region of the Jasenica in Sumdaija: New Haven, Conn.: Human Relations Area Files 126

Pellow, D.B. 1997. Culture summary: Hausa: New Haven, Conn.: HRAF, 1997 7

Peshkin, A. 1972. Kanuri schoolchildren: education and social mobilization in Nigeria. New York: Holt, Rinehart and Winston, Inc.

Pope, A.U. 1930. An introduction to Persian art since the seventh century, A.D.: London: Peter Davies 104-105

Pospisil, L.J. 1963. Kapauku Papuan economy: New Haven, Conn.: Dept. of Anthropology, Yale University, 1963. 502 p., plates: ill. 300

Price, R. 1975. Saramaka social structure: analysis of a maroon society in Surinam: Rio Piedras: Institute of Caribbean Studies, University of Puerto Rico, 1975. 177 p.: ill. 39

Price, R.S. 1994. Encyclopedia of world cultures: Vol VII South America. New York: G.K. Hall & Company.

Price, S. 1933. Co-wives and calabashes. Ann Arbor: University of Michigan Press.

Putnam, P. 1948. The Pygmies of the Ituri Forest: New York, N.Y.: Henry Holt and Company 336a

Radcliffe-Brown, A.R. 1922. The Andaman islanders: a study in social anthropology: Cambridge: Cambridge University Press, 1922. xiv, 504 p., 20 p.lates: ill., maps 311

Rattray, R.S. 1923. Ashanti. Oxford, England: Clarendon Press.

Re Cruz, A. 1996. The two milpas of Chan Kom: scenarios of a Maya village life: Albany: State University of New York Press, 1996. xi, 203 .p.: ill. 75

Redfield, R. 1934. Chan Kom: a Maya village: Chicago: University of Chicago Press 17

Redfield, R. 1941. The folk culture of Yucatan: Chicago, Ill.: The University of Chicago Press, 1941 [seventh impression 1959]. xxiii, 416 p., plates: map 16

Redfield, R. 1962. A village that chose progress: Chan Kom revisited: Chicago ; London: Phoenix Books, The University of Chicago Press

Reichel-Dolmatoff, G.M., Sydney 1951. The Kogi: a tribe of the Sierra Nevada de Santa Marta, Colombia. Vol. 2: Bogota: Editorial Iqueima, 1951. HRAF MS: 323 p. [original: 319 p.] 118

Riasanovsky, V.A. 1937. Fundamental principles of Mongol law: London: K. Paul, Trench, Trnbner & Co., Ltd., 1937. 338 p. 29

Richards, A.I. 1939. Land, labour and diet in Northern Rhodesia: an economic study of the Bemba tribe: London, New York [etc.]: Pub. for the International Institute of African Languages & Cultures by the Oxford University Press, 1939. xvi, 424 p., plates: ill., maps 390

Rosman, A. 1966. Social structure and acculturation among the Kanuri of northern Nigeria: Ann Arbor, Michigan: University Microfilms Publications, 1966. v, 379 leaves: ill. 47

Salomon, R. 1996. "South Asian Writing Systems' in The world's writing systems Edited by Peter T. Daniels and William Bright: Oxford University Press, Oxford, UK 372

Sandin, B. 1976. Tusun Pandiau. English|Iban way of life: a translation from Tusun Pandiau Kuching: Borneo Literature Bureau, 1976. 64 p.: ill. 9

Schlippe, P. 1956. Shifting cultivation in Africa: the Zande system of agriculture: London: Routledge & Paul, 1956. xxxi, 304 p.: ill., maps 205

Schram, L. 1961. The Monguors of the Kansu-Tibetan frontier. Philadelphia, Pa.: American Philosophical Society, 1961.

Schram, L. 1962. Marriage among the T'u-jen of Jansu (China). Human Relations Area Files.

Schwartz, S.B. 1985. Sugar plantations in the formation of Brazilian society: Bahia, 1550-1835: Cambridge; New York: Cambridge University Press, 1985. xxiii, 616 p.: ill. 497

Schwimmer, *E.G.* 1973. Exchange in the social structure of the Orokaiva: traditional and emergent ideologies in the northern district of Papua: London: C. Hurst, 1973. ix, 244 p.: ill. 75

Sharp, R.L; Hanks, Lucien Mason 1978. Bang Chan: social history of a rural community in Thai: Ithaca, N.Y. Cornell University Press, 1978. 315 p.: ill., maps 81

Shattuck, G.C; Bequaert, Joseph C. 1933. Yucatan Medical Expeditions, 1929-1931. The peninsula of Yucatan: medical, biological, meteorological and sociological studies: Washington: Carnegie Institution of Washington, 1933. xv-xvii, 1-28, 47-76, 103-104, 127-155, 171-179 p., plates 11-24, 35-42, 47-48: ill., map [incomplete] 56

Shepardson, M. 1970. The Navajo Mountain community: social organization and kinship terminology: Berkeley: University of California Press

Shimoni, Y; Neubart, Leo; Patai, Raphael 1947. The Arabs of Palestine: Tel Aviv, Palestine: Am Oved Publishing House, HRAF MS: 637 p. [Original: vii, 676 p.]: ill., maps 264

Shimony, A. 1961. Conservatism among the Iroquois at the Six Nations Reserve: New Haven, Conn.: Department of Anthropology, Yale University, 1961. 302 p.: ill., maps 174

Shostak, M. 1981. Nisa: the life and words of a !Kung woman: Cambridge, Mass.: Harvard University Press 351

Siiger, H. 1967. The Lepchas: culture and religion of a Himalayan people, part 1: Copenhagen: The National Museum of Denmark, 1967. 252 p., plates 61

Silberbauer, G.B. 1981. Hunter and habitat in the central Kalahari desert: Cambridge: Cambridge University Press, 1981. xx, 330 p: ill., maps 110

Skoggard, I. 2005. Culture summary: Monguor. Human Relations Area Files.

Sosa, J.R. 1999. The Maya sky, the Maya world: a symbolic analysis of Maya cosmology: Ann Arbor, Mich: University Microfilms International, 1985 [1999 copy]. v, 498 p.: ill. 15

Spangler, M.A. 1979. Time and social change in a Yugoslav city: Ann Arbor, Michigan: Xerox University Microfilms, 1979. x, 272 p.: ill. 90

Spencer, P. 1995. Encyclopedia of world cultures: Vol IX Africa and the Middle East. New York: G.K. Hall & Company.

Spier, L. 1930. Klamath ethnography: Berkeley,Calif.: University ofCalifornia Press, 1930. x, 338 p.: ill., maps 218

Staiano, K.V. 1986. Interpreting signs of illness: a case study in medical semiotics: Berlin ; New York ; Amsterdam: Mouton de Gruyter 92

Swanton, J.R. 1905. Social condition, beliefs, and linguistic relationship of the Tlingit Indians: Washington, D.C.: Smithsonian Institution, 1905-1905. 391-485 p., plates: ill., 426

Swedenburg, T. 2003. Memories of revolt: the 1936-1939 rebellion and the Palestinian national past: Fayetteville, Ark.: University of Arkansas Press, 2003.. xxxiv, 266 p. 134

Tanaka, J; Hughes, David W. 1980. The San hunter-gatherers of the Kalahari: a study in ecological anthropology: Tokyo: University of Tokyo Press, 1980. xvi, 200 .p.: ill. 80

Thomas, N.W. 1914. Anthropological report on the Ibo-speaking peoples of Nigeria: pt. IV. Law and custom of the Ibo of the Asaba district, S. Nigeria: London: Harrison and Sons, 1914. vi, 208 .p., plates: ill., map 187

Thompson, F.G. 1973. Harris and Lewis: Outer Hebrides: [s.l.]: Newton, Abbot, David & Charles 127

Thompson, J.E.S., Laufer, Berthold 1930. Ethnology of the Mayas of southern and central British Honduras: Chicago: [s.n.], 1930. 27-213 p., plates: ill., map 75

Thompson, L. 1940. Southern Lau, Fiji: an ethnography Honolulu, Hawaii: Bernice P. Bishop Museum 212

Thomson, B.H. 1894. The diversions of a prime minister: Edinburgh and London: W. Blackwood and Sons 2

Titiev, M. 1972. The Hopi Indians of Old Oraibi: change and continuity: Ann Arbor: University of Michigan Press 328

Titiev, M. 1971. Old Oraibi: a study of the Hopi Indians of the Third Mesa: New York: Kraus Reprint Co., 1971 [Reprint of 1944 edition]. xi, 277 p., plates: ill. 121

Tomosugi, T. 1995. Changing features of a rice-growing village in central Thailand: a fixed-point study from 1967 to 1993: Tokyo: Centre for East Asian Cultural Studies for Unesco, 1995. xiv, 124 p., plates: ill., maps 89

Tschopik, H.J. 1946. The Aymara: Washington, D.C.: Smithsonian Institution, 1946. 501-573 p., plates 571

Waddell, L.A. 1899. The 'Lepchas' or 'Rongs' and their songs: Internationales Archiv für Ethnographie -- Vol. 12 1899. 41-57 p. 43

Washington, F.E. 1956. Mongolian People's Republic (Outer Mongolia): New Haven, Conn.: Printed by the Human Relations Area Files, 1956. 3 vols. (2, 12, 1045; 59, 158; 4, 1130: p. : maps) [HRAF repagination 2, 12, 1387 p.] 1275

Watson, J.B. 1952. Cayuá culture change: a study in acculturation and methodology. Menasha, Wis.: American Anthropological Association.

Weiner, A.B. 1988. The Trobrianders of Papua New Guinea: New York: Holt, Rinehart and Winston, Inc., 1988. xx, 184 p.: ill., maps 111

Weltfish, G. 1965. The lost universe: with a closing chapter on 'The universe regained': New York ; London: Basic Books 50

White, B.M. 1987. A skilled game of exchange: Ojibway fur trade protocol: Saint Paul: Minnesota Historical Society 233

Wilbert, J. 1979. Geography and telluric lore of the Orinoco Delta: Los Angeles: UCLA Latin American Center 147

Wilbert, J. 1980. Genesis and demography of a Warao subtribe: the Winikina: [Los Angeles]: UCLA Latin American Center Publications, University of California, Los Angeles, 1980. 13-47 p.: ill. 14

Williams, F.E. 1928. Orokaiva magic: London: Oxford University Press 224

Williams, F.E., Hubert, M. 1930. Orokaiva society: London: Oxford University Press, 1930. xxiii, 335 p., plates: ill. 115

Wissler, C. 1911. The social life of the Blackfoot Indians: New York: The Trustees, 1911. 1 p.1, p. 1-64: ill. 36 and 45

Yankah, K. 1989. The proverb in the context of Akan rhetoric: a theory of proverb praxis: Bern ; New York: P. Lang, 1989. 313 p. 21

Zharnitskaya, M. 1994. Encyclopedia of world cultures: Vol VI RUSSIA AND EURASIA / CHINA. New York: G.K. Hall & Company.

Zureik, E. 1979. The Palestinians in Israel: a study in internal colonialism: London ; Boston: Routledge & K. Paul 181

Ethnographic excerpts used to generate the cross-cultural ethnographic database of CERS

For a comprehensive list of the ethnographic materials cited and the quantitative data provided by the cross-cultural ethnographic database of CERS, please see the accompanying data file.

		1. Standardised Scripts (Presence)	1. Standardised Scripts (Absence)
1	Akan		• "Akan languages started to be written down, mainly in religious publications, by Danish, German and British missionaries during the 17th and 18th centuries. There are currently three standardized orthographies for Asante, Akuapem and Fante, there is also a unified Akan orthography which was created during the 1980s. " (Ager, Simon, 2013.) •"Owing to the fact that writing was unknown until our contact with Europe, the processes of arrest and summons were carried on by set forms of verbal instruction or order. A chief despatching a State messenger or Ahenkwa to arrest a criminal provides him with a State emblem, such as a gold sword, and issues his instruction to him through an Okyeame in some such words as the following: " Mate se Kwaku Kuma Akoton Amanyakurom asase a minnim ho fwe, enti k okyere no br e me", "Information has reached me that Kwaku Kuma has sold Stool Land attached to the town of Manya without my knowledge and consent, therefore I hereby order you to arrest and bring him to me." This formula differs slightly from that used in the case of accused summons: The Ahenkwa is provided with a State emblem, and the order is as follows: " Mate s e Kwaku Kuma as ee Ntam enti h o h ofa no bre me", "Information has reached me that Kwaku Kuma has abused the national oath (by swearing it against an improper person or on an improper occasion) therefore go and bring him before me." In a ci[illegible] or oath summons the formal words are usually as follows " Kwadjo Kotto se onè Kwaku Kuma wo nkuro (anase ake[illegible] ntam) enti kohyia no bra." "Kwadjo Kotto alleges a claim (or an oath case) against Kwaku Kuma therefore go and invite the latter to come before me." After the introduction of writing and British jurisdiction all these formulæ were replaced by printed forms in accordance with the regulations of the Native Jurisdiction Ordinance." (Danquah, J. B. (Joseph Boakye), 1928: 90) •"Twi is a tonal language and, since missionary work during the eighteenth and nineteenth centuries, has been written in Roman script." (Gilbert, Michelle, 1994: 11)"Twi is a tonal language and, since missionary work during the eighteenth and nineteenth centuries, has been written in Roman script." (Gilbert, Michelle, 1994: 11)"Twi is a tonal language and, since missionary work during the eighteenth and nineteenth centuries, has been written in Roman script." (Gilbert, Michelle, 1994: 11)(Gilbert, Michelle, 1994: 11)(Gilbert, Michelle, 1994: 11)

		1. Standardised Scripts (Presence)	1. Standardised Scripts (Absence)
2	Andamans		• "Writing: Unwritten." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.a) •"No marks on rocks, trees or other objects, made for purposes of record, are believed by them to exist, and, with the exception of the supposititious hieroglyphics, hereafter to be mentioned, nothing of the nature of writing is to be found among these tribes, nor have they any method of recording the name and exploits of a deceased chief or other individual who may have gained distinction during his life, save the narration --more or less garbled--of the same by their admiring descendants. The messenger who conveys intelligence to a distant encampment bears no outward token with him to testify to the authenticity or character of the communication he has to make." (Man, Edward Horace, 1932: 46)
3	Aranda		• "The socio-historical development of literacy in Arrernte : a case study of the introduction of writing in an aboriginal language and the implications for current vernacular literacy practices" (Kral, Inge, 2000.: 1)
4	Aymara		• "The Aymara originally used a collection of symbols, mainly pictures of people or things, as a mnemonic device. The symbols represented the things they portrayed or similar sounding words but never developed into a complete writing system. The symbols were originally written on animal skins using plant or mineral pigments but paper was substituted after the arrival of the Spanish in the 16th century." (Ager, Simon, 2013.)
5	Azande		• "Often, the chiefs ruled territories too extensive or too populated to permit direct relations to be established between them and their bakumba. They then delegate their powers to brothers, or sons, who in practice, do not remain attached to the central authority except through a contract of allegiance, vaguely feudal in nature. At the same time that it expands, the Azande chiefdom prepares within itself, the lines of least resistance, where the break will occur upon the disappearance of the chief. The great feudatories claim the right to total independence: almost inevitably, the struggle for hegemony will break out between them. It is this process of administration, required by the impossibility of administering at a distance, for lack of a means of written communication, which brings about the ruin of all the Azande empires which have succeeded. [Page xxii-xxviii(d)] Good for conquest, and for extension of the race, the Azande organization is incapable of constructing a centralized and durable empire." (Calonne-Beaufaict, Adolphe de, 1921: xxii) •"Writing: Latin script, used in Democratic Republic of Congo." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.)
6	Bahia Brazilians	• "This study deals primarily with the families of the upper classes, partly because the sources available for the study of upper-class Brazilians are much more varied than those on the lives of the poor. Many sources afford glimpses into the imagination and ideas of the poor, but they cannot compare with what we can learn of the mental lives and values of prosperous Brazilians. For example, this study makes extensive use of memoirs and private	

		1. Standardised Scripts (Presence)	1. Standardised Scripts (Absence)
		correspondence, and virtually all the extant documents of this kind are by upper- and middle-class individuals. It uses the newspapers, which were written by and for the literate upper ranks of society. And it uses Brazilian fiction, primarily realist and satirical novels, which were written for a cultivated audience and often from an upper-class stance. For similar reasons, this study focuses on the capital city of Salvador and the traditional heart of the province, the Recôncavo plantation counties around the Bay of All Saints. This region was the center of population and of the economic and political life of Bahia during the Empire. The identification of city and province was so strong that the city of Salvador was often called “Bahia” by Brazilians inside and outside the province. Although the scope [Page 8] of this study extends occasionally to other regions, such as the backlands fringes and the southern cacao frontier, the official archival sources and the literature of memoirs, biographies, and genealogies are richest for the Recôncavo. The scope of its conclusions should thus be carefully surveyed. There is much to learn of the Brazilian people from the study of the upper class; there is much to learn of Rio Grande do Sul from the study of the Bahian Recôncavo; but we should keep the boundaries in mind as we develop contrasts and generalizations." (Borges, Dain, 1994: 7)	
7	Banyoro		• "Reading and writing were first used in Uganda by Arab traders from around 1844. Although the Arabs were the first to introduce written information (texts) in Uganda, they did not make any effort to teach reading and writing in Arabic outside the practice of the Islamic faith (Ssekamwa, 2000.). Literacy in the Roman alphabet was introduced into Uganda by Christian missionaries in the late 19th century. The first to arrive were the Anglican Church Missionary Society from England in 1877, followed by the Catholic White Fathers' Society from France in 1879. Both groups came with a mission to ‘civilise’, using religion and education. Literacy was therefore initially introduced into Uganda as an integral part of Christian religious practices, making Christianity the first social and institutional framework within which literacy found meaningful use in everyday life in Uganda. By embracing the Christian faith, the local people embraced a literate culture involving the use of the Bible, prayer books, hymn books and other religious texts (Byakutaga & Musinguzi, 2000.; Onono-Onweng, Holmes & Lumumba, 2004.; Ssekamwa, 2000.). Wherever the missionaries went, their first task was to learn the local languages, develop orthographies for that particular language, and translate and print Bibles, prayer books and hymn books in that language. The missionaries emphasised the use of local languages in their literacy work, which gave local languages status and acceptability within church practices. Initially literacy was taught directly in relation to Christian instruction and the preparation of new converts (Byakutaga & Musinguzi, 2000.; Parry, 2000.b). New converts, in the Anglican Church in particular, were inducted into the Christian

		1. Standardised Scripts (Presence)	1. Standardised Scripts (Absence)
			faith through reading and writing biblical texts. Becoming a Christian often became closely associated with becoming literate. The Anglicans emphasised reading of the Bible by individuals themselves. Therefore, before the establishment of schools, reading was taught as a precondition for becoming an Anglican Christian. The Catholics on the other hand emphasised rote learning of prayers and religious doctrines printed in other Catholic literature and did not require learning how to read and write as a precondition, although they also conducted some literacy classes (see Byakutaga & Musinguzi, 2000.; Parry, 2000.a)." (Lyster, George Openjuru; Elda, 2007.: 99-100)
8	Bemba		• "The spelling of Bemba was standardised between 1972 and 1977 by the Zambian Ministry of Education." (Ager, Simon, 2013.) •"WritingBraille script. Latin script, primary usage." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.) •"The Bemba had no form of writing prior to their contact with the European world at the end of the nineteenth century." (Maxwell, Kevin B. (Kevin Burns), 1941-, 1983: xvi) •"The oral tradition redacted by homeostasis. There are innumerable changes in any living culture over time, but an oral culture does not have the technology for the intellect to understand them as mutations. There is an oral tendency towards [Page 111] cultural homeostasis (Cf Ong 1982, 46-9). This process is impelled by the social function of memory, which stores only what is socially relevant and conveniently forgets all else in a “structural amnesia” (Goody 1977, 14; 1968, 307-09). New constituents of the cultural heritage are adapted to the old, as the people strive after meaning by harkening after their normative past. The result is that the oral Bemba have little perception of the past except in terms of the present (Richards 1960, 179). They lack writing as a mechanism, by which they could build up a body of chronologically ordered statements to compare with their present views (See above, 85ff). Any present adjustments to the tradition will be gradually introduced as having always been so conceived, convincing the people that the new is in fact part of the true, venerable version of the tradition. Oral transmission, as a performance, then, is not a mechanized memorization but an imaginative process of continuous creativity (Ong 1982, 57-68). It reconstitutes and transfers elements within the latitude of the tradition (Goody 1977, 116-17). An oral tradition is never “an inert acceptance of a fossilized corpus of themes and conventions,” but represents an “organic habit of recreating what has been received and handed on” (Lord 1964, xiii). Tradition is actually more of a process (traditio) than a product (tradita). Thus, even the successful debut of the Christian rendition of Lesa could be construed as due to this oral propensity to conceive of contemporary developments as “having always been so” in the tradition." (Maxwell, Kevin B. (Kevin Burns), 1941-, 1983: 110)
9	Blackfoot		• "The Blackfoot syllabary was devised by John William Tims (1857-1945), an Anglican missionary from England who spent 12 years from 1883 to 1895 among the Blackfoot people in the North-West Territories of Canada

		1. Standardised Scripts (Presence)	1. Standardised Scripts (Absence)
			(now Alberta). " (Ager, Simon, 2013.)
10	Bororo		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.e)
11	Bosnian Muslims	• "Glagolithic [script] also survived for a couple of centuries in Serbia and Bosnia; it was even used for limited periods, in some Church practice only, in the Pilish and Czech area (14th-16th centuries)." (Cubberly, Paul, 1996: 349)	
12	Central Thai	• "Thai and Lao (Laotian) are closely related members of the same language family, and their writing systems are similar. The scripts are Indic in origin and written from left to right without regular word spacing. Instead, spaces are used to indicate sentences or phrasal units. European style paragraphing is used along with quotation marks, parentheses, and occassionally other punctuation marks. While the scripts are phonologically based, the relationship of letters to sounds in complex, especially for Thai. [...] [O]ver fifty million people are at least partly literate in these scripts taken together. In addition to the national languages Thai and Lao, the writing sytems are used for several minority languages and non-standard dialects." (Diller, Anthony, 1996: 457)	
13	Chuuk		• "Missionaries devised a way to write Chuukese using the Latin alphabet during the 19th century. In the 1970s linguists modified the missionaries' system with the addition of the accented letters." (Ager, Simon, 2013.) •"Before the Spanish Government had gained sufficient influence in the islands, the people of Truk lived under the rule of numerous petty chiefs who were constantly engaging in inter-district and inter-island warfare. In Spanish and German times, Catholic and Protestant missionaries Christianized and subdued the warlike tendencies of the population, but many of the old suspicious attitudes still show in present-day culture patterns. The numbers of Spanish and Germans who came to Truk at any one time were relatively small; they left their mark on the people in the folklore, in the religion and in the alphabet which they applied to the Trukese language, teaching the people to read and write. It was left to the Japanese to make the most impression on the native economy." (Fischer, Ann M.. 1950: 7) •"Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.f) •"At first the Chukchee system of writing used the Latin alphabet, but in 1930 the first Chukchee alphabet was developed, and the following year it was institutionalized. The first primer was published in 1932 bv B. D. Bogoraz and 1. S. Vdovin with the help of two Chukchee, Attuvgi and Anakymylgyn, students at the Institute of Northern Peoples in Leningrad. At present the Chukchee use the Cyrillic alphabet. The Chukchee language was taught by Chukchee who had been trained at the Anadyr Pedagogical College and at the pedagogical institutes of Magadan, Khabarovsk, and Leningrad and at

		1. Standardised Scripts (Presence)	1. Standardised Scripts (Absence)
			Leningrad State University. The Magadan publishing house publishes political and literary works in Chukchee." (Zharnitskaya, Maria, 1994: 76)
14	Croats	• "Linguisitic conditions in several regions of the former Yugoslavia (Republics of Bosnia-Herzegovia, Montenegro, Croatia, and Serbia) provide an interesting example of two writing sytems in concurrent use. Until recently, the Roman and Cyrillic alphabets were used interchangeably and fluenty by most skilled leaders to write Serbo-Croatian, the official language. [...] In the eastern (Serbian) region, Cyrillic predominated. In the western (Croatian) region, Roman predominated. Alphabetic prefernce reflected the indluence of the Slavic Orthodox church in the east, and of the Catholic Church in the west. [...] The Cyrillic script is an adaptation of the Greek uncial alphabet of the ninth century C.E., adn the Roman script is a varation of the Latin alphabet. In both cases, the scripts had to be modified to represent sounds not present in the original language [...]." (Feldman, Laurie Beth; Barac-Cikoja, Dragana, 1996b: 769) •(Jasna Capo, Jakov Gelo, Trpimir Macan, and Olga Supek, 1992: 72)	
15	Dogon		• "Writing: Unwritten." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.b)
16	Garifuna		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.g)
17	Garo		• "Brief lists of Garo words were compiled by British officials in 1800, and Garo acquired a Latin-based spelling system during the late 19th century. This was devised by American Baptist missionaries and based on a northeastern dialect of Garo. A version of the Bengali alphabet is sometimes used to write Garo in Bangladesh. Garo publications include some collections of stories, weekly newspapers, school books, dictionaries and religious works, including the bible. People use the language for private correspondence and some signs." (Ager, Simon, 2013.) •"Writing: Bengali script. Braille script, used since 1998. Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.)
18	Guarani		• "Guaraní is one of the offical languages of Paraguay, along with Spanish, and started to appear in writing in the form of religious texts during the 18th century. [...] The Guaraní alphabet shown below was introduced after a Guaraní language congress in Montevideo, Uruguay. The idea was to take the spelling of Guaraní away from the Spanish model." (Ager, Simon, 2013.) •"The process of alphabetization in the mission schools, the translation of ideas of the dominant culture into the native language, particularly catechisms, was a powerful force of cultural domination. Catholic values and concepts were more easily transmitted to the Indians through catechism books and the repetition of sermons by the Indians as directed by the Jesuits. Although learning to read and write in their native language was

		1. Standardised Scripts (Presence)	1. Standardised Scripts (Absence)
			part of the process of indoctrination, by becoming adept writers in their native language and learning mathematics, some of the Guaraní mission Indians could also keep track of their community property, better conduct their daily affairs, keep town council records, make financial transactions, and communicate with one another despite the long distances between missions. The Jesuit missions had one of the first printing presses in the Rio de la Plata. A number of native and Jesuit authors published their works at the missions of Santa Maria La Mayor and San Francisco Xavier during the early eighteenth century. These included the works by Father José Serrano, S.J., De la diferencia entre to temporal v lo eterno, Crisol de desenga[unknown]nos, con la memoria de la etermidad (1705), which included forty-three illustrations by a mission Indian, Juan Yapari: Paul Restivo, S.J., Explicación del catecismo de Nicolás Yapuguay (1722), Father Antonio Ruíz de Montoya's Vocabulario de la Lengua Guaraní ...(1722), Arte de la Lengua Guaraní with notes by Father Restivo (1722); and Casique Nicol[unknown]as Yapuguay's Explicaci[unknown]on del Catecismo en Lengua Guaraní (1724) and Sermones v eiemplos en Lengua Guaraní (1727). Basildes Britez Fari[unavailable]a, Hist[unknown]oria de la cultural guaraní (Asunción, n.p., 1988), 17-19. No ethnohistorian or linguist has studied these rare native catechisms to understand the process of evangelization of the Guaraní mission Indians during the Jesuit period. These works have been neglected because so few scholars of the Guaraní language can read the classical Guaraní of the Jesuit missions.: It is nearly impossible to assess how many or what [Page 132] percentage of the Guaraní mission Indians became literate. Literacy was not always confined to members of the native elites. According to the available historical evidence. Guaraní mission Indian fugitives, most of whom were peons, living in Buenos Aires and Santa Fe in the mid-1750s, kept in touch with events in their mission towns "through the letters they received" from other mission Indians. 33: Bernardo Nusdorffer, S.J. "Segunda parte de los sucedido en las Doctrinas despues que salió de ellas el Pe. Luis de Altamirano para Buenos Ayres..." 1753, BNRJ, Se[unknown]c[unknown]ao de Manuscritos, Roll 31846. Defensa de los Jesuitas 1.2.3.4. Guerra de los Guaranies, 8.2.25, folio 17.: Unlike the Maya, Mixtec, Nahua and other indigenous people in Mesoamerica, the Tupi-Guaraní and other tropical lowland South American Indians had no precolonial tradition of writing. The Guaraní literary tradition is similar to that of postconquest developments in colonial Mexico among the Nahua in that missionaries learned the native languages, and then a whole native literature came into being, including dictionaries, grammars, catechisms, collections of sermons, and other writings. 34 : Frances Karttunen, "Nahuatl Literacy," in The Inca and Aztec States, 1400-1800: Anthropology and History edited by George A. Collier, Renato Rosaldo, and John D. Wirth. (New York and London: Academic Press, 1982): 395-417.: The Guaraní mission musician and chief, Nicolás Yapuguay, authored a few religious texts published in the native language using the mission printing presses. His works include Explicación de el catechismo en lengua

		1. Standardised Scripts (Presence)	1. Standardised Scripts (Absence)
			guaraní, Sermones y exemplos en Lengua Guaraní and Tábua dos graus de parentesco en guaraní . Bartomeu Melià, Marcos Vinicios de Almeida Saul, and Valmir Francisco Muraro. Q Guaraní , 339. These texts deserve further attention by the few scholars who are able to read classical Tupi-Guaraní. Only parts of the text. Explicaci[unknown]on de el catechismo en lengua guaraní , are available at the Archivo Provincial de Buenos Aires de la Compa[unknown]nia de Jesus.: These works are discussed in more detail in Chapter Five." (Ganson, Barbara Anne, 1994: 131) •"Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.h)
19	Hausa	• "Hausa has been written at least since the eighteenth century in a variety of the Arabic script known as the ajami script. To deal with phonological complexities of Hausa (and other West African languages) this script includes a more complex system of pointing than is necessary for writing Arabic. It was taught in Koranic schools and is still used for writing Islamic literature [...]. At the beginning of this century the colonial administrators introduced a modified Roman alphabet called boko or bóokòo from book, which gradually replaced ajami in other than Islamic religious domains." (Coulmas, Florian, 1999) •"Still other languages used to be commonly written in the Arabic script and may occasionally still be [...]. Particular mention should be made of Swahili, Kanuri, Hausa, and Fulani." (Kaye, Alan S., 1996: 744)	
20	Highland Scots	• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.i) •"Three Continental Celtic languages are distinguished, namely Gaulish, Lepontic, and Celtiberian. Lepontic inscriptions (from the area of Lake Lugano) are written in a North Etrustran (North Italic) script, as are three Gaulish inscriptions from Italy. Celtiberian inscriptions are in an Iberian alphabet. Gaulish inscriptions from Gallia Narbonensis are in the Greek alphabet while those from eastern and central Gaul, which are chronologically later, are usually in the Latin alphabet. [...] Scottish Gaelic orthography corresponds in essence to that of Early Modern Irish [...]. There are examples of Scottish Gaelic written according to English orthographic conventions, the most notable being in the Book of the Dean of Lismore (16th century)." (McManus, Damian, 1996: 655)	
21	Hopi		• "Hopi is an Uto-Aztecan language spoken by approximately 5,000 people in northeastern Arizona in the USA. Although there are relatively few speakers, the language is still being passed on to children and about three quarters of the Hopi people speak Hopi as a native language. There are four main varieties of Hopi: First Mesa or Polacca, Mishongnovi or Toreva, Shipaulovi or Sipaulovi, and Third Mesa or Oraibi. They were identified by Benjamin Whorf, who was the first to analyse the Hopi language and who focused on the Mishongnovi variety. There is a Hopi-English dictionary edited by

		1. Standardised Scripts (Presence)	1. Standardised Scripts (Absence)
			Emory Sekaquaptewa, and the language is promoted by the Hopi Literacy Project." (Ager, Simon, 2013.) •"Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.j) •"Marriage customs have been drastically modified. Early in the century an occasional Hopi couple was persuaded to go through a “White” ceremony, at the insistence of a missionary, school superintendent, or government official. Now it is customary for couples voluntarily to have a “White” civil or religious ceremony before entering into the protracted rites of a Hopi wedding. 4: 4. For a study of the traditional marriage ceremony at Oraibi, see H. R. Voth, “Oraibi Marriage Customs,” American Anthropologist, vol. 2, no. 2 (1900).: Go to end note pageThis change of custom does not necessarily indicate conversion but is based on a desire for official written records, since the Hopi have no writing. The people realize that documented weddings make it harder than was earlier the case to get a divorce. On the other hand, women, especially, feel that possession of written records simplifies numerous dealings with the American government. For example, legal documents make it easier for wives to get money allotments if their husbands go into the armed services, and women with official papers stand a far better chance of getting financial support in the event of divorce." (Titiev, Mischa, 1972: 328)
22	Iban		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.k)
23	Ifagao		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.l)
24	Igbo		• "But this view would not be entirely correct or fair. The Committee and the Society were concerned to minimize the number of radical changes to be introduced into the writing of the Language. The new symbols introduced by the new Africa orthography, as already said, required the manufacture of special [Page 370] typewriters for use in typing in Igbo language. This its opponents considered unduly expensive. Though it must be pointed out, that if the new script had been adopted for writing all African languages as originally suggested, the cost of such typewriters would have been greatly reduced. Also, argued the members of the S.P.I.L.C., the new characters of the Africa orthography made it impossible to send messages in the Igbo Language by teleprinter. In this regard, however, one may ask whether this can now be done using the □nw□ orthography which uses more diacritic marks than are found in the standard Latin alphabet used in teleprinters. Whatever the case, however, the Government accepted the □nw□ Orthography and imposed it on all and sundry. With this the old and the new Africa orthography disappeared from the scene. This shows what could have been achieved if in those early days there had been a government that felt strongly enough on the matter and that came out with a firm decision on the two vexed questions of literary dialect and orthography." (Afigbo, A. E. (Adiele Eberechukwu), 1981: 369)

		1. Standardised Scripts (Presence)	1. Standardised Scripts (Absence)
			•"The Igbo, like many of their neighbours, did not evolve an indigenous script with which to reduce their language to writing before the advent of European rule. Nor did their territory lie within the area of West Africa which was influenced by Islam and the Arabs who spread the use of the Arabic script as they went. For a time in this century scholarly attention was drawn to Nsibidi, an indigenous sign-writing which flourished on the Cross River basin and in the Eastern Igbo area. This has not been studied in detail, but its use was severely limited. Though it served important functions, as will be shown below, it did not evolve into a script for writing indigenous languages in the same way as the Roman or Arabic script did. As a result in the nineteenth century the missionaries found themselves faced with a tabula rasa as far as reducing Igbo language to writing was concerned. This problem was in no way limited to Igbo. It was one which the missionaries faced in most of Africa and Asia. Not surprisingly they sought a universal solution to this widespread problem. For the Igbo this global approach to the problem in time turned out to be unfortunate." (Afigbo, A. E. (Adiele Eberechukwu), 1981: 365)
25	Iran	• "The only other contemporary writing system was the hitherto undecishpered Proto-Elamite script used over a wide area of southwest and central Iran. The first tablets in Proto-Elamite are slightly later than poto-cuneiform--conventionally they are regarded as contemporary with Uruk III--and the relation between the two systems is unclear." (Michalowski, Piotr, 1996: 36)	
26	Iroquois		• "Oneida alphabet [from Latin]." (Ager, Simon, 2013.)
27	Jivaro		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.m)
28	Kanuri	• "Kanuri is used as a local lingua franca along with Hausa and Arabic. It was written with a version of the Arabic alphabet from about the 17th century, and is currently written with the Latin alphabet. A standardised spelling system based on the Maiduguri dialect and using the Latin alphabet, the Standard Kanuri Orthography, was developed during the 1970s and implemented in 1975. Kanuri is used as a medium of instruction in primary schools in Nigeria and Niger, and it is possible to study Kanuri up to PhD level." (Ager, Simon, 2013.) •"Still other languages used to be commonly written in the Arabic script and may occasionally still be, especially by well-educated Muslim scholars and by others as well. Particular mention should be made of [...] Kanuri [...]." (Kaye, Alan S., 1996: 744)	
29	Kapauku		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.n)
30	Khasi		• "In recent centuries, under Islamic influence, the Arabic script has become the written vehicle for some South Asian langauges [...], and under still more recent

		1. Standardised Scripts (Presence)	1. Standardised Scripts (Absence)
			European influence, the Roman script has been introduced for still others (*e.g.*, Konkani, some Austro-Asiatic languages such as Khasi [....])." (Salomon, Richard, 1996: 372)
31	Klamath		• "A number of methods of writing Klamath have been devised by linguists, such as Albert S. Gatschet, who published a dicionary, grammar and texts during the 1870s, and M.A.R. Barker who did the same during the 1960s, and by tribal elders. Barker's system most accurately represents the sounds of the language." (Ager, Simon, 2013.)
32	Kogi		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.o)
33	Korea	• "While all human languages probably own a common ancestor (albeit so long ago that there is no hope of determining its substance), there seem to have been at least three--and possibly as many as seven--distinct, independent origins of writing in the ancient world. [...] The second of the three was Chinese, which came to be adopted in Japan and Korea, and imitated in other areas under China's influence." (Daniels, Peter, 1996: 2) •"“They have abundance of old Books, both Printed and Manuscript, so choicely kept that none but the King's Brother is trusted with them. Copies of them with Cuts, are kept in several Towns, that in case of Fire they may not be quite lost. Their Almanacks are made in China , they themselves wanting skill to make them. They print with Boards or Wooden Cuts, and lay one Cut to each side of the Paper, and so strike off a Leaf. They cast Accounts with little long Sticks, as we do with Counters. They know not how to keep Books of Accounts or Shopbooks, but when they buy any thing, they set down the Price under it, and write on it what they made of it, and so find what profit or Loss.”" (Hamel, Hendrik, 1918: 147) •"Chinese writing was probably known in Korea from before Han times, and was used in the Han administration of their commanderies in northern Korea from 108 B.C.E. to 313 C.E.. The first evidence of the use of Chinese by Koreans is one a stone inscription of 414 C.E. The Koreans later developed three different, but realted, ways to use Chinese characters to write Korea: Hyangchal, Kwukyel, and Itwu." (King, Ross, 1996: 218)	
34	Kuna		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.p)
35	Kurds	• "In the last two decades, the impact of the ongoing communication revolution on economy, politics and culture has been a major theme in academic and media debates and in the policy-making circles of governments and international bodies. Although new media technologies are transforming the entire world including the Middle	

		1. Standardised Scripts (Presence)	1. Standardised Scripts (Absence)
		East, these debates have largely focused on Western societies. This book provides the first study of the transformation of a Middle Eastern society, Kurdistan, in the context of the introduction of printing, recorded music, radio, television, and the Internet. It analyzes the complex and often conflictual interactions of media technologies, culture, statehood, nationalism and globalization." (Hassanpour, Amir, 2007.: [n.p])	
36	Lau Fijians		• "David Cargill (1809-1843), a [S]cottish missionary and pioneer in the study of the Fijian Language, devised a way of writing Fijian with the Latin alphabet based on the Ba'u (Bauan) dialect." (Ager, Simon, 2013.) •"Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.q)
37	Lepcha	• "The language of the Lepchas can scarcely be said to possess a written character. The so-called Lepcha character I found in 1891 (when investigating the history of the country for my section of the Sikhim Gazetteer), was invented only at the beginning of last century) by a Lama-king of Sikhim, with a view to convert the Lepchas to Lamaism." (Waddell, Laurence Austine, 1899: 43)	
38	Lozi		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.r)
39	Maasai		• "There is a Maasai dictionary, a Maasai translation of the Bible [in a Latinate script], and a few other publications, but generally the language is not used in writing very much." (Ager, Simon, 2013.) •"Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.d)
40	Mataco		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.s)
41	Maya	• "A form of proto-Yucatecan was written with the Mayan script from about the 3rd century BC, and the Yucatec Maya speakers continued to use the script until the 16th century. Recently some Yucatecs have started learning and using the script once more. After the Spanish conquest of Yucatan in the 16th century, a version of the Latin alphabet based on Spanish orthography of that time was developed to write Yucatec Maya." (Ager, Simon, 2013.) •"The earliest Maya writing dates from before 250 C.E., but it probably has origins at least as early as thoe of the Epi-Olmec script. [...] Maya writing, though not completely deciphered, is the best understood of all Mesoamerican scripts, known from hundreds of sculptures as well as painted pottery, and four bark codices. The first bishop of the Yucatan, Bishop Landa, attests that it was still in use among speakers of Yucatec Maya in the sixteenth century." (Macri, Martha J., 1996: 172) •"The “literacy” or “preliteracy” of a society is a special aspect of its isolation. In the next chapter facts will be given as to the extent and nature of	

		1. Standardised Scripts (Presence)	1. Standardised Scripts (Absence)
		the use of reading and writing in the four communities. In all four some of the people can read, [Page 17] but differences in the degree to which literacy is effective in determining the character of the society depend not so much on the technical literacy rate as on the role of books and reading and writing in the society. In Tusik writing and reading are esoteric arts cultivated by special functionaries for the benefit of the entire group, and the uses of the art are to consult sacred books and to prepare and read messages emanating from the supernaturals. In this society literacy is, along with oral tradition, an agent for the preservation of the society in its present state and for the perpetuation of a sacred lore. Chan Kom is more literate than Tusik, and Dzitas than Chan Kom, in that reading and writing are to a greater extent used to enable the society to come into communication with other societies or to record and to consider critically its own past experiences." (Redfield, Robert, 1941 [1959]: 16) •"The “literacy” or “preliteracy” of a society is a special aspect of its isolation. In the next chapter facts will be given as to the extent and nature of the use of reading and writing in the four communities. In all four some of the people can read, [Page 17] but differences in the degree to which literacy is effective in determining the character of the society depend not so much on the technical literacy rate as on the role of books and reading and writing in the society. In Tusik writing and reading are esoteric arts cultivated by special functionaries for the benefit of the entire group, and the uses of the art are to consult sacred books and to prepare and read messages emanating from the supernaturals. In this society literacy is, along with oral tradition, an agent for the preservation of the society in its present state and for the perpetuation of a sacred lore. Chan Kom is more literate than Tusik, and Dzitas than Chan Kom, in that reading and writing are to a greater extent used to enable the society to come into communication with other societies or to record and to consider critically its own past experiences." (Redfield, Robert, 1959 [1941]: 16)	
42	Mbuti		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.t)
43	Mentawaians		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.u)
44	Mongol	• "In 1208 .Chinggis Khan defeated the Naimans, Turkic tribes living in Central Asia, and captured their Uyghur scribe Tatar-Tonga, who apparently adapted the Old Uyghur alphabet to write Mongolian. The alphabet created by Tatar-Tonga is now known as the Uighur/Uyghur Script, the classical or traditional Mongol Script, the Old Script, or Mongol Bichig in Mongolian." (Ager, Simon, 2013.)	

		1. Standardised Scripts (Presence)	1. Standardised Scripts (Absence)
		•"The three principal langauge families of Inner Asia--Turkic, Mongolic, and Tunugusic--are usually regarded as a single phylum, Altaic. The transmission and adaptation of Aramaic scripts can be followed from Turkic Uyghur to Mongolic Monolian and Oirat to Tungusic Manchu [...]." (Daniels, Peter, 1996: 486) •"The veritical Uyghur variant of the Sogdian alphabet was applied to a Middle Mongolian dialect in Chinggis Khan's court (early 13th century); with some modification, it is still in use in Mongolia. The mid seventeenth century "Clear script", derived from the Mongolian "vertical" alphabet, became the writing sytem of the Western Mongols or Oirats (including the Kalmyks)." (Kara, Gyorgy, 1996: 536) •"[T]here may still be reason to believe that [the Koreans] looked to scripts of Indic descent for the alphabet idea, to Mongolian 'Phas pa writing for some letter shapes (Ledyard 1966, building on Hope 1957; Section 40) [...]." (King, Ross, 1996: 218)	
45	Mongor	• "The Monguor language, also called Tu, is a member of the Eastern Mongolian Branch of the Altaic Family. Monguor is the most divergent of the Mongolian languages and shares 60 percent of its vocabulary with Mongolian. It has a large number of Han, a smaller number of Tibetan loanwords, and even some Turkish. Each of the five Monguor areas has its own dialect with the greatest dialectical differences found between the Huangnan and the Huzhu/Minhe areas. Some Huangnan Monguor speak Bonan, a closely related language. The Monguor in Datong County speak Chinese exclusively. Han characters are used in written communication. In 1979, a Tu script based on the Roman alphabet was devised and in 1988, a massive 70,000-entry Tu-Chinese dictionary was published." (Skoggard, Ian, 2005.: 1)	
46	Navajo		• "Navajo first appeared in writing in 1849 in the form of a Navajo word list published in the Journal of a Military Reconnaissance by Lt. James H. Simpson." (Ager, Simon, 2013.) •"Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.v)
47	Ojibway		• "James Evans, a Wesleyan missionary working at Norway House in Hudson's Bay, invented a syllabary for the Ojibwe language in about 1840. He had tried to produce a Latin-based orthography for Ojibwe, but eventually gave up and came up with a syllabary, based partly on Pitman shorthand." (Ager, Simon, 2013.) •"Writing: Latin script. Unified Canadian Aboriginal Syllabics script, no longer in use." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.)
48	Ona		• "It is doubtful whether any of the Fuegian languages has words for numbers above three; the languages are poor in abstract terms and rich in concretes. No kind of writing exists, not even by notches, sticks, pictographs, etc. The nearest approach to such is symbolic face and body painting." (Cooper, John, 1917: 180)

		1. Standardised Scripts (Presence)	1. Standardised Scripts (Absence)
49	Orokaiva		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.w)
50	Ovimbundu		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.x)
51	Palestinians	• "From about the twelth century B.C.E. on, Aramaic-speaking peoples began to diffuse into the Levant, and later into Palestine itself, leading to a slow displacement of Canaanite-speaking people [...]. A series of distinct and significantly Aramaized powers also seized contol of Palestine. These were, in turn, the Assyriakect of Aramaic (what we now call '"Imperial" Aramaic) as the administrative language of the entire Near East. Within a few decades, Imperial Aramiaic, and its own Phoenician-derived scripts forms [...], had achieved dominance throughout the region." (Goerwitz, Richard, 1996: 489)	
52	Pashtun	• "II The vast tribal population involved: Pathan society, with over fifteen million people in Pakistan alone, is probably one of the largest tribal groupings in the world.: III Pathan tribal society is not 'pre-literate' or oral society (Bailey, 1960; Gluckman, 1971; Sahlins, 1968). The most famous Pashto poets were contemporaries of John Milton." (Ahmed, Akbar S.) •"Pushto is in the Iranian Branch of the Indo-European Language Family. The two principal dialects, which differ in pronunciation, are Southwestern or Qandahari Pushto and Northeastern or Peshawari Pukhto. Most Pashtuns in Afghanistan speak Dari, a dialect of Farsi or Persian, as a second language, and it has had a strong influence on Pushto. Both languages are written in the Arabic script, modified to accommodate consonants that do not occur in Arabic." (Ahmed, Akbar S., 2002.: 2) •"Among the more important non-Semitic languages using Arabic script are: the Berber languages of North Africa, except Tuareg with Tifinigh [...]; the Iranian languages Persian, Pashto, Kurdish, and Balochi; Indo-Aryan Urdu [...], Sindhi, and Kashmiri; Dravidian Moplah [...]; and Austronesian Sulu, Malagasy, and Malay." (Kaye, Alan S., 1996: 743)	
53	Pawnee		• "Neither personal relations nor the personnel of the household were cramped within a fixed kin structure. The individual personality was not trimmed down to fit the kin structure, but the structure was used to realize the individual personality. The Pawnee social structure was written into no statute book, nor did it have the status of doctrine, and there was no chain of command to enforce it. Therefore it was not frozen and clamped onto the people, but carried implicitly by them to serve them as they saw fit. No built-in guilt, acting as a surrogate for dominant power, forced them to narrow the scope of their personal lives. They were socially

		1. Standardised Scripts (Presence)	1. Standardised Scripts (Absence)
			creative in every personal interrelationship they had. The world was raw and their life was hard, but it was also freer than ours. No religious or supernatural sanction enforced the social forms. The only [Page 51] possible penalty for transgression of kinship forms was adverse public opinion. This was a very important deterrent, but it was of a quite different quality from religious, military, or political sanctions, for it was within the network of the contemporary community, not in a specialized sector of it, and it was therefore possible for a person to cope with it in the course of daily living. Pawnee life was certainly not a Utopia. The time and the place in which it existed could allow no such hope, but in its freedom from dominance it had something we now can afford and don't know how to take." (Weltfish, Gene, 1965: 50)
54	San		• "Khoekhoe [Latinate] alphabet" (Ager, Simon, 2013.) •"Would she comprehend the world of publishing, print, reading, and publicity? She did understand the concept of writing as a method used to record speech for later interpretation by reading: she had told me that she would ask Richard Lee to write a letter to me, and she had seen other anthropologists and officials of the Tswana courts using writing in various contexts. She also knew enough about the marketplace—buying and selling, making and spending money—to understand the principle of a book as a commodity, like a piece of clothing, that sometimes sells and sometimes doesn't. Since I was planning to set aside a portion of whatever profit the book might make for the Kalahari People's Fund and, in an appropriate manner, for Nisa herself, it seemed important to discuss our shared financial interest in the book's success. All in all, I felt hopeful that when I did talk to her again, she would approve of the project. If not, I resolved that I would abide by her wishes." (Shostak, Marjorie, 1981: 351)
55	Santal		• "The Santali alphabet, which is also known as Ol Cemet', Ol Ciki or simply Ol, was created in the 1920s .by Pandit Raghunath Murmu as part of his efforts to promote Santali culture. [...] Until the invention of this alphabet, Santali was either not written at all, or was written with the Bengali or Oriya alphabets." (Ager, Simon, 2013.) •"The tales are, as will be understood, written in genuine Santali, without any attempt at polishing, only obvious errors or slips of the pen having been corrected. Before the missionaries came, the Santals had no written language. What they had of 'literature' was all stowed away in their memory. Incantations, songs and certain other matters are in a stereotype form, often such as not to be always properly understood by the present generation. This is not the case with the folk-tales, where, within certain limits, there is full freedom for the narrator. The language of these may consequently vary as to individual form and expression. There is no literary style. Santali has not like some other Indian languages, as e. g. Bengali, a high or literary form, a colloquial and a vulgar form. The language of these tales is just as the people speak." (Bodding, Paul Olaf, 1921-1940: 42) •"Writing: Bengali script. Devanagari script, used in Nepal. Latin script, used in Bangladesh. Ol Chiki (Ol Cemet', Ol, Santali) script. Oriya script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.)

		1. Standardised Scripts (Presence)	1. Standardised Scripts (Absence)
			•"There is, for example, an attempt to codify Santal traditions in writing and even the development of a distinctive script in which to record these traditions." (Orans, Martin, 1965: 105)
56	Saramaka		• "In terms of the use of symbolism, too, the contrast between men's and women's arts is clearly related to their differential contact with coastal society. Occasionally (though much less frequently than the literature would suggest), Saramaka men incorporate in their wood carvings a small mark that can be "read" as a specific message (see S. and R. Price 1980 a:189). These marks seem to emerge from the same admiration for the idea of literacy that prompted a Djuka man to develop his own "script" in the early twentieth century and that inspired a number of male messianic leaders to "read" inspirational passages from their open palms. Women are well aware of the use of symbolic marks in men's carving, but they are also adamant that the extra elements they add to their finished textiles or calabashes (see, for example, S. and R. Price 1980 a: figs. 93 and 255) are, in contrast to the men's, intended only as marks of ownership." (Price, Sally, 1933: 197)
57	Seminole		• "Creek first appeared in writing in 1736. Laws were being written in Creek from 1849, and a standard alphabet, the 'National Alphabet', was adopted in 1853. By the 1870s newpaper articles in Creek were being published." (Ager, Simon, 2013.)
58	Serbs	• "Linguisitic conditions in several regions of the former Yugoslavia (Republics of Bosnia-Herzegovia, Montenegro, Croatia, and Serbia) provide an interesting example of two writing sytems in concurrent use. Until recently, the Roman and Cyrillic alphabets were used interchangeably and fluenty by most skilled leaders to write Serbo-Croatian, the official language. [...] In the eastern (Serbian) region, Cyrillic predominated. In the western (Croatian) region, Roman predominated. Alphabetic prefernce reflected the indluence of the Slavic Orthodox church in the east, and of the Catholic Church in the west. [...] The Cyrillic script is an adaptation of the Greek uncial alphabet of the ninth century C.E., adn the Roman script is a varation of the Latin alphabet. In both cases, the scripts had to be modified to represent sounds not present in the original language [...]." (Feldman, Laurie Beth; Barac-Cikoja, Dragana, 1996a: 769)	
59	Shulh	• "In this country, individuals mark /Fr. marquent , mark, stamp, indicate, testify/, things happen . As paradoxical as the observation may appear, it is not so common in the past of North Africa. Let us understand that here the event leaves its trace in a collective memory. It does or does not utilize writing. In any case, it fixes something much more precise than the simple continuity from generation to generation. These memories, conscious and detailed, full of imagery and dramatic, even flourish in the literature. For one who has visited other populations, those of the Gharb, for example, what	

		1. Standardised Scripts (Presence)	1. Standardised Scripts (Absence)
		a surprise! In this world of the Atlas, society has a feeling of its own duration. It punctuates its past with victories and vicissitudes. The permanence of family archives depends on the constancy of the group chronicles, from which great figures naturally stand out." (Berque, Jacques Bigwood, Jane, 1955: 126) •"The TRIBE is the basic unit of the tribal system, in the sense that all other units only "make sense" if they are interpreted as combinations of (the confederation) or divisions of (the ifassen) the "tribe". In the pre-protectorate political system, the tribal level of organization was distinct by the posession of a certain number of features: (1.) It was an autonomous level of organization, and was identified with the tribal council (jema't n-tqebilt , "assembly of the tribe", to be compared with the jema't uduwwar , "assembly of the village" [i.e. congregation], and je ma't y ix w s or "assembly of the lineage"). (2.) It posessed a written legal code of its own, which specified a certain number of crimes against the tribe along with penalties for these; each of the six Tanani tribes had its own separate code, and, although they were broadly similar, there were differences. It is to be understood that these "customary"-law codes pertained to criminal and political matters only, while civil status and domestic law was regulated by Shari'a as interpreted by local 'ulema . Thus, at the level of personal law, Tanani practice formed a continuity with the national legal system, but in criminal law there was a distinct discontinuity, and in this domain the tribe rejected the national law and replaced it with a particular tribal law. (The Tanani codes, at least in part, are reproduced in Montagne 1924 and Montagne and Ben Daoud 1927). (3.) The tribe constituted the uppermost boundary within which there existed a determinate [Page 268] set of procedures for the resolution of conflict, namely the intervention of the tribal council. When conflict occurred across tribal boundaries, the igurramen or hereditary saints were brought into play, but they lacked the authority to actually impose a solution, unlike the councils of the tribes themselves. (4.) Finally, each tribe had its own distinctive political economic and political orientation, making alliances and engaging in trade with those non-Tanani tribes and confederations on which it bordered." (Hatt, Doyle Gordon, 1993: 267)	
60	Somali		• "A note is due here on the transcription of the Somali language in this study. Although there have been several scripts devised for recording the Somali language, none has to date been adopted by the Somali government. The orthography used in this study was developed [Page 4] by myself acting independently of any government agency. It is my private script, which I use in recording Somali poetry and folklore. The following is a linguistic description of the symbols used in this orthography which differ from English. The International Phonetic Alphabet (I. P. A.) symbol is given for the reader's convenience.." (Galaal, Muusa H. I., 1968: 3) •"Musa Galaal has distinguished himself as a writer of

		1. Standardised Scripts (Presence)	1. Standardised Scripts (Absence)
			the Somali traditions and culture and has produced many pamphlets, periodicals and books. His present book entitled “TERMINOLOGY AND PRACTICES OF THE SOMALI WEATHER LORE, ASTRONOMY AND ASTROLOGY” is yet another addition to the rare treasure of written records on Somali traditions. In this book, the author has shown that it is possible to write down the most valuable cultural aspects and traditions of our country which have so far been preserved in the memory of the people. Preservation of traditions and culture in the memory of the scholars cannot be permanent and, in fact, we have reached a stage when our valuable traditions are fast disappearing from the life of the people. The handicap of writing the rich traditions has all along been the lack of script for the Somali language. Musa Galaal has overcome this difficulty by writing his book in English." (Galaal, Muusa H. I., 1968: ii)
61	Taiwan Hokkien		• "Taiwanese first appeared in writing in the late 19th century in a Romanisation system known as Pe̍h-ōe-jī (POJ). Since then a number of different methods of writing Taiwanese have been devised, some using the Latin alphabet, some using Chinese characters, some using Japanese kana, and others using a mixture of the different scripts." (Ager, Simon, 2013.)
62	Tarahumara		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.y)
63	Tikopia		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.z)
64	Tiv		• "Writing: Latin script, used since 1936." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.)
65	Tlingit		• "There are three orthographies currently in use for Tlingit. The oldest of these is the “Revised Popular” orthography which developed in the 1970s from the now abandoned system devised by Constance Naish and Gillian Story in the 1960s. [...]. In all three systems, all unaspirated sounds occuring at the end of syllables are written with symbols for the aspirated sounds." (Ager, Simon, 2013.) •"The history of Angoon and its people seems to fall into several “periods,” represented by different types of traditions of documentations. The white man would logically divide it into at least three temporal eras: (1) prehistoric, or prior to contact with Europeans in the 18th century, and lacking written records; (2) early historic, beginning perhaps with the discovery of Alaska in 1741, or with the first venture into Angoon territory by a European; this would be covered, especially in the later decades of the 18th century, by an increasing number of reports by explorers, traders, and the Russian-American Company; (3) recent historic, a well-documented period, beginning with the purchase of Alaska by the United States in 1867 and running into the present. For the native of Angoon the divisions are not quite the same, especially since the prehistoric and early historic periods could hardly be distinguished by a people whose

		1. Standardised Scripts (Presence)	1. Standardised Scripts (Absence)
			contacts over many years with Europeans were only brief and intermittent. It was not, in fact, until 10 years after the purchase of Alaska by the United States that close association with the white man began. Then came the founding of the station at Killisnoo and the Presbyterian Mission school at Sitka which many Angoon children attended. Thus it is only within the memory of the old people that native history and white history really run side by side. Prior to this, some episodes in native tradition can be equated with events described in written documents, but others cannot. Often temporal clues are lacking, because the modern storyteller does not know, for example, whether firearms were used in the battles he describes." (De Laguna, Frederica, 1906-, 1960: 128)
66	Tongans		• "Tongan was first written by missionaries in the early 19th century using a number of different spelling systems. The current system was promulgated by the Privy Council of Tonga in 1943." (Ager, Simon, 2013.) •"The establishment of schools with the structure of a formal educational system has been one of the most effective forces in changing the culture of the villagers from primitive to folk-culture. Nevertheless it is easy to overassess the role that literacy plays in village-life. The large majority of the villagers are able to write the Tongan language. Most of them can read Tongan. To what use however, are these abilities put? As far as one can judge there is very little use made of writing except in the very occasional signing of one's name to some legal or government document. The writing of letters is infrequent. The attitude of the villager here is that everything can wait until personal contact is established, either by personal visiting or by the use of a visiting intermediary. Similarly, the use of reading-skills is very limited. Its principal use for most is that of reading such familiar material as Bible-lessons or church hymns. Children in school naturally use simple reading-texts with secular topics. With school-days far behind, however, the Bible becomes all-important and here one's ability to read is sometimes almost entirely limited to its use in reviving memory of key-words in sacred texts that are otherwise well-remembered but temporarily forgotten. Some households also possess the single-paged printed combination almanac-calendar issued by the government printer. The only virtue of this calendar seems to lie in its possession, not in its use. Dated days are of no significance to the villager except to mark off one Sunday from another and this function is performed equally well or better by church-bell and pulpit-announcement." (Beaglehole, Ernest, 1906- Beaglehole, Pearl, 1910-, 1941: 49) •"The following account of the origin of the name Pukotala gives a picture of the method of transmitting orders from a chief to his tenants: On the island of Haano there are four villages. Starting from the northwestern end of the island, they are Muitoa, Haano or Lotohaano, Pukotala, and Fakakakai. The lord of the island, known as Tui Haa Ngana, holds sway over the first three, but Fakakakai never had a chief and as its name indicates is made up of people from different parts that have settled there. In the olden days when the chief desired to give notice to the people of some new arrangement, he summoned his attendants and

		1. Standardised Scripts (Presence)	1. Standardised Scripts (Absence)
			matapule to Haano and told them what he wanted accomplished. A runner was dispatched to Pukotala to acquaint the folk there of Tui Haa Ngana's intentions. On the outskirts of the village was a big puko tree (“cottonwood”) and up this the runner used to climb and yell out at the top of his voice his chief's wishes. It was from this circumstance that the place derived its name: puko, cottonwood tree; tala, to tell." (Gifford, Edward Winslow, 1929: [n.p.]) •"In Tonga the genealogies of the great chiefs seem not to have been kept by the priests. These great genealogies were in the custody of the elderly woman of chiefly rank who memorized them and taught them to the young chiefs. With the adoption of writing, this custom of learning genealogies by heart has fallen into disuse. It is said that the women who were the repositories of the genealogies often discussed them among themselves and thus refreshed one another's memories. The genealogy which was supplied to me by the Queen of Tonga was set down from memory by the Tamaha Amelia with the aid of the chief named Shadrach Mumui. As soon as these two learned to write they decided to record the genealogies of the great chiefs and this record which was begun more than 75 years ago has been continued down to date." (Gifford, Edward Winslow, 1929: 232) •"Most of the chiefs are young men who could make themselves understood in English, and when we asked them the names of the different islands, many of them would take a slate and write them down, some agreeing to a letter with Captain Cook's account, this they have learnt from the English missionaries, three of whom are settled here, and who to my astonishment, informed me they had begun to teach the natives writing only five months ago, and in that time they had completely exhausted their stock of Tonga literature, and were now learning English of their own. (Laws 1829)" (Lātūkefu, Sione, 1974: 56) •"When George Tubou became king in 1845 his people were in the white-heat of a conversion to Christianity. The missionaries had taught them to read and write, and to pass a simple code of law. They had imbued them with envy of the dignity of civilised States,—their law courts, their police, the uniforms and salaries of their officials, and their other blessings of civilisation—including taxes. All these the Tongans might have if they were shown how to begin. For years there was no one to direct their nascent aspirations. Their teachers had no enterprise, and devoted themselves to the spiritual rather than the temporal needs of their flock; but at last with the necessity came the man." (Thomson, Basil Home, 1894: 2)
67	Toradja		• "The litany of the priestesses is all in poetic style; the poetic form is indeed the only one in which formulary pieces can be preserved among peoples who are not familiar with written language, because in this way a very great measure of immutability is guaranteed. The rules of the meter are strict, four feet of two syllables, now recited as iambic, then as trochaic. For example: Oentoëmo kawalekoe, “a distant journey I have made,” 122 Awarimo kajanokoe “I have made a trip far away,”

		1. Standardised Scripts (Presence)	1. Standardised Scripts (Absence)
			and Banja boeja meronangi, “I have to gain it from my sarong.” They are almost always parallelistic; hence the great need for alternate words which are sometimes again formed artificially, by dividing a word in two, for example, and then replacing one half by a synonym, as if, for example, in Netherlandish one were to interchange a word like gemak /”ease”/ with getam, because mak /”tame”/ and tam /”tame”/ are synonymous. " (Adriani, Nicolaus, 1865-1926; Kruijt, Albertus Christiaan, 1951: 619)
68	Trobriands		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.{)
69	Tukano		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.a)
70	Tzeltal		• "Tzeltal [latinate] alphabet" (Ager, Simon, 2013.)
71	Warao		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.b) •"In the absence of written records, the establishment of an absolute chronology for a bogland population is wrought with uncertainties. But at the time of Level's report on the Missions of Guyana (1850:1–17), in the mid-nineteenth century, no permanent settlement existed as yet along the banks of the Winikina proper. Genealogical information substantiates this fact and indicates that this situation prevailed until 1928." (Wilbert, Johannes, 1980: 14)
72	Wolof		• "Although important as a trade language in West Africa since the early period of European contact, Wolof has no significant literary tradition. It has been written occasionally in Arabic and Roman letters, but systematic instruction in Romanized Wolof was begun only in the 1960s." (Coulmas, Florian, 1999)
73	Yanoama		• "Determining the age of people in anthropological or nonliterate populations poses a difficult and frequently impossible problem. It is one of the principal reasons for the relatively few demographic analyses of population dynamics in anthropological literature. Age as a measure of a life span assumes a unit of measurement and a counting system, both of which are cultural conventions. Western societies employ the cyclical relationship between the earth and the sun to measure time and they also use a unitary counting system which can handle the smallest to the largest numbers. By contrast, the Yanomama employ the cyclical relationship between the moon and the earth for their [Page 54] infrequent measurements of time. Their counting system identifies only three measured units--one, two, and a residual category “many,” which simply means more than two. Individuals do not know their age because there is no need for it, and there are no written records. The difficulties of estimating age exclusively from physical appearances are well known, especially in a culture alien to the investigator." (Early, John D. Peters, John F., 1990: 53) •"Writing: Latin script." (Lewis, M. Paul; Gary F. Simons;

		1. Standardised Scripts (Presence)	1. Standardised Scripts (Absence)
			Charles D. Fennig (eds.), 2013.c)
74	Yukut		• "Yakut first appeared in writing in 1692 as part of a book by the traveller N. Witsen and published in Amsterdam. The first literary work in Yakut Reminiscences by A. Y. Uvarovsky and its German translation was published in 1851 as a part of Otto N. Böhtlingk's work About the Yakut language. Böhtlingk used an alphabet based on Cyrillic with some special characters. Between 1922-1939 a version of the Latin alphabet devised by S.A. Novgorodov was used to write Yakut, and since 1939 the Cyrillic alphabet has been used." (Ager, Simon, 2013.) •"Yakut oral histories begin well before first contact with Russians in the seventeenth century. For example, OLONKHO (epics) date at least to the tenth century, a period of interethnic mixing, tensions, and upheaval that may have been a formative period in defining Yakut tribal affiliations. Ethnographic and archaeological data suggest that the ancestors of the Yakut, identified in some theories with the Kuriakon people, lived in an area near Lake Baikal and may have been part of the Uighur state bordering China. By the fourteenth century, Yakut ancestors migrated north, perhaps in small refugee groups, with herds of horses and cattle. After arrival in the Lena valley, they fought and intermarried with the native Evenk and Yukagir nomads. Thus, both peaceful and belligerent relations with northern Siberians, Chinese, Mongols, and Turkic peoples preceded Russian hegemony. When the first parties of Cossacks arrived at the Lena River in the 1620s,. Yakut received them with hospitality and wariness. Several skirmishes and revolts followed, led at first by the legendary Yakut hero Tygyn. By 1642 the Lena valley was under tribute to the czar; peace was won only after a long siege of a formidable Yakut fortress. By 1700 the fort settlement of Yakutsk (founded 1632) was a bustling Russian administrative, commercial, and religious center and a launching point for further exploration into Kamchatka and Chukotka. Some Yakut moved northeast into territories they had previously not dominated, further assimilating the Evenk and Yukagir. Most Yakut, however, remained in the central meadowlands, sometimes assimilating Russians. Yakut leaders cooperated with Russian commanders and governors, becoming active in trade, fur-tax collection, transport, and the postal system. Fighting among Yakut communities decreased, although horse rustling and occasional anti-Russian violence continued. For example, a Yakut Robin Hood named Manchari led a band that stole from the rich (usually Russians) to give to the poor (usually Yakut) in the nineteenth century. Russian Orthodox priests spread through Yakutia, but their followers were mainly in the major towns. By 1900 a literate Yakut intelligentsia, influenced both by Russian merchants and political exiles, formed a party called the Yakut Union. Yakut revolutionaries such as Oiunskii and Ammosov led the Revolution and civil war in Yakutia, along with Bolsheviks such as the Georgian Ordzhonikidze. The consolidation of the 1917 Revolution was protracted until 1920, .in part because of extensive opposition to Red forces by Whites under Kolchak. The

		1. Standardised Scripts (Presence)	1. Standardised Scripts (Absence)
			Yakut Republic was not secure until 1923. After relative calm during Lenin's New Economic Policy, a harsh collectivization and antinationalist campaign ensued. Intellectuals such as Oiunskii, founder of the Institute of Languages, Literature and History, and Kulakovskii, an ethnographer, were persecuted in the 1920s .and 1930s. The turmoil of Stalinist policies and World War II left many Yakut without their traditional homesteads and unaccustomed to salaried industrial or urban work. Education both improved their chances of adaptation and stimulated interest in the Yakut past." (Balzer, Marjorie Mandelstam, 2)

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
1	Akan	• "Even though the Akan share a number of cultural traits with other ethnic groups in Ghana and Africa in general, they seem to possess certain unique cultural traits and institutions not found in other ethnic groups in Ghana. [...] Beside language, Boahen lists a common 40-day calendar [...]." (Yankah, Kwesi, 1989: 21)"Even though the Akan share a number of cultural traits with other ethnic groups in Ghana and Africa in general, they seem to possess certain unique cultural traits and institutions not found in other ethnic groups in Ghana. [...] Beside language, Boahen lists a common 40-day calendar [...]." (Yankah, Kwesi, 1989: 21)"Even though the Akan share a number of cultural traits with other ethnic groups in Ghana and Africa in general, they seem to possess certain unique cultural traits and institutions not found in other ethnic groups in Ghana. [...] Beside language, Boahen lists a common 40-day calendar [...]." (Yankah, Kwesi, 1989: 21)"Even though the Akan share a number of cultural traits with other ethnic groups in Ghana and Africa in general, they seem to possess certain unique cultural traits and institutions not found in other ethnic groups in Ghana. [...] Beside language, Boahen lists a common 40-day calendar [...]." (Yankah, Kwesi, 1989: 21)	
2	Andamans		• "No marks on rocks, trees or other objects, made for purposes of record, are believed by them to exist, and, with the exception of the supposititious hieroglyphics, hereafter to be mentioned, nothing of the nature of writing is to be found among these tribes, nor have they any method of recording the name and exploits of a deceased chief or other individual who may have gained distinction during his life, save the narration --more or less garbled--of the same by their admiring descendants. The messenger who conveys intelligence to a distant encampment bears no outward token with him to testify to the authenticity or character of the communication he has to make." (Man, Edward Horace, 1932: 46) •"The Andamanese have therefore adopted an original method of marking the different periods of the year by means of the different odoriferous flowers that are in bloom at different times. Their calendar is a calendar of scents." (Radcliffe-Brown, A. R. (Alfred Reginald), 1881-1955, 1922: 311)
3	Aranda		• "A native has a very good idea of time. The hour at which a past event has happened, or at which a coming event is to happen, is indicated by pointing at the assumed altitude of the sun. To fix a time definitely for a contemplated or proposed action, a stone is placed upon a cliff, or in the fork of a tree, at the hour decided upon, a day or two in advance, in such a position that a sunbeam just strikes it at the moment. When the correct day arrives, the stone is watched until it is again illumined in the same way; and the natives then know that it is time to act. This method is employed when, say, the men have left camp early, and they order the women to follow them

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
			at a later hour." (Basedow, Herbert, 1925: 395) •"Time is chronicled by two phases of the moon; a crescent standing for new, and a circle for full moon." (Basedow, Herbert, 1925: 351) •"“Days are reckoned by the number of sleeps they have had, and the biggest measurement of time goes by so many moons.”" (Basedow, Herbert, 1925: 396) •"The Aborigines have no method of calculating the gestation period. Pregnancy is determined by the movements of ‘quickening’ in the fourth month. In the last month of pregnancy, when the foetal presenting part sinks into the pelvic cavity (‘lightening’) the Aborigine knows that parturition is near." (De Vidas, J., 1947: 118)
4	Aymara	• "The Aymara had the Peruvian type of quipu, which they called urkoña or [unknown]cinu. This was merely a set of cords which could record only numerical matters in a mnemonic form. Sometimes also they used llama taquia to count large numbers by tens. So far as we know now, this is the nearest they had ever come to writing, if we except the carvings on the famous Gateway of the Sun at Tiahuanaco which are probably only calendrical devices." (La Barre, Weston, 1911-, 1948: 117) •"As near as we can judge at this remote date, Aymara ritual life revolved around a series of yearly festivals set by the agricultural calendar and astronomical reckonings, perhaps not very unlike those of the neighboring Inca, whose forms somewhat influenced those of the Aymara in immediately pre-Spanish times." (La Barre, Weston, 1911-, 1948: 187) •"There is considerable confusion in the Aymara names of months. Cieza wrote (Cieza de León, 1864, p. 367) that the Colla count their years from ten months to ten months, and I learned from them that they called the year Mari, [and] the moon or month Alespaquexe. From Bertonio's vocabulary I have pierced together the following: January, isca hauti [little famine], casiui or chino [quipu] phakhsi; February, marca phakhsi or marca ccolliui phakhsi; March, hupa llamayu; April, hupa or amca llamayu; May, isca huati: June, casiui [the harvest fiesta] or hacha hauti; July, cacha chimo phakhsi; August, hupa thapiui, hacha chimo, or hupa phahuaui phakhsi ; September, casu lapaca; October, sataui or lapaca phakhsi [the sowing season]; November, huaña [locust] chucha or lapaca phakhsi; December, vma chucha. This synthetic and inconsistent list is unsatisfactory, since, as will be evident later, some of these terms appear to apply to seasons rather than to months. Wallis (Wallis, 1926, p. 264) from information which I cannot identify, writes that the Aymara calendar includes the following moons: Knot moon, Breaking up of the soil, Harvest, Moon of the harvest feast, and Quinoa sowing. This list is accurate, so far as it goes. The modern Aymara whom I questioned were unable to remember the ancient month names, butCalled the months after the major Spanish church fiestas occurring in them. This may be following an ancient pattern, however, of naming months (as among the Inca) from the major native fiesta of each moon. The imperfect list	

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
		is: January, kalendar-paxsi; February, karnawal-paxsi; March, pasku-paxsi (Pascua); May, santa-kurus-paxi; June, korpus-paxsi; July, santiago-paxsi and inti raimi (from the Quechua) for one of the solstices." (La Barre, Weston, 1911-, 1948: 199) •"The Aymara had the Peruvian type of "quipu," which they called urkoña or [unknown]cinu. This was merely a set of cords which could record only numerical matters in a mnemonic form. Sometimes also they used llama taquia to count large numbers by tens. " (La Barre, Weston, 1911- 1948: 117) •"As an agricultural people the Aymara pay considerable attention to meteorological phenomena. The east is the most important ceremonial direction, but little attention is paid to the sun either in ritual or in everyday behavior. There is a great deal of star lore and some constellations are named. The moon, however, is the most important heavenly body, all aspects of agriculture being governed by its phases and appearance (Paredes, 1936, p. 85). Because the word paxsi means both moon and month, it is presumed that the Aymara possessed a lunar calendar in pre-Spanish times. Cieza makes the obscure statement that the Colla counted their year from ten months to ten months (Cieza de León, 1924, p. 319). The month names are not used today, although Bertonio gives an incomplete list (Bertonio, 1879 b). It is probable that the Aymara, like the Inca, named a month after its outstanding fiesta. Although the equinoxes are not recognized, the solstices are ascertained by observing the position of the sun in relation to fixed geographical points." (Tschopik, Harry Jr., 1946: 571)	
5	Azande		• "The weather is always unreliable and, as has been shown during the analysis of his agricultural year (Chapter 11), the Zande is guided not by a fixed calendar but by a certain number of ecological symptoms, the time of occurrence of which he does not know exactly in advance. He may suddenly realize that the groundnut sowing season is over, risk a few more days of sowing and then turn the rest of the clearing made for the groundnut-eleusine succession into a main eleusine association. Or he may realize that the eleusine sowing season is over and leave the last section of his clearing simply unsown." (Schlippe, Pierre de, 1904-, 1956: 205).
6	Bahia Brazilians	• "Briefs, transcripts, certified copies, deeds, decisions, appeals, reports, inventories, and position papers were produced in Portuguese, Italian, and Latin throughout the dispute. These materials, scattered in Brazil, Portugal, and Italy, provide an incredible record of one engenho's history. More important, because of the contested ownership of the property and testamentary obligations on it, extremely careful annual accounting records were kept over long periods of time. [...] Together with the other documentary evidence, these series of accounts are an indispensable source [...]." (Schwartz, Stuart B.,	

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
		1985: 497)	
7	Banyoro	No Data	No Data
8	Bemba		• "The oral tradition redacted by homeostasis. There are innumerable changes in any living culture over time, but an oral culture does not have the technology for the intellect to understand them as mutations. There is an oral tendency towards [Page 111] cultural homeostasis (Cf Ong 1982, 46-9). This process is impelled by the social function of memory, which stores only what is socially relevant and conveniently forgets all else in a "structural amnesia" (Goody 1977, 14; 1968, 307-09). New constituents of the cultural heritage are adapted to the old, as the people strive after meaning by harkening after their normative past. The result is that the oral Bemba have little perception of the past except in terms of the present (Richards 1960, 179). They lack writing as a mechanism, by which they could build up a body of chronologically ordered statements to compare with their present views (See above, 85ff). Any present adjustments to the tradition will be gradually introduced as having always been so conceived, convincing the people that the new is in fact part of the true, venerable version of the tradition. Oral transmission, as a performance, then, is not a mechanized memorization but an imaginative process of continuous creativity (Ong 1982, 57-68). It reconstitutes and transfers elements within the latitude of the tradition (Goody 1977, 116-17). An oral tradition is never "an inert acceptance of a fossilized corpus of themes and conventions," but represents an "organic habit of recreating what has been received and handed on" (Lord 1964, xiii). Tradition is actually more of a process (traditio) than a product (tradita). Thus, even the successful debut of the Christian rendition of Lesa could be construed as due to this oral propensity to conceive of contemporary developments as "having always been so" in the tradition." (Maxwell, Kevin B. (Kevin Burns), 1941-, 1983: 110) •"The Bemba, like many other primitive peoples, reckon the passage of time by the activities performed in it, rather than by any regular system of time intervals. The umwaka (plur. imyaka) is the name given to the complete cycle of climatic changes and economic processes which make up the year. The umwaka is a cycle of seasonal changes but it is never calculated by means of the stars, in which the Bemba seem to have little interest and never use as a means of reckoning time. This is divided into thirteen months (umueshi—imieshi) which signifies moon, or the cycle of the moon (cf. table on p. 389). The names of these months are used with greater or less frequency according to the importance of the activities performed in them. The coming of each new moon is an important event in the people's life, since it affects very largely the tempo of ordinary activities. When the moon is full, laughter and talk go on late into the

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
			night and the drums sound for dancing. When the moon has waned, there is no other system of lighting and the people go early to bed. The days of full moon are also believed to be specially lucky and to be auspicious for the starting of any new activity. I noticed several times that the bakabilo of Citimukulu's court postponed important ritual acts, often at some practical inconvenience, until the nights were 'white, completely white' (ukubuta tutu), explaining in answer to my comment: 'We cannot work at such things in the dark' (Teti tubombefyo mu mfifi). The rhythm of the changing moons has thus a significance to the Bemba that it has lost in our society, and the appearance of the new crescent is greeted with delight and often with shouts from the children, but at the same time the calendar of months is rarely used as a method of calculating time or fixing the start of economic activities. Some months coincide with the change of season: Shinde (April), the change to the cold weather; Lusuba lunono (October), the beginning of the hot season; Mpundu (November), the coming of the rains and the time of the ripening of the mpundu fruit. In these cases the name of the month is used in daily conversation in planning activities. But in other cases the change of climate, i.e. windy season (mpepo) or the hot season (ulusuba) is referred to only, and there are several months in the year when, owing to the difficulties of working with a thirteen-months calendar, the ordinary native is not quite certain what the name of the particular moon should be. In April 1934 I heard the chief's council discuss informally with the Paramount chief whether the moon that had just appeared was correctly Kutumpu or Shinde, and these learned men of the tribe took different sides on the question. The English child hardly notices changes in the moon, but learns to recite the months of the year as an abstract sequence of names of which certain have an emotional significance as being a period containing a birthday or Christmas, but the Bemba child is delighted with the appearance of each new crescent and lives a more exciting life during the full moon. He only gradually learns at about 9 or 10 that certain of these moons coincide with particular economic tasks, and later still, as an adult, he is able to recite all the moons in order and to discourse wisely on the whole sequence of the calendar." (Richards, Audrey Isabel, 1899-, 1939: 390)
9	Blackfoot		• "From one man we secured a set of 179 sticks used for keeping track of time. Red sticks were used for years. Another, used a bag with two parts; one faced with red, the other with blue. Fourteen pebbles were used to mark the moons; each time the moon became invisible he moved a pebble to the other side. Calendars, or winter counts, were kept by memory rather than by sticks, or paintings. We get the impression, however, that there was less interest in such records than among the Dakota and Kiowa. The following is Elk-horn's winter count, beginning about 1845 [...]." (Wissler, Clark, 1870-1947, 1911: 45) •"As far as our information goes, the time of day was

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
			noted by the sun and the night by the position of Ursa major, the Seven Stars. The year was designated by the winter, each winter constituting a new year. Two divisions or seasons were recognized; spring and autumn were regarded as originating with the whites. Each season was considered as composed of moons; the period during which the moon was invisible taken as the beginning of another moon. We found little consistency in the nomenclature of moons, our information implying that they were considered more by numerals than by names. The tendency was to count the moons from about October, the beginning of winter or the new year. Variation seems to have been due to the fact that calendar counts were kept by a few individuals, usually medicinemen, who modified the system according to their own theories. One man who kept a calendar gave the following list: [...]." (Wissler, Clark, 1870-1947, 1911: 44)
10	Bororo		• "Lunar observations are also significant for a number of associations only marginally calendric in function. For example, two older informants expressed the belief that there is a direct relationship between lunar phases and human health and fitness, and that this relationship had been traditionally marked by an observance of certain rules of conduct, such as fasting at both new and full moon. Other comments relevant to lunar associations include: a child cuts its first tooth when the moon is in the zenith, referring to third-quarter moon when it is at its highest point at sunrise (cf. table 5.8, arire barogwadu baru oya keje); this belief is paralleled by the notion that teeth grow when the moon is descending, a general reference to the waning moon. Fish eggs are also said to be growing during waning moon, while palm shoots are said to open at full moon." (Fabian, Stephen Michael, 1992: 99) •"Although the Bororo do not habitually make detailed temporal calculations, they can and do count when necessary in both calendric and noncalendric contexts. Furthermore, the paradigmatic village pattern can be and is used to structure and codify their world, and this includes time-related matters. Specifically in this regard I have presented sets of data on time-factored and time-factoring (to use Marshack's terms; 1972) systems that are ordered by their localized settings in the village plan. The data on the system of callers who guard the night and the age classes demonstrate the indigenous use of the Bororo village in structuring and reckoning space-time. The relatively sophisticated Bororo astronomical observations, such as the series of turtle constellations and the Pleiades calendar, can be and are used to reckon time, marking both nightly and annual periods. These observations are combined with observations of the natural environment (*e.g.*, faunal and floral cycles, meteorological phenomena) and of the positions of sun and moon, the whole of which is brought back into the social realm." (Fabian, Stephen Michael, 1992: 174) •"While some Bororo are knowledgeable about the Western calendar, my principal informant scoffed at marking the specific day and time of the beginning of a particular season: in his opinion natural indicators

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
			were more appropriate to this function, while the beginning of any season could not be so minutely pinpointed. As there is more to defining the rainy season than simply when the rains begin or end, the knowledge of environmental indicators used traditionally to mark time are vitally important in appreciating the indigenous system. Unfortunately, investigation of this topic is hampered by two factors: the current demise of traditional practices in contemporary villages, and the lack of detailed studies of the seasonal availability of resources." (Fabian, Stephen Michael, 1992: 106) •"As with the Shavante, the Bororo are not generally concerned with counted time measurements. This predilection is undoubtedly what led the Salesians to report the Bororo inability to count past a couple of days. But a distinction is necessary between predilection and ability. The Bororo and other native groups effectively utilize sequences and synchronized temporal layers for precise use of and reference to time when desired. However, if and when an exact count should be necessary, tally counting can be easily and accurately performed. Such tally counting can be used in both temporal and nontemporal contexts, even without a developed numerical system. For example, after helping several Bororo men to bag and stack a portion of harvested rice, I was interested when one man counted up the bags in Portuguese; I then challenged him to count them in Bororo, knowing that beyond mito as one and pobe as two Bororo numbers become rather cumbersome. While tallying is a most effective way of counting, anyone involved in totaling quantities will eventually have use for naming those quantities and the figures that comprise them. (Note that the English verb to count comes from the Latin computare, which combines com-, together, and putare, to cleanse, prune, adjust, that is, the sense of counting or computing in making something neater, cleaner, better ordered.) The Bororo do have names for numbers, but only for one and two are the terms discrete. Other numbers are unwieldy statements related to quantities expressed by digits upon the hands and feet, such as: 3, ure pobe ma jewu metuya bokware (a pair of them and that one whose partner is lacking); 5, ure ikera awubodure (as many of them as my hand complete); 10, ikerako boejeke (my fingers all together in front) or ikera pudogidu (one hand near the other); 13, ixare buture ivure boeyadadawuto pugeje (now the one on my foot that is in the middle again); and 20, .ixare maka rema avure (now it is as many as there are with your feet). (Numbers and translations are taken from Lounsbury 1978:761, and EB I:800.) For the Bororo, such numerics were adequate for recognizing the relation of celestial periodicities and natural diurnal and seasonal cycles, and for relating these intuitively and cosmologically with their own social cycles. To my surprise the man quickly and simply ticked the bags off on his fingers and toes, arriving at the same sum as he had in Portuguese (although he had no discrete term with which he could express in Bororo the tallied

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
			quantity of sacks, he did have a concrete notion of how many there were, using either counting system). Tally counting can also be used for calendric purposes where a specific number of days have significance. This is done not only by the Bororo but among the Shavante: the elders were keeping track of the initiation ceremonies by making a notch for every day in a ceremonial pole erected at one end of the village (Maybury-Lewis 1965:215)." (Fabian, Stephen Michael, 1992: 176) •"At least one myth explicitly describes the movement of the Meridoge through space in a manner interpretable as a calendric reference. One version of this myth (from Colbacchini and Albisetti 1942:257; Wilbert and Simoneau 1983:#23) is paraphased here. The Bororo say that the sun and his companions of the sky undertook a journey from west to east, marking the places they passed with mountains and so forming that chain of heights that goes in the direction of their journey, during which they also created some animals, such as ki, tapir, jui, wild pig, and others. Observing that people did not have a good line from which to make cord for fishing, they made the rito emerge from the earth, a small palm from whose leaves a very tough fiber could be taken by the Bororo for fishing and for making nets. At a certain moment they let out a strong and prolonged yell that startled the caymans that were on the bank of the river. Then the Meri-doge said, The aroe caymans were startled to hear the shouts of the aroe meri at the passage of the river. They said the same when with their shouts they frightened the aroe pai, the howler monkey. The myth presents a direction of movement from west to east, and therefore contrary to the observed daily motion of the sun. This may be a reference to nocturnal solar movement, when the celestial orb must travel from its setting point in the west to once again rise in the east. The myth may also be describing the apparent west-to-east movement of both the sun and moon with respect to the background of relatively fixed stars. The moon, for example, is explicitly said to rise in the west when it reappears each month as a waxing crescent; it is then observed and talked about coursing eastward, as on successive nights leading up to its full phase it is seen progressively further from the setting sun. The sun's apparent movement against the backdrop of stars is more problematic, as the presence in the sky of the sun and the stars is mutually exclusive. Specific stars can be perceived as appearing higher in the sky each night at sunset, making the sun appear to be moving eastward through their midst. It is also possible that the west-to-east motion may be an idiom for expressing the observed yearly peregrination of the sun and moon between northern and southern extremes: it is for this north-south movement that the hills created by the sun to mark his journey would be most effective for solar observations on the horizon." (Fabian, Stephen Michael, 1992: 121) •"The Bororo especially note the position of the Pleiades at dawn or dusk and coordinate certain of these observations with specific cultural and ecological events. These observations (including a [...]

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
			period of nonvisibility) encompass the solar year in a set, summarized in table 7.1, that can be related at any time by those knowledgeable; such knowledge is fundamental for and indicative of possible further codification of a calendar based on stellar observation. Watched consistently, the Pleiades serve as one reference to mark pertinent cultural and ecological events. For example, when the Pleiades are low in the west at dawn, around early October, crops should be planted as the rains are imminent. Similarly, their setting at dusk in late April to early May signals the end of the rainy season and the beginning of preparations for the boys' initiation ceremony. The system of noted Pleiades positions is not an absolute clock or calendar, however, but rather is combined with other environmental particulars to yield temporal information accurate enough to result in the strategic and adequate utilization of available resources and the integration of social and natural cycles." (Fabian, Stephen Michael, 1992: 131) •"An analogous situation exists with respect to time reckoning. Without marking, the flow of time would be so uniform as to be meaningless. This situation never arises, as both natural and social factors contribute in making meaningful periodicities within the flow of time. Night changes to day, the new moon swells to full, the cloudless sky darkens and rains come; a person is born, grows to puberty, reproduces, and dies. In dying, a Bororo becomes aroe, his/her soul part of the underlying structure of the cosmos by which nature and society are joined, antithetical but interrelated, complementary domains. The flow of time goes on. Stars that rise and set with clocklike regularity repeat their patterned movements annually; periods of disappearance and reappearance contribute to marking off this annual cycle. Beyond the year, this continuity is punctuated by the relative discontinuities of the planets in an otherwise starry sky. With periodicities of their own, the planets course through the constellations we describe as the ecliptic band, which all observant stargazers recognize in their own way. By intersecting the annual flow of time and movement of the sun with celestial cycles beyond a year, they contribute to marking off a longer progression of time in increasingly large cycles. In the New World the Maya are best known for their systems of interlocking cycles: the tzol kin, a 260-day cycle that combined 13 nümerals with 20 n.amed days; the haab, a 365-day vague year comprised of 18 months of 20 d.ays (plus an additional 5); and the two intermeshed in a cycle that repeats itself every 52 years (see Aveni 1980 for a thorough treatment of Mesoamerican astronomy and calendrics). They were also aware of a 584-day Venus cycle (including periods of that planet's appearance as morning and evening star and its intermittent disappearances), and its intermeshing with the 365-day vague year every 8 solar years, or every 5 Venus years (8 X 365 = 2920 =. 5 X 584)." (Fabian, Stephen Michael, 1992: 172) •"This interpretation of the astronomical data with respect to the myth sequence correlates well with the interpretations of the myth presented in chapter 2.

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
			That is, the seasonal references in the myth, substantiated by the astronomical code, indicate that the myth action transpires during the course of one year, beginning and ending near the time of the heliacal rise of the Pleiades, the final stage of male initiation. The myth details the maturation of a male Bororo individual (and by extension males collectively) from boyhood to adult, a transition traditionally related to the course of one year that culminated in the imposition of the penis sheaths on the youths (ipare eno o badodu) and the transformation of the boys into cultured adults via the mediation of fire during the Akiri-doge Ewure Kowudu ceremony. Thus the calendric significance of the period of the heliacal rise of the Pleiades as emphasized in the myth is particularly appropriate. In applying to mythology for astronomical content, it is not my intention to suggest that to have established such content is to claim a full rendering of the meaning of a myth." (Fabian, Stephen Michael, 1992: 150) •"Bororo clans are perceived in sequence. These clans own such property as proper names, rituals, songs, and perhaps even specific myths. Since certain myths (such as those recounting the exploits of culture heroes) and rituals can best be appreciated sequentially, there may be a relationship between clan sequence, myth sequence, and sequences of space-time and calendar. In the Toribugu myth, for example, the relationship between Toribugu and his father, and their respective structural locations on the village circle, can be linked not only to the diachronic and synchronic sequences of the myth, but to specific constellations and their diachronic and synchronic relationships as well. The sequence of clans is a memorized scheme that completely and effectively organizes village space. Traditional rules and laws then govern the relations between the groupings so organized." (Fabian, Stephen Michael, 1992: 168) •"In order to better promote social production and reproduction, Bororo society attempts to integrate its social space with social time and to integrate social space-time with cosmic space-time. Table 7.3 details some of the overlapping and intermeshing layers of temporal cycles of the Bororo calendar. [...] The Sun category immediately below the Western calendar month designations is not meant to represent Bororo data, as Bororo observation or notation of all of these solar positions cannot be substantiated. Nevertheless, solar extremes are known, and knowledge of the equinoxes--as midway between--is therefore implied. Zenith positions (baru aiadada, center of the sky) are also noted by the Bororo, although I did not specifically observe the marking of a solar zenith passage in Garças village. The yearly cycle reflects and is analogous to the various temporal cycles of which the Bororo are aware, all conforming to a single model. The human cycle of growth, maturation, reproduction, and death and cosmic cycles expressed through the movements and representations of the aroe spirits are integrated within the annual calendar. This attempt at integration is seen in correspondences between certain celestial and Bororo social processes: (1) The major east-west village axis and the directionality of the daily

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
			movement of celestial entities (particularly the sun); (2) The reversal of the principal east-to-west movement by the moon, perceived as rising in the west, as well as the apparent slipping eastward of the sun and moon with respect to the stars, and ceremonial processions of actors proceeding from west-to-east into the dance plaza; Table 7.3 Partial Depiction of the Bororo calendar; (3) The north-south-north movement of the sun over the course of the year, and the north-to-south or south-to-north movement of males in the village over the span of the life course, as well as the direction of all intermoiety exchanges; (4) At 15° S. Lat. the fact that the sun is observed for the greater part of the year in the northern part of the sky, and the structural location of the hereditary chiefs in the northern (Exerae) moiety; (5) The sun's daily movement when north of its zenith passages (i.e., for most of the year) is observed as counter-clockwise, and this is likewise the main direction of movement in all Bororo ceremonies that include circular dance patterns; and the corollary of the above, the sun's less frequent clockwise motion, and the occasional clockwise reversal of otherwise counterclockwise dance movements; and (6) The observance of the circular disc of the sun, the sun's annual circle or cycle, and the circularity of the village and in general the recursivity of all social space and time." (Fabian, Stephen Michael, 1992: 151) •"Zuidema (1982b) specifically relates the reduplicative southwestern quadrant (Cuntisuyu) of the Inca ceque system of Cuzco with considerations of a stellar-and sidereal lunar-based calendar scheme. Specifically, observations of the rise and set points of the Southern Cross bracket the southern section of the ceque system labeled by Zuidema IVB (including the double line IVA3a, c). The Cuzco data suggest further investigation into the principles by which the Bororo village is patterned and the positioning of localized social groups. It is not unlikely that, because solar observations are used to align the village, stellar observations might serve as factors in the placement of social groups." (Fabian, Stephen Michael, 1992: 155) •"Although not developed as such, certain data included in Baldus's paper begin to illustrate important elements of what native Brazilian time constructs are. For example, it is reported that in Brazil seasons can be characterized by the maturation of a fruit ... by the abundance of fish, by cold or heat, by rain or by dryness, and such characteristics can be put in relation to celestial phenomena as, for example, the appearance of the Pleiades (Baldus 1940:90; unless otherwise noted, all translations are my own). The cognition of a variety of seasonal characteristics in relation to themselves and to celestial phenomena indicates a prominent trait of native calendrics: the recognition and use of layers in timerelated observations. This system makes use of multiple, observable environmental phenomena that occur more or less contemporaneously. Leach has labeled such phenomena synchronous natural events (1954:116), although in essence he refers to only two

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
			synchronous events, whereas I am concerned with the observations of multiple contemporaneous environmental phenomena. Taken together, the layering of these many different observations will yield precise information, even though any single observation may itself be imprecise in nature (see Aaboe and de Solla Price, 1964). Although a single major property such as heavy rains may be emphasized, it is the observation of a host of related characteristics that creates the layered effect resulting in precise temporal cognition. This principle is fundamental to native time reckoning." (Fabian, Stephen Michael, 1992: 11) •"It is interesting to note that the list of months has a pattern of six/four; that is, the first six months begin with Ari, while the remaining four begin with No ari.Besides estimating half the year, a period of six lunations is potentially significant for eclipse predictions (my appreciation goes to A.F. Aveni for this observation). Eclipses occur when the sun, earth, and moon are aligned, specifically at either new moon (potential solar eclipse) or full moon (potential lunar eclipse). However, due to an approximate 5° inclination of the moon's orbit relevant to the ecliptic (i.e., the plane of revolution of the earth about the sun), an eclipse can only occur when the moon is close to the nodes of its orbit, or the points of intersection of the moon's orbit and the ecliptic, which takes place at approximately six-month intervals. [...] However, it is interesting that the informant, an elder with considerable cultural knowledge, described ten moons or months, not twelve. (Since a synodical month comprises 29.53 days, twelve such months come close to the period of a solar or tropical year of 365.24 days: 12 X 29.53 = 354.36; ten synodical months equal 295.3 days.) Other indigenousCalendars also include only ten months, such as the Trobriand system described by Leach, as well as the pre-Julian Roman calendar, in which the months September to December were (as their names imply) the seventh through tenth months, with December the last named month. The Bororo naming of a recognized set of ten months may indicate a more detailed and codified calendar than is today evident in their culture. Observations of the moon along the horizon may also have been significant for calendric purposes (a topic returned to in the next chapter). In contemporary Bororo villages any necessary reference to specific months is made with respect to the Brazilian (Gregorian) calendar." (Fabian, Stephen Michael, 1992: 98) •"In addition, the eleven listed encounters, with up to two other possible encounters implied by breaks in the myth's sequence, suggest an annual period based upon observed lunations. That is, 12-13 synodical lunar months, or months based upon lunar phases and the moon's position relative to the sun, comprise a solar or tropical year (12 synodical months of 29.5 days each falls short of the tropical year by somewhat more than 11 days: 12 X 29.5 = 354). The occurrence of fledglings among some of the encounters--specifically with the hawk species--must be interpreted as a seasonal reference based upon the breeding cycle of these birds. I cannot say conclusively

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
			whether the other species relate specifically to calendric periods or not, but parakeets, for example, are considered garden pests in the Andes, especially destructive of maturing corn [...] and may also have threatened Bororo corn plantations near harvest time (January-March)." (Fabian, Stephen Michael, 1992: 123)
11	Bosnian Muslims	• "Spring was approaching in Dolina, the village where Vasvija was born and had married. For weeks I had heard people referring to Jurjev. The day of Jurjev or Jurjevdan (St. George's day; the Orthodox Serbs call it [unknown]Dur[unknown]devdan), is on 6 May according to Orthodox tradition. Jurjev turned out to be a significant event on both the ritual and agricultural calendars of the Dolina Muslims. Bosnian Muslims were (and are) familiar with all the holy days celebrated by their Orthodox (pravoslavni) and Catholic compatriots. They used both the hijri (Islamic) calendar and the Christian one, and often reckoned time according to Christian feast days (Had[unknown]zijahi?, Tralji?, and [unknown]Sukri? 1977:87). Muslims in some regions still celebrated some of these feast days in 1987. Ritual events were said to take place so and so many weeks after Jurjev. The sun is said to be good after Jurjev, but before Jurjev it is recommended that you not expose yourself to direct sunlight for long, as the sun is not good and will give you a headache. Certain crops should be sown before Jurjev and others after. The dates for the annual prayers for rain and the Dolina dova (prayers for the dead) are reckoned from Jurjev . In fact the day marks the traditional celebration of spring and fertility, and although it coincides with a Christian feast day, its origin is probably pre-Christian." (Bringa, Tone, 1960-, 1995: 225) •" Others may follow the takvim (the lunar calendar which shows the times for prayer and for sunset and dawn throughout the year) [...]." (Bringa, Tone, 1960-, 1995: 166)	
12	Central Thai	• "The schedule of a market opening is decided according to the lunar calendar. For example, on the 1st days of the waxing and the waning moon, a market is held on the Phrik Temple grounds. On the 2nd days of the waxing and waning moon, a market is held on the Bot Temple grounds. Finally on the 15th days of the waxing and waning moon, a market is held on the Chaiyo Temple grounds. Following such a fixed schedule, a market is held almost every day somewhere near the village." (Tomosugi, Takashi, 1995: 89) •"Surpluses, however, are sold at the market held on the temple grounds on a certain day based on the lunar calendar." (Tomosugi, Takashi, 1995: 4)	
13	Chuuk	• "Source materials for the central Carolines report a few star names which play no direct role in either the sidereal compass or calendar." (Goodenough, Ward Hunt, 1953: 43) •"We conclude, therefore, that when the ancestors	

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
		of the present inhabitants of the Central Carolines first settled there, they brought with them a system of sailing directions and time measurement based on astronomical observations. This system was modified in time to meet the requirements of the area in which they now lived. Their nomenclature became so changed as to bear little resemblance to that of their remoter relatives. Sailing directions were organized into a genuine compass, and the almanac was reduced to a calendar by those Carolinians who lived on the small atolls and who had therefore to engage in trade in order to acquire necessary raw materials. Frequent contact between navigators from the different atolls helped keep the developing system of astronomy fairly uniform within the area." (Goodenough, Ward Hunt, 1953: 41) •"The identification with Arcturus on Puluwat (9) is probably due to confusion with jöromöj, which provides the name for the corresponding month in the calendar of Satawal (10a), for Damm and Sarfert (1935: 273) report both calendars together." (Goodenough, Ward Hunt, 1953: 32) •"We may now list and discuss the twenty stars and constellations for which the sidereal months are named in the several calendars." (Goodenough, Ward Hunt, 1953: 29) •"It is these concerns which underlie the development of Carolinian astronomy. Only in relation thereto has there been any systematization of heavenly phenomena, and this on a strictly empirical basis. From the movements of certain stars navigators have developed a sidereal compass in terms of which they give all sailing directions. They have also developed an almanac and calendar which they use to predict seasonal winds, currents, rains, and overcasts." (Goodenough, Ward Hunt, 1953: 3) •"Thus the Altair year is a solar one beginning with the native equivalent of our vernal equinox. Eilers says that the month in which the sun rises in Altair on Sonsorol is [illegible] (Antares), whose heliacal rising is December-January. This contradition may be resolved if the Sonsorolese keep both a lunar and siderealCalendar each with the same month names, as on Ngulu. Otherwise, the sidereal months on Sonsorol must begin at other than the heliacal risings of the constellations for which they are named. Cf. the rather different solar year in the Gilberts (Grimble, 1931)" (Goodenough, Ward Hunt, 1953: 28) •"There are several contexta within which natives in the Central Carolines keep track of time. Seasonal variations in the condition of the breadfruit crop, for example, provide the basis for a feastday calendar on Truk. The phases of the moon have given rise to a thirty-day lunar month, maram Cal, each night of which bears a name which is in some way descriptive of the moon's position or appeatance. The names used and their sequence are quite similar from island to island in the Central Carolines. [...] The lunar month is divided into three periods, said to be ten days each on Truk. The first, a period of darkness, is feared as the time when ghosts and	

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
		sorcerers are active. Trukese natives favor the second ten days of relatively full moon during the evening hours for social activities. The lunar month represents the longest day-count kept. For longer periods theCalendar is a sidereal one. Concern with forecasting weather conditions appears to have been responsible for its development." (Goodenough, Ward Hunt, 1953: 25) •"Over a number of islands there are two systems in which the ordering of stars is crucial, a system of spatial coordinates based on the azimuths of stars at rising and setting, and a calendrical system based on the time order of their rising. The degree to which the astronomies of two islands are similar has been determined with respect to (1) the number of star names they have in common, and (2) the positions such common star names occupy in the calendrical and directional systems. Correspondence of the latter sort is of special importance, for native stars are frequently identified erroneously or not identified at all in the sources. The position which a star occupies in either of the two systems provides an excellent check on its probable identity, often revealing what must be construed as ethnographers' or informants' errors. While allowance must be made for local differences, once the nature of a system is clear, its elements must be such as will permit it to work. Since both systems are crucial to native navigation, and since the Carolinian people are eminently successful navigators, it is safe to assume that their directional and calendrical systems are thoroughly workable." (Goodenough, Ward Hunt, 1953: 1) •"As the foregoing considerations suggest, Catolinian astronomets are mainly interested in the fixed stars. There is only minor [illegible] with the sun, jakkar , scorcher, or jöön , 5 5 All native terms are given in Trukese except where otherwise indicated. Words preceded by an asterisk (*) have not been recorded by the writer in Trukese, but represent his reconstruction of the form they presumably have in that dialect. The [illegible] for Trukese is that of Dyen cal, except that pw is used for his q and mw for hia b. The [illegible] for other Central Carolinian dialects are as given in the sources with minor modifications to enable use of standard fonts. The nature of these modifications is [illegible] apparent from comparison with the original sources. The latter are by no means consistent in their [illegible] [illegible] do they explain them and this in connection with the calendar. The phases of the moon, maram , provide the basis for a thirty-day lunar month, but otherwise evoke little interest. Planets are simply unpredictable stars and therefore of no use in navigation or time reckoning. Only Venus is named, with one name as Morning Star and a completely different one as Evening Star. Meteors, finally, are not classed as heavenly bodies at all, but are soope, ghosts. Popular saying has it that meteors are the souls of men which in their flight through the sky must pass under a great inverted bowl whose rim is	

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
		lined with sharp teeth. The bowl is constantly being raised and lowered. Shooting stars are souls scooting under when it is raised so as to reach the other side before it [illegible] again. A [illegible] sound heard in connection with a [illegible] means that the soul is crushed by the bowl's teeth and that its owner will die. It is with the stars, fyy, that native a stronomers are concerned." (Goodenough, Ward Hunt, 1953: 4) •"This appears in abbreviated form as the Trukese star-name jääp, whose place in the calendar argues a right ascension like that of Spica. Another part of Virgo [...] is reported for the Mortlocks as iinnelikak. These considerations lead to the conclusion that tumwur is properly identified with Antares in Central Carolinian astronomy." (Goodenough, Ward Hunt, 1953: 14) •"The rising and setting of its main star, Altair, indicate due east and west on the central Carolinian compass, in which east, not north, is the basic direction. The people of Sonsorol call their solar year after the name of this constellation, and its name is associated with a month in every calendar reported from the Central Carolines Language Area. While the same name does not appear in Polynesia proper; such epithers as pillar of heaven reflect a similar importance attached to Altair." (Goodenough, Ward Hunt, 1953: 12)	
14	Croats	• "Ever since the seventeenth century, the almanac was associated with knowledge transmission in the context of domestic life, closely related to oral tradition and popular lore. At the time of its appearance in the seventeenth century, the annual almanac combined the features of the broadside calendar and book-length compilations of useful knowledge popular in the fifteenth and the sixteenth century. The farmer's almanac and the annual compendia of data and statistics are specialized publications now. While the farmer's almanac places the human world in: the context of a natural cycle, the annual compendia of data and statistics provide an encyclopedic vision of the world built from facts–the ephemeral units of information that recombine to recreate successive architectures of rationality from year to year. The knowledge worlds that the almanacs brought to their readers over centuries changed along with the conditions in which the almanacs were created, distributed, and read. In one such reconstruction, this history of the almanac in Croatia also tells the history of the Croatian book trade, literary development,: and the history of communication; it also reflects on the political, demographic, and social conditions that shaped Croatian textual traditions." (Dalbello, Marija, 2013.: 26)	
15	Dogon	• "At present, the calendar is no longer used for circumciscions; the Dogon say that one counts only the number of years between two ceremonies." (Griaule, Marcel, 1898-1956 Dieterlen, Germaine, 1986: 521) •"We recall that, for the Dogon, there exists an almost infinite number of star worlds in a spiral, cf.	

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
		supra [...]. They are the basis for the different calendars — solar, lunar, Sirian, Venusian — that people will establish on Earth and that will cadence all their activities." (Griaule, Marcel, 1898-1956 Dieterlen, Germaine, 1986: 345) •"Having observed and studied everything within range of their perception, they have constructed an indigenous explanation of the manifestations of nature (anthropology, botany, zoology, geology, astronomy, anatomy, and physiology) as well as social facts (social structures, religious and political structures, crafts, arts, economy, etc.). [...] The Dogon possess systems of signs or ideographs including several thousands, an astronomy and calendars, a numerical system, extensive physiological and anatomical knowledge, genetics, and a systematic pharmacopoeia." (Griaule, Marcel, 1898-1956 Dieterlen, Germaine, 1986: 57) •"Also, all these figures together are produced for the instruction of the apprentice-diviners on a divination table, where they represent the path of the planet through space (fig. 181). We recall that the solar calendar is also included on these tables. See the schematic picture of the path of the sun in space during the year of twelve moons. There is only a sketch for the study of the Venusian calendar; it should be noted that when speaking of the planet one says: The eye of yazu comes in six years (yazu giri anakuzu kuley doze). Each one is drawn in order of its turn (with snake dung, yuguru na) on the east façade of the house FIG. 181: The six positions of Venus on the divination table [and] of the Hogon of Arou, above the platform and above the figures of the sun, the moon, and the star of the tenth moon (ie pelu tolo)." (Griaule, Marcel, 1898-1956 Dieterlen, Germaine, 1986: 515) •"1) The sacrifice of the Nommo, as we have seen, brought about the distribution of the seeds throughout the universe. In this respect, Venus, the mark of the flowing of blood and of the contents of the clavicles, is also the celestial mark of the placenta of the po pilu, po pilu me sere. Its positions during the year recall the stages of the germination, growth, harvest, and consumption of the basic cereal grains contained in the first grain, i.e., the annual death and resurrection of the millet. From this perspective, they constitute an agricultural calendar, called dine bire, work of the winter season, which has the following nomenclature: enegirim: sowing and kinu tum (germination), nose that is coming out; dige tanu: emerged from the earth, or kinu tey, grown nose; donno tolo: millet grown into an ear, or yu ene dullo, chicken-tail millet; yazu or bayara: grains formed in the ear, or pregnant millet, yu bere ay; obia: ripe millet, yu illa; yapunu da: consumed millet (hence, dead, yu yimu), but then present in the clavicles of the people it has nourished." (Griaule, Marcel, 1898-1956 Dieterlen, Germaine, 1986: 516) •"The Dogon year begins with the millet harvest, that is to say, toward mid-October. It has 13 moons of 28 days each (thus 364 days); but it is also divided	

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
		into 12 months, each month containing six weeks of five days (thus 360 days). [...] A document of great value on the economic life of the native societies in Africa could, it seems, be obtained very simply by means of a journal in which one would note each evening the work done by each one during the day. Kept for a sufficiently long period, if possible for an entire year, this journal would become a source of valuable records on the distribution of occupations according to the seasons and on the entire organization of work in general. In the absence of all written notation, these computations remain very approximate. Discussions would sometimes arise on this subject, each reckoning in his own fashion, but disagreements of this kind never seem to bother anyone very seriously. The seasons that are distinguished in the year are the following: ba go, beginning of the dry season, starts in mid-October and lasts about three and a half moons; nay banu, literally, the sun is red (hot), height of the dry season, starts toward the month of January and lasts about four moons; ba do corresponds to the last moon before the rainy season (month of May); gyine, the rainy season, lasts from four to five moons." (Paulme, Denise Schütze, Freida, 1940: 129)	
16	Garifuna	• "Taylor described the Black Carib calendar of this period in the following passage: Today, the Black Carib call the months by numbers from one to twelve; but from older informants it was possible to obtain several lists — both complete and imperfect — of the old names, and which are not altogether consistent, one with another. The complete list, with variants in parentheses, is as follows:— Asinau, January; Baraidi (mariru-bana), February; Bagamu, March; Isura, April; Sirigo, May; Mariru-bana (uaraida, uaraigi), June; Ebedimu (iabura), July; Mube, August; Lubu nigirai (lubu nogoriri, marirubana), September; Urau, October; iabura (Ebedimu), November; Lagumuhu irumu, December. It will be noticed that there are thirteen names in all." (Gullick, C. J. M. R., 1976: 92) •"He mentions that “some time previous” to düg□, messages had been sent to distant “friends and relatives” to inform them of the date of the ceremony. In Young's day, people traveled to Honduras from as far away as Belize to take part in düg□. A century later, Taylor (1951: 115) put the maximal distance of travel at 100 miles." (Kerns, Virginia, 1983: 162)	
17	Garo		• "The agricultural tasks which follow assignment of the plots to households are precisely defined, and are followed with considerable regularity. The Rengsanggri people have a nodding acquaintance with the European calendar and are sometimes able to arrange government business according to its terms; but in describing their own agricultural cycle they more often use the Bengali calendar, though even this is imperfectly understood. They are acquainted with the names of the twelve Bengali months, though the Garo pronunciation of them might surprise a Bengali. They know that a new moon marks the beginning of a

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
			new month, and they are usually able to assign a particular agricultural task or festival to a particular month; but they do not understand how the lunar calendar is kept in step with the solar year, and they cannot usually tell the name of the present month with confidence. Beyond any formal calendar, however, they also note natural signs: they know, for instance, that when the bright red blossoms of the mandal tree burst forth the time has come to plant rice.: " (Burling, Robbins, 1926-, 1963: 30)
18	Guarani		• "They alone could lead the Nimongarai, the most important feast of the Apapocuva. This feast was celebrated every year, between January and March, at the time when maize started to ripen, and was intended, among other things, to guard men, animals, and plants from evil influences apt to occur during the year. Like any important ceremony, the Nimongarai demanded lengthy preparation, because plentiful drink and food had to be offered to numerous participants. Indeed, the whole tribe was reunited (this was the only opportunity), not only because all neighboring villages were invited, but also because individuals or families who had abandoned the traditional way of life a long time before in order to go and work in Brazilian fazendas rejoined their community for a few days. A feast of harvest, the Nimongarai had, too, both a political and a religious significance, evidenced by the closing ritual in which both aspects intermingled. After four nights of continuous dancing, at the dawn of the fifth day a ceremony took place that replicated the ritual of baptism, except that no name was given: one by one, each participant came in front of the paje, accompanied by a “godfather” and a “godmother.”" (Clastres, Hélène, 1995: 25) •"At the present time, the annual economic cycle for both men and women is almost completely adapted to the agricultural calendar. It is possible that the total male-female round of activity was not seasonal in the same way when men were responsible only for the cutting, burning, and clearing part of cultivation. This latter work has its season, of course, but we may well suppose that the rest of the year was not apportioned for the men in the same way as now. The principal months of the growing season are October, November, December, January, and February, but the limits are not sharply defined. In 1943 several people had corn shoots up by September 17, although much of this was lost in an unexpected frost. This seasonal latitude is impressive to an ethnologist familiar with the crucial difference of a few days’ or a week’s growing time in some of the aboriginal agriculture of the United States. The Cayuá growing season is easily long enough for more than one planting in the same ground of several of the faster growing crops, including certain beans and even corn. Mishaps because of unseasonal frosts are rare with careful planning. But many Cayuá do not capitalize much upon the possibility of successive plantings, and probably none attempts it to the maximum. Because of a late or bad burning people are often late with

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
			their planting, and there is then not enough time left for growing a second crop in the same ground. Planting of slower crops like corn may start as early as the middle of August, and many Cayuá have beans, peanuts, and corn fairly well along by mid or late September. Potatoes, which are not as critical regarding the cold, may be planted as early as July. The agricultural potential, at least regarding the growing season, can thus be said to be more than adequate for Cayuá demands and ambitions at present." (Watson, James B., 1952: 68)
19	Hausa	• "There are two simultaneous reckonings of the year: the one just described going from the end of one rainy season through the next and the slightly shorter Islamic year (13 days shorter than the Gregorian calendar). For activities which involve agriculture, the season calendar is used and, of course, may be computed locally. The villagers do not, on the other hand, calculate the Islamic year themselves. Rather, the sarkii in Madaoua conveys to village chiefs the information that Ramadan will begin, for example, at the fifth month. During 1968, the month of daytime fasting was kept by 11 households, those gida in the Maalàm clan and the remainder from the client households." (Faulkingham, Ralph, 1971: 169)	
20	Highland Scots	• "Catholic and pagan rituals persisted. At the close of the seventeenth century, Christmas, Good Friday, Easter, and St. Michael's Day were still observed. [...] They had been dropped from the Scots' calendar more than a hundred years before. The holy wells were still believed Page: 103 efficacious. Amulets were still worn as charms." (Ducey, Paul Richard, 1926-, 1971: 101) •"Throughout Christendom each task of the annual rhythm was marked, at its start and close, by a day of seasonal festival (Lá Feill). These Christian festivals replaced earlier celebrations and continued some of their features, often in play. Yet concerted seasonal activities could not be related to the supreme festival of the Christian Church, Easter, owing to its movable date. This is one reason for the great importance of other, fixed Festivals to rural community life. This point, not always appreciated by latter-day individualism, is made clear by M.M. Banks in describing British calendar customs, vol. i, Scotland Cal. Remembering that the Old Style calendar dates were ten days later than the New Style (when officially adopted in Scotland in 1600), they may be compared with the annual rhythm of climate and labour (Fig. 9). Until 1600, the New Year began in spring on 25th March. After the Reformation and the abolition of Christmas or Noel, Nollaig, New Year's Day on 1st January took its place as the day which, in the Protestant Highlands and Lowlands, still keeps alive some of the old friendly visiting and 'first-footing'." (Geddes, Arthur, 1955: 163)	

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
21	Hopi		• "Throughout the period, or beginning in 1934 if Titiev's date is accepted (73, p. 80 n.), Don was chief of the Sun clan and a special officer in the Soyal ceremony. Of these activities he makes little mention. Three possible factors may account for the much-decreased quantity of material on ceremonial participation: Simmons, in his editing, may have discarded a good deal; Don was definitely resistive to discussing his role in the Soyal; and the calendar of rites at Oraibi had been undergoing progressive attrition since the split of 1906, an attrition particularly marked since 1935. 106 106 See Titiev (73, p. 95). Until 1935 there was an attempt to maintain the Soyal and a partial cycle of rites, but gradually more and more ceremonies were allowed to lapse. The Soyal itself, however, had been retained; Don therefore did carry out some ceremonial duties until the end of the recorded life. His comments on this period show his sadness over the deterioration of Hopi ritual at Oraibi." (Aberle, David Friend, 1918-, 1951: 105) •"Fewkes [...] states that it is obscure whether the Hopi recognize twelve, thirteen or fourteen lunar months but, in any case, the five summer moons have the same names as those of winter. [...] Forde remarks that there are traces of a Hopi six moon cycle in which the terms for January, February and March are also used for August, September and October and the term for December is often applied to the June-July Moon." (Beaglehole, Ernest, 1906- Beaglehole, Pearl, 1910-, 1937: 23) •"The accompanying table enables one to study the interrelation between economic activity and seasonal conditions, and so serves to illustrate the fact that the Hopi, like other agricultural peoples, follow a sequence of activities closely determined by seasonal change and the movement of plant and animal life. It will be noticed that Fewkes gives names for an eight month cycle, Forde for ten lunar months, and Parsons for twelve moons. My own informants were in close agreement on names for the six lunar months extending from November through to May, a period when major calendrical ceremonial and planting for a new season's crop provides sufficient stimulus to distinguish accurately between a succession of moons. For the names of the remaining moons in the lunar cycle however considerable disagreement appeared to exist: one informant insisted that the six lunar names would be repeated with the qualifying adjective winter or summer as the case might be, another gave names for an eight month cycle, while still others gave names that were either obviously personal names not generally known, accepted or used, or else were names taken from the ceremonial peculiar to the month in question. The reason why there is no generally accepted list of names for the summer and early autumn months may well lie in the fact that that period of the year devoted to cultivation and harvesting is looked upon as a unit and there is no felt need to break up this functional unit into shorter periods. The list of twelve names given in the table was obtained from Yusi'ima, ordinarily well-informed

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
			and accurate in his information. It may be compared with the list that Parsons gives for First Mesa, with which it agrees fairly closely (see Table 2, p. 23)." (Beaglehole, Ernest, 1906- Beaglehole, Pearl, 1910-, 1937: 22) •"Towards the middle of April, or later if the season is delayed, the planting of sweet corn, melons, squash and beans begins, followed a month later by the sowing of the main corn crop. The planting season extends over eight to ten weeks, up to about the third week in June. Within this period, the dates for planting the various crops are known by observing the sun rise behind a succession of points on the eastern skyline; each village has its own 'horizon calendar' [...]. My own observations, regarding that 'calendar', are that the sun rises behind the point marked kwiptuwi about 20 A.pril, and behind moñya'ovi about 4 May. and a Sun Watcher, whose duty it is to watch the sun rise each morning and to let the people know as it reaches the successive points on the horizon." (Bradfield, Maitland, 1973: 19) •"At Oraibi the Water Serpent dance was performed only in those years when some individual saw fit to sponsor it, but at Walpi it seems to have held a fixed place in the annual calendar of ceremonies." (Titiev, Mischa, 1901-, 1971: 121)
22	Iban		• "Her sitting by the fire after childbirth normally takes forty-one days. To calculate the number of days she undergoes during her confinement, marks are being inserted on a pole with lime. The marking on the pole is done because in the past the Ibans had no calender. Nowadays, because all people are literate, the counting of days for such period is based on a calender, like other races. The type of timber used in the fire to warm her will depend on where she lives. If she lives upriver, she is asked to use timber from the malam, lensat, or manding trees." (Benedict Sandin, 1918-, 1976: 9)
23	Ifagao	• "At all munhímûñg, no matter how the ceremonies on the hill turn out, the burial in no case is delayed—it always begins exactly at noon. The time is determined by the Rice Chief 19: 19 The Rice Chief is called tumúnôh in Central Ifugao and munlapu in Ki¨añgan Ifugao. In the former area the position is nearly always filled by a man, in the latter either by a man or a woman. The Rice Chief is the astronomer and meteorologist of the clan, in addition to being its leader in agriculture. The tumúnôh of Central Ifugao have considerable astronomical knowledge and have evolved an excellent calendar.: of the clan. The Rice Chief of Banauol is Bundînlan of the village of Ambáliu. At the ceremony for Bahatan he sat with the priests in the runo-enclosed circle on the plateau, and shortly after 11 o'clock he removed from his hip-bag five little wooden pegs which he thrust in the ground in a vertical position. From watching the shadows cast by these pegs he was able to determine when the sun had reached the meridian. Even had the day been cloudy he would have guessed the hour with great exactness." (Beyer, Henry Otley, 1911: 237) •"To this general insecurity, and the lack of	

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
		knowledge of health and sanitation, were added the imaginative explanations of natural phenomena and a rather extensive knowledge of astronomy. 28: 28 The Ifugaos have some knowledge of the movements of the stars and the phases of the moon. They even possess a calendar based in part on the position of the stars in the heavens, and in part on the seasons.: All these have had one consequence: the Ifugaos' acceptance of the power of supernatural beings beyond their capacity to explain, the acceptance [Page 25] made more compelling by a natural awe and fear and a sense of the immanence of unseen beings. In the end the attitude towards the universe mixes fear and awe, imagination and superstition, observation and magic — a commingling of the purely natural and supernatural." (Daguio, Amador Taguinod, 1952: 24)	
24	Igbo	• " In the early phases of Igbo culture history, agriculture was the main source of wealth and it remained so for centuries. In such a society title-taking was a form of public declaration that mother-earth, the Earth Force, had blessed a man's efforts, that he had achieved success. It was also in a sense a celebration of the fact that the Nri had been successful in keeping the Earth Force happy. The latter therefore had to be present at this celebration of their effective performance of the two major functions mentioned above—keeping the calendar and placating a fairly capricious deity." (Afigbo, A. E. (Adiele Eberechukwu), 1981: 53) •"This keeping of the calendar and the proclamation of the different ritual and economic cycles was only one aspect of the business of ensuring rich harvests. There were more direct steps which the Nri had to take in this regard." (Afigbo, A. E. (Adiele Eberechukwu), 1981: 52) •"Most of the activities which marked the traditional calendar were ritual ceremonies and festivals of thanksgiving to the goddess Idemili. One gets the impression of a society and culture completely coloured by the veneration of this goddess rather than the ancestors. In the yearly calendar for example, only one general activity was associated with the ancestors. This was the ritual of remembrance of the ancestors, ilo nmuo, every other activity was in one way or another associated with the goddess Idemili." (Amadiume, Ifi, 1947-, 1987: 64) •"It is also evident, however, in spite of indigenous explanations, that the calendar is ordered in such a way as to distinguish between major harvest feasts when deities and the incorporated dead are propitiated, and periods, indeed lulls, in the ceremonial cycle, when rituals are performed which transform the unincorporated dead into ancestors." (Henderson, Helen Kreider, 1980: 390) •"In Section I and under the column for date is recorded the date for which data is being collected. The day of the week is also entered both in Ibo and English calendars. This was done to ensure that the farmer and the enumerator never got confused with	

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
		the date. Under the column for farm, the particular farm to which the data pertains is entered." (Igwebuike, Raphael Umera, 1980: 217) •"The Igbo market week has four days. These weeks are further categorized into two types designating greater and lesser markets that alternate so that the full market cycle is eight days. In most of Igboland this period is referred to as izu ab?a (two weeks). In Ohafia dialect this phrase is meaningless. The Ohafia refer to this period as izu at? (three weeks). It appears that this system of enumeration counts the number of markets rather than the number of weeks. [...] The switch from reference to the Roman calendar to Ohafia time reckoning was significant. Izu at? has significance as an indigenous measurement of ceremonial time. To speak of it in this context, when the man's adherence to traditional obligations was in question, was to twist a rhetorical knife. Unable to counter Ink's offensive he mumbled something about the possibility of a December ceremony and then quickly tried to change the subject.: " (McCall, John C. (John Christensen), 2000.: 34) •"Prestigious food consumption in Igboland occurs on the collective occasions related to: 1) The religious agricultural calendar, *e.g.*, the New Yam Festival and the first fruits offering." (Okere, Linus Chukwuemeka, 1980: 297) •" In order to arrange the calendar, according to the statement made to me, a leap year, known as Ar'uku, was made once in four years, and Asabwa's [urcorn]eza, that is to say, the one held in January, was four days later than normally. Leap year is said to have been founded by Ope?i, but it seems rather doubtful whether the astronomical knowledge of the natives was sufficiently exact to enable them to hit upon the number four as the one likely to give the best results. At the same time it must be remembered that it may have been adopted because the week is a four-day one, and it was important to keep the [urcorn]eza on the same day of the week, nkw[dlcorn]o." (Thomas, Northcote Whitridge, 1868-, 1914: 187)	
25	Iran	• "(Dates are given in the Persian Shamsi calendar, unless marked Q. to indicate the Qamari or Hijri Calendar.)" (Fischer, Michael M. J., 1946-, 1980: 293) •"The village as a whole takes responsibility for the hamm?m, the hoseiniya, and the cemetery. The schoolhouse is built and the teacher hired by the central government. The village is a coherent unit in a number of other ways. Village residents gather on special occasions of religious obligation, such as those during the fasting month of Ramadan or those commemorating the death of Hosein during the month of Moharram. Tied to the religious solar calendar, the dates of religious holidays move back ten or eleven days each year. Holiday services are held in private courtyards, the hoseiniya, or the village cemetery, depending on the event and the sponsor. They usually include the distribution of food or at least tea. The whole village also takes part in traditional Persian New Year celebrations,	

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
		which include visiting, food sharing, and games." (Horne, Lee, 1994: 101) •"The kharj was normally paid in instalments and the solar year was used for the purpose of tax collection. This practice was carried over from Sasanian times. The number of instalments, however, varied from time to time. Originally the first instalment fell due when the crops ripened. After the decline of the Sasanians the intercalary days were omitted, and as a result the first instalment in the course of time fell due before the crops ripened. To remedy this the Caliph Mu?ta?id ordered the reinsertion of the intercalary days in 282/895–66 [...] The text has A.H. 182, which is clearly a misprint for A.H. 282. by which time they had been omitted for 240 years. The calendar was accordingly put back two months to the 1st Khurdad in the 184th year of the Yazdigird? era." (Lambton, Ann K. S., 1912-, 1953: 41) •"Whereas the lunar calendar determines the dates of both categories of Islamic holidays, it was according to the solar calendar that the pre-Islamic holidays were fixed, the chief of which (which still survives) is the Naurouz (literally, now, new; rouz, day), the only holiday which the Shiites have in common with the Zoroastrians (Polak, I, 368). Its founding is traditionally attributed to the mythical king Djemchid, and its manifestations extend over thirteen days beginning on March 21 (first day of Ferverdin), the day when the sun enters the zodiacal sign of the Ram [...]." (Massé, Henri, 1886-1969 Messner, Charles A., 1954: 138) •"The Shiite calendar commemorates the amiversaries of the Imams. The most important ones (with the lunar date) are: the birth of Riza (11th day of dhou'l qade); the Holiday of the Pond (eid-e ghadir, 18th day of dhou'l hijje); the Achoura (death of Hussein—10th day of Moharrem); the death of Riza (17th day of Cafar); the Quadragesima (arba'in, forty days after the death of Hussein); the murder of Ali (18th day of Ramazan); and the death of Ali (21st day of Ramazan)." (Massé, Henri, 1886-1969 Messner, Charles A., 1954: 109)	
26	Iroquois		• "The diagram suggests cyclicity by being a circle, although this is as much a matter of convenience as of any claim about native theory. It is too early to determine how well this represents the native conception of a highly complex phenomenon. Anthropologists have tended to assume a cyclical scheme for the calendrical ceremonies, without, however, delving very far into the matter. Leach (1966: 124 ff.) cautions against the unconscious imputing of Western space-time categories to non-Western peoples. The cyclical view comes naturally to the Westerner with his days and weeks and years, but the non-Westerner may not think of time as recurrent sequence but rather as an endless linear succession of oppositions between secular and sacred events (ibid., pp. 133-34). Figure 8: The calendrical Round. Following Iroquoian practice, the chart is to be read counterclockwise beginning at the bottom with the

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
			Midwinter Festival. At this point the group of stars in the constellation Taurus known as the Pleiades (oke[unknown] :nya[unknown]) are at the zenith. Their setting in April-May indicates the beginning of the planting season; their rising in August marks the beginning of harvest. The names of the twelve months reflect the dependence of the Iroquoian year upon the natural cycle and human subsistence activities. In Cayuga these are kanráhtaHkah 'late leaves falling' (January- February), kanõskwaótha[unknown]'frogs peeping' (February-March), kanõskwaótha[unknown] kó:wah 'many frogs peeping' (March-April), kaná[unknown] kaht 'prepare corn hills' [?] (April-May), hyeíkneh 'berries ripening' (May-June), hyeíknekó:wah 'many berries ripening' (June-July), iskhné:ha[unknown] '[beans?] ripening' (July-August), iskhnekó:wah 'many things ripening' (August-September), sakhné:ha[unknown] 'almost mature' [?] (September-October), sakhnekó:wah 'everything mature' [?] (October-November), tsyotho:[unknown] 'it is cold' (November-December), kaya[unknown] takó:wah 'big doll' [?] (December-January). These names are not widely known now, and even so knowledgeable a man as Howard Sky found it necessary to seek out other informants to piece the list together. Sky considered many of the terms to be old words whose meanings have been lost. The glosses are, in some cases, only guesses on his part. Ceremonies mark these points. The Bush Ceremony and the Maple Festival are concerned with the sap flow. The purpose of the first ceremony is to put the sap into the trees, that of the second is to celebrate its flow. The flowing of sap is the first sign of spring. In the past, temporary camps were set up in the bush for the purpose of collecting sap; now people tap a small number of trees in the vicinity of their homes. The two Husk and False Face ceremonies are performed at times of seasonal change when there is, in the Longhouse view, the greatest likelihood of disease breaking out. (These ceremonies are to be distinguished from the private mask feasts that may be scheduled at any time for curing purposes.) A series of planting ceremonies, which are scheduled by women, begin in April or May. Each stage of cultivation is marked: first the soaking of seeds and planting, then hoeing and testing the early crops, and finally the harvest. The big fall ceremony, corresponding to the Midwinter Festival is the three-day Green Corn Ceremony which comes at the maturity of the planted foods. In the series of planting ceremonies, corn receives the greatest attention. There is one ceremony for the beans, none for squash as such. The berry festivals mark the coming of summer and are also significant as the time when Handsome Lake began having visions in the year 1799. The Thunder Ceremony is not performed regularly and only at times of drought. Handsome Lake conventions are planned at Tonawanda Reservation for all the reserves the previous fall, and discussed at special meetings following the Strawberry Festival at those longhouses acting as sponsors for a given year. The Harvest Festival, scheduled for October or November, marks the official end of the cultivation period and the beginning of the fall hunt. This was an

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
			event of major social importance in the past. Men were freed from village responsibilities to disperse to the bush. They were instructed to return at Midwinter with their kills. These instructions are still given at the Harvest Festival, and there is even now a tendency on the part of younger men to set forth on brief hunting expeditions. However, the reserve has been hunted out so far as large game is concerned, though people often manage to obtain deer meat for Midwinter elsewhere, to the great satisfaction of everyone. The bulk of the meat, about 100 1bs., is high-grade beef obtained at the supermarket. Following the Harvest Festival, the responsibility for planning ceremonies reverts to the male faithkeepers." (Foster, Michael K., 1974: 109) •"The dating for this ceremony should be entrusted to the two head deacons, who theoretically observe the movement of the Pleiades (ohge[unknown] nya??) after the celebration of the Thanksgiving Festival in the fall. In reality, the course of the Pleiades should have been watched throughout the year, since they roughly delimit the agricultural seasons. The setting of the constellation in April (in the northern sky) indicates the appearance of warmer weather and the planting season, and some of the women at Six Nations still do, in fact, watch for the setting of the Pleiades when planting their gardens. The reappearance of the constellation in August heralds fall and harvesting. However, this constellation may best be seen during the actual winter months, and it is not surprising that the middle of the year is counted from the time that it reaches the zenith. Actually, it is not a bad approximation to the winter solstice. When the Pleiades are observed directly overhead at sunset, the middle of the winter has been reached; and the fifth day after the first new moon thereafter (the five days being added to allow women to complete the menstrual period, which is believed to coincide with each new moon) should begin the Midwinter Ceremony. However, Handsome Lake is said to have observed that the Midwinter Ceremony should begin five days after the first new moon following the white man's New Year, and since this date is easily determinable from any white man's calendar or almanac, this method of determination has been exclusively adopted. In fact, the date is determined and announced at the Thanksgiving Ceremony. The Cayuga Longhouses and usually also Seneca Longhouse still adhere to this dating, but at Onondaga the ceremony has recently been advanced a month in order to allow those members who might otherwise have to report for work off the Reserve to be present for the observance. Many people were dissatisfied with this liberty in the scheduling of the event, but it indicates the power of individual personalities and the resulting variation." (Shimony, Annemarie, 1961: 174)
27	Jivaro	• "“Heaven is for them an immense solid vault which rests on the earth. A Jibaro myth tells us that formerly there was much communication between the heaven and the earth, people ascending to the sky along a long liana hanging from the vault and	

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
		again descending to the earth. Even the heavenly bodies, the sun, the moon, and the stars, which are regarded as 'people' (eintsu) by the Jibaros, have originally lived on the earth, but at a certain epoch went up to the sky where they have remained ever since. The stars, as far as I can see, have not particularly attracted the attention of the Jibaros, and seem not to play any part [504] in their calendar. Almost the only star which appears in their mythology is the planet Venus, called Yanguái. The general name for 'star' in the Jibaro language is ya."" (Karsten, Rafael, 1935: 503-504)	
28	Kanuri	• "Most life crises are marked by religious ceremony. Naming, circumcision, marriage and burials all have a religious aspect. Ceremonial holidays follow the Muslim calendar and include the new year, the prophet's birthday, the sacrifice of the ram, and the month of Ramadan. As Muslims, the Kanuri are required to pray five times a day and on Fridays attend to the Mosque for prayers." (Malone, Martin J. Skoggard, Ian A., 1953-, 1998: 9) •"Similarly, the ceremonial holidays in the yearly cycle follow the Moslem calendar. Days of celebration include: the new year, the prophet's birthday, the sacrifice of the ram, and of course the month of Ramadan." (Rosman, Abraham, 1966: 45)	
29	Kapauku		• "The climate in the Kamu Valley does not exhibit any marked regular seasons; consequently there do not exist any set planting, growing, and harvesting periods in the Kapauku agricultural calendar. Because of the lack of seasonal change, the Kapauku do not conceptualize a year as a unit of time; therefore, at any time of the year some gardens are being planted, others are being weeded, and still others are being harvested." (Pospisil, Leopold J., 1963: 142)
30	Khasi	• "A week consists of eight days in Khasi calender the names are according to the places where markets are held in Khasi Hills. [...] The dates of the festival is then communicated to the in-charge of different units of his territory, through a wooden stick kyrwoh' having a few knots of cane-strips, as a form of summons for attending the festival for five days at Smit along with subjects under their jurisdiction." (Banerjee, S., 1962: 53)	
31	Klamath		• "Ten months are named which purport to pass for lunar months. That is, the Klamath month (sabas, month, moon, sun) is a period indefinitely fixed in the solar calendar, marked by the waxing and waning of the moon, and omitting the dark phases. These people are fully aware that ten named periods do not fit the twelve plus lunations of the year. No attempt is made to make them fit, to reckon an intercalary period. The ten months are merely ten roughly marked intervals of the year-round, whose beginning, duration, and end are left indefinite as of no particular concern, but which serve the convenient purpose of designating the several periods of the year. It is quite clear that while the Klamath are fully aware of the discrepancies of their calendar, they feel no need for correcting them. For instance, my most satisfactory

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
			informant, Nancy Phillips, named over the ten months when asked the number of lunations. When her attention was called to the true number, she agreed that there were more than ten, but exactly how many she did not know, for no one keeps track of them. She thought there were more than twelve, certainly she knows that there are more than ten." (Spier, Leslie, 1893-1961, 1930: 218)
32	Kogi		• "During the ceremonies these masks are combined with special costumes and ornaments. Generally there is worn on the head a high conical or nearly cylindrical body made of wound agave/fique [...], in the peak of which are found a great number of short cane stalks, in which feathers are then inserted. Around this base is then wound a broad strip of cotton cloth woven in several colors and tied with a heavy cord which terminates in tassels at its ends. The mask of Heiséi is combined with a special ornament which consists of a semicircular body of sticks and espartos tied radially (shkáta réima.). Into the ends of the espartos are inserted long feathers of the guacamaya /macaw/ or other birds, while the whole semicircle is covered with smaller feathers which go out radially from it. This half-wheel is divided into six segments formed between seven heavier sticks which form the base of the ornament; for each segment there are little short sticks into which the feathers are put. On the lateral ends, approximately over the shoulders, hang small horizontal crosspieces, from which in turn hang other feathers in the form of a fan. The explanation of this ornament is the following: the half-wheel represents the passage of the sun between two solstices and each feather in it symbolizes one day, their combinations marking weeks and months. The arrangement of the feathers, their size, color, and the bird from which they come thus obey a fixed order and the dancer thus wears on his head a true calendar. Unfortunately, we do not have available any additional data on this ornament and the details of its arrangement and function; but apparently it is falling out of use, and with this its significance is rapidly being forgotten. Some names of feathers, that is to say, of individual days, are: skála-juáxa, áui-gúxa, muihuí, kuáldugi-shuxa. Dancing is done with the shkáta-téima twice a year, and only at the time of the equinoxes, in March and September, and its use seems to be limited to the region of Hukuméiji [...]. The head ornaments which De Brettes shows, pp. 354 and 356, do not seem to exist at the present time. His illustration of the Skáta-téima or Skátesguáxa (Fig. 51) seems very dubious to us and barely shows in a very sketchy way the arrangement of this ornament.)." (Reichel-Dolmatoff, Gerardo Muirden, Sydney, 1951: 164)
33	Korea	• " A shaman usually recommends that the wife of the household perform a shamanic casting away ceremony in order to relieve the anger of bad spirits. The date of the performance is set for one of the clean days according to the lunar calendar. Most families in rural villages keep a booklet that	

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
		indicates what activities are good or bad each day. This booklet is based on the oriental yi and yen philosophy. It is not true, though, that people always follow the advice of the almanac, as Feical reports for China. But they do consult the booklet on such activities as building houses, arranging marriages, starting long trips, etc. They avoid undertaking any important and adventurous activities on inauspicious days especially those that are explicitly stated as good for nothing." (Cho, Oak-La, 1986: 190) •"A situational context involving a major socio-political event in Hasami reflects the consensual mechanism. On the day after the [village ceremony], held on the fifteenth day of the first month of the lunar calendar, villagers gathered at the house of the village head to share some remaining food in a communal ceremony with their neighbors (Actually, this ceremonial event took place on the first day of the second month in 1976 [...]. The yijang reported the year's closing of accounts for the entire village before the attentive villagers." (Chun, Kyung-soo, 1984: 174) •"A Korean embassy goes to Peking every year to pay the tribute and receive the calendar. This latter clause is, to the mind of these peoples, of capital importance. In China, the fixing of the calendar is an imperial prerogative exclusively reserved to the person of the Son of Heaven. Different tribunals of astronomers and mathematicians are charged with preparing it, and every year the emperor promulgates it by an edict which is armed with the great seal of the State and which forbids following or publishing another one under penalty of death. The great dignitaries of the empire go to receive it solemnly in the palace at Peking, and mandarins and [XVI] subalterns receive it from governors or viceroys. To receive the calendar is to declare oneself subject and tributary of the emperor. To reject it is to declare open insurrection. Never since the treaty have the kings of Korea dared to go without the imperial calendar, but to safeguard their authority over their own subjects and affect a certain air of independence, they pretend to make a few changes, placing the long lunary periods (thirty days in length) at different intervals, putting the intercalary months ahead or back, etc., so that Koreans are forced to await the publication of their own calendar in order to know the civil dates and times of official celebrations." (Dallet, Charles Messner, Charles A., 1874: 14) •"When the Korie dynasty was overthrown at the end of the fourteenth century, the princes of the Tsi-tsien dynasty which succeeded it, yielding to the influence and perhaps the formal commands of the Peking emperors, adopted not only the Chinese chronology and calendar but also the religion of Confucius." (Dallet, Charles Messner, Charles A., 1874: 136) •"The logical place to start in understanding the ritual process of the first lunar month is the calendar itself. Although it is usually called a lunar calendar, the present rural Korean calendar is a lunisolar calendar. In traditional China and Korea,	

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
		the first day of the [lunar calendar] year was fixed by the court astronomers to fall on the day of the second new moon after the winter solstice [solar calendar]. [...] Astronomy and calendrical science had great politico-religious importance in China, since the emperor was regarded as the mediator between heaven [yang] and earth [yin], and the calendars issued in his name were followed unswervingly both in China and the tributary states on her borders [...] Thus sun and moon, yang and yin, were both involved. But many rural Koreans do not know this relationship; for them the first indication that the days will be getting warmer is the coming of Ipch'un, one of the twenty-four seasons." (Dix, Griffin, 1987: 97) •"“They have abundance of old Books, both Printed and Manuscript, so choicely kept that none but the King's Brother is trusted with them. Copies of them with Cuts, are kept in several Towns, that in case of Fire they may not be quite lost. Their Almanacks are made in China , they themselves wanting skill to make them. They print with Boards or Wooden Cuts, and lay one Cut to each side of the Paper, and so strike off a Leaf. They cast Accounts with little long Sticks, as we do with Counters. They know not how to keep Books of Accounts or Shopbooks, but when they buy any thing, they set down the Price under it, and write on it what they made of it, and so find what profit or Loss.”" (Hamel, Hendrik, 1918: 147) •"Two kinds of calendar, solar and lunar, are in use in the Hamlet. The first is an official one used in the government and school; the latter is employed for the everyday work of the Hamlet. Economic and social functions are all marked and remembered according to the lunar calendar. Farmers often complain of the unsuitability of the solar calendar by saying, It is February according to the calendar, but who would believe it is spring! The weather is more like the severe winter months of November and December." (Han, Chungnim C., 1970: 24)	
34	Kuna		• "Ethnic relationships to Central and South American cultures .—Summarizing in a a general way the material culture of aboriginal southeastern Panama as contrasted with that of northern Central America some generalizations may be made. Wherever the culture traits of the Chocó differ from those of the Tule and Cuna it is the latter stock rather than the former that represents a marginal culture related to that of the Maya on the north and of the Andean peoples on the south. Most of the traits possessed by both the Caribbean slope tribes, Cuna and Tule, and by the Chicó of the southern isthmian slope are typical of the South American lowland forest culture of the Caribs and Arawaks. The stone arrowheads and feathered shafts of northern Central American are supplanted by arrows with heavy foreshafts. Former employment of poisoned blowgun darts to stun game general; travel and transport entirely by boat; much hexagonal weave openwork and lapped-edge basketry; loomwork, but also beaten bark breech

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
			clouts and aprons; pottery coarse and crude;Calabash sieves and drinking vessels; vocal rather than instrumental music; polygamy; purification of menstruating women; traces of the couvade, divination, and use of the bull roarer; but absence of masks, books, calendars, temples, kings, coca chewing, [131] priesthood, and other traits characterize aboriginal southeastern Panama as distinct from northern Central America and from the Andean culture area as well, although possessing many traits marginal to them." (Krieger, Herbert William, 1889-, 1926: 128-131) •"Only a crude calendrical system, based on seasonal relationships to moon cycles, is used; with a crude 'counter' for short periods of anticipated lapsed time. There is a mnemonic type of 'picture writing' which records sequences of mythical events or chants, but which has no phonetic equivalent; and is only intelligible to the recorder who devised it. This may be recorded in notebooks with colored crayon, and has supplanted a form of incision and painting on balsa planks. This is in turn being superseded by literate men who record charts, formulas, etc., phonetically in European script. The entire system is of unknown origin, though related to the need for memorizing extremely long chants." (Marshall, Donald Stanley, 88-89) •"In the Cuna calendar there are no names for days and no divisions less than a moon. The year is divided into moons of the annual happenings or marked seasonal changes." (McKim, Fred, 1883-1946 Wassén, Henry, 1908, 1947: 55) •"All in all, it can be said about the material that it is rich, but nevertheless lacks much. Nordenskiöld writes himself: The material from the Cunas which I now have at my disposal appears to be very worthwhile, but as has come out from the discussions with Pérez it is however only a poor part of what exists among them to be collected. There are great numbers of songs of all kinds, calendars in picture-writing, enigmatic picture-writings resembling the old Aztec ones, wooden tablets with picture-writings carved out in relief and so on. All this according to Pérez. During the next few years we no doubt shall see what can be found here. Constantly much material is lost — because every medicine man takes his notes with him to the grave, and his songs only survive if they are copied by his followers while he is alive." (Nordenskiöld, Erland freiherre, 1877-1932 Pérez Kantule, Ruben, 1907 Wassén, Henry, 1908, 1938: xxv)
35	Kurds	• "In this calendar the first six months of spring and summer are each 31 days long, and those of fall and winter are 30 days each. The exception is the last winter month (the 12th in the annualCalendar), which is 29 days normally, but 30 in the leap years. The months coincide with the 12 zodiacal signs, i.e., the first month is identical with the duration of Aries, the second with Taurus, the third with Gemini, and so on. The names of the Kurdish months are Khâkalewa, Bânamar, Jozardân, Pushpar, Galâwezh, Kharmânân, Razbar, Khazalawar, Sarmâwaz, Bafranbâr, Rebandân, and	

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
		Rashama. The calendar begins with the year that marks the fall of the last Kurdish kingdom of the classical era, the House of Kayus (or the Kâvusakân dynasty), in AD 380 (see Classical History) plus an enigmatic seven extra years. The extra seven years may be connected with the veneration with which the number is held in the native Kurdish religions and would be the time needed for the reincarnation of the souls of departed leaders (see Cult of Angels). It is now (AD 1992) the year 1605. ThisCalendar has been variously called Kurdi (Kurdish) or Mây'i (Median). An alternative beginning for the calendar is the common Muslim era, marked by the Prophet Muhammad's departure from Mecca to take up residence at Medina (July 16, 622 AD), and is now (AD 1992) the year 1371 of Hajira." (Izady, Mehrdad, 1992: 241)	
36	Lau Fijians	• "In the old days knots were made in the reticulum of a coconut bunch or in a creeper to count the nights. A woman related to the deceased kept the record. Some people counted by tides. " (Hocart, Arthur Maurice, 1929: 183)	
37	Lepcha	• "Our ancestors noticed that certain plants grew, and leaves of trees and flowers came up at certain times only. Fruits came on [Page 243] the trees at another set time. Likewise, some animals, birds, fish and other creatures appeared only at a given period of time. So, for the convenience of living they found it useful to calculate these different times, and to keep a permanent track of these happenings and occurrences. This is how our 'Tu-tshat', or seasons, came to be marked and recognised. In turn, this again led to fixing of a medium for calculating these vital tu-tshats, and this is how our 'nam', or cycle of seasons, came into being. Alongside, it was found that the calculating of shorter periods or shorter spans of time was also very necessary. More than any other God-given objects, it was found that the 'Lavo', the moon kept a regular and steady pace. It was also found that, after waning and waxing, after a certain period of time, it came back to its original form. This was taking about twenty-nine or thirty days only. This intervening period became the base of calculating this shorter period of time and we started calling it 'lavo kat' or one moon. Then, adjusting this shorter timing to the seasonal indications of plant growth, fruition of trees, the advent of different birds, fish, and creatures, a full cycle of nam or what the others call, 'year', started to be calculated. They had also found out that roughly twelve of these lavos were encompassed within this meaningful cycle of time containing the different tutshats or seasons. But then again, sometime afterwards, they also found out that adhering strictly to this originally estimated and planned medium upset the calculation of the different times for growth of plants, crops, and such other things. So, after a lot of trial and error, they hit upon a novel method, which led to the regularisation of the almanac. At the end of every	

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
		third nam or year, adding one more lavo, started giving the correct times as required. This adding of one extra Lavo or month every third year we call 'Lavo shyoke', a moon added or joined; some people also call it 'Lavo nyet' or two moons. Thus, the various tu-tshats indicating the growth of plants, flowering, and such other natural phenomena, went on uninterrupted." (Foning, A. R., 1987: 242) •"[N]umerical concepts play a very small role; in any question demanding numbers they will nearly always give in answer three or four alternatives. In some situations this is almost ludicrous; except for one or two lamas nobody knows his own age or even that of his youngest children in years; they all know the year they were born and what year they are now in, but if a child was born in Dog year they would be quite unable to work out its age today (1937 was Ox year and the child would be four) and they might just as well say that the child was two or eight. More than that, if you asked a person how many people were living in his house he would almost certainly get the number wrong; he could naturally recite immediately the names or rather the kinship terms of the people in his house; but it does not cross his mind to tot up the number and it is a mental operation of which nearly all Lepchas are incapable. The Lepchas count by twenties and use their fingers for all calculations; they count with the thumb against the fingers, putting the thumb on the base of the little finger for one, the first joint for two, the second joint for three, the tip for four and then going down to the base of the next finger for five and so on. There used to be long consultations to try and work out in how many days a fixed date for a calendrical feast would arrive; and on one occasion everybody except one lama arrived a day late, and the Muns frequently made a mistake of a day or more for their special festivals. They are quite incapable of working out what money they should receive for their cardamum; they may know that they have ten maunds and that each maund is worth Rs. 12; but unless they use sticks or some other memory guide they have absolutely no idea of what the total should be. The Mandal has to keep in his head the taxes due from each household but he does this by remembering the words and not the figures." (Gorer, Geoffrey, 1905- Hutton, J. H., 1938: 272) •"The members of the individual households number from two to about fourteen persons, and, naturally, there are great differences in age within each family. It is my impression that the Lepchas usually have a fairly good knowledge of their age, their calendar system helping them greatly here. Despite some examples of contradictory information as to the age of a few individuals, the information I received tallied remarkably well with such other data as things remembered as well as with my own general impression, except perhaps for the very high age given in a few cases." (Siiger, Halfdan, 1967: 61)	

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
38	Lozi		• "Livingstone quotes with approval Thomas, a missionary among the Ndebele, who points out, on the easy life of servants among African tribes, that this largely arose from the African lack of clocks and calendars--there was no point or possibility, in their system, of a master attempting to get punctuality, quickness, thoroughness, nor amount of exertion from his workers." (Gluckman, Max, 1911-1975, 1941: 75) •"The judges also prefer direct to circumstantial evidence, but they have frequently to decide cases on the basis of the latter. This is forced on them in many cases where it is impossible to obtain direct evidence, such as disputes about titles to land in the distant past, since there is no registration of land and there are no written records. In 'The Case of the Prince's Gardens' (p. 57, above), one judge even found against the land-borrower because he had not disputed the land until two important witnesses against him were dead. Furthermore, the Lozi do not have detectives to collect evidence nor, as stated above, any techniques for fixing responsibility by finger-printing, comparison of hairs and blood, etc. They use both clocks and calendars nowadays, but on the whole their activities are still timed by season and sun. Hence judges cannot cross-examine meticulously on the respective timing or dating of reported actions. In 'The Case of the Violent Councillor' checking of times by judges occurred in cross-examination which I did not quote in detail, but the standards were the flexible times of gardening and fishing activities and of meals." (Gluckman, Max, 1911-1975, 1967: 108)
39	Maasai		• "All these statements show clearly that there is no hard and fast definition of the period for the institution of the age-units, and they are evidence that our system of measuring time does not apply to the Masai. The major factor for fixing that period are the presence of candidates, the authority of the elders stating that the right time for performing the various ceremonies has come, and also the regular occurrence of good rainy seasons." (Bernardi, B., 1955: 293)
40	Mataco		• "The Mataco New Year occurs when the solar days are at their shortest and the Pleiades are seen in the east in the morning, i.e. around the first of July (Fock 1982:12). The year is then divided into four seasons, only roughly corresponding to the Occidental ones. They are of uneven length, according to the occurrence of certain natural phenomena. Ideally, there are two seasons comprising four months (corresponding to summer and winter), and two seasons comprising two months (corresponding to spring and autumn) 58 . Métraux says: A diet calendar can be established for the Pilcomayo Indians on the basis of seasonal variations in foods, (1946:246) but he does not state the names of the seasons. Palavecino gives the terms: Nawop, Yachup, Chelchup (1964:383) that are typically Mataco (cf. my own) but leaves out the term for winter. Fock gives a number of terms, not all of which I have been able to

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
			identify, even with the assistance of Mataco informants: Potsehlay (New Year), tawoy hatlay (August), lecheniyo (November), nohhuaikyuk (December), kyethl kyukthalwo (February), lopetl (April-September) (1982:8), but they may be, as Fock states, of inland or Bush Mataco origin, i.e. from Mataco formerly living far from the rivers. My own information derives entirely from Mataco informants." (Alvarsson, Jan-Åke, 1988: 58)
41	Maya	• "An analogous situation exists with respect to time reckoning. Without marking, the flow of time would be so uniform as to be meaningless. This situation never arises, as both natural and social factors contribute in making meaningful periodicities within the flow of time. Night changes to day, the new moon swells to full, the cloudless sky darkens and rains come; a person is born, grows to puberty, reproduces, and dies. In dying, a Bororo becomes aroe, his/her soul part of the underlying structure of the cosmos by which nature and society are joined, antithetical but interrelated, complementary domains. The flow of time goes on. Stars that rise and set with clocklike regularity repeat their patterned movements annually; periods of disappearance and reappearance contribute to marking off this annual cycle. Beyond the year, this continuity is punctuated by the relative discontinuities of the planets in an otherwise starry sky. With periodicities of their own, the planets course through the constellations we describe as the ecliptic band, which all observant stargazers recognize in their own way. By intersecting the annual flow of time and movement of the sun with celestial cycles beyond a year, they contribute to marking off a longer progression of time in increasingly large cycles. In the New World the Maya are best known for their systems of interlocking cycles: the tzol kin, a 260-day cycle that combined 13 nümerals with 20 n.amed days; the haab, a 365-day vague year comprised of 18 months of 20 d.ays (plus an additional 5); and the two intermeshed in a cycle that repeats itself every 52 years (see Aveni 1980 for a thorough treatment of Mesoamerican astronomy and calendrics). They were also aware of a 584-day Venus cycle (including periods of that planet's appearance as morning and evening star and its intermittent disappearances), and its intermeshing with the 365-day vague year every 8 solar years, or every 5 Venus years (8 X 365 = 2920 =. 5 X 584)." (Fabian, Stephen Michael, 1992: 172) •"The Maya conception of time is embroidered in a cyclical continuum of history intertwined with prophecy. The Classic Maya stamped their time recording by the ocurrence of the katun, a 7,200 .days cycle within the Maya calendrical round. This time span was used for seating Maya rulers. It was thought that at the end of each of their twenty-year katun periods, the historical cycle will repeat itself. This prophetical recurrence is consignated in the way the Maya recorded the Spanish and other pre-Columbian invasions (Roys 1967; Sanchez de Aguilar 1937; Tozzer 1941). As such, the historical Maya	

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
		colonial version (Chilam Balames) assign the Spaniards the role of being the malady, among others that came in the past, and other evils expected to endure in the future." (Re Cruz, Alicia, 1962-, 1996: 75) •"The Spaniards did everything they could to suppress the religious practices of the Indians and as a means to that end they destroyed nearly all the Mayan manuscripts during the first century of their rule in Yucatan. As late as 1695, however, when Fra Avendaño visited the Peten he met priests there who understood the Mayan calendar and they taught him to read it." (Shattuck, George Cheever, 1879- Bequaert, Joseph C. (Joseph Charles), 1886- Yucatan Medical Expeditions, 1929-1931, 1933: 56) •"And this same term is used very often in the literature to describe the development of the architecture, art styles, hieroglyphic writing and astronomical and calendrical systems of the pre-Columbian Maya, while it also contains the hidden assumption or overt belief that somehow these expressions of indigenous themes represent evidence of a higher level of cultural development than their humble descendants." (Sosa, John R., 1999: 15) •"Another form of divination, not however confined entirely to the sorcerers, is known as Xoc Kin (šok qin). This term means the reading of or counting of the days, and is used to prophesy the kind of weather that will be met with during the year. The Xoc Kin takes place at the beginning of the year, embracing the whole of January. The first twelve days of January are taken to represent the months. If for example January 1 is a rainy day that is a sign that January will be a wet month. Similarly January 2, if a dry day, indicates that February will be a dry month. So the days of January are counted off till January 12 is reached. This day represents the month December. From January 13 to 24 the count is renewed, but this time backward. January 13 represents the month of December again, January 14, November, January 15, October, and so back through the months until January 24 again represents January. Then the different prophecies are compared and checked off one against the other. The days from January 25 to January 30 are then used to help settle any outstanding differences. As these days are only six in number, they are divided into two halves, the first half of the day until midday (tšunqin) representing one month, the other half of the day from midday to sunset Page: 76 representing another month. In this way January 25 until midday prophesies the weather in January, January 25, midday to sunset, the weather in February, and so on until January 30 is reached. The morning of this day shows the weather for November, and the afternoon indicates the weather for December. As a final check the twelve hours of daylight on January 31 are counted off, one for each month. It would appear that the Xoc Kin is in all probability a survival from the old MayaCalendar, where probably the first uinal, or	

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
		possibly lunar month, was employed as the basis for the divination during the coming haab." (Thompson, John Eric Sidney, 1898- Laufer, Berthold, (1874-1934), 1930: 75) •"The Mayas tend to sow their crops on, or within a day or two, of special feast days. Tobacco, for instance, is sown on, or close to, St. James' day (July 25). Squashes are sown in April when the moon is full. The day of Holy Cross (May 3) marks for many milpa owners the time when the maize crop should be sown. On Good Friday chili should be sown. Aguilar (p. 95) writes that the Mayas used their calendar to find out when to clear, burn, and sow. In the Relacion de Campocolche y Chocola it is stated that the priest told the people when to sow. Accordingly the fixing of times to sow by Christian festivals is, in all probability, a survival of, or rather a mutation of, a pre-conquest custom." (Thompson, John Eric Sidney, 1898- Laufer, Berthold, (1874-1934), 1930: 55)	
42	Mbuti		• "Once they are in this camp they will stay on another three months or so until the game is scarce, the fruit gone, the camp ringed by high refuse heaps and pungent with the smell of rotting food and human refuse. Or they will perhaps move on a little earlier if someone dies and is buried there. They do not count time; they simply respond to the practical needs of the moment, the way lower organisms respond automatically to changes in intensity of light. Moreover, they will never go back to exactly the same place. One reason for this may be the presence of funeral remains; but there may be other reasons. The pygmies do not say why, and probably do not know." (Putnam, Patrick, 1948: 336a)
43	Mentawaians		• "Kruyt refers to the gaps in the age-structure of school-going children. The data were supplied by the administrative officers of the P.K.P.M. (Piamian Kristen Protestan Mentawei). Since nowadays there are no non-Christians, except Muslims, this census covers the whole population.: After a Mentaweian has been confirmed, he is considered to have reached adult status. Confirmation takes places between the ages of 12 and 18. [...] There was a connection between the long periods of religious celebrations, the punèn, and this spacing of children. During many of these punèn, sexual abstinence was prescribed. On certain occasions, such as the building of a new community house (uma), the punèn-periods could extend over a couple of years (Loeb 1929a, 195). Neither did sexual intercourse take place during the first eighteen months after the birth of a baby. This spacing in the ages of the children probably resulted also in the number of children per family being low. Kruyt states that in the villages converted to Christianity the number of children was higher; in the Christian village of Silabu on North-Pagai, twenty children were born in 1920, .which could be considered an exception (the number of inhabitants of this village is not given, but can be estimated at 300). In the Pagai pattern, Silabu occupies a special place, as at the time it [Page 165] was more inclined to acculturation than the other Mentawei villages: it

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
			was also richer and for a long time it had been in contact with Malayan and Buginese traders." (Nooy-Palm, C. H. M., 1968: 162)
44	Mongol	• "Cultural influence between the sedentary Chinese and the nomadic Mongols is perhaps greater than might be imagined, as nomads introduced numerous cultural codes to the Chinese, which became an essential part of Chinese culture, and vice versa. According to Chencal, Chinese concepts and philosophy spread to the Huns, the most representative of them being the yin-yang principle and the idea of five primary elements (metal, wood, water, fire, and earth). Mongols believe that they exported to the Chinese the twelve-animal representation of the lunar Calendar (Bira 1988: 28). Whatever the case, it is clear that the two strikingly different peoples in fact share most of their elementary philosophical principles." (Bulag, Uradyn Erden, 1998: 252) •"But the greatest importance is attached to the symbolic connection between the years of birth of both parties contracting the marriage. According to the Mongolian calendar (See later the section on Religion) the calculation of time is made by 12-year cycles. In the cycle, each year has its own name, i.e.: 1st year — mouse, 2nd — cow, 3rd — tiger, 4th — hare, 5th — dragon, 6th — snake, 7th — horse, 8th — ewe, 9th — monkey, 10th — hen, 11th — dog, 12th — pig. In Mongol understanding, the years of the cycle are divided into soft and hard. The years of the mouse, cow, hare, snake, ewe, monkey, and hen are soft; the years of the tiger, dragon, horse, dog, and pig are hard. When a marriage is Page: 122 contracted it is very important that the year of the birth of the bride should not be harder than the year of the birth of the groom. For instance, a male who was born in the year of the hare cannot marry a female born in the year of the tiger, because in such a case the woman would be stronger than the man, and such marriage could not be happy. On the contrary, if the male was born in the year of the tiger and the female in the year of the hare, then there are no obstacles to the contracting of such a marriage. The mutual feelings of the young people are scarcely taken into consideration." (Maiskii, I. M. (Ivan Mikhailovich), 1884-1975 Dayton, Mrs. Kunitz, J., 1921: 121) •"Astronomy, or more accurately, a mixture of astronomy and astrology, is taught in special schools which are found only in the larger monasteries, and embraces such subjects as the creation of the world, the art of calendar making, the art of calculating the periods of the eclipses, methods of divination, means of using the holy scripture in foretelling the future, etc." (Maiskii, I. M. (Ivan Mikhailovich), 1884-1975 Dayton, Mrs. Kunitz, J., 1921: 671) •"Ulichutsai, the renowned Minister of Chinggis - Khan and of his successor Ogadai, collaborated with Arab and Persian scholars worked out a Mongolian calendar, wrote and translated books, drew maps	

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
		and opened schools. Upon his death he did not leave behind the usual vast treasures of gold and gems, but numerous manuscripts of works on history, politics, astronomy, medicine, and agriculture. " (Maiskii, I. M. (Ivan Mikhailovich), 1884-1975 Dayton, Mrs. Kunitz, J., 1921: 542) •(Washington, Far Eastern and Russian Institute of the University of, 1956: 70)	
45	Mongor	• "Ancestors are venerated at the Qing Ming festival falling on April 5. The whole sib, both nobles and commoners, go to the grave of the first ancestor with much pomp and circumstance, prostrate themselves, and eat a sacrificial meal. Ritual distinguishes between nobles and commoners and between the different lines of direct descendents. On the 19th day of the 11th month, some Monguor villages make sacrifices to the local mountain deity who is thought to help childless couples have babies. The following day is the tiger dance (WUTU) performed by selected group of young men who in an athletic display jump across rooftops and over piles of burning straw. NADUN is a village-level harvest festival held in the late summer between mid seventh and ninth lunar months. Some villages host the ceremony for one to two neighboring villages. Flour and bread are offered to the sky god, Tiangere. Some villages make offerings to the Chinese river god Erlang. The ceremony involves a special collective ritual called HUISHOU, whi ch is followed by dancing and singing." (Skoggard, Ian, 2005.: 5)	
46	Navajo	• "The Navajo calendar lists thirteen months, the extra one being the last ten or twelve days of October and a few days of November. During this odd month no new tasks may be started or old ones completed, no ceremonies may be held, no games or festivities indulged in, and all travelers must halt their journeys until the next month arrives. The name for this month is Gahnji, meaning the divided one, and is said to belong to the coyote. Its ascendant star is the coyote star which weCall the Dog Star, and under this omen hunters are supposed to prepare their weapons, masks, buckskin clothing, and amulets to be ready to take part in the winter hunting or animal ceremonies." (Newcomb, Franc Johnson Fishler, Stanley A. Wheelwright, Mary C., 1956: 12)	
47	Ojibway		• "Gestation covered a period of nine missed menstruations and was reckoned from the first one missed, birth being expected at any time after the ninth one missed. The phases of the moon served as a calendar. One informant said: We took notice whether the first menstruation that was missed occurred at half-moon, quarter-moon, full-moon, or no moon—the old Indians reckoned everything by the moon, for we had no calendars like now. The exact time was nine moons. We made marks with charcoal somewhere to remember the moons as they passed; I used to make marks on the birchbark covering of our wigwam, in the corner, right over the place where I kept my things. Another added: I took notice of the

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
			phase of the moon of my first missed menstruation and counted the numbers of moons of the same phase as they passed. I kept that number in my head. I always had a good memory and didn't have to mark a stick like many women did." (Hilger, M. Inez (Mary Inez), 1891-, 1951: 4)
48	Ona		• "A grouping of the days, comparable to our week, (42) : Nevertheless Beauvoir (b) passim has noted definite designations for all weekdays, which represent linguistic monstrosities. Gallardo:380 has already asserted: “Para indicar una semana, carecen de palabras y dirán siete dias /They lack words to indicate a week and say seven days/.”: is entirely lacking. Just as little do they know an expression for [Page 1581] 1108 cont. month, but they orient themselves adequately according to the phases of the moon. Not even the word year is found in their language. But they clearly distinguish two principal seasons, namely, elésken (summer) and [unknown][unknown][unknown]enken (winter), which are separated by two secondary, shorter seasons as if as transition periods, by y[unknown][unknown] usken (spring) and k[unknown][unknown] menken (autumn). The sharp contrast between summer and winter, as well as their long duration, divide the year into two large periods. The Indians are informed of their advance of dwindling by the position or by the appearance and setting of certain stars. (43) : Cojazzi:76 also mentions: “Conoscono molto le stelle e dalla loro posizione sanno determinare le stagioni dell'anno e le ore della notte /They know the stars well, and from their positions they know how to determine the seasons of the year and the hours of the night/.”: Meanwhile their precise observation of nature has helped them in a very definite division of the year. The first snowfall brings about a significant break in the course of the year. They seriously speak of it emphatically: ma [unknown][unknown]n a [unknown][unknown][unknown]e = now comes the snow (April). With that the actual winter season begins, which our Selk'nam extend over six revolutions of the moon. Thus they distinguish:: [unknown]al[unknown] a[unknown] stá = time of the first winter moon.: [unknown]sken = time of the second winter moon.: k[unknown][unknown] l[unknown][unknown][unknown] n[unknown] en = time of the third winter moon (k[unknown] l = leaf, [unknown][unknown]n[unknown] en = to fall [Haus word, (44) : This older word form is difficult to explain in its origin. It may be that this turn of phrase, since already present among the Haus, was simply adopted by the Selk'nam; or that the Haus, since still settled on the southeast coast, /this footnote is continued on the next page in the original source/ invented this whole division of [Page 1582] 1108 cont. the six winter months from the most precise and convenient observation of nature. As I was expressly able to find out, this manner of expression designated has also been customary exclusively among the northern Selk'nam, which circumstance clearly argues for a connection of the Haus people with the true Selk'nam

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
			(p. 174).: wi[unknown][unknown] n in Selk'nam]). Now all the foliage has fallen from the deciduous trees.: 1109: o[unknown] na[unknown][unknown] sken = time of the fourth winter month.: [unknown][unknown]nukekr[unknown] = time of the fifth winter month ([unknown][unknown]nuke = wind, and kr[unknown] = moon; appropriately translated: the moon-woman accompanied by strong wind).: p[unknown] yuk[unknown][unknown] n[unknown] en = time of the sixth winter month, when p[unknown] yuk , the sea elephant and sea leopard, come to the shore for a few days, only to go away again soon afterwords, until the following year. This is in September when the snow disappears and spring, y[unknown][unknown] usken , begins. Full of joy, the people breathe relievedly and, aroused, cry out: y[unknown][unknown] usken ó[unknown] yíkwa = we are now in spring!: Furthermore Kwányip is observed. When he has reached his most distant position in the north and afterwards turns back, the people know that winter will slowly disappear. Following this turning this star no longer serves them for orientation concerning the course of the year. As soon as [unknown][unknown]nuke is no longer visible in the west, but instead appears in the east in the morning, severe frost begins; this is the middle of the winter = [unknown][unknown][unknown]enken [unknown][unknown]tu[unknown] (beginning of July). With the approach of spring the people reckon from the egg-laying of most birds and from the appearance of the young brood:: [unknown][unknown] k[unknown][unknown] ken = the egg time is thus the name of this period. They know exactly when and in what sequence the more important bird species begin this.: k[unknown][unknown][unknown][unknown] m k[unknown][unknown] ken = general designation for the time the young hatch out of the eggs. They count exactly according to the [Page 1583] 1109 cont. sequence in which the young animals appear.: k[unknown] m[unknown] nek k[unknown][unknown] ken y[unknown] hwen = time in which the guanacos are gravid.: t[unknown][unknown][unknown] k[unknown][unknown] ken = time of the newborn guanacos.: [unknown]é[unknown] n k[unknown][unknown] ken = time of molting ([unknown]é[unknown] n means: a bird that changes its first coat of feathers into permanent feathers). The beginning of this period is effected by the k[unknown] yá[unknown][unknown] k k[unknown] n[unknown] m = the cormorant young. Soon other birds follow. All this takes place in February-March, that is, in the waning summer when the first signs of autumn become clear. This season is characterized with the circumlocution: “when the leaves become red,” the latter of which are bright scarlet in color, especially among the deciduous beeches.: In general, therefore, these Indians reckon from one winter or summer to the next. One also frequently hears: “When my father (or grandfather) lived.” Longer periods of time are designated with: “It was many winters ago.” Even though with all this only little accuracy should be achieved, the Selk'nam is content with it and fills in the linguistic gaps with the combining of ideas." (Gusinde, Martin, 1931: 1580)

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
49	Orokaiva		• "I demonstrated in the previous chapter that all elements of mediation are essentially magical. The Orokaiva similarly regard development activity as magical. In response to this notion, government officers sometimes evolve rules of behaviour that look remarkably like magical formulae. One officer in the Northern District invented a regular weekly calendar which he thought the Orokaiva should follow. Certain days of the week should be set aside for coffee growing, others for growing and marketing extra garden crops, others for cleaning and improving the village, and so on. I heard the officer proclaim this calendar; later, I heard a councillor proclaim it in Sivepe village. It was listened to with respectful attention, but afterwards ridiculed by the village men. The formula was rejected because it was thought to be useless. There was, of course, a plethora of such formulae circulating as many officers thought up their own, and most officers were rapidly transferred from one job to another. It was natural, therefore, for the Orokaiva to become selective in the formulae they adopted. Also, experience showed them that the formulae did not always work." (Schwimmer, Eric G., 1923-, 1973: 75)
50	Ovimbundu	• "Events or persons prominent at the time of birth may influence the choice. A namesake, whether intentional or not, is known as Sando (from the Portuguese santo (saint), and the Roman Catholic custom of naming after the saints). Events of the time of birth or its calendric period may be summed up in a proverb or a sentence, a keyword of which is used as the name." (Childs, Gladwyn Murray, 1949: 86)	
51	Palestinians	• "As the shrine belonged to the municipality, representatives of all local religious communities were able to book time in it. Since the stories surrounding the nativity of Jesus are celebrated by Muslims and Christians throughout the Bethlehem region as founding myths of the local communities, Muslims and Christians alike gathered at the shrine to celebrate their traditions in a place where the sacred had interacted with their locality. Sometimes these were shared celebrations, nominally organized according to the calendar of one of the religious communities, while at other times local Christian and Muslim officiants carried out ceremonies specific to their congregations." (Bowman, Glenn, 1993: 450)	
52	Pashtun	• "Among Pathans it seems that genealogies have two quite distinct functions. They define a segmentary hierarchy of groups and sub-groups, in the manner characteristic of lineage systems. But they also define a time sequence in a written historical chronicle; they give a relative chronology for migration and conquest history. In the first sense, the genealogy has no finality; it simply offers an idiom for the expression of changing social alignments, and the only criterion of 'correctness' is its fit with social organization. In the second sense,	

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
		however, there is an absolute standard. The events of written history are unalterable; and the correspondence between them and the traditional genealogies in Swat can be maintained by a careful oral tradition, and, even better, possible inaccuracies can be corrected by a careful study of historical sources." (Barth, Fredrik, 1928-, 1965: 25)	
53	Pawnee	• "The Skidi Pawnee calendar was based on a carefully determined combination of astronomical and meteorological phenomena. Most important were stars known as the Swimming Ducks (Lambda and Upsilon Scorpii), the South Star, and springtime thunder. The calendar had two seasons. Heliacal rising of the Swimming Ducks followed by thunder set the beginning of the ceremonial cycle and the summer half of the year. Winter began with the heliacal appearance of the South Star. It is possible that sunlight falling directly on the altar at the west side of the earth lodge confirmed the beginning of both seasons. Observations of other stars, including the Seven Stars (Pleiades) and the Circle of Chiefs (Corona Borealis), opposite each other in right ascension, were probably also important for calendric purposes." (Chamberlain, Von Del, 1982: 208). •"The Morning and Evening stars were paramount to the Skidi. Their cycles were impractical for calendar setting, but this was easily accomplished by observing the stars. The potential use of the positions of the rising and setting sun as markers on an horizon calendar seemed to have minor (if any) importance to the Pawnee, as compared to some other groups of Native Americans. Solstice celebrations do not seem to have been a part of the Pawnee religious scheme. But the shift in the rising and setting positions of the planetary bodies (including the sun and moon) might have been crystallized in the concept of the world-quarter stars." (Chamberlain, Von Del, 1982: 181) •"James Murie's writings (1981:40-41,53) provide the greatest detail on the setting of the Skidi calendar. He pointed out that ceremonies were set by combinations of natural phenomena. In the following, note that Skiri and Skidi are interchangeable spellings for the Wolf band of the Pawnee. The time for ceremonies in the annual cycle presented at the outset was determined by stellar observations. In this, as in all other astronomical culture, the Skiri were the specialists... The approach of spring when the Page: 117 thunder was expected was heralded by the appearance of two small twinkling stars, named the Swimming Ducks. It is believed that at their appearance the animals in the water revive, or come out and break holes in the ice. This is spoken of as the taking of new breath of life. When the first thunders come, it is said that they areCalling the water animals....The stars marking the two halves of the year are the South Star and the two Swimming Ducks. The former may be Canopus but the latter we have not identified. The South Star appears about 1 September and marks the beginning of the winter period. This continues until the appearance	

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
		of the two Swimming Ducks, when the summer period begins. With regard to the transfer of the bundle leadership, Murie noted: The times for these changes are determined by the first appearance of certain stars. These are the two Swimming Ducks and the South Star. The former is said to appear in Nebraska about 1 February, the latter about 1 September. We have not positively identified either of these, but the latter is probably Canopus [1981:75]. While describing the Thunder ritual of the Skidi, Murie wrote: The time for the ceremonies of the Evening Star bundle was primarily determined by the recurrence of the thunder in the spring; but it should be understood that it was not at the very first sound of the thunder that the ceremony was held, for it might have thundered at any time. The approximate time was fixed by the appearance of two small twinkling stars (the Swimming Ducks) in the northeastern horizon near the Milky Way. When these could be seen it was time to listen for the thunder. When low, deep, rumbling thunder was heard, starting in the west and rolling around the entire circuit of the heavens, then it was time for the Thunder Ritual to be recited. Another sign to alert the priests for this thunder was the appearance of sheet lightning. Also, the Pleiades began to take a certain known position at this time. When these signs were noted the priests began to prepare for the opening of the Evening Star bundle, and when the proper thunder was heard, they were ready to proceed with the ritual." (Chamberlain, Von Del, 1982: 116) •"Finally, one cannot fail to note that the Skiri, here portrayed as having the most elaborate ceremonial system, have also been the Pawnee band to receive the most attention from writers. Murie, the most prolific writer on the tribe, was himself a Skiri. In his manuscript and other writings there is no attempt to give an equally full portrayal of the South Band liturgical calendar." (Murie, James R. Parks, Douglas R., 1989: 19)	
54	San		• (Lebzelter, Viktor, 1889-1936 Neuse, Richard, 1934: 73) •"None of the !Kung knew their own ages or the ages of their children. None knew the year of his birth or, for that matter, what the current year was. To estimate ages by looks alone was a risky procedure because !Kung may look much younger (or older) than they actually are. How were we to get a handle on this problem? The !Kung turned out to have a social custom that proved useful in determining their ages. Most of their kinship terms have an older-younger specification built in. Relative age is important in !Kung kinship because for every pair of persons, or dyad, the older of the two determines what kin term is to be used, and the younger defers to the older. Parent-child kin terms, of course, have relative age built in (*e.g.*, father-daughter), but the !Kung extend this feature to cousin, sibling, and in-law terms as well. There is even a special kin term (?dara = friend, agemate) for people who are so close in age that

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
			older-younger specifications do not apply. Because each !Kung can, in effect, state his or her age relative to dozens of others, it is possible for an observer to rank order an entire population from oldest to youngest. In 1968–9 Nancy Howell canvassed the entire population of Dobe and /Du/da and developed four regional interconnected rank orders containing over 800 people. Next Howell assigned absolute ages by a curve-fitting technique using model life tables from Coale and Demeny's bookCal. She adapted and greatly refined a technique originally developed by F. G. G. Rose for a similar study of Australian aborigines on Groote Eylandt (Rose 1960). The Howell method yielded results that were both internally consistent and jibed well with age estimates based on the use of event calendars. The technique is discussed in more detail in Howell (1973, 1976a,b; 1979). The age-sex composition of the resident population based on these age estimates is shown in Table 3.2." (Lee, Richard B., 1979: 43) •"The passage of a period longer than about a month is measured in terms of the seasons of the year, as described earlier. A completed succession of these constitutes one khudima (perhaps better translated as a twelve-month rather than by the more precise term year). The number of these that have passed is reckoned in terms of elapsed winters. Periods of a few days are reckoned as the number of days that have passed; if the G/wi stock of numerals of one to three is exceeded, the number of days is counted off on the fingers. Although it would be theoretically possible to keep tally by means of this system of unnamed decimal-based numbers, people lose track of the days after a week or so and resort to qualitative reckoning (*e.g.*, a clump of days, a big clump of days, many days). Although a lunar Calendar is not explicitly referred to, pregnant women do keep track of the number of missed menstrual periods and correctly relate this to the season in which birth will occur. I found it convenient to refer to the phases of the moon to indicate to informants the timing of my own past and future movements, and they readily grasped and used this chronology. The principle therefore seems to be clear to them but is not lexically apparent." (Silberbauer, George B., 1981: 110) •"The concept of number is undeveloped among the San (their language counts only to three), and people do not know their ages. One can obtain a fairly accurate idea of the ages of children by ascertaining their relative birth order and comparing their heights. Adults, however, uniformly grow wrinkled and take on an aged appearance already in their late twenties, rendering impossible any estimation of age based on physical characteristics. The best approach is to make an event calendar of the few significant past events which remain in their memory and which are datable from external information (*e.g.*, droughts, years of heavy rainfall, smallpox epidemics, the years when white travelers or government investigators came to visit, and the like), and then to ascertain each person's approximate age at the time of each event. Adults may also provide information concerning their relative ages and the number and relative ages of their children and grandchildren. From these various

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
			data one can derive an approximate idea of the ages of the subjects." (Tanaka, Jir?, 1941- Hughes, David W., 1980: 80)
55	Santal		• "The year is also divided into two parts, one of which, the season from June until the new harvest has been reaped, is known as “hunger-time”. This name is an eloquent reminder of the danger of starvation; even in normal years the Santal’s holding of land is insufficient to support his family. The years [Page 26] pass, indistinguishable one from another except when famine or other calamity makes a landmark on which the memory will fasten in the years to come. Ten years ago many of the older men dated their birth according to whether they were born before or after “Seventy-two”, the Bengali year 1272, when a disastrous famine broke up many families. Another memorable year was the year of the influenza epidemic that followed the close of the 1914-18 war, and young people today can calculate their age in relation to the year of the malot, or epidemic. The division of the year into months is somewhat vague, for whereas the only names for the months now current are the twelve months of the Bengali calendar, the Santal reckoning is based on the moon. As one man remarked: “We sometimes have to slip a month.” In 1939, when this statement was made, there was confusion in the Santal calendar between Bhador (the Bengali month extending through a part of August and September) and San, the month that precedes it. Names are given to the phases of the moon according to its shape. Thus I was told: “The Ende (the Ind festival which in West Bengal is associated with Dharma worship) is observed during the month of Bhador, when the moon is shaped like an open umbrella.”" (Culshaw, W. J., 1949: 25)
56	Saramaka		• "Unlike societies with calendrical rites, Saramaka depends completely on divination for scheduling ceremonies. Although different classes of supernaturals are subject to cycles of varying lengths, cycles with some sort of regularity can be observed for all. And once a supernatural has been brought to the forefront of attention, he tends to remain there for a period of weeks, being found for a number of different misfortunes (and therefore receiving almost continuous ceremonial offerings)." (Price, Richard, 1941-, 1975: 39)
57	Seminole	• "Two weeks previous to the day of the dance notice is sent by Indian messengers to the different clans and villages stating the date of the ceremony. They keep account of the days which intervene by hanging up a number of small sticks representing the days, and one is taken down each day. When the last one is thrown away they repair to the point selected for the feast." (Cory, Charles B. (Charles Barney), 1896: 16)	
58	Serbs	• "The term, Velj[unknown]a[unknown]ca, was used for the month of March more than for February in Serbia. In Croatia Velja[unknown]ca	

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
		now refers to February. The difference may possibly be explained by the weather differences in the two republics and suggests that the early categorization of the months was affected by the weather. From the list which we have presented above, it seems obvious that different seasonal weather cycles led to a repetition of the terms for the months because the terms were gathered from different weather areas. Of course, too, calendrical months may have divided folk months in half since the church calendar was not oriented to the moon." (Spangler, Michael Alan, 1951-, 1979: 90) •"The old lunar months began with the appearance of the new moon or the small crescent of light that appears after the moon has been in the shadow of the earth (Jankovi? 1951:168). There are a number of ancient pre-Christian rituals which emphasize this particular phase of the lunar revolution. The pre-Christian beliefs were carried into the nineteenth century in a Christian guise although the calendar came to supplant the lunar months. For instance, Archangel Michael covers the moon every month with his wings in order to hide it from a devouring dragon. Later the moon reappears to wax into the full moon (Kuli[unknown]si? et al. 1970:8)." (Spangler, Michael Alan, 1951-, 1979: 93) •"In addition, Slavic folk beliefs also include winter solstice observances, which seem to indicate that the solar cycle was taken into consideration in adding days to the annual calendar. Thus a lunar reckoning may have been relied upon originally for its ease, but a solar adjustment might have been made in the number of days in a year as observation becomes more sophisticated." (Spangler, Michael Alan, 1951-, 1979: 99) •"The solution may be found in a simple form of 'wooden' calendar, which Gradji?-Bjeloko[unknown]si? describes (1891:457-8). Shepherds, who were isolated from society during the summer, carried staffs upon which the calendar was recorded in a series of notches. Sundays and holidays were distinguished from other days by using a cross as opposed to a line. It may be the case that such calendars are pre-Christian and were used much more widely as the Julian calendar became gradually more institutionalized. The calendars, which could be carved on columns or walls, would have eliminated the need for consultation with the church to a great extent." (Spangler, Michael Alan, 1951-, 1979: 100) •"The change in time rules essentially meant that a lunar calculation of the year (perhaps with the addition of a number of days according to solar calculation) probably had been prevalent until the church calendar was instituted in the middle ages (Jankovi? 1951:166). The categorization and naming of the months was originally determined by seasonal changes and activities associated with the lunar cycles. The old names for the months continued to be used beside the Latin terms into the twentieth century." (Spangler, Michael Alan, 1951-, 1979: 72)	

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
59	Shulh	• "Above all, this account is interested in retracing the unfolding of the campaign with the succession of the different activities. It is striking that the comparison of such an agricultural calendar with those that our North African agronomy sometimes establishes on the calendar of the North African farmer [...], bearing in mind the particularity of a montagnard milieu, many concordances. This particularity draws up, according to altitude, the succession of dates suitable for each crop, for each harvest. It divides the register in two by the distinction between the early and late modes. What precision and even subtlety! The different terms of the system are articulated and fitted in among superposed cantons. They permit the barley harvested in a. Âbdella to be sown in Idma, and the peasant of Iguntar to reap for others for money, before reaping for himself." (Berque, Jacques Bigwood, Jane, 1955: 188)	
60	Somali	• "For this reason, the erudite Somali in writing distinguish as-sanatu 'l-qamariyyah, based on actually observed lunar months, from assanatu 't-t[unknown]ar[unknown]i[unknown]hiyyah, based on the written Moslem calendar, and from as-sanatu '[unknown]s-[unknown]samsiyyah, which is the Somali calendar. This is actually a solar calendar, made up of 354 days and divided into four periods: two (däyr, g[unknown]u) of 100 days, and two (?il[unknown]al, [unknown]hagây) of 80 days. It is not improbable that there might be some additional days, beside the five not included in these periods /needed/ to obtain a more exact correspondence between the calendar and the solar cycle, but my notes do not show this. The däyr is divided into periods of 10 days, while the g[unknown]u is divided into periods of 20 d.ays. The periods in which it rains have proper names that have been kept until today: thus the days of g[unknown]u from 31 to 50 are called (in Balad) 'elka-g[unknown]ey (leads to the well); from 71 to 90 they are called la[unknown]ha-da[unknown]qä (grazing sheep); the days from 91 to 100 have the name of hagây, which is also the name given to the following season." (Cerulli, Enrico, 1923-1925: 11) •"On the contrary, in reality the calendar of the Dan[unknown]akil is based on the lunar stations, even with the two connections proposed by Reinisch being doubtful. There are 27 stations, perhaps by error or inadvertence on the part of the informant (who, it is well to remember, was blind; which precludes for Reinisch any attempt at identification of the stars mentioned); it does not seem likely, at least as far as is known up to now, that there was reference to the division into 27 lunar stations (and not 28) which is mentioned in al-Kind[unknown]i [...]. The names of the 27 stations in 'Afar language are: 1 g[unknown]urâl[unknown]u; 2 laysána; 3 kaymát[unknown]a; 4 sà wûr[unknown]u; 5 adáll[unknown]a; 6 sáldan; 7 yangult[unknown]a; 8 data 'arán; 9 and árgada; 10 dirâ'; 11	

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
		wáyss[unknown]u; 12 danáb[unknown]a; 13 mambárr[unknown]a; 14 dirri; 15 sálman[unknown]a; 16 mamô'[unknown]u; 17 s[unknown]udadahô; 18 lubbi; 19 alemôyta; 20 a.darán[unknown]a; 21 anîd[unknown]i; 22 ga'[unknown]okêli; 23 gîd[unknown]u; 24 gárb[unknown]a; 25 búlfan[unknown]a; 26 afêgiri; 27 bussu ma'ád[unknown]a." (Cerulli, Enrico, 1957: 9) •"The assembly of the tribe was the greatest manifestation of the solidarity of the peoples who made up the tribe. It was solemnly assembled once a year. The convocation was made by the hereditary chief of the tribe, who, however, normally first listened to the advice of the elders of the various peoples, either individually or in smaller separate meetings. The place of the annual assembly was, in the Hawiyya tribes, the one fixed by custom. So, too, the time of the meeting was likewise set by tradition on fixed days of the Somali solar calendar. The Mant[unknown]an 'Abdull[unknown]ah gathered, as we see now, at Hab[unknown]ay; the B[unknown]im[unknown]al at [unknown]Gilib." (Cerulli, Enrico, 1964: 29) •"Many weather lorists recognize at least five different kinds of cycles that they must keep account of to facilitate weather prediction. This three year cycle is the one upon which the Somali lunar calendar is adjusted to mark the leap year. (See the later section of this study on the calculation of the lunar months.) The second is an eight-year cycle (SIDEED-GUURO), supposed never to fail. If a drought occurs at a certain time, it will occur eight years later. It is the same for prosperous events as well as bad ones-droughts, prosperous rainfalls, floods, wars, death of important personalities, shifts of political power, and the occurance of serious epidemics. The third is a thirty-year cycle. If drought is on this cycle, for example, the one at the end of the cycle will be less sever than the one at the beginning. In the sase of prosperity, there will likewise be a lessening of its intensity. This particular cycle is not as likely to occur as the others. The fourth is one of fifty years. This is thought never to fail. The last is one of eighty years. This, too, is thought to be inevitable, be it for drought, prosperity, epidemics, or politics. So with these cycles as well as in other matters, the weather lorist fulfills the important role as a record keeper." (Galaal, Muusa H. I., 1968: 5) •"In the Somali weather lore system, there are six prime factors which the expert must consider: a) The astrological potentiality of the seven days of the week (TAAWIL) and their relation to NABSI and to the year as a whole. b) The night of the Somali new year (DAB-SHID or NAWRISH or DALA-GUUF), and the behavior of the weather on that night. [...] c) The occurence of the Somali month of SUBBUUHH. (Rajeb in Arabic) d) Whether the Somali month of WAABERIIS (Arabic: SHACBAAN) ends in 30 days, thus becoming QUN-DHALAD, or in 29 days, thus becoming TOONMAN. e) The behavior of the weather on the night of DAMBASAMO, when the rams are mated with the ewes. f) HABEYNTIRIS:	

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
		Keeping record of the months and seasons of the SomaliCalendar. Keeping the HABEYNTIRIS should be understood as one of the major functions of the pastoral expert." (Galaal, Muusa H. I., 1968: 10) •"The Gregorian calendar is used by the Somali Government and by educated towspeople. The Arabic New Year is used for the ZEKA (the Moslem system of taxation); for the calculation and recording of time; and for the calculation of seasons; and for religious holidays, fasts, pilgramages, and feasts. The DAB-SHID System marks the traditional, pre-Islamic New Year system; the point from which the traditional, pre-Islamic New Year is calculated; the point from which season and weather calculations are made; and the basis for certain astrological inductions. The SEERMAWEYDO New Year is mainly used with seasonal, astronomical, astrological, and meteorological calculations--the last being its most common function." (Galaal, Muusa H. I., 1968: 38) •"In the calculation of the second seasonal system under consideration, it will be seen that the season expert depends heavily on both the astronomy-astrology of the GOD and the months of the Gregorian calendar. The first night of the SEERMAWEYDO season is when the DIRIR and the Moon are together on the 13th or 14th of the lunar month of GU concurrent with the beginning of the Gregorian month of May. On the 13th, the Moon and DIRIR should be in close adjacency with each other. This will happen if the new Moon of this same lunar month had first appeared in the LISTAN lunar Station (No. 2). Thence the following season, CAWL, will begin on the 11th of the next lunar month concurrent with the start of June, and the DIRIR-SAGAARO (DIRIR-SAGAAL-AH) season will begin likewise on the 9th of July. If on the other hand, the lunar month in which SEERMAWYEDO occurs begins with the GODAN Station, then the season is introduced on the 14th of the lunar month. Accordingly, the DAWL will be on the 12th of the following lunar month and DIRIR-SAGAARO on the 10th of the month after that." (Galaal, Muusa H. I., 1968: 39) •"The several measures taken for effective farming are as follows. First of all, the right weather forcast is made. Accurate record of the Somali calendar year, as calculated from the DAB-SHID, must be made. The following are a series of riddles about the DAYR rains in the Banaadir weather lore district, taking their calculation from the night of DAB-SHID. They are used by the weather lorist to predict the progression of rain from North to South." (Galaal, Muusa H. I., 1968: 40) •"In calculating the HABEYNTIRIS, the weather lore expert's role as a record keeper comes most into play. One of his most important services is to keep an accurate record of the calendar. In our research, we have discovered that the country falls into seven district regions. The experts of these weather districts have their own unique terminology describing the seasons and lunar months, as well as	

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
		the Stations of the Moon, elaborated in an above section." (Galaal, Muusa H. I., 1968: 37) •"DAB-SHID plays many roles in the weather lore system. First it marks the Somali new year. Second, it forms the base for astrological calculations for the whole year. The records of the calendar, the timing of the rainfall, the changes of the positions of the sun, the moon, and the winds, as well as the timing of the birth of the calves, are all calculated from DAB-SHID." (Galaal, Muusa H. I., 1968: 13) •"The Somali have a lunar and a solar calendar. The latter is used toCcalculate the date of the two annual wet seasons, knowledge of which is equally important to the cultivators of the south who order their sowing accordingly, and to the northern nomads in the regulation of stock-movements to new pasture. The beginning of the solar year is celebrated in the fire-feast of dabshid. Dabshid is probably of Persian origin and is known alternatively as the feast of Neirus [...]. Among the Islamized Bantu of Afgoi its popular name is id-faraun, the Pharaonic Feast, which also suggests pre-Islamic origin [...]. Other Persian influences are indicated by the name of the night between the last two days of the first half of the solar year, which is called mihragan [...]. There are two methods of calculating dabshid, one approximate and dependent upon the lunar calendar. While the Somali names for the months of the lunar calendar are still used by ritual experts (wadad), the Arabic equivalents are becoming increasingly adopted by holy men trained in the Mohammedan communities (tariqa) and the other, accurate and esoteric, based on observation of the occultation of Spica, the ?-Virginis (Somali: dirir). The solar year among the Mijertein has two divisions: dayr (dhair), the dry season of little rain lasting 180 days and divided into six 30-day periods, and todoba-di dirir, divided into seven sub-periods determined in the accurate method of standardization by the occultation of dirir. This, the Mijertein claim, occurs two nights earlier each lunation, so that if the occultation marking the beginning of the month of lekhor [...] is on the 21st day of the lunation, then the following occultation, which marks the beginning of todob, falls on the 19th day of the next lunation. The occultation of lekhor, which begins the second half of the year, occurs always between the 19th, 20th. and 21st days of the corresponding lunation, which permits the first day of the second half of the solar year to be determined by observation of Spica at this period of the corresponding Mohammedan month. The divisions of the solar year are set out in the accompanying chart. This degree of precision in reckoning [time is important]." (Lewis, I. M., 1955: 62) •"The Somali lunar calendar is the ancient Arabic system of lunar stations. Stations of the moon are called manajil. Astrology [...] caused a division by ecliptic through lunar stations of equal length and divided into 28 stations, which are comprised in the signs of the Zodiac. It is said that there are 30 stations (stellar positions), of which two are hidden from man's eyes [...]; among the Mijertein the	

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
		remaining 28 are divided into four groups of seven, each group (configuration) corresponding to one of the four seasons of the year. The four seasons among the Mijertein are Dira, Haga, Dayr and Gu, and the corresponding lunar stations are as follows: 1. Dira: depend on fara'i and are called the seven fara'i: fara'i, listan, laho, adad, lo-a-da (the cow), nugusi, and afagal. 2. Haga: depend on naf adda, naf madobe (black naf), afqays, kuhdin hore, kuhdin dambe, dirrir-day, dirrir. 3. Dayr: depend on dalalla: garbo, gudban, lib 'assa, hor damer, hor adda, marega-dere, bah. 4. Gu: depend on 'irir; faruryo, gid gabarra, gid ga'anla, gid diriqla, rab hore gog madobe, rab dambe." (Lewis, I. M., 1955: 63)	
61	Taiwan Hokkien	• "In gratitude for the debt they owe the Ang-kong, the people present an opera and food offerings to the gods once a year. Responsibility for this worship (pai-pai) rotates among the three communities, Ch'inan, Ch'ipei, and Ch'itung, each carrying out the festivities for one year. When Ch'inan's time comes, the responsibility is in turn rotated among the four settlements. So, if the pai-pai is held by Ch'itung one year, it will be held by Ch'ipei the next year, and by the Ong settlement in Ch'inan the third year. Then, three years later, when it is Ch'inan's turn again, the Li settlement will hold the pai-pai, and so on. For three or four days beginning on the twenty-sixth of the eighth lunar month, the settlement in charge must provide opera performances or puppet shows for the entertainment of the gods and the residents of Hengch'i.* Both a lunar and a solar calendar are used in Taiwan. Dates for pai-pais are usually in terms of the lunar calendar, which places the first of the year in the month of February. The year I lived in Ch'inan, the opera was held in Ch'ipei. At night loudspeakers amplified the voices of the actors and the music of the accompanying instruments so loudly that the opera was perfectly audible on the other side of the river. Nonetheless, nearly all the residents of Ch'inan (and Ch'itung) spent at least part of every evening in Ch'ipei, enjoying the same kind of entertainment that they themselves might have to finance in one or two years. The rotating Ang-kong pai-pai marks out in space the three socially and economically linked li and delineates important spatial subdivisions within them." (Ahern, Emily M., 1973: 5) •"The growing existence of commercial establishments in rural areas is marked vividly on the first and second, and fifteenth and sixteenth days of the lunar month. According to tradition, farmers pay respect to Tudi Gong, the minor territorial god, on the first and fifteenth, and those in business do so on the second and sixteenth." (Ahern, Emily M., 1979: 164) •"Because of the differing length of the months and the differing number of months in any one year, the lunar and solar calendars do not match. Luhar New Year commences sometime in January or February of the solar calendar. Without exception, villagers	

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
		were all aware of the current date at any moment in time according to the lunar calendar. On the other hand, most villagers were not aware of the current date according to the solar calendar. The awareness of solar dates was related to structural factors. As would be expected, those who worked in businesses or factories as well as those who did business regularly in the city were more knowledgeable and therefore, on the average, men were more aware of both kinds of dates than women." (Barnett, William Kester, 1971: 466) •"The second calendar, the lunar, is the traditional form and is employed to determine the traditional religious holidays. Individual months are of 29 or 30 days duration, intermixed so that each new moon falls on the first day of a month. Months are simply numbered from one to twelve. Years are of unequal length, having either twelve or thirteen months according to the year's position in a nineteen-year intercalation cycle (Carroll, 1963:4-5). The extra month is assigned the same number as the month immediately preceding it. Villagers would say, for example, that 1966 had two third months. Although religious holidays based on a monthly cycle would be celebrated during the extra month, those based on a yearly cycle would only be celebrated during the first of the duplicated months." (Barnett, William Kester, 1971: 465) •"The other kind of recurrent rite is the ancestral-worship ceremonies; these are not included in the category of such rites commonly carried out according to the calendrical schedule of religious rituals. However, a number of rites associated with ancestral worship, such as those held on the lunar New Year, the fifteenth day of the first month, Ch'ing Ming Chich, and the fifteenth day of the seventh month, are regular cyclic rites performed by everyone at the same time. It is the anniversaries of the death dates of a family's ancestors (determined separately for or by the individual family or tsu) which are not considered part of the annual calendar of the community." (Gallin, Bernard, 1966: 247) •"The agricultural cycle marks which months are busy and which ones are slack for the villagers. Below is a list of the months of the year and how the villager relates them to the agricultural cycle. Some of the events may actually encroach a good deal into other months, but the villager still associates certain months with certain agricultural processes. The months here are given first in the lunar calendar since, in speaking of actual dates, these are what the villager uses; their approximate solar equivalents follow in parentheses. Descriptions of activities are quoted from interviews with the farmers." (Gallin, Bernard, 1966: 55)	
62	Tarahumara		• "Except for those with Mexican contacts, the Tarahumaras do not know how many days there are in a month or how many months in a year. They do not keep any count of the years." (Bennett, Wendell Clark, 1935: 349) •"The months do not have any names. The days of the week have Tarahumarized Spanish names: " (Bennett,

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
			Wendell Clark, 1935: 350)
63	Tikopia		• "The Tikopia have no fixed calendar and no names for the months or for the days or nights of the month. They count moons or nights of the moon for specific purposes, as in estimating pregnancy or periods between events, but they use no tallies to assist them in this. The term tau, meaning literally 'a measurement' or 'count is used for a season and sometimes for a year as a whole, but has no great precision." (Firth, Raymond William, 1940: 2) •"A question of some importance is the basis on which the decision to begin these seasonal rites on any given day is taken. The Tikopia have no fixed calendar and no names for the months or for the days or nights of the month. They count moons or nights of the moon for specific purposes, as in estimating pregnancy or periods between events, but they use no tallies to assist them in this. The term tau, meaning literally 'a measurement' or 'count is used for a season and sometimes for a year as a whole, but has no great precision. It is said that some tau have six months and others seven, or that after six months have elapsed the tau goes on into the seventh. It is in fact a seasonal period rather than aCalendar period and refers primarily to the most marked climatic phenomenon in the island, namely the alternation of the trade wind with the monsoon period." (Firth, Raymond William, 1901-, 1940: 2)
64	Tiv	• "Two points about the event sequence of markets should be noted. First, Tiv markets are held every fifth day or, in a few cases, every seventh day; they therefore provide a rhythm for daily life, and provide one of the pivotal points in a calendar of Tiv activities. This recurrence, and some activities associated with it, will be discussed in a later chapter. Second, there is at each meeting of the market a typical, repeating sequence of events. It usually begins with the sale of cash goods, grain, or some other staple. This is followed by the more general trading of sauces and subsistence, which is followed in turn by the buying of imported items, which is followed by beer drinking. Finishing the beer usually closes the market. The event sequence of any specific market may be different from that of some other, but all of them follow a more or less general pattern." (Bohannan, Paul Bohannan, Laura, 1968: 193) •"Although markets were indigenous, their importance and number increased vastly with the Pax Britannica. Markets meet every five days except in areas associated with mission compounds, where they are held on Fridays or Saturdays. Every area in Tivland maintains a calendar built on five-day market cycles. Goods move from smaller markets to large central markets, from which they are exported, particularly in the south." (Bohannan, Paul Skoggard, Ian A., 1953-, 1998: 3)	

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
65	Tlingit		• "The whole temporal scheme for the Tlingit is very loose. Events in the recent past usually are dated by referring them to the stage of growth of the narrator, as when I was a little boy, or when I was as big as that child. Still earlier happenings are place in the lifetime of a grandparent or of a noted chief. A few major events—such as the coming of the Russians and the brief period of their settlement at Yakutat (1795-1805), the smallpox epidemic (probably that of 1838-40, although this is not always clear because there were others), the establishment of the mission at Yakutat, the great earthquake, the building of the saltery (later converted into the cannery) and of the dock, World War II with the quartering of so many men at the airfield—also serve as temporal points to which previous or subsequent occurrences may be referred. Some informants, however, seem to be very conscious of our methods of dating, and are presumably accurate when citing dates in our calendar. Others are vague, or confused and inconsistent when attempting to give the date or to estimate the number of years since an event." (De Laguna, Frederica, 1906-, 1972: 798) •"As can be seen from the listing given above, there was no name assigned to our January, except seventh month, and even this numerical term was not accepted by everyone. The order of the other month names and their correlation with our months varied from informant to informant. Some of the same names were collected by Swanton at Sitka and at Wrangell, and he also noted a lack of correspondence between his two lists, although he accepted the Sitka calendar with 13 names as probably more accurate (Swanton, 1908, pp. 425-427)." (De Laguna, Frederica, 1906-, 1972: 801) •"It would seem from the variety of calendars, and the multiple names for the same lunation, that each town, sometimes each informant, had its own calendar! The thirteen-moon count is more likely to have been an ancient Athabaskan-Tlingit calendar, rather than something new that the Tlingit had borrowed. One also wonders whether Russian influence may have affected the twelve-moon count. This is, in fact, what Emmons suggested in the first draft of this chapter: The fact that some calendars contained twelve periods and others thirteen can only be accounted for by the belief that the former has in later years, since the advent of Europeans, been made to coincide with the artificial Julian calendar [of the Russians], while the primitive reckoning included the exact number of moons, for there would be no more practical reason to eliminate one than two or three moons. The other coast tribes and their interior neighbors have very similar calendars, in some of which the intercalary moon appears, as with the Haida, Gitksan, but in a majority of cases only twelve moons are given and a large number of similar names are common to all." (Emmons, George Thornton, 1852- De Laguna, Frederica, 1906-, 1991: 424) •"The dates for the beginning and ending of the great food gathering activities are set by seasonal changes which custom has formalized into a calendar. Between the dates set for a task, the Tlingit works, as it seems to us, very leisurely. Men go to work after a

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
			light morning meal and remain until about three or four o'clock in the afternoon when they return and eat a large meal. They never return to work after this meal, unless unforeseen circumstances force them to do so. Six or seven hours seem to be the average working day. There is no specific time of day for beginning work, as so much depends upon the weather, the tides, and the movements of fish and animals." (Oberg, Kalervo, 1901-1973, 77) •"The thirteen month names in the Sitka list probably represent the number of months formerly reckoned, agreeing in this respect with the Haida calendar. Four names, it will be seen, correspond precisely in both lists, while five other names are the same but are not applied to corresponding periods, and the names are sometimes interpreted differently. The Chilkat were said to count all the months instead of naming them." (Swanton, John Reed, 1873-, 1905: 426)
66	Tongans		• "The establishment of schools with the structure of a formal educational system has been one of the most effective forces in changing the culture of the villagers from primitive to folk-culture. Nevertheless it is easy to overassess the role that literacy plays in village-life. The large majority of the villagers are able to write the Tongan language. Most of them can read Tongan. To what use however, are these abilities put? As far as one can judge there is very little use made of writing except in the very occasional signing of one's name to some legal or government document. The writing of letters is infrequent. The attitude of the villager here is that everything can wait until personal contact is established, either by personal visiting or by the use of a visiting intermediary. Similarly, the use of reading-skills is very limited. Its principal use for most is that of reading such familiar material as Bible-lessons or church hymns. Children in school naturally use simple reading-texts with secular topics. With school-days far behind, however, the Bible becomes all-important and here one's ability to read is sometimes almost entirely limited to its use in reviving memory of key-words in sacred texts that are otherwise well-remembered but temporarily forgotten. Some households also possess the single-paged printed combination almanac-calendar issued by the government printer. The only virtue of this calendar seems to lie in its possession, not in its use. Dated days are of no significance to the villager except to mark off one Sunday from another and this function is performed equally well or better by church-bell and pulpit-announcement." (Beaglehole, Ernest, 1906- Beaglehole, Pearl, 1910-, 1941: 49) •"This knowledge, however, has little practical effect on the everyday life of the broad masses of natives. The essential activity needed for their subsistence is still based on the old, traditional knowledge. The Tongans of the younger generation, however, follow today for the most part the European calendar, in planting and harvesting, whereas half of the middle-aged and probably all of the old generation prefer the old Tongan calendar. The December new moon is the first moon of the year; [...] weddings and other

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
			festivities, however, are quite generally scheduled according to the European calendar. Arithmetic has gained a certain significance in the everyday life of the natives, especially in selling their copra and in their shopping in stores. Many older Tongan men and women still can not tell their age [...]. Years were not counted in ancient Tongan times [...] whereas members of the middle-aged generation and especially the young are mostly able to give their exact year of birth. For most of the natives reading is limited to the study of the bible and other church writings. The average native needs to write only when he has to sign his name to a document; they seldom write a letter to a relative or friend, although there is postal service in the Archipelago." (Koch, Gerd, 1955: 415) •"This festival marking the completion of the first year of life, which is celebrated by commoners as well as chiefs, is, at least as far as the date is concerned, a European-influenced arrangement, for in ancient Tonga an accurate calendar was unknown and birthdays could not be determined. The prayer and the presence of a pastor also show European influence." (Koch, Gerd, 1955: 122)
67	Toradja	• "The agricultural daily calendar serves for reckoning the days on which it is forbidden to perform work in the fields. There are eight or nine of these days in every month. Then all agricultural work is prohibited, but other work may be done freely; forging, fishing, cutting rattan, making a proa, 16 repairing the house, etc." (Adriani, Nicolaus, 1951: 22)	
68	Trobriands	• "Actually, the moons between ilaybisila and milamala are really unnamed, but the garden periods are named, and as there are twelve (or thirteen) garden periods, they must originally have been worked out by the number of moons in the year and the position of the stars. Page: 247 Kitava adjusted its garden periods before the Kitavan kuluvasasa and that is why nowadays it is found that the Kitavan milamala moon is sometimes the same as Kiriwinan ilaybisila and sometimes the same as the Kiriwinan kaluwalasi. In the same way owing to the fact of the thirteenth moon being intercalated by the Vakutans prior to their kuluvasasa we find that the milamala moon for Vakuta is sometimes the same as the Kiriwinan yakosi and sometimes the same as the Kiriwinan yavatakulu. The Vakutans have lost most of their star-lore, since it was unnecessary when they could always adjust their calendar correctly by the appearance of the palolo annelid, which year after year appeared at the full moon of Vakuta milamala." (Austen, Leo, 1939: 246) •"Malinowski has written many books and pamphlets on the people of the Trobriands, but for the purpose of this paper, I shall merely refer to his Lunar and Seasonal calendar for the Trobriands [...] and his Coral Gardens and their Magic." (Austen, Leo, 1939: 237) •"On Kitava Island a Mr. Cameron has kept a record over a period of years of the dates of the full moon	

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
		when the yoba was held, though it is not complete as it only shows the years when he was actually there at the time of the ceremony. However, there is sufficient data to show that the Kitava milamala full moon fell on the following dates: 1920-J.uly 4; 1928--July 3; 1929--June 23; 1930--June 11; 1932--June 18; 1934--June 27; and 1935--June 17. From this data we can work back and see that the earliest new moon for Kitava milamala would have fallen on May 28, 1930. As Kitava has the same culture as Kiriwina, we find that if we use the Kiriwinan star--the Pleiades--that the Kitavan milamala moon would be the first new moon after the heliacal rising of the Pleiades. Let us check this. Towards the end of May each year, the sun rises off Kitava a few minutes after 6 a.m. This means that at about 5.30 a.m. it would be too light for any stars of the magnitude of the Pleiades to be visible to the naked eye; but at 5.20 a..m. They would be just visible. The Pleiades rise in the longitude of Kitava (approx. 151[unknown] east) at 5.20 a..m. about June 1. As the new moon would be a few days old when first seen, it would be allowable for the moon to be at least four or five days old when the Pleiades was first seen, so I should think that the earliest new moon for Kitava milamala would not rise before May 28 in any year. In referring to the dates of new moons. I have used the dates according to our calendar, and not according to when the new moon would be actually seen in the sky by the Trobrianders--for they might not be able to see it, until it was at least a day but probably two or three days old. In 1941, there is a new moon on May 26. I consider however that it is just a shade too early for the milamala moon of Kitava and the correct milamala moon that year would be the following one, new on June 25 We can therefore place the Kitavan milamala moon as any new moon rising between May 28 and June 25 in any year." (Austen, Leo, 1939: 242) •"Malinowski in his Lunar calendar has given us the names of the following twelve moons: Kuluwasasa, Milamala, Yakosi, Yavatakulu, Toliyavata, Yavatam, Gelivilavi, Bulumaduku, Kuluwotu, Utokakana, Ilaybisila, Yakosi (? Yakoki), and a possible thirteenth Kuluwalasi; but in his Coral Gardens (Chart of Timereckoning, Vol. 1. p. 50) he definitely places two moons between Ilaybisila and Kuluwasasa, viz. Yakoki and Kaluwalasi, which makes the yearly number of moons thirteen. There is no method given by which the calendar can be readjusted when the year has only twelve moons. It appears to me that in ancient times before European contact, the procedure was to count twelve kweluvd (garden periods) in each year and to follow the Polynesian idea of correcting at intervals the annual cycle by intercalating a thirteenth garden period." (Austen, Leo, 1939: 239) •"The main body returned afterwards, but a number remained behind with the chief's brother, and thus the village of Olivilevi was founded. Wawela, which was formerly a very big village, now	

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
		consists of hardly more than twenty huts. The only one on the Eastern shore which lies right on the sea, it is very picturesquely situated, overlooking a wide bay with a clean beach. It is of importance as the traditional centre of astronomical knowledge. From here, for generation after generation up to the present day, the calendar of the natives has been regulated. This means that some of the most important dates are fixed, especially that of the great annual festival, the Milamola, always held at full moon. Again, Wawela is one of the villages where the second form of sorcery, that of the flying witches, has its main Trobriand home." (Malinowski, Bronislaw, 1884-1942, 1922: 68) •"The harvest period is directly followed by the milamala, the annual feast associated with the return of ancestral spirits to the village. 1 For a detailed description of beliefs and practices associated with the milamala[...]. The inaugural ceremony is held at a certain full moon, and is followed by a month of dancing which reaches its climax at the next full moon. On the last few days before full moon, certain solemn celebrations are held, dances in full dress are performed, and offerings made to the spirits of the departed. The whole interest of the community is concentrated on these final celebrations." (Malinowski, Bronislaw, 1884-1942, 1929: 249) •"I find myself struggling early with the native calendar where a reference to agricultural activities was imposed on me by my native informants. I find entries recording my inspection of the gardens, early plans of garden plots, and of arbours erected on them at harvest; detailed descriptions of the carrying of the taytu, of counting the baskets, and of the display and storing of crops." (Malinowski, Bronislaw, 1884-1942, 1935: 456) •"Another difficulty is the shifting position of the Milawula. I am certain that the treatment of the subject in Chapter I (Sec. 1) is correct, i.e. that the Milamala falls at different stages in different districts; and also that this does not affect the relation between the gardening cycle and the European months. It means, however, that the sequence of native moons changes, since Milamala is always the first native moon. It means also that the explanation of the somewhat vague and uncertain nomenclature of the last three moons which I gave in my article on the Lunar and Seasonal calendar in the Trobriands [...] holds good with regard to two districts, Kiriwina and Vakuta, and to an extent also to Sinaketa. It does not hold good with regard to Kitava where the last three moons of the time-reckoning would fall just on the harvest." (Malinowski, Bronislaw, 1884-1942, 1935: 462) •"Gardening activities are correlated with the sequence of moons, for which the natives also have names. Thus the moon of Milamala or festive period, in which the spirits of the departed visit their native villages, usually coincides with the pause between the cutting and burning. This correlation is shown in Column 5 of our chart. Here we find the thirteen names for native moons which correspond, not rigidly, but with a high degree of	

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
		approximation, to our counting of months within the year. Since the prevailing winds [...] fit precisely into our calendar, the correspondence of Columns 4 and 5 is close. Column 6 shows the native distinction between the seasons of plenty and hunger (malia and molu), indicating the supply of crops, and the seasons of ripe and unripe (matuwo and geguda) gardens which marks the development of the crops. Garden activities (Cols. 7, 8 and 9) are through this correlated to moons and seasons, though this correlation may, as we know, vary within a moon or even more." (Malinowski, Bronislaw, 1884-1942, 1935: 53) •"The annual growing cycle of yams is so deeply interconnected with the social and political well-being of Trobrianders that even the months of the year are named for each stage of growth. Once the yams are stacked in the yam houses, however, a lacuna occurs in theCalendar, which marks a two-month holiday. From July, after the yam houses are filled, until September, when new gardens must be prepared, the work for yams is finished and the time for play (mwasawa) begins. With exceptionally large harvests, the play becomes a competitive event in which the players receive rewards that announce their fame and renown." (Weiner, Annette B., 1933-, 1988: 111)	
69	Tukano		• "A series of Fruit House rites mark the seasons of the different wild and cultivated fruits which lend their names to the major calendrical divisions of the Barasana year. Food exchanges are seen as both repayments for previous gifts and as creating further obligations to exchange; a successful fish-poisoning expedition or hunt, itself motivated by exchange obligations, will provide a further pretext for a dance." (Hugh-Jones, Stephen, 1945-, 1979: 35) •"Other seasonal markers are position of the constellations, availability of various wild fruits and other forest products, harvest time for certain crops such as corn (manioc itself is not seasonal, but the preparation of fields is certainly geared to the yearly calendar), and animals and animal behavior, in particular the availability of fish and game (S. Hugh-Jones, 1980)." (Jackson, Jean E. (Jean Elizabeth), 1943-, 1983: 16)
70	Tzeltal	• "Licenciade Vicente Pineda in his account of the Indian uprisings, gives some information, together with the most complete linguistic material. He gives a native calendar, probably based on one published by Emeterio Pineda [...]. Starr (1901 and 1903) has ethnographic material, and publishes the only physical measurements. Seler goes into the calendar in detail. For comparative material Tozzer and Sapper have been our chief reliance. Sapper's Nordliche Mittelamerika was in constant use in the field for information on all, subjects. Particular references are given as they occur." (Blom, Frans, 1893-1963 Lafarge, Oliver, 1901-1963, 1927: 325) •"In another unpublished article, Baroco (1959a) indicated that according to the sixteenth and	

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
		eighteenth century documents, including a book of baptisms, patrilineal name groups were associated with the naming of children with calendrical personal names, that is, names of the Mayan calendar, a custom reported in all early Mayan sources [...]." (Hunt, Muriel Eva Verbitsky, 1934-, 1962: 171) •"The autonomy of the highland Indian corporate community has rested on the retention of social control by local leaders. This local leadership, which has survived over four hundred years of domination by Spanish colonial and national rule, is based on power derived from two sources: (1) control over life and death by men who claim to possess an animal spirit and/or (2) ability to devine or predict the future, such as the calendar priests have (Nuñez de la Vega 1702:19). [...] The belief in power derived from animal spirits was probably influenced by the Toltec belief in nahualism, or transformation of people after death into animals (Calnek 1962:22). The Toltec belief originated in the period of Mexican influence but had many local indigenous manifestations (Foster 1944). The integration of the two systems of power was brought about by calendar priests controlling the distribution of animal spirits (Calnek 1962:19). The degree of retention of calendrical knowledge and of belief in witchcraft gives us one of the best indices of acculturation in the area. In Oxchuk, calendar experts with the ability to divine the future still set the days for carrying out Catholic fiestas according to the twenty-day Maya ceremonial cycle. Each of the spirits symbolizing the twenty days wielded the power of good or evil. This provided the basis for predicting. When Villa Rojas studied the town in the 1940s, elders of patrilineal lineages controlled the behavior of members by causing sickness brought by their lab, or animal spirit (Villa Rojas 1947). In San Pedro Chenalhó, the principales exercise power through their wayhel, or animal spirit (Guiteras Holmes 1961). Nahuales of leaders of the patrilineages and principales are feared and respected in Larraínzar although there is a growing discontent with their oppressive control (Holland 1963). In believed to have thirteen nahuales figure as guardians and avengers for individuals in Finola society, although the Indians of this community no longer have a hierarchy of civil offices through which their prestige can be publicly validated (Hermitte 1964). In Tzo[unknown]ontahal there is no remnant of calendar divination for ceremonial or predictive use However, witchcraft based on belief in animal spirits continues to be an important factor in the contest for power. The technique of secrecy, of presenting a united front in the face of attempts by the outside Ladinos to tamper with the local social control system, persists to this day in the town." (Nash, June C., 1927-, 1970: 237) •"Once the corn has been planted, the scheduling of activities is based on the maturation of the plant rather than on a calendrical sequence. The scheduling of activities in corn production is shown in Table 6. The stages of growth in the corn plant and the activities related to them are listed in Table	

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
		7." (Nash, June C., 1927-, 1970: 36)	
72	Warao		• "The Warao recognizes the approach of the seasons through observation of the stars, especially some constellations of the zodiac. Quite a number of Winikina have learned, of course, our system of months, weeks and days. The terms given by Turrado Moreno, are Warao translations of our calendar system. MISA, the day when the people were called to sunday mass at the mission centers, has become synonymous with week, *e.g.*, MISA MANAMO EKU, in about two weeks. But the course of their traditional activities has been, and is to this day, governed by the moon, sun and stars." (Heinen, H. Dieter, 1973: 100) •"In the absence of written records, the establishment of an absolute chronology for a bogland population is wrought with uncertainties. But at the time of Level's report on the Missions of Guyana (1850:1–17), in the mid-nineteenth century, no permanent settlement existed as yet along the banks of the Winikina proper. Genealogical information substantiates this fact and indicates that this situation prevailed until 1928." (Wilbert, Johannes, 1980: 14)
72	Wolof	• "From Arabic Wolof has acquired a large vocabulary relating to the Islamic religion, incantations, law and certain moral ideas, Arabic writing, the calendar, terms of salutation, camels, horses and their harness; from French the names of objects manufactured in Europe; from Mandinka the names of garden products, of things connected with rice farming, and the names of trees whose natural habitat is south of the Wolof zone; from European sources (French, English, and Portuguese), the names of introduced fruits." (Gamble, David P., 24)	
73	Yanoama		• "There were 11 fertility histories of women born before 1915 which contained neither registered birth dates nor a female who later became a Mucajai mother. The date of birth of one person in each history was estimated by ethnohistorical data employing a memory calendar composed of events and dates in the other histories that could be related to the person. These are designated E (ethnohistorical) in Table 5.1. The birth dates of the remaining siblings were estimated from this one by the chain logic already described and designated E-Chain in Table 5.1. There were a few elderly males and male in-migrants not listed in any of the fertility histories. They were also estimated by the ethnohistorical data and designated E in the table." (Early, John D. Peters, John F., 1990: 56)
74	Yukut	• "After becoming Christians the Yakut no longer followed this method of reckoning time, but oriented themselves by the Christian holidays, for instance: kirisiäniye (Russian, krestcheniye), baptism, January sixth; Kiristiäp (Russian, Kristov). Easter: Orosuospa (Russian Rozhdestvo),	

		2. Standardised Calendrical & Timekeeping (Presence)	2. Standardised Calendrical & Timekeeping (Absence)
		Christmas; bul[unknown]astar (Russian, Vlasii), or ynax tañarata (cow's holiday), February eleventh. Russians regard Saint Vlasii as the protector of domestic cattle and among the Yakut this saint replaced the female deity, Ayisit, of their old mythology. Among the Yakut are experienced individuals who know the number of days between holidays since it is easier to deal with immovable feasts. For movable festivals, they must often consult their priest. On the wall of every Yakut dwelling is a calendar, usually consisting of a small board with holes corresponding to the number of days in the year. The immovable feasts are marked by crosses over the holes. A wooden peg is placed in the hole to indicate the current date, thus showing whether it is an ordinary day or a holiday. Fig. 1 shows a circular calendar; the inner circle has seven perforations, corresponding to the seven days of the week. A peg is shown in the hole for Sunday, over which there is a cross. The outer ring has thirty holes. When the month has thirty-one days, the peg is kept in the last hole for two days. If the month has twenty-nine or twenty-eight days, the peg must be transferred to the first day of the next month. The calendar is called kün ahar, it counts the days, or sibaska (Russian, svyatzy, calendar of saints), or nädiälä asarar mas, board which shows the week." (Jochelson, Waldemar, 1885-1937, 1933: 101)	

		3. Written Literature (Presence)	3. Written Literature (Absence)
1	Akan		• "Akan languages started to be written down, mainly in religious publications, by Danish, German and British missionaries during the 17th and 18th centuries. There are currently three standardized orthographies for Asante, Akuapem and Fante, there is also a unified Akan orthography which was created during the 1980s. " (Ager, Simon, 2013.) •"Owing to the fact that writing was unknown until our contact with Europe, the processes of arrest and summons were carried on by set forms of verbal instruction or order. A chief despatching a State messenger or Ahenkwa to arrest a criminal provides him with a State emblem, such as a gold sword, and issues his instruction to him through an Okyeame in some such words as the following: " Mate se Kwaku Kuma Akoton Amanyakurom asase a minnim ho fwe, enti k okyere no br e me", "Information has reached me that Kwaku Kuma has sold Stool Land attached to the town of Manya without my knowledge and consent, therefore I hereby order you to arrest and bring him to me." This formula differs slightly from that used in the case of accused summons: The Ahenkwa is provided with a State emblem, and the order is as follows: " Mate s e Kwaku Kuma as ee Ntam enti h o h ofa no bre me", "Information has reached me that Kwaku Kuma has abused the national oath (by swearing it against an improper person or on an improper occasion) therefore go and bring him before me." In a ci[illegible] or oath summons the formal words are usually as follows " Kwadjo Kotto se onè Kwaku Kuma wo nkuro (anase ake[illegible] ntam) enti kohyia no bra." "Kwadjo Kotto alleges a claim (or an oath case) against Kwaku Kuma therefore go and invite the latter to come before me." After the introduction of writing and British jurisdiction all these formulæ were replaced by printed forms in accordance with the regulations of the Native Jurisdiction Ordinance." (Danquah, J. B. (Joseph Boakye), 1928: 90) •"Twi is a tonal language and, since missionary work during the eighteenth and nineteenth centuries, has been written in Roman script." (Gilbert, Michelle, 1994: 11)(Gilbert, Michelle, 1994: 11)(Gilbert, Michelle, 1994: 11)
2	Andamans		• "Writing: Unwritten." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.a) •"No marks on rocks, trees or other objects, made for purposes of record, are believed by them to exist, and, with the exception of the supposititious hieroglyphics, hereafter to be mentioned, nothing of the nature of writing is to be found among these tribes, nor have they any method of recording the name and exploits of a deceased chief or other individual who may have gained distinction during his life, save the narration --more or less garbled--of the same by their admiring descendants. The messenger who conveys intelligence to a distant encampment bears no outward token with him to testify to the authenticity or character of the communication he has to make." (Man, Edward Horace, 1932: 46)
3	Aranda		• "The socio-historical development of literacy in Arrernte : a case study of the introduction of writing in an aboriginal language and the implications for current

		3. Written Literature (Presence)	3. Written Literature (Absence)
			vernacular literacy practices" (Kral, Inge, 2000.: 1)
4	Aymara		• "The Aymara originally used a collection of symbols, mainly pictures of people or things, as a mnemonic device. The symbols represented the things they portrayed or similar sounding words but never developed into a complete writing system. The symbols were originally written on animal skins using plant or mineral pigments but paper was substituted after the arrival of the Spanish in the 16th century." (Ager, Simon, 2013.)
5	Azande		• "Often, the chiefs ruled territories too extensive or too populated to permit direct relations to be established between them and their bakumba. They then delegate their powers to brothers, or sons, who in practice, do not remain attached to the central authority except through a contract of allegiance, vaguely feudal in nature. At the same time that it expands, the Azande chiefdom prepares within itself, the lines of least resistance, where the break will occur upon the disappearance of the chief. The great feudatories claim the right to total independence: almost inevitably, the struggle for hegemony will break out between them. It is this process of administration, required by the impossibility of administering at a distance, for lack of a means of written communication, which brings about the ruin of all the Azande empires which have succeeded. [Page xxii-xxviii(d)] Good for conquest, and for extension of the race, the Azande organization is incapable of constructing a centralized and durable empire." (Calonne-Beaufaict, Adolphe de, 1921: xxii) •"Writing: Latin script, used in Democratic Republic of Congo." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.)
6	Bahia Brazilians	• "This study deals primarily with the families of the upper classes, partly because the sources available for the study of upper-class Brazilians are much more varied than those on the lives of the poor. Many sources afford glimpses into the imagination and ideas of the poor, but they cannot compare with what we can learn of the mental lives and values of prosperous Brazilians. For example, this study makes extensive use of memoirs and private correspondence, and virtually all the extant documents of this kind are by upper- and middle-class individuals. It uses the newspapers, which were written by and for the literate upper ranks of society. And it uses Brazilian fiction, primarily realist and satirical novels, which were written for a cultivated audience and often from an upper-class stance. For similar reasons, this study focuses on the capital city of Salvador and the traditional heart of the province, the Recôncavo plantation counties around the Bay of All Saints. This region was the center of population and of the economic and political life of Bahia during the Empire. The identification of city and province was so strong that the city of Salvador was often called “Bahia”	

		3. Written Literature (Presence)	3. Written Literature (Absence)
		by Brazilians inside and outside the province. Although the scope [Page 8] of this study extends occasionally to other regions, such as the backlands fringes and the southern cacao frontier, the official archival sources and the literature of memoirs, biographies, and genealogies are richest for the Recôncavo. The scope of its conclusions should thus be carefully surveyed. There is much to learn of the Brazilian people from the study of the upper class; there is much to learn of Rio Grande do Sul from the study of the Bahian Recôncavo; but we should keep the boundaries in mind as we develop contrasts and generalizations." (Borges, Dain, 1994: 7)	
7	Banyoro		• "Reading and writing were first used in Uganda by Arab traders from around 1844. Although the Arabs were the first to introduce written information (texts) in Uganda, they did not make any effort to teach reading and writing in Arabic outside the practice of the Islamic faith (Ssekamwa, 2000.). Literacy in the Roman alphabet was introduced into Uganda by Christian missionaries in the late 19th century. The first to arrive were the Anglican Church Missionary Society from England in 1877, followed by the Catholic White Fathers' Society from France in 1879. Both groups came with a mission to 'civilise', using religion and education. Literacy was therefore initially introduced into Uganda as an integral part of Christian religious practices, making Christianity the first social and institutional framework within which literacy found meaningful use in everyday life in Uganda. By embracing the Christian faith, the local people embraced a literate culture involving the use of the Bible, prayer books, hymn books and other religious texts (Byakutaga & Musinguzi, 2000.; Onono-Onweng, Holmes & Lumumba, 2004.; Ssekamwa, 2000.). Wherever the missionaries went, their first task was to learn the local languages, develop orthographies for that particular language, and translate and print Bibles, prayer books and hymn books in that language. The missionaries emphasised the use of local languages in their literacy work, which gave local languages status and acceptability within church practices. Initially literacy was taught directly in relation to Christian instruction and the preparation of new converts (Byakutaga & Musinguzi, 2000.; Parry, 2000.b). New converts, in the Anglican Church in particular, were inducted into the Christian faith through reading and writing biblical texts. Becoming a Christian often became closely associated with becoming literate. The Anglicans emphasised reading of the Bible by individuals themselves. Therefore, before the establishment of schools, reading was taught as a precondition for becoming an Anglican Christian. The Catholics on the other hand emphasised rote learning of prayers and religious doctrines printed in other Catholic literature and did not require learning how to read and write as a precondition, although they also conducted some literacy classes (see Byakutaga & Musinguzi, 2000.; Parry, 2000.a)." (Lyster, George Openjuru; Elda, 2007.: 99-100)

		3. Written Literature (Presence)	3. Written Literature (Absence)
8	Bemba		• "The spelling of Bemba was standardised between 1972 and 1977 by the Zambian Ministry of Education." (Ager, Simon, 2013.) •"WritingBraille script. Latin script, primary usage." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.) •"The Bemba had no form of writing prior to their contact with the European world at the end of the nineteenth century." (Maxwell, Kevin B. (Kevin Burns), 1941-, 1983: xvi) •"The oral tradition redacted by homeostasis. There are innumerable changes in any living culture over time, but an oral culture does not have the technology for the intellect to understand them as mutations. There is an oral tendency towards [Page 111] cultural homeostasis (Cf Ong 1982, 46-9). This process is impelled by the social function of memory, which stores only what is socially relevant and conveniently forgets all else in a "structural amnesia" (Goody 1977, 14; 1968, 307-09). New constituents of the cultural heritage are adapted to the old, as the people strive after meaning by harkening after their normative past. The result is that the oral Bemba have little perception of the past except in terms of the present (Richards 1960, 179). They lack writing as a mechanism, by which they could build up a body of chronologically ordered statements to compare with their present views (See above, 85ff). Any present adjustments to the tradition will be gradually introduced as having always been so conceived, convincing the people that the new is in fact part of the true, venerable version of the tradition. Oral transmission, as a performance, then, is not a mechanized memorization but an imaginative process of continuous creativity (Ong 1982, 57-68). It reconstitutes and transfers elements within the latitude of the tradition (Goody 1977, 116-17). An oral tradition is never "an inert acceptance of a fossilized corpus of themes and conventions," but represents an "organic habit of recreating what has been received and handed on" (Lord 1964, xiii). Tradition is actually more of a process (traditio) than a product (tradita). Thus, even the successful debut of the Christian rendition of Lesa could be construed as due to this oral propensity to conceive of contemporary developments as "having always been so" in the tradition." (Maxwell, Kevin B. (Kevin Burns), 1941-, 1983: 110)
9	Blackfoot		• "The Blackfoot syllabary was devised by John William Tims (1857-1945), an Anglican missionary from England who spent 12 years from 1883 to 1895 among the Blackfoot people in the North-West Territories of Canada (now Alberta). " (Ager, Simon, 2013.)
10	Bororo		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.e)
11	Bosnian Muslims	• "Islamic scholars and hod[unknown]zas condemn divination as they believe that only God can know a person's future. The divining hod[unknown]zas, however, see themselves merely as interpreters of God's message. When I first started to ask villagers about the hod[unknown]zas who write amulets, they told me that they had books or that they look in	

		3. Written Literature (Presence)	3. Written Literature (Absence)
		books. However, these books are not accessible to just anybody who knows how to read. I discovered that the books from which the sufi hod[unknown]zas derive their knowledge and authority are central to faith healing as a whole. The books are in Arabic, Persian, and Turkish, and consist of Islamic religious literature including the Hadith and sufi writings, among other things. These books were collected and handed down by the dervishes' forefathers and have been in the family for generations. When villagers need to see such a hod[unknown]za they say they will go to the hod[unknown]za so that he may write something down. The fact that they emphasize the writing aspect of the hod[unknown]za's activity is significant. [...] The emphasis on the virtue and power of writing in Islamic-influenced areas has been demonstrated by several authors in Goody (1968). See, among others, the papers by M. Bloch, I. Lewis, and J. Goody. Because illiteracy was common in the rural population until quite recently, the ability to read and write was considered both powerful and mystical. With increasing literacy in the population at large the knowledge of reading and writing has lost some of its immediate power and mystique." (Bringa, Tone, 1960-, 1995: 218)	
12	Central Thai	• "The third group of documentary sources comprises literary works' such as classical literature, folk tales, short stories, novels, folk songs, and popular songs. I have used this evidence, considered by some as controversial, with great caution, knowing that the main purpose of literary works is to give pleasure, not provide historical records." (Bumroongsook, Sumalee, 1995: 17)	
13	Chuuk		• "Missionaries devised a way to write Chuukese using the Latin alphabet during the 19th century. In the 1970s linguists modified the missionaries' system with the addition of the accented letters." (Ager, Simon, 2013.) •"Before the Spanish Government had gained sufficient influence in the islands, the people of Truk lived under the rule of numerous petty chiefs who were constantly engaging in inter-district and inter-island warfare. In Spanish and German times, Catholic and Protestant missionaries Christianized and subdued the warlike tendencies of the population, but many of the old suspicious attitudes still show in present-day culture patterns. The numbers of Spanish and Germans who came to Truk at any one time were relatively small; they left their mark on the people in the folklore, in the religion and in the alphabet which they applied to the Trukese language, teaching the people to read and write. It was left to the Japanese to make the most impression on the native economy." (Fischer, Ann M.. 1950: 7) •"Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.f) •(Zharnitskaya, Maria, 1994: 78) •"At first the Chukchee system of writing used the Latin alphabet, but in 1930 the first Chukchee alphabet was

		3. Written Literature (Presence)	3. Written Literature (Absence)
			developed, and the following year it was institutionalized. The first primer was published in 1932 bv B. D. Bogoraz and 1. S. Vdovin with the help of two Chukchee, Attuvgi and Anakymylgyn, students at the Institute of Northern Peoples in Leningrad. At present the Chukchee use the Cyrillic alphabet. The Chukchee language was taught by Chukchee who had been trained at the Anadyr Pedagogical College and at the pedagogical institutes of Magadan, Khabarovsk, and Leningrad and at Leningrad State University. The Magadan publishing house publishes political and literary works in Chukchee." (Zharnitskaya, Maria, 1994: 76) •"The life-style and culture of the Chukchee changed. Settlements were erected with wellbuilt houses and multistory buildings made of concrete. Chukotka became a region with a rapidly developing mining industry. A national intelligentsia was born, which included writers, doctors, teachers, scientists, livestock specialists, and others. Newspapers, a journal, and literature are published today. " (Zharnitskaya, Maria, 1994: 77) •"Shamans skillfully imitated different animal and bird sounds, which helped them establish contact with the spirits. Playing the tambourine, chanting, reciting texts or recitatives, and dancing, the shaman brought himself to an ecstatic state." (Zharnitskaya, Maria, 1994: 78)
14	Croats	• "Artistic expression can be found on decorative clothes, wood carving, pottery, pictures painted on glass, metal work, and even egg painting. Oral literature is dominated by epic poetry. Among lyric poetry, the Dalmatian ballads are noteworthy (Adriatic coast). The earliest recordings of oral literature are from the sixteenth century and point to a wide variety of genres. Croatian art also includes church architecture, frescoes, reliefs, and decorated facades and balconies. In the twentieth century, painting, sculpture and music have exploded in various styles. Architecture suffered under the planned socialist economy." (Capo, Jasna Jelo, Jakov: Macan, Trpimir: Supek, Olga: and Beierle, John, 1997: 9) •(Jasna Capo, Jakov Gelo, Trpimir Macan, and Olga Supek, 1992: 72)	
15	Dogon		• "Writing: Unwritten." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.b)
16	Garifuna		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.g)
17	Garo		• "Brief lists of Garo words were compiled by British officials in 1800, and Garo acquired a Latin-based spelling system during the late 19th century. This was devised by American Baptist missionaries and based on a northeastern dialect of Garo. A version of the Bengali alphabet is sometimes used to write Garo in Bangladesh. Garo publications include some collections of stories, weekly newspapers, school books, dictionaries and religious works, including the bible. People use the language for private correspondence and some signs." (Ager, Simon, 2013.)

		3. Written Literature (Presence)	3. Written Literature (Absence)
18	Guarani		• "Guaraní is one of the offical languages of Paraguay, along with Spanish, and started to appear in writing in the form of religious texts during the 18th century. [...] The Guaraní alphabet shown below was introduced after a Guaraní language congress in Montevideo, Uruguay. The idea was to take the spelling of Guaraní away from the Spanish model." (Ager, Simon, 2013.) •"The process of alphabetization in the mission schools, the translation of ideas of the dominant culture into the native language, particularly catechisms, was a powerful force of cultural domination. Catholic values and concepts were more easily transmitted to the Indians through catechism books and the repetition of sermons by the Indians as directed by the Jesuits. Although learning to read and write in their native language was part of the process of indoctrination, by becoming adept writers in their native language and learning mathematics, some of the Guaraní mission Indians could also keep track of their community property, better conduct their daily affairs, keep town council records, make financial transactions, and communicate with one another despite the long distances between missions. The Jesuit missions had one of the first printing presses in the Rio de la Plata. A number of native and Jesuit authors published their works at the missions of Santa Maria La Mayor and San Francisco Xavier during the early eighteenth century. These included the works by Father José Serrano, S.J., De la diferencia entre to temporal v lo eterno, Crisol de desenga[unknown]nos, con la memoria de la etermidad (1705), which included forty-three illustrations by a mission Indian, Juan Yapari: Paul Restivo, S.J., Explicación del catecismo de Nicolás Yapuguay (1722), Father Antonio Ruíz de Montoya's Vocabulario de la Lengua Guaraní ...(1722), Arte de la Lengua Guaraní with notes by Father Restivo (1722); and Casique Nicol[unknown]as Yapuguay's Explicaci[unknown]on del Catecismo en Lengua Guaraní (1724) and Sermones v eiemplos en Lengua Guaraní (1727). Basildes Britez Fari[unavailable]a, Hist[unknown]oria de la cultural guaraní (Asunción, n.p., 1988), 17-19. No ethnohistorian or linguist has studied these rare native catechisms to understand the process of evangelization of the Guaraní mission Indians during the Jesuit period. These works have been neglected because so few scholars of the Guaraní language can read the classical Guaraní of the Jesuit missions.: It is nearly impossible to assess how many or what [Page 132] percentage of the Guaraní mission Indians became literate. Literacy was not always confined to members of the native elites. According to the available historical evidence. Guaraní mission Indian fugitives, most of whom were peons, living in Buenos Aires and Santa Fe in the mid-1750s, kept in touch with events in their mission towns "through the letters they received" from other mission Indians. 33: Bernardo Nusdorffer, S.J. "Segunda parte de los sucedido en las Doctrinas despues que salió de ellas el Pe. Luis de Altamirano para Buenos Ayres..." 1753, BNRJ, Se[unknown]c[unknown]ao de Manuscritos, Roll 31846. Defensa de los Jesuitas 1.2.3.4. Guerra de los Guaranies, 8.2.25, folio 17.: Unlike the Maya, Mixtec, Nahua and other indigenous people in Mesoamerica, the Tupi-Guaraní and other tropical lowland South American

		3. Written Literature (Presence)	3. Written Literature (Absence)
			Indians had no precolonial tradition of writing. The Guaraní literary tradition is similar to that of postconquest developments in colonial Mexico among the Nahua in that missionaries learned the native languages, and then a whole native literature came into being, including dictionaries, grammars, catechisms, collections of sermons, and other writings. 34 : Frances Karttunen, “Nahuatl Literacy,” in The Inca and Aztec States, 1400-1800: Anthropology and History edited by George A. Collier, Renato Rosaldo, and John D. Wirth. (New York and London: Academic Press, 1982): 395-417.: The Guaraní mission musician and chief, Nicolás Yapuguay, authored a few religious texts published in the native language using the mission printing presses. His works include Explicación de el catechismo en lengua guaraní, Sermones y exemplos en Lengua Guaraní and Tábua dos graus de parentesco en guaraní . Bartomeu Melià, Marcos Vinicios de Almeida Saul, and Valmir Francisco Muraro. Q Guaraní , 339. These texts deserve further attention by the few scholars who are able to read classical Tupi-Guaraní. Only parts of the text. Explicaci[unknown]on de el catechismo en lengua guaraní , are available at the Archivo Provincial de Buenos Aires de la Compa[unknown]nia de Jesus.: These works are discussed in more detail in Chapter Five." (Ganson, Barbara Anne, 1994: 131) •"Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.h)
19	Hausa	• "Hausa has been written at least since the eighteenth century in a variety of the Arabic script known as the ajami script. To deal with phonological complexities of Hausa (and other West African languages) this script includes a more complex system of pointing than is necessary for writing Arabic. It was taught in Koranic schools and is still used for writing Islamic literature [...]. At the beginning of this century the colonial administrators introduced a modified Roman alphabet called boko or bóokòo from book, which gradually replaced ajami in other than Islamic religious domains." (Coulmas, Florian, 1999) •"Legal affairs fall under the jurisdiction of the emir, and he is guided by Islamic law. The Quran, the word of Allah, and its HADITH, the traditions of the Prophet Mohammed, along with the dictates of secular reasoning provide answers to legal questions. The Sharia, the canon law of Islam, is fundamentally a code of obligations, a guide to ethics. Sanctions of shame and ostracism compel conformity to Hausa and Islamic custom." (Pellow, Deborah Beierle, John, 1997: 7)	
20	Highland Scots	• "The generally poor response of the Gaelic speaking areas to the efforts of language loyalists of organizations such as An Comunn Gaidhealach (The Gaelic Council) and Comunn na Canain Albannaich (The Scottish Language Society), can generate great frustration among middle-class urban loyalists for whom Galeic has taken on a symbolic value rarely felt so deeply in the Gaidhealtacht. As already mentioned, a responsible individual involved in Gaelic language	

		3. Written Literature (Presence)	3. Written Literature (Absence)
		broadcasting expressed to me the opinion that the crofters were lazy in their failure to support their native language more adequately. I think this term encapsulates the frustration of the loyalists, but also represents a significant misinterpretation of the larger realities of the sociolinguistic situation in the Gaelic areas. Attempts to revivify the language by generating new technical vocabulary, by increasing broadcasting time, by providing prizes for Gaelic publications, by language courses, etc., appear to receive much of their impetus from a variety of motives which have little meaning for the average crofter in Lewis. Such motives appear to vary between what might be called (a) the scholarly, literary/antiquarian position in which there is a genuine familiarity with and appreciation of the traditional Gaelic literary tradition and culture, and (b) an expatriate nostalgic romanticization of traditional Highland and Island life compounded by the general frustrations felt by many in overcrowded confused industrial Britain (Scotland is here viewed as an economic region within Britain (cf. Baislow 1967)). A number of the most active leaders in the language movement in recent years have been either affluent lowland Scots or expatriate Englishmen." (Coleman, Jack David Bo, 1937-, 1984: 226) •"Paradoxically the early history of Gaelic reveals it to have been a literate medium of some social importance. An early historical distinction can be made between classical literary form and vernacular Scottish Gaelic (Thomson, 1974, p. 30). In the bardic tradition a heroic mode was adopted and sentimental Gaelic songs seldom appeared until after the clan system was destroyed and mixed cultural values were adopted (ibid, p. 88). According to a Lewis-born Celtic scholar, Derrick Thomson, the commonest theme of Gaelic poetry in the last century was nostalgia for a 'paradise lost'. He attributes this partly to the uprooting caused by the Clearances. But a further change was linguistic; the introduction of English led to a debasement of written style (ibid, p. 223)." (Ennew, Judith, 1944-, 1980: 107) •"This ethnography has tried to describe the relationship between historical representations and the construction of crofting culture in Scotland. Scotland has a long literary tradition in which many people have written histories for various reasons, investing certain people and life-styles with meaning, creating linkages between past and present groups, and between those groups and themselves. The people themselves use these ideas in various ways to derive meaning." (Parman, Susan, 1990: 159)	
21	Hopi		• "Hopi is an Uto-Aztecan language spoken by approximately 5,000 people in northeastern Arizona in the USA. Although there are relatively few speakers, the language is still being passed on to children and about three quarters of the Hopi people speak Hopi as a native

		3. Written Literature (Presence)	3. Written Literature (Absence)
			language. There are four main varieties of Hopi: First Mesa or Polacca, Mishongnovi or Toreva, Shipaulovi or Sipaulovi, and Third Mesa or Oraibi. They were identified by Benjamin Whorf, who was the first to analyse the Hopi language and who focused on the Mishongnovi variety. There is a Hopi-English dictionary edited by Emory Sekaquaptewa, and the language is promoted by the Hopi Literacy Project." (Ager, Simon, 2013.) •"Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.j) •"Marriage customs have been drastically modified. Early in the century an occasional Hopi couple was persuaded to go through a "White" ceremony, at the insistence of a missionary, school superintendent, or government official. Now it is customary for couples voluntarily to have a "White" civil or religious ceremony before entering into the protracted rites of a Hopi wedding. 4: 4. For a study of the traditional marriage ceremony at Oraibi, see H. R. Voth, "Oraibi Marriage Customs," American Anthropologist, vol. 2, no. 2 (1900).: Go to end note pageThis change of custom does not necessarily indicate conversion but is based on a desire for official written records, since the Hopi have no writing. The people realize that documented weddings make it harder than was earlier the case to get a divorce. On the other hand, women, especially, feel that possession of written records simplifies numerous dealings with the American government. For example, legal documents make it easier for wives to get money allotments if their husbands go into the armed services, and women with official papers stand a far better chance of getting financial support in the event of divorce." (Titiev, Mischa, 1972: 328)
22	Iban		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.k)
23	Ifagao		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.l)
24	Igbo		• "But this view would not be entirely correct or fair. The Committee and the Society were concerned to minimize the number of radical changes to be introduced into the writing of the Language. The new symbols introduced by the new Africa orthography, as already said, required the manufacture of special [Page 370] typewriters for use in typing in Igbo language. This its opponents considered unduly expensive. Though it must be pointed out, that if the new script had been adopted for writing all African languages as originally suggested, the cost of such typewriters would have been greatly reduced. Also, argued the members of the S.P.I.L.C., the new characters of the Africa orthography made it impossible to send messages in the Igbo Language by teleprinter. In this regard, however, one may ask whether this can now be done using the □nw□ orthography which uses more diacritic marks than are found in the standard Latin alphabet used in teleprinters. Whatever the case, however, the Government accepted the □nw□ Orthography and imposed it on all and sundry. With this the old and the new Africa orthography disappeared from the scene. This shows what could have been achieved if in those early days there had been a

		3. Written Literature (Presence)	3. Written Literature (Absence)
			government that felt strongly enough on the matter and that came out with a firm decision on the two vexed questions of literary dialect and orthography." (Afigbo, A. E. (Adiele Eberechukwu), 1981: 369) •"The result is that the Igbo language has no literature. Yet as Professor Westermann has aptly observed: 'Script is but a form and a means, literature is the aim'.40: 40. D. Westermann, 'The Linguistic Situation, etc.', Africa, Vol. 2, 1929, p. 349.: Go to end note page Apart from Ala Bingo by D. N. Achara (1933), Omen□k□ by Peter Nwana (1933), Ije Odumodu Jere by L. B. Gam (1952) and Elelia Na Ihe O Mere by D. N. Achara (1952) and since the end of the Nigerian Civil War the novels by T. Ubesie there is really no Igbo literature to speak of, except translations of the Bible and its books, as well as religious tracts done by the missionaries. But these are hardly enough to give Igbo that buoyancy it needs as a living and growing language. The matter has often been presented as a vicious circle. Because of the uncertainty about the dialect and the script it was not possible to create a literature in the language, and because no great literature has emerged in the language the dialect and the script could not be standardized." (Afigbo, A. E. (Adiele Eberechukwu), 1981: 372) •"The Igbo, like many of their neighbours, did not evolve an indigenous script with which to reduce their language to writing before the advent of European rule. Nor did their territory lie within the area of West Africa which was influenced by Islam and the Arabs who spread the use of the Arabic script as they went. For a time in this century scholarly attention was drawn to Nsibidi, an indigenous sign-writing which flourished on the Cross River basin and in the Eastern Igbo area. This has not been studied in detail, but its use was severely limited. Though it served important functions, as will be shown below, it did not evolve into a script for writing indigenous languages in the same way as the Roman or Arabic script did. As a result in the nineteenth century the missionaries found themselves faced with a tabula rasa as far as reducing Igbo language to writing was concerned. This problem was in no way limited to Igbo. It was one which the missionaries faced in most of Africa and Asia. Not surprisingly they sought a universal solution to this widespread problem. For the Igbo this global approach to the problem in time turned out to be unfortunate." (Afigbo, A. E. (Adiele Eberechukwu), 1981: 365)
25	Iran	• "Modern Persian is a continually evolving language that began to develop about A.D. 900. Following the Arab conquest of the Sassanid Empire in the seventh century and the gradual conversion of the population to Islam, Arabic became the official, literary, and written language, but Persian remained the language of court records. Persian, however, borrowed heavily from Arabic to enrich its own vocabulary and eventually adopted the Arabic script. In subsequent centuries, many Turkic words also were incorporated into Persian." (Hooglund, Eric J. Library of Congress. Federal Research Division, 1989: 84)	

		3. Written Literature (Presence)	3. Written Literature (Absence)
		•"There is a veritable hierarchy of these invisible beings: divs, peris, Cheytan and djinns. In principle, divs (demons) and peris (fairies) go back to ancient Iran, while Cheytan (the devil) and djinns (genii) date from the Islamic period. Although we can lay no claim to a complete list (which would be very long) of literary texts in the Persian language, it will be well to note that the poet Roudaki groups these beings in a panegyric: Even if you are accompanied by two hundred angels, by the peris, by all the genii there are and by the devil, you cannot give worthy praise (to the prince) (Text: J.R.A.S., 1926, p. 222, line 77). There are numerous allusions in the Ambassade au Kharezm de Riza Qouli Khan (index). On ghouls and djinns, see Bricteux (Pays, pp. 128–129)." (Massé, Henri, 1886-1969 Messner, Charles A., 1954: 343)	
26	Iroquois		• "Oneida alphabet [from Latin]." (Ager, Simon, 2013.)
27	Jivaro		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.m)
28	Kanuri	• "In the house and the quarter of the Mainin Kanendi were twelve other judges, who with himself constituted the high court of the realm. In the larger towns, the king appointed local mellams to act as judges, from [Page 26] whom appeals could be made to the high court in the capital. The keeper of the records or scribe of the high court, the Talba was considered the third most important person in the kingdom. It is said that this high court plus its scribe served as a council to the king in the affairs of state because of its members' knowledge in matters of law and religion." (Cohen, Ronald, 1960: 25) •"By the end of the fifteenth century the Sefuwa and their clan, the Magumi, had obtained sovereignty to the southwest of Lake Chad, and under a series of able monarchs they established their new kingdom of Bornu as a great power in the Sudan. The first of these rulers to organize and establish a really powerful state was a man named Ali Ghajedeni (ca. 1470-1500 A.D.), the forty-eighth monarch on the Sefuwa dynastic list. He built a new capital called Birni Ngazargamo, "the walled fortress," at the north end of Bornu and united this new kingdom under his control. Ali is supposed to have reconquered Kanem and re-established control over the Saharan trade while making war continually against Songhai to the west over the subjugation of the Hausa states and the east-west trade routes across the Sudan. His reign was followed by a series of others no less notable, [Page 16] and these men maintained Bornu at an apogee of greatness until well into the seventeenth century. One of these rulers, Idris Alooma, had a court scribe at the beginning of the seventeenth century, who wrote a number of accounts of his royal master's military expeditions. Luckily these have survived to give us	

		3. Written Literature (Presence)	3. Written Literature (Absence)
		a picture of Bornu warfare and government in the late sixteenth and early seventeenth centuries. It was during this period, too, that Bornu was first mentioned on European maps, and from this time forward its fame became part of the legends of unknown kingdoms that lay inside the unexplored interior of Africa." (Cohen, Ronald, 1967: 15)	
29	Kapauku		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.n)
30	Khasi		• "In recent centuries, under Islamic influence, the Arabic script has become the written vehicle for some South Asian langauges [...], and under still more recent European influence, the Roman script has been introduced for still others (*e.g.*, Konkani, some Austro-Asiatic languages such as Khasi [....])." (Salomon, Richard, 1996: 372)
31	Klamath		• "A number of methods of writing Klamath have been devised by linguists, such as Albert S. Gatschet, who published a dicionary, grammar and texts during the 1870s, and M.A.R. Barker who did the same during the 1960s, and by tribal elders. Barker's system most accurately represents the sounds of the language." (Ager, Simon, 2013.)
32	Kogi		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.o)
33	Korea	• "The second story, which it is unnecessary to recount in detail, tells how To-sun was tricked by his sister into revealing a good site for the burial of her husband, and for consequent good fortune for herself and her sons, for a pittance--even though To-sun had tried to get a large payment from her, his own sibling, for the service (Interview 73). The informant is illiterate, but has an extensive repertoire of stories. We spent most of one whole afternoon listening to him tell two long, well-memorized stories of the literary genre called ya-dam--historical tales of virtuous young [unavailable] and heroic ki-saeng (Korean geisha) struggling against corrupt officials. Instances of oral literature, such as this, as well as the deafeningly vocalized reading so characteristic of Korean classrooms suggest that oral and scribal characteristics remain very much a part of contemporary Korean culture. (Cf., McLuhan 1962:26-28, 82-94)." (Biernatzki, William Eugene, 1931-, 1973: 306) •"According to the sacred books of China, the king is concerned only with the general good. He watches to see that the laws are strictly obeyed, renders justice to all his subjects, protects the people against the exactions of high officials, etc. Such kings are rare in Korea. Usually the throne is occupied by do-nothings, by corrupt natures who are rotten with debauchery, old before their time, besotted and utterly incapable. And how should it be otherwise for unfortunate princes whose	

		3. Written Literature (Presence)	3. Written Literature (Absence)
		vocation from their earliest years is the throne, all of whose caprices are worshiped, to whom no one dares give advice, and whom a ridiculous form of etiquette shuts in their palace, in the midst of a harem, from the time when they are twelve or fifteen years old! In Korea, moreover, [XXVI] as in other countries in analogous circumstances, there are nearly always ambitious ministers to be found who speculate on their master's passions and seek to enervate him by an abuse of pleasure so that he cannot interfere in the affairs of the government, but will allow them to reign in his name." (Dallet, Charles Messner, Charles A., 1874: 23) •"“They have abundance of old Books, both Printed and Manuscript, so choicely kept that none but the King's Brother is trusted with them. Copies of them with Cuts, are kept in several Towns, that in case of Fire they may not be quite lost. Their Almanacks are made in China , they themselves wanting skill to make them. They print with Boards or Wooden Cuts, and lay one Cut to each side of the Paper, and so strike off a Leaf. They cast Accounts with little long Sticks, as we do with Counters. They know not how to keep Books of Accounts or Shopbooks, but when they buy any thing, they set down the Price under it, and write on it what they made of it, and so find what profit or Loss.”" (Hamel, Hendrik, 1918: 147) •"‘Evidentally[sic] the Fuyu people were a vigorous northern race, well clothed and fed, rich in grain, horses and cattle, possessing the arts of life, with considerable literary culture, and well advanced in social order and political knowledge. Though the Chinese writers classed them among barbarians, they were, in contrast with their immediate neighbors, a civilized nation." (Hrdlicka, Ales, 1946: 35-36)	
34	Kuna		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.p)
35	Kurds	• "In the last two decades, the impact of the ongoing communication revolution on economy, politics and culture has been a major theme in academic and media debates and in the policy-making circles of governments and international bodies. Although new media technologies are transforming the entire world including the Middle East, these debates have largely focused on Western societies. This book provides the first study of the transformation of a Middle Eastern society, Kurdistan, in the context of the introduction of printing, recorded music, radio, television, and the Internet. It analyzes the complex and often conflictual interactions of media technologies, culture, statehood, nationalism and globalization." (Hassanpour, Amir, 2007.: [n.p])	
36	Lau Fijians		• "David Cargill (1809-1843), a [S]cottish missionary and pioneer in the study of the Fijian Language, devised a

		3. Written Literature (Presence)	3. Written Literature (Absence)
			way of writing Fijian with the Latin alphabet based on the Ba'u (Bauan) dialect." (Ager, Simon, 2013.) •"Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.q)
37	Lepcha	• "The real history of Lepcha literature goes back to the times when the first of the Buddhist Lamas came from Tibet and started to get the Tibetan religious scriptures and books translated into the language of the aboriginal Lepchas. This was primarily and mainly undertaken for the purpose of proselytizing the shamanistic autochthons, and converting them to their own faith, Buddhism. According to some scholars, whatever books there were in the land were collected and made a bonfire of. This is another controversial subject. However, not going into it deeply, let us see in what way these plain translations helped to maintain a continuity of the written part of the language for at least a little over two centuries." (Foning, A. R., 1987: 153) •"Normally, due to the requirements and the demands of the profession, these 'mun' and 'bongthing' are the ones who know how to read and write our 'Rong', or Lepcha script. It may be pointed out here that these 'mun' and 'bongthing', due to their avocations, invariably turn out to be, and are acknowledged as leaders of the community. Having been used to their divinations and utterances, which are supposed to have come from unseen powers above, our simple, backward and primitive people readily take in whatever they say or do. In normal life also 'mun' and 'bongthing', are looked upon with awe and respect. Even today, even in this atomic age, their position is the same. Literature has been one of the powerful means which has given them a position more important than that of other members of the community." (Foning, A. R., 1987: 1) •"Later the three sons of zo khe bu and their families came down to Sikkim with their followers, invaded and conquered the country, thus breaking their most holy and sacred oath. At that time Lamaism had nearly reached its peak in Tibet, and the second son of zo khe bu and his two brothers introduced it into Sikkim. They collected all the Lepcha manuscripts and books containing the historical records, mythology, legends, laws, literature etc. of the Lepchas, and burnt them. They took the ashes to the high hills and blew them into the air and built Lamaist monasteries on the hills from which they had scattered the ashes of the burnt Lepcha books. Besides doing this, they also forced the Lepcha scribes to translate the Lamaist scriptures into Lepcha and made them read and venerate them as holy scriptures." (Siiger, Halfdan, 1967: 28)	
38	Lozi		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.r)

		3. Written Literature (Presence)	3. Written Literature (Absence)
39	Maasai		• "There is a Maasai dictionary, a Maasai translation of the Bible [in a Latinate script], and a few other publications, but generally the language is not used in writing very much." (Ager, Simon, 2013.) •"Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.d)
40	Mataco		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.s)
41	Maya	• "A form of proto-Yucatecan was written with the Mayan script from about the 3rd century BC, and the Yucatec Maya speakers continued to use the script until the 16th century. Recently some Yucatecs have started learning and using the script once more. After the Spanish conquest of Yucatan in the 16th century, a version of the Latin alphabet based on Spanish orthography of that time was developed to write Yucatec Maya." (Ager, Simon, 2013.) •"The earliest Maya writing dates from before 250 C.E., but it probably has origins at least as early as thoe of the Epi-Olmec script. [...] Maya writing, though not completely deciphered, is the best understood of all Mesoamerican scripts, known from hundreds of sculptures as well as painted pottery, and four bark codices. The first bishop of the Yucatan, Bishop Landa, attests that it was still in use among speakers of Yucatec Maya in the sixteenth century." (Macri, Martha J., 1996: 172) •"The “literacy” or “preliteracy” of a society is a special aspect of its isolation. In the next chapter facts will be given as to the extent and nature of the use of reading and writing in the four communities. In all four some of the people can read, [Page 17] but differences in the degree to which literacy is effective in determining the character of the society depend not so much on the technical literacy rate as on the role of books and reading and writing in the society. In Tusik writing and reading are esoteric arts cultivated by special functionaries for the benefit of the entire group, and the uses of the art are to consult sacred books and to prepare and read messages emanating from the supernaturals. In this society literacy is, along with oral tradition, an agent for the preservation of the society in its present state and for the perpetuation of a sacred lore. Chan Kom is more literate than Tusik, and Dzitas than Chan Kom, in that reading and writing are to a greater extent used to enable the society to come into communication with other societies or to record and to consider critically its own past experiences." (Redfield, Robert, 1959 [1941]: 16)	
42	Mbuti		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.t)
43	Mentawaians		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.u)

		3. Written Literature (Presence)	3. Written Literature (Absence)
44	Mongol	• "Autochthonous Mongolian sources date from the period after 1204 .when Genghis Khaan commissioned the captive Uigur Tatatunga, custodian of the imperial seal of the Naiman, to adapt the Uiguric script to the Mongolian language (Weiers 1969: 1). Very few historical sources date from the first half of the thirteenth century. The only relatively detailed source from this period is the 'Secret History of the Mongols'. In one respect, however, there is no doubt: as a means of gaining an impression of the daily life, mentality and beliefs of the Mongols in the thirteenth century, the SHM is unique. All conclusions drawn from non-Mongolian sources are thus to be considered of secondary importance. The SHM is the only principal source, which in our opinion gives a realistic appraisal of the Mongols. E. Haenisch, who has studied this work intensively, characterises it thus: 'The wind of the steppe blows through the pages of this book. The events are recorded and the scenes described for us in a special way' (Haenisch 1948: ix). In essence, this is more of an epic than an annalistic work, with long passages of genealogical details. In Mongolian literature it is regarded as a literary work rather than a historical testament (Heissig 1959: 12). It should be noted, however, that the mentality of that time encompassed many forms of consciousness and that the author should not be expected to have written the work in accordance with modern literary conceptions. This means that there is no reason to appraise the information contained in it as historically or scientifically frivolous. According to the opinion of researchers, the work was originally written in Uiguro-Mongolian script in East Mongolia. It has, however, come down to us only in a version written in syllabic Chinese dating from the second half of the fourteenth century (Gaadamba 1990: 218–19). Because the SHM ends with the sentence 'The writing down of this work was completed while the palace was encamped between the places Dolo'on Bolda" (Bold, Bat-Ochiryn, 2001.) •"The Buryats speak a Mongolian language and before 1931 they used Written Mongolian as their literary language. At the present time they write in their own dialect with Cyrillic letters. Most of the Buryats are Buddhists, though those living West and North of Lake Baikal are shamanists. Relatively few Buryats had been converted to Christianity by the Russians as early as at the beginning of the 19th Century." (Washington, Far Eastern and Russian Institute of the University of, 1956: 1275) •"Since the 18th century, the Buryats have used the standard Mongolian alphabet and literary language common to all Mongols. In 1931, the Soviets introduced a Roman alphabet based on Latin letters, which was replaced in 1937 by a Cyrillic alphabet based on Russian letters. This made the existing Buryat literature	

		3. Written Literature (Presence)	3. Written Literature (Absence)
		incomprehensible to young Buryats, and also aided the introduction of Russian terms into the Buryat language, such as student, airplane, tank, doctor, revolution, proletariat, and so on. In the late 1920's. and 1930's the Buryats tried to establish their own terminology, but the Soviets accused them of nationalism because they opposed a Russification of the script and language. Among those shot and sent to concentration camps were Professor B. Baradiin, Togmitov, Batotsyrenov, Bolodon, and others." (Washington, Far Eastern and Russian Institute of the University of, 1956: 1365) •"The most ancient remains of Mongolian literature are chiefly official documents or inscriptions dating from the 13th and 14th centuries, when the Mongols first became a factor in world history. The most famous and earliest document of length is an imperial chronicle, the Secret History of the Mongols, which deals with the ancestry, life and deeds of Chinggis Khan and his immediate successors. Although it contains much factual historical data, it is not a history in our sense of the term, but half-history, half-epic: a fabric of epic stories and ancient traditions, interwoven with genealogies and fantastic happenings. World events are minimized and family affairs stressed." (Washington, Far Eastern and Russian Institute of the University of, 1956: 260)	
45	Mongor	• "The Monguor language, also called Tu, is a member of the Eastern Mongolian Branch of the Altaic Family. Monguor is the most divergent of the Mongolian languages and shares 60 percent of its vocabulary with Mongolian. It has a large number of Han, a smaller number of Tibetan loanwords, and even some Turkish. Each of the five Monguor areas has its own dialect with the greatest dialectical differences found between the Huangnan and the Huzhu/Minhe areas. Some Huangnan Monguor speak Bonan, a closely related language. The Monguor in Datong County speak Chinese exclusively. Han characters are used in written communication. In 1979, a Tu script based on the Roman alphabet was devised and in 1988, a massive 70,000-entry Tu-Chinese dictionary was published." (Skoggard, Ian, 2005.: 1)	
46	Navajo		• "Navajo first appeared in writing in 1849 in the form of a Navajo word list published in the Journal of a Military Reconnaissance by Lt. James H. Simpson." (Ager, Simon, 2013.) •"Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.v)
47	Ojibway		• "James Evans, a Wesleyan missionary working at Norway House in Hudson's Bay, invented a syllabary for the Ojibwe language in about 1840. He had tried to produce a Latin-based orthography for Ojibwe, but eventually gave up and came up with a syllabary, based partly on Pitman shorthand." (Ager, Simon, 2013.) •"Writing: Latin script. Unified Canadian Aboriginal

		3. Written Literature (Presence)	3. Written Literature (Absence)
			Syllabics script, no longer in use." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.)
48	Ona		• "It is doubtful whether any of the Fuegian languages has words for numbers above three; the languages are poor in abstract terms and rich in concretes. No kind of writing exists, not even by notches, sticks, pictographs, etc. The nearest approach to such is symbolic face and body painting." (Cooper, John, 1917: 180)
49	Orokaiva		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.w)
50	Ovimbundu		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.x)
51	Palestinians	• "The main streams of Palestinian-Arab culture flow from three sources of Arabic language and literature: a. Classical literary tradition, b. Popular tradition, c. Colloquial or folk oral tradition. But before trying to define each of these traditions, I hasten to assert that they are not divorced from one another but are rather closely linked. The classical tradition represents all the material written and read in classical Arabic which we study at schools and universities and through which we acquire and pass on to the next generation the basic beliefs, ideals and standards that form our way of life. The corpora of pre-Islamic and Islamic verse and prose, old and new, fall within this category. The popular tradition includes all anonymous works such as Az-Zeer S?lim, ?Antara bin Shadd?d and Bani Hil?l. These epics, composed in prose and verse, have been written in what may be described as broken classical Arabic or improved colloquial Arabic and, when performed, their narration is enhanced by the pan-Arab practice embodied in the narrator's singing the narrative poems, that vitalize the text, to the tunes of his hand-made, one-string Rab?ba. This popular tradition also includes all songs that are composed in the colloquial form of the language by educated persons like the late Egyptian poet laureate A?mad Shawqi, the contemporary Iraqi Mo?affar an-Naww?b and others. The colloquial or folk oral tradition embraces the bulk of our folklore corpus which is passed from generation to generation by word of mouth. Within this category fall all our folksongs, folk tales, jokes, proverbs, sayings, mottoes, slogans, riddles, superstitions, children's games, folk drama etc." (Barghouthi, Abdullatif, 1996: 147)	
52	Pashtun		• "II The vast tribal population involved: Pathan society, with over fifteen million people in Pakistan alone, is probably one of the largest tribal groupings in the world.: III Pathan tribal society is not ‘pre-literate’ or oral society (Bailey, 1960; Gluckman, 1971; Sahlins, 1968). The most famous Pashto poets were contemporaries of John

		3. Written Literature (Presence)	3. Written Literature (Absence)
			Milton." (Ahmed, Akbar S.) •"Mohmand historical memory is vague about dates and periods beyond three generations although agnatic links to the apical ancestor can be reconstructed. As elsewhere in stateless acephalous societies no kingly dynasties mark the beginning and end of particular historical periods, no literature or discrete priest category exist to record and observe historical sequences. I am perhaps tempted to agree with the view propounded for the Nuer: Valid history ends a century ago, and tradition, generously measured, takes us back only ten to twelve generations in lineage structure. … Time is thus not a continuum but is a constant structural relationship between two points, the first and last persons in a line of agnatic descent (Evans-Pritchard, 1940: 108)." (Ahmed, Akbar S., 1980: 58)
53	Pawnee		• "Neither personal relations nor the personnel of the household were cramped within a fixed kin structure. The individual personality was not trimmed down to fit the kin structure, but the structure was used to realize the individual personality. The Pawnee social structure was written into no statute book, nor did it have the status of doctrine, and there was no chain of command to enforce it. Therefore it was not frozen and clamped onto the people, but carried implicitly by them to serve them as they saw fit. No built-in guilt, acting as a surrogate for dominant power, forced them to narrow the scope of their personal lives. They were socially creative in every personal interrelationship they had. The world was raw and their life was hard, but it was also freer than ours. No religious or supernatural sanction enforced the social forms. The only [Page 51] possible penalty for transgression of kinship forms was adverse public opinion. This was a very important deterrent, but it was of a quite different quality from religious, military, or political sanctions, for it was within the network of the contemporary community, not in a specialized sector of it, and it was therefore possible for a person to cope with it in the course of daily living. Pawnee life was certainly not a Utopia. The time and the place in which it existed could allow no such hope, but in its freedom from dominance it had something we now can afford and don't know how to take." (Weltfish, Gene, 1965: 50)
54	San		• "Khoekhoe [Latinate] alphabet" (Ager, Simon, 2013.) •"Would she comprehend the world of publishing, print, reading, and publicity? She did understand the concept of writing as a method used to record speech for later interpretation by reading: she had told me that she would ask Richard Lee to write a letter to me, and she had seen other anthropologists and officials of the Tswana courts using writing in various contexts. She also knew enough about the marketplace—buying and selling, making and spending money—to understand the principle of a book as a commodity, like a piece of clothing, that sometimes sells and sometimes doesn't. Since I was planning to set aside a portion of whatever profit the book might make for the Kalahari People's Fund and, in an appropriate manner, for Nisa herself, it seemed important to discuss our shared financial interest in the book's success. All in all, I felt hopeful that when I did talk to her again, she would approve of the project. If not, I resolved that I would abide by her wishes."

		3. Written Literature (Presence)	3. Written Literature (Absence)
			(Shostak, Marjorie, 1981: 351)
55	Santal		• "The tales are, as will be understood, written in genuine Santali, without any attempt at polishing, only obvious errors or slips of the pen having been corrected. Before the missionaries came, the Santals had no written language. What they had of 'literature' was all stowed away in their memory. Incantations, songs and certain other matters are in a stereotype form, often such as not to be always properly understood by the present generation. This is not the case with the folk-tales, where, within certain limits, there is full freedom for the narrator. The language of these may consequently vary as to individual form and expression. There is no literary style. Santali has not like some other Indian languages, as e. g. Bengali, a high or literary form, a colloquial and a vulgar form. The language of these tales is just as the people speak." (Bodding, Paul Olaf, 1921-1940: 42)
56	Saramaka		• "In terms of the use of symbolism, too, the contrast between men's and women's arts is clearly related to their differential contact with coastal society. Occasionally (though much less frequently than the literature would suggest), Saramaka men incorporate in their wood carvings a small mark that can be "read" as a specific message (see S. and R. Price 1980 a:189). These marks seem to emerge from the same admiration for the idea of literacy that prompted a Djuka man to develop his own "script" in the early twentieth century and that inspired a number of male messianic leaders to "read" inspirational passages from their open palms. Women are well aware of the use of symbolic marks in men's carving, but they are also adamant that the extra elements they add to their finished textiles or calabashes (see, for example, S. and R. Price 1980 a: figs. 93 and 255) are, in contrast to the men's, intended only as marks of ownership." (Price, Sally, 1933: 197)
57	Seminole		• "Creek first appeared in writing in 1736. Laws were being written in Creek from 1849, and a standard alphabet, the 'National Alphabet', was adopted in 1853. By the 1870s newpaper articles in Creek were being published." (Ager, Simon, 2013.)
58	Serbs	• "Accompanying Christianity were teachings that were contradictory or inconsistent but that had appeared in the homeland of Christianity relatively early and were reflected in the Balkans even before the arrival of the Slavs, as for example the Arian heresy. From the ethnological point of view, the spread of sects or heresies with a dualistic doctrine is of significance. These originated in Iran but found many followers in the Balkans, and received impetus from the social conflicts in the feudal system. These sects or heresies have long since died out, but dualism left a trace in our folk culture, especially in the cosmogonic legends according to which the devil made a special contribution to the creation of the world. Other beliefs about the devil, and abundant use of apocryphal literature among a	

		3. Written Literature (Presence)	3. Written Literature (Absence)
		significant number of South Slavs must also be of this origin." (Filipovic, Milenko S., 1982: 248)	
59	Shulh	• "In this country, individuals mark /Fr. marquent , mark, stamp, indicate, testify/, things happen . As paradoxical as the observation may appear, it is not so common in the past of North Africa. Let us understand that here the event leaves its trace in a collective memory. It does or does not utilize writing. In any case, it fixes something much more precise than the simple continuity from generation to generation. These memories, conscious and detailed, full of imagery and dramatic, even flourish in the literature. For one who has visited other populations, those of the Gharb, for example, what a surprise! In this world of the Atlas, society has a feeling of its own duration. It punctuates its past with victories and vicissitudes. The permanence of family archives depends on the constancy of the group chronicles, from which great figures naturally stand out." (Berque, Jacques Bigwood, Jane, 1955: 126) •"But everything has become a notarial affair. The village t't'aleb, with functions quite laden with communal virtue, it is true, has become the artisan and, in certain respects, the arbiter of the juridical permanence of the group. The continuity of the latter in time has certainly lost in part original modes of expression such as -- one can at least imagine it -- the heroic legend or choral poetry. It is no longer expressed except under the abstract schemata of the act, of the formulary. But it has brought to it its competitive fervor and its sense of olden times. To the point that these acts have proliferated immensely, the mountains have become a library of charters, and all this literature has even known there a historical density inconceivable in the Morocco of the plains, or the so-called cities of written law." (Berque, Jacques Bigwood, Jane, 1955b: 494) •"The TRIBE is the basic unit of the tribal system, in the sense that all other units only “make sense” if they are interpreted as combinations of (the confederation) or divisions of (the ifassen) the “tribe”. In the pre-protectorate political system, the tribal level of organization was distinct by the posession of a certain number of features: (1.) It was an autonomous level of organization, and was identified with the tribal council (jema't n-tqebilt , “assembly of the tribe”, to be compared with the jema't uduwwar , “assembly of the village” [i.e. congregation], and je ma't y ix w s or “assembly of the lineage”). (2.) It posessed a written legal code of its own, which specified a certain number of crimes against the tribe along with penalties for these; each of the six Tanani tribes had its own separate code, and, although they were broadly similar, there were differences. It is to be understood that these “customary”-law codes pertained to criminal and political matters only, while civil status and domestic law was regulated by Shari'a as interpreted by local 'ulema . Thus, at the level of	

		3. Written Literature (Presence)	3. Written Literature (Absence)
		personal law, Tanani practice formed a continuity with the national legal system, but in criminal law there was a distinct discontinuity, and in this domain the tribe rejected the national law and replaced it with a particular tribal law. (The Tanani codes, at least in part, are reproduced in Montagne 1924 and Montagne and Ben Daoud 1927). (3.) The tribe constituted the uppermost boundary within which there existed a determinate [Page 268] set of procedures for the resolution of conflict, namely the intervention of the tribal council. When conflict occurred across tribal boundaries, the igurramen or hereditary saints were brought into play, but they lacked the authority to actually impose a solution, unlike the councils of the tribes themselves. (4.) Finally, each tribe had its own distinctive political economic and political orientation, making alliances and engaging in trade with those non-Tanani tribes and confederations on which it bordered." (Hatt, Doyle Gordon, 1993: 267)	
60	Somali		• "A note is due here on the transcription of the Somali language in this study. Although there have been several scripts devised for recording the Somali language, none has to date been adopted by the Somali government. The orthography used in this study was developed [Page 4] by myself acting independently of any government agency. It is my private script, which I use in recording Somali poetry and folklore. The following is a linguistic description of the symbols used in this orthography which differ from English. The International Phonetic Alphabet (I. P. A.) symbol is given for the reader's convenience.." (Galaal, Muusa H. I., 1968: 3) •"Musa Galaal has distinguished himself as a writer of the Somali traditions and culture and has produced many pamphlets, periodicals and books. His present book entitled "TERMINOLOGY AND PRACTICES OF THE SOMALI WEATHER LORE, ASTRONOMY AND ASTROLOGY" is yet another addition to the rare treasure of written records on Somali traditions. In this book, the author has shown that it is possible to write down the most valuable cultural aspects and traditions of our country which have so far been preserved in the memory of the people. Preservation of traditions and culture in the memory of the scholars cannot be permanent and, in fact, we have reached a stage when our valuable traditions are fast disappearing from the life of the people. The handicap of writing the rich traditions has all along been the lack of script for the Somali language. Musa Galaal has overcome this difficulty by writing his book in English." (Galaal, Muusa H. I., 1968: ii)
63	Taiwan Hokkien		• "Taiwanese first appeared in writing in the late 19th century in a Romanisation system known as Pe̍h-ōe-jī (POJ). Since then a number of different methods of writing Taiwanese have been devised, some using the Latin alphabet, some using Chinese characters, some using Japanese kana, and others using a mixture of the different scripts." (Ager, Simon, 2013.)

		3. Written Literature (Presence)	3. Written Literature (Absence)
62	Tarahumara		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.y)
63	Tikopia		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.z)
64	Tiv		• "Writing: Latin script, used since 1936." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.)
65	Tlingit		• "There are three orthographies currently in use for Tlingit. The oldest of these is the "Revised Popular" orthography which developed in the 1970s from the now abandoned system devised by Constance Naish and Gillian Story in the 1960s. [...]. In all three systems, all unaspirated sounds occuring at the end of syllables are written with symbols for the aspirated sounds." (Ager, Simon, 2013.) •"The history of Angoon and its people seems to fall into several "periods," represented by different types of traditions of documentations. The white man would logically divide it into at least three temporal eras: (1) prehistoric, or prior to contact with Europeans in the 18th century, and lacking written records; (2) early historic, beginning perhaps with the discovery of Alaska in 1741, or with the first venture into Angoon territory by a European; this would be covered, especially in the later decades of the 18th century, by an increasing number of reports by explorers, traders, and the Russian-American Company; (3) recent historic, a well-documented period, beginning with the purchase of Alaska by the United States in 1867 and running into the present. For the native of Angoon the divisions are not quite the same, especially since the prehistoric and early historic periods could hardly be distinguished by a people whose contacts over many years with Europeans were only brief and intermittent. It was not, in fact, until 10 years after the purchase of Alaska by the United States that close association with the white man began. Then came the founding of the station at Killisnoo and the Presbyterian Mission school at Sitka which many Angoon children attended. Thus it is only within the memory of the old people that native history and white history really run side by side. Prior to this, some episodes in native tradition can be equated with events described in written documents, but others cannot. Often temporal clues are lacking, because the modern storyteller does not know, for example, whether firearms were used in the battles he describes." (De Laguna, Frederica, 1906-, 1960: 128)
66	Tongans		• "Tongan was first written by missionaries in the early 19th century using a number of different spelling systems. The current system was promulgated by the Privy Council of Tonga in 1943." (Ager, Simon, 2013.) •"The establishment of schools with the structure of a formal educational system has been one of the most effective forces in changing the culture of the villagers from primitive to folk-culture. Nevertheless it is easy to overassess the role that literacy plays in village-life. The large majority of the villagers are able to write the Tongan language. Most of them can read Tongan. To what use however, are these abilities put? As far as one can judge there is very little use made of writing except

		3. Written Literature (Presence)	3. Written Literature (Absence)
			in the very occasional signing of one's name to some legal or government document. The writing of letters is infrequent. The attitude of the villager here is that everything can wait until personal contact is established, either by personal visiting or by the use of a visiting intermediary. Similarly, the use of reading-skills is very limited. Its principal use for most is that of reading such familiar material as Bible-lessons or church hymns. Children in school naturally use simple reading-texts with secular topics. With school-days far behind, however, the Bible becomes all-important and here one's ability to read is sometimes almost entirely limited to its use in reviving memory of key-words in sacred texts that are otherwise well-remembered but temporarily forgotten. Some households also possess the single-paged printed combination almanac-calendar issued by the government printer. The only virtue of this calendar seems to lie in its possession, not in its use. Dated days are of no significance to the villager except to mark off one Sunday from another and this function is performed equally well or better by church-bell and pulpit-announcement." (Beaglehole, Ernest, 1906- Beaglehole, Pearl, 1910-, 1941: 49) •"The following account of the origin of the name Pukotala gives a picture of the method of transmitting orders from a chief to his tenants: On the island of Haano there are four villages. Starting from the northwestern end of the island, they are Muitoa, Haano or Lotohaano, Pukotala, and Fakakakai. The lord of the island, known as Tui Haa Ngana, holds sway over the first three, but Fakakakai never had a chief and as its name indicates is made up of people from different parts that have settled there. In the olden days when the chief desired to give notice to the people of some new arrangement, he summoned his attendants and matapule to Haano and told them what he wanted accomplished. A runner was dispatched to Pukotala to acquaint the folk there of Tui Haa Ngana's intentions. On the outskirts of the village was a big puko tree (“cottonwood”) and up this the runner used to climb and yell out at the top of his voice his chief's wishes. It was from this circumstance that the place derived its name: puko, cottonwood tree; tala, to tell." (Gifford, Edward Winslow, 1929: [n.p.]) •"In Tonga the genealogies of the great chiefs seem not to have been kept by the priests. These great genealogies were in the custody of the elderly woman of chiefly rank who memorized them and taught them to the young chiefs. With the adoption of writing, this custom of learning genealogies by heart has fallen into disuse. It is said that the women who were the repositories of the genealogies often discussed them among themselves and thus refreshed one another's memories. The genealogy which was supplied to me by the Queen of Tonga was set down from memory by the Tamaha Amelia with the aid of the chief named Shadrach Mumui. As soon as these two learned to write they decided to record the genealogies of the great chiefs and this record which was begun more than 75 years ago has been continued down to date." (Gifford, Edward Winslow, 1929: 232) •"Most of the chiefs are young men who could make themselves understood in English, and when we asked them the names of the different islands, many of them

		3. Written Literature (Presence)	3. Written Literature (Absence)
			would take a slate and write them down, some agreeing to a letter with Captain Cook's account, this they have learnt from the English missionaries, three of whom are settled here, and who to my astonishment, informed me they had begun to teach the natives writing only five months ago, and in that time they had completely exhausted their stock of Tonga literature, and were now learning English of their own. (Laws 1829)" (Lātūkefu, Sione, 1974: 56) •"When George Tubou became king in 1845 his people were in the white-heat of a conversion to Christianity. The missionaries had taught them to read and write, and to pass a simple code of law. They had imbued them with envy of the dignity of civilised States,—their law courts, their police, the uniforms and salaries of their officials, and their other blessings of civilisation—including taxes. All these the Tongans might have if they were shown how to begin. For years there was no one to direct their nascent aspirations. Their teachers had no enterprise, and devoted themselves to the spiritual rather than the temporal needs of their flock; but at last with the necessity came the man." (Thomson, Basil Home, 1894: 2)
67	Toradja		• "The litany of the priestesses is all in poetic style; the poetic form is indeed the only one in which formulary pieces can be preserved among peoples who are not familiar with written language, because in this way a very great measure of immutability is guaranteed. The rules of the meter are strict, four feet of two syllables, now recited as iambic, then as trochaic. For example: Oentoëmo kawalekoe, “a distant journey I have made,” 122 Awarimo kajanokoe “I have made a trip far away,” and Banja boeja meronangi, “I have to gain it from my sarong.” They are almost always parallelistic; hence the great need for alternate words which are sometimes again formed artificially, by dividing a word in two, for example, and then replacing one half by a synonym, as if, for example, in Netherlandish one were to interchange a word like gemak /”ease”/ with getam, because mak /”tame”/ and tam /”tame”/ are synonymous. " (Adriani, Nicolaus, 1865-1926; Kruijt, Albertus Christiaan, 1951: 619)
68	Trobriands		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.{)
69	Tukano		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.a)
70	Tzeltal		• "Tzeltal [latinate] alphabet" (Ager, Simon, 2013.)
71	Warao		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.b) •"In the absence of written records, the establishment of an absolute chronology for a bogland population is wrought with uncertainties. But at the time of Level's report on the Missions of Guyana (1850:1–17), in the mid-nineteenth century, no permanent settlement existed as yet along the banks of the Winikina proper. Genealogical information substantiates this fact and

		3. Written Literature (Presence)	3. Written Literature (Absence)
			indicates that this situation prevailed until 1928." (Wilbert, Johannes, 1980: 14)
72	Wolof		• "Although important as a trade language in West Africa since the early period of European contact, Wolof has no significant literary tradition. It has been written occasionally in Arabic and Roman letters, but systematic instruction in Romanized Wolof was begun only in the 1960s." (Coulmas, Florian, 1999)
73	Yanoama		• "Determining the age of people in anthropological or nonliterate populations poses a difficult and frequently impossible problem. It is one of the principal reasons for the relatively few demographic analyses of population dynamics in anthropological literature. Age as a measure of a life span assumes a unit of measurement and a counting system, both of which are cultural conventions. Western societies employ the cyclical relationship between the earth and the sun to measure time and they also use a unitary counting system which can handle the smallest to the largest numbers. By contrast, the Yanomama employ the cyclical relationship between the moon and the earth for their [Page 54] infrequent measurements of time. Their counting system identifies only three measured units--one, two, and a residual category “many,” which simply means more than two. Individuals do not know their age because there is no need for it, and there are no written records. The difficulties of estimating age exclusively from physical appearances are well known, especially in a culture alien to the investigator." (Early, John D. Peters, John F., 1990: 53) •"Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.c)
74	Yukut		• "Yakut first appeared in writing in 1692 as part of a book by the traveller N. Witsen and published in Amsterdam. The first literary work in Yakut Reminiscences by A. Y. Uvarovsky and its German translation was published in 1851 as a part of Otto N. Böhtlingk's work About the Yakut language. Böhtlingk used an alphabet based on Cyrillic with some special characters. Between 1922-1939 a version of the Latin alphabet devised by S.A. Novgorodov was used to write Yakut, and since 1939 the Cyrillic alphabet has been used." (Ager, Simon, 2013.) •"Yakut oral histories begin well before first contact with Russians in the seventeenth century. For example, OLONKHO (epics) date at least to the tenth century, a period of interethnic mixing, tensions, and upheaval that may have been a formative period in defining Yakut tribal affiliations. Ethnographic and archaeological data suggest that the ancestors of the Yakut, identified in some theories with the Kuriakon people, lived in an area near Lake Baikal and may have been part of the Uighur state bordering China. By the fourteenth century, Yakut ancestors migrated north, perhaps in small refugee groups, with herds of horses and cattle. After arrival in the Lena valley, they fought and intermarried with the native Evenk and Yukagir nomads. Thus, both peaceful and belligerent relations with northern Siberians, Chinese, Mongols, and Turkic peoples preceded Russian

		3. Written Literature (Presence)	3. Written Literature (Absence)
			hegemony. When the first parties of Cossacks arrived at the Lena River in the 1620s,. Yakut received them with hospitality and wariness. Several skirmishes and revolts followed, led at first by the legendary Yakut hero Tygyn. By 1642 the Lena valley was under tribute to the czar; peace was won only after a long siege of a formidable Yakut fortress. By 1700 the fort settlement of Yakutsk (founded 1632) was a bustling Russian administrative, commercial, and religious center and a launching point for further exploration into Kamchatka and Chukotka. Some Yakut moved northeast into territories they had previously not dominated, further assimilating the Evenk and Yukagir. Most Yakut, however, remained in the central meadowlands, sometimes assimilating Russians. Yakut leaders cooperated with Russian commanders and governors, becoming active in trade, fur-tax collection, transport, and the postal system. Fighting among Yakut communities decreased, although horse rustling and occasional anti-Russian violence continued. For example, a Yakut Robin Hood named Manchari led a band that stole from the rich (usually Russians) to give to the poor (usually Yakut) in the nineteenth century. Russian Orthodox priests spread through Yakutia, but their followers were mainly in the major towns. By 1900 a literate Yakut intelligentsia, influenced both by Russian merchants and political exiles, formed a party called the Yakut Union. Yakut revolutionaries such as Oiunskii and Ammosov led the Revolution and civil war in Yakutia, along with Bolsheviks such as the Georgian Ordzhonikidze. The consolidation of the 1917 Revolution was protracted until 1920, .in part because of extensive opposition to Red forces by Whites under Kolchak. The Yakut Republic was not secure until 1923. After relative calm during Lenin's New Economic Policy, a harsh collectivization and antinationalist campaign ensued. Intellectuals such as Oiunskii, founder of the Institute of Languages, Literature and History, and Kulakovskii, an ethnographer, were persecuted in the 1920s .and 1930s. The turmoil of Stalinist policies and World War II left many Yakut without their traditional homesteads and unaccustomed to salaried industrial or urban work. Education both improved their chances of adaptation and stimulated interest in the Yakut past." (Balzer, Marjorie Mandelstam, 2)

		4. Codified Laws & Punishments (Presence)	4. Codified Laws & Punishments (Absence)
1	Akan		• "Akan languages started to be written down, mainly in religious publications, by Danish, German and British missionaries during the 17th and 18th centuries. There are currently three standardized orthographies for Asante, Akuapem and Fante, there is also a unified Akan orthography which was created during the 1980s. " (Ager, Simon, 2013.) •"Owing to the fact that writing was unknown until our contact with Europe, the processes of arrest and summons were carried on by set forms of verbal instruction or order. A chief despatching a State messenger or Ahenkwa to arrest a criminal provides him with a State emblem, such as a gold sword, and issues his instruction to him through an Okyeame in some such words as the following: " Mate se Kwaku Kuma Akoton Amanyakurom asase a minnim ho fwe, enti k okyere no br e me", "Information has reached me that Kwaku Kuma has sold Stool Land attached to the town of Manya without my knowledge and consent, therefore I hereby order you to arrest and bring him to me." This formula differs slightly from that used in the case of accused summons: The Ahenkwa is provided with a State emblem, and the order is as follows: " Mate s e Kwaku Kuma as ee Ntam enti h o h ofa no bre me", "Information has reached me that Kwaku Kuma has abused the national oath (by swearing it against an improper person or on an improper occasion) therefore go and bring him before me." In a ci[illegible] or oath summons the formal words are usually as follows " Kwadjo Kotto se onè Kwaku Kuma wo nkuro (anase ake[illegible] ntam) enti kohyia no bra." "Kwadjo Kotto alleges a claim (or an oath case) against Kwaku Kuma therefore go and invite the latter to come before me." After the introduction of writing and British jurisdiction all these formulæ were replaced by printed forms in accordance with the regulations of the Native Jurisdiction Ordinance." (Danquah, J. B. (Joseph Boakye), 1928: 90) •"Twi is a tonal language and, since missionary work during the eighteenth and nineteenth centuries, has been written in Roman script." (Gilbert, Michelle, 1994: 11)"Twi is a tonal language and, since missionary work during the eighteenth and nineteenth centuries, has been written in Roman script." (Gilbert, Michelle, 1994: 11)
2	Andamans		• "No marks on rocks, trees or other objects, made for purposes of record, are believed by them to exist, and, with the exception of the supposititious hieroglyphics, hereafter to be mentioned, nothing of the nature of writing is to be found among these tribes, nor have they any method of recording the name and exploits of a deceased chief or other individual who may have gained distinction during his life, save the narration --more or less garbled--of the same by their admiring descendants. The messenger who conveys intelligence to a distant encampment bears no outward token with him to testify to the authenticity or character of the communication he has to make." (Man, Edward Horace, 1932: 46)

		4. Codified Laws & Punishments (Presence)	4. Codified Laws & Punishments (Absence)
3	Aranda		• "The socio-historical development of literacy in Arrernte : a case study of the introduction of writing in an aboriginal language and the implications for current vernacular literacy practices" (Kral, Inge, 2000.: 1)
4	Aymara		• "The Aymara originally used a collection of symbols, mainly pictures of people or things, as a mnemonic device. The symbols represented the things they portrayed or similar sounding words but never developed into a complete writing system. The symbols were originally written on animal skins using plant or mineral pigments but paper was substituted after the arrival of the Spanish in the 16th century." (Ager, Simon, 2013.)
5	Azande		• "Often, the chiefs ruled territories too extensive or too populated to permit direct relations to be established between them and their bakumba. They then delegate their powers to brothers, or sons, who in practice, do not remain attached to the central authority except through a contract of allegiance, vaguely feudal in nature. At the same time that it expands, the Azande chiefdom prepares within itself, the lines of least resistance, where the break will occur upon the disappearance of the chief. The great feudatories claim the right to total independence: almost inevitably, the struggle for hegemony will break out between them. It is this process of administration, required by the impossibility of administering at a distance, for lack of a means of written communication, which brings about the ruin of all the Azande empires which have succeeded. [Page xxii-xxviii(d)] Good for conquest, and for extension of the race, the Azande organization is incapable of constructing a centralized and durable empire." (Calonne-Beaufaict, Adolphe de, 1921: xxii) •"Writing: Latin script, used in Democratic Republic of Congo." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.)
6	Bahia Brazilians	• "No law in Brazil forbids marriage between members of different races. The candidates for a civil or religious marriage simply present themselves before the authorities of the State or of the Church, provided with the necessary papers, such as certificate of birth or baptism, in which the type or the color are mentioned only for the purposes of identification." (Azevedo, Frieda, 1953: 50)	
7	Banyoro		• "Reading and writing were first used in Uganda by Arab traders from around 1844. Although the Arabs were the first to introduce written information (texts) in Uganda, they did not make any effort to teach reading and writing in Arabic outside the practice of the Islamic faith (Ssekamwa, 2000.). Literacy in the Roman alphabet was introduced into Uganda by Christian missionaries in the late 19th century. The first to arrive were the Anglican Church Missionary Society from England in 1877, followed by the Catholic White Fathers' Society from France in 1879. Both groups came with a mission to 'civilise', using religion and education. Literacy was therefore initially introduced into Uganda as an integral part of Christian religious practices, making Christianity the first social and institutional framework within which

		4. Codified Laws & Punishments (Presence)	4. Codified Laws & Punishments (Absence)
			literacy found meaningful use in everyday life in Uganda. By embracing the Christian faith, the local people embraced a literate culture involving the use of the Bible, prayer books, hymn books and other religious texts (Byakutaga & Musinguzi, 2000.; Onono-Onweng, Holmes & Lumumba, 2004.; Ssekamwa, 2000.). Wherever the missionaries went, their first task was to learn the local languages, develop orthographies for that particular language, and translate and print Bibles, prayer books and hymn books in that language. The missionaries emphasised the use of local languages in their literacy work, which gave local languages status and acceptability within church practices. Initially literacy was taught directly in relation to Christian instruction and the preparation of new converts (Byakutaga & Musinguzi, 2000.; Parry, 2000.b). New converts, in the Anglican Church in particular, were inducted into the Christian faith through reading and writing biblical texts. Becoming a Christian often became closely associated with becoming literate. The Anglicans emphasised reading of the Bible by individuals themselves. Therefore, before the establishment of schools, reading was taught as a precondition for becoming an Anglican Christian. The Catholics on the other hand emphasised rote learning of prayers and religious doctrines printed in other Catholic literature and did not require learning how to read and write as a precondition, although they also conducted some literacy classes (see Byakutaga & Musinguzi, 2000.; Parry, 2000.a)." (Lyster, George Openjuru; Elda, 2007.: 99-100)
8	Bemba		• "The Bemba had no form of writing prior to their contact with the European world at the end of the nineteenth century." (Maxwell, Kevin B. (Kevin Burns), 1941-, 1983: xvi) •"The oral tradition redacted by homeostasis. There are innumerable changes in any living culture over time, but an oral culture does not have the technology for the intellect to understand them as mutations. There is an oral tendency towards [Page 111] cultural homeostasis (Cf Ong 1982, 46-9). This process is impelled by the social function of memory, which stores only what is socially relevant and conveniently forgets all else in a "structural amnesia" (Goody 1977, 14; 1968, 307-09). New constituents of the cultural heritage are adapted to the old, as the people strive after meaning by harkening after their normative past. The result is that the oral Bemba have little perception of the past except in terms of the present (Richards 1960, 179). They lack writing as a mechanism, by which they could build up a body of chronologically ordered statements to compare with their present views (See above, 85ff). Any present adjustments to the tradition will be gradually introduced as having always been so conceived, convincing the people that the new is in fact part of the true, venerable version of the tradition. Oral transmission, as a performance, then, is not a mechanized memorization but an imaginative process of continuous creativity (Ong 1982, 57-68). It reconstitutes and transfers elements within the latitude of the tradition (Goody 1977, 116-17). An oral tradition is never "an inert acceptance of a

		4. Codified Laws & Punishments (Presence)	4. Codified Laws & Punishments (Absence)
			fossilized corpus of themes and conventions," but represents an "organic habit of recreating what has been received and handed on" (Lord 1964, xiii). Tradition is actually more of a process (traditio) than a product (tradita). Thus, even the successful debut of the Christian rendition of Lesa could be construed as due to this oral propensity to conceive of contemporary developments as "having always been so" in the tradition." (Maxwell, Kevin B. (Kevin Burns), 1941-, 1983: 110)
9	Blackfoot		• "The Blackfoot syllabary was devised by John William Tims (1857-1945), an Anglican missionary from England who spent 12 years from 1883 to 1895 among the Blackfoot people in the North-West Territories of Canada (now Alberta). " (Ager, Simon, 2013.)
10	Bororo		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.e)
11	Bosnian Muslims	• "The millet system was established by the Ottoman government to rule its non-Moslem citizens. Islam was both a religious and a legal code, and adherents of each religious domination were organized into a separate community, each under its own ecclesiastical authorities. This association of religious and legal status, to the exclusion of language as an important criteria, further promoted the concept that religious affiliation equals ethnic affiliation." (Lockwood, William G., 1975: 26)	
12	Central Thai	• "The source used for legal evidence in the early twentieth century is Kotmai Tra Sam Duang [The Three-Seal Laws]. It is the compilation of ancient laws, some of which were made as early as the fourteenth century. These ancient laws were originally compiled in the late seventeenth century, and new laws were added later until the late nineteenth century. These ancient laws continued to be enforced until 1935 when Thailand promulgated its first modern Criminal and Civil and Commercial Codes." (Bumroongsook, Sumalee, 1995: 17) •"In villagers' eyes if not those of the government, full rights of ownership in land are established by the traditional practice of clearing and farming a section of forest, the four points of which have been marked by wooden stakes. Such a system lasted as long as it did because of the general abundance of land suitable for agriculture. Local scarcities did develop but those without sufficient land to support themselves and their families found it relatively easy to move on to where unclaimed land was available. It was as the result of such a local scarcity that Hua Kok was founded by families from Bang Saphan and Wang Thong. In this type of situation the loss of rights to a plot of land did not pose a basic threat to one's right to a livelihood, nor were there any significant incentives for dispossessing others of their land. Consequently land has been managed with little	

		4. Codified Laws & Punishments (Presence)	4. Codified Laws & Punishments (Absence)
		reference to government legislation and few bothered to avail themselves of the legal rights granted by various land certificates. It must also be remembered that from the government's point of view the careful regulation of land rights has not had the importance it did, for example, in feudal systems in which tax was levied on fixed productive assets of land." (Kemp, Jeremy, 1992: 119)	
13	Chuuk		• "Missionaries devised a way to write Chuukese using the Latin alphabet during the 19th century. In the 1970s linguists modified the missionaries' system with the addition of the accented letters." (Ager, Simon, 2013.) •"Before the Spanish Government had gained sufficient influence in the islands, the people of Truk lived under the rule of numerous petty chiefs who were constantly engaging in inter-district and inter-island warfare. In Spanish and German times, Catholic and Protestant missionaries Christianized and subdued the warlike tendencies of the population, but many of the old suspicious attitudes still show in present-day culture patterns. The numbers of Spanish and Germans who came to Truk at any one time were relatively small; they left their mark on the people in the folklore, in the religion and in the alphabet which they applied to the Trukese language, teaching the people to read and write. It was left to the Japanese to make the most impression on the native economy." (Fischer, Ann M.. 1950: 7) •"Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.f)
14	Croats	• "There was a period from 1278 to 1357 when Venice controlled Brac. It was during this period, in 1305. that the first statute was drawn up on Bra[unknown]c. (It was first published in 1656.) The Croatian councils on the island approved the statute. Although, apparently not Roman, the law base shows a Latin influence as well as Croatian. It had characteristics of the feudal socio-economic system with relics of Slavic social and juridicial regulations coming out of family-tribe autonomy. The communal government was that of a Croatian nobility with a feudal system of individual and common commune land. The statute listed four categories of peasants: those who cultivated land owned by the commune, those who cultivated communal land which had been rented to someone else, those who cultivated their own land, and those who cultivated land owned by the church or by nobility. The statute indicated that viticulture and olive oil production had developed by this time. Also, cereals were being cultivated. Wine was sold through Split to Venice, and grains were imported from Bosnia, Croatia, and Venice. The statute restricted the export of grains from the island and the importation of wine. Sheep and goat raising were important and mules and horses are mentioned. Apparently all the	

		4. Codified Laws & Punishments (Presence)	4. Codified Laws & Punishments (Absence)
		commerce went through Venice. The statutes remained in effect until the fall of the Venetian Republic in 1797. Hvar copied the statute in 1331. (Cerineo, 1940: 90-96.)" (Bennett, Brian Carey, 1974: 10)	
15	Dogon		• "Writing: Unwritten." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.b)
16	Garifuna		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.g)
17	Garo		• "Brief lists of Garo words were compiled by British officials in 1800, and Garo acquired a Latin-based spelling system during the late 19th century. This was devised by American Baptist missionaries and based on a northeastern dialect of Garo. A version of the Bengali alphabet is sometimes used to write Garo in Bangladesh. Garo publications include some collections of stories, weekly newspapers, school books, dictionaries and religious works, including the bible. People use the language for private correspondence and some signs." (Ager, Simon, 2013.)
18	Guarani		• "Guaraní is one of the offical languages of Paraguay, along with Spanish, and started to appear in writing in the form of religious texts during the 18th century. [...] The Guaraní alphabet shown below was introduced after a Guaraní language congress in Montevideo, Uruguay. The idea was to take the spelling of Guaraní away from the Spanish model." (Ager, Simon, 2013.) •"The process of alphabetization in the mission schools, the translation of ideas of the dominant culture into the native language, particularly catechisms, was a powerful force of cultural domination. Catholic values and concepts were more easily transmitted to the Indians through catechism books and the repetition of sermons by the Indians as directed by the Jesuits. Although learning to read and write in their native language was part of the process of indoctrination, by becoming adept writers in their native language and learning mathematics, some of the Guaraní mission Indians could also keep track of their community property, better conduct their daily affairs, keep town council records, make financial transactions, and communicate with one another despite the long distances between missions. The Jesuit missions had one of the first printing presses in the Rio de la Plata. A number of native and Jesuit authors published their works at the missions of Santa Maria La Mayor and San Francisco Xavier during the early eighteenth century. These included the works by Father José Serrano, S.J., De la diferencia entre to temporal v lo eterno, Crisol de desenga[unknown]nos, con la memoria de la etermidad (1705), which included forty-three illustrations by a mission Indian, Juan Yapari: Paul Restivo, S.J., Explicación del catecismo de Nicolás Yapuguay (1722), Father Antonio Ruíz de Montoya's Vocabulario de la Lengua Guaraní ...(1722), Arte de la Lengua Guaraní with notes by Father Restivo (1722); and Casique Nicol[unknown]as Yapuguay's Explicaci[unknown]on del Catecismo en Lengua Guaraní (1724) and Sermones v eiemplos en Lengua Guaraní

		4. Codified Laws & Punishments (Presence)	4. Codified Laws & Punishments (Absence)
			(1727). Basildes Britez Fari[unavailable]a, Hist[unknown]oria de la cultural guaraní (Asunción, n.p., 1988), 17-19. No ethnohistorian or linguist has studied these rare native catechisms to understand the process of evangelization of the Guaraní mission Indians during the Jesuit period. These works have been neglected because so few scholars of the Guaraní language can read the classical Guaraní of the Jesuit missions.: It is nearly impossible to assess how many or what [Page 132] percentage of the Guaraní mission Indians became literate. Literacy was not always confined to members of the native elites. According to the available historical evidence. Guaraní mission Indian fugitives, most of whom were peons, living in Buenos Aires and Santa Fe in the mid-1750s, kept in touch with events in their mission towns “through the letters they received” from other mission Indians. 33: Bernardo Nusdorffer, S.J. “Segunda parte de los sucedido en las Doctrinas despues que salió de ellas el Pe. Luis de Altamirano para Buenos Ayres...” 1753, BNRJ, Se[unknown]c[unknown]ao de Manuscritos, Roll 31846. Defensa de los Jesuitas 1.2.3.4. Guerra de los Guaranies, 8.2.25, folio 17.: Unlike the Maya, Mixtec, Nahua and other indigenous people in Mesoamerica, the Tupi-Guaraní and other tropical lowland South American Indians had no precolonial tradition of writing. The Guaraní literary tradition is similar to that of postconquest developments in colonial Mexico among the Nahua in that missionaries learned the native languages, and then a whole native literature came into being, including dictionaries, grammars, catechisms, collections of sermons, and other writings. 34 : Frances Karttunen, “Nahuatl Literacy,” in The Inca and Aztec States, 1400-1800: Anthropology and History edited by George A. Collier, Renato Rosaldo, and John D. Wirth. (New York and London: Academic Press, 1982): 395-417.: The Guaraní mission musician and chief, Nicolás Yapuguay, authored a few religious texts published in the native language using the mission printing presses. His works include Explicación de el catechismo en lengua guaraní, Sermones y exemplos en Lengua Guaraní and Tábua dos graus de parentesco en guaraní . Bartomeu Melià, Marcos Vinicios de Almeida Saul, and Valmir Francisco Muraro. Q Guaraní , 339. These texts deserve further attention by the few scholars who are able to read classical Tupi-Guaraní. Only parts of the text. Explicaci[unknown]on de el catechismo en lengua guaraní , are available at the Archivo Provincial de Buenos Aires de la Compa[unknown]nia de Jesus.: These works are discussed in more detail in Chapter Five." (Ganson, Barbara Anne, 1994: 131) •"Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.h)
19	Hausa	• "Legal affairs fall under the jurisdiction of the emir, and he is guided by Islamic law. The Quran, the word of Allah, and its HADITH, the traditions of the Prophet Mohammed, along with the dictates of secular reasoning provide answers to legal questions. The Sharia, the canon law of Islam, is fundamentally a code of obligations, a guide to ethics. Sanctions of shame and ostracism compel conformity to	

		4. Codified Laws & Punishments (Presence)	4. Codified Laws & Punishments (Absence)
		Hausa and Islamic custom." (Pellow, Deborah Beierle, John, 1997: 7)	
20	Highland Scots	• "A combination of causes is responsible. First is the relative lateness of the introduction of writing. Second, there is the fact that the Western Isles were held by the Norse from the ninth to the thirteenth century. Third is the destruction of Scottish records. The ecclesiastical [Page 63] and, perhaps, the legal papers concerning the Hebrides were either destroyed by the Norse during their sacking of the monasteries or lost upon being transferred to Ireland for safe keeping. Edward I of England, as self-appointed arbiter of conflicting claims to the Scottish throne, and other claimants to the throne at home removed the rest. There is no record earlier than 1140. In fact, except for an Indenture Roll of 1292 and fragments of the Parliamentary Roll of Balliol, 1292-1295, there are no public records earlier than 1308, and Parliamentary records are not available until the Fifteenth Century. " (Ducey, Paul Richard, 1956 [1971]: 62) •"Early in the eighteenth century the present area of the parish of Uig was held from the Seaforth clan chief by 26 tacksmen, whose names are recorded in the judicial-rental of 1718, (Fig. 4). They, presumably, had sub-tenants but of these there is no record. Elsewhere in Lewis the same rental records many small tenants holding direct off the chief but in Uig, apparently, the tacksman and sub-tenant system remained intact. Although we cannot be certain of their precise extent, the distribution of the tacks coincides fairly well with that of the better agricultural ground (Fig.2). [...] Five of them cluster round Uig bay, four were in the Valtos-Reef area, and three around the strait of Little Bernera. All these districts have machair; together they accounted for three quarters of the meal and more than half the sheep and money rents. What is more, these rents represented 27% of the total rental of Lewis, whereas by 1887 Uig yielded only 17% of the rental and by 1901 the proportion was reduced to 14%. The relative decline of Uig is largely due to the growth of Stornoway; this shift in the centre of gravity of Lewis has tended to exaggerate the remoteness and isolation of Uig in the present century." (Moisley, Henry Alan, 1962: 9)	
21	Hopi		• "Hopi is an Uto-Aztecan language spoken by approximately 5,000 people in northeastern Arizona in the USA. Although there are relatively few speakers, the language is still being passed on to children and about three quarters of the Hopi people speak Hopi as a native language. There are four main varieties of Hopi: First Mesa or Polacca, Mishongnovi or Toreva, Shipaulovi or Sipaulovi, and Third Mesa or Oraibi. They were identified by Benjamin Whorf, who was the first to analyse the Hopi language and who focused on the Mishongnovi variety. There is a Hopi-English dictionary edited by

		4. Codified Laws & Punishments (Presence)	4. Codified Laws & Punishments (Absence)
			Emory Sekaquaptewa, and the language is promoted by the Hopi Literacy Project." (Ager, Simon, 2013.) •"Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.j) •"Marriage customs have been drastically modified. Early in the century an occasional Hopi couple was persuaded to go through a “White” ceremony, at the insistence of a missionary, school superintendent, or government official. Now it is customary for couples voluntarily to have a “White” civil or religious ceremony before entering into the protracted rites of a Hopi wedding. 4: 4. For a study of the traditional marriage ceremony at Oraibi, see H. R. Voth, “Oraibi Marriage Customs,” American Anthropologist, vol. 2, no. 2 (1900).: Go to end note pageThis change of custom does not necessarily indicate conversion but is based on a desire for official written records, since the Hopi have no writing. The people realize that documented weddings make it harder than was earlier the case to get a divorce. On the other hand, women, especially, feel that possession of written records simplifies numerous dealings with the American government. For example, legal documents make it easier for wives to get money allotments if their husbands go into the armed services, and women with official papers stand a far better chance of getting financial support in the event of divorce." (Titiev, Mischa, 1972: 328)
22	Iban		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.k)
23	Ifagao		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.l)
24	Igbo		• "But this view would not be entirely correct or fair. The Committee and the Society were concerned to minimize the number of radical changes to be introduced into the writing of the Language. The new symbols introduced by the new Africa orthography, as already said, required the manufacture of special [Page 370] typewriters for use in typing in Igbo language. This its opponents considered unduly expensive. Though it must be pointed out, that if the new script had been adopted for writing all African languages as originally suggested, the cost of such typewriters would have been greatly reduced. Also, argued the members of the S.P.I.L.C., the new characters of the Africa orthography made it impossible to send messages in the Igbo Language by teleprinter. In this regard, however, one may ask whether this can now be done using the □nw□ orthography which uses more diacritic marks than are found in the standard Latin alphabet used in teleprinters. Whatever the case, however, the Government accepted the □nw□ Orthography and imposed it on all and sundry. With this the old and the new Africa orthography disappeared from the scene. This shows what could have been achieved if in those early days there had been a government that felt strongly enough on the matter and that came out with a firm decision on the two vexed questions of literary dialect and orthography." (Afigbo, A. E. (Adiele Eberechukwu), 1981: 369)

		4. Codified Laws & Punishments (Presence)	4. Codified Laws & Punishments (Absence)
			•"The Igbo, like many of their neighbours, did not evolve an indigenous script with which to reduce their language to writing before the advent of European rule. Nor did their territory lie within the area of West Africa which was influenced by Islam and the Arabs who spread the use of the Arabic script as they went. For a time in this century scholarly attention was drawn to Nsibidi, an indigenous sign-writing which flourished on the Cross River basin and in the Eastern Igbo area. This has not been studied in detail, but its use was severely limited. Though it served important functions, as will be shown below, it did not evolve into a script for writing indigenous languages in the same way as the Roman or Arabic script did. As a result in the nineteenth century the missionaries found themselves faced with a tabula rasa as far as reducing Igbo language to writing was concerned. This problem was in no way limited to Igbo. It was one which the missionaries faced in most of Africa and Asia. Not surprisingly they sought a universal solution to this widespread problem. For the Igbo this global approach to the problem in time turned out to be unfortunate." (Afigbo, A. E. (Adiele Eberechukwu), 1981: 365)
25	Iran	• "Modern Persian is a continually evolving language that began to develop about A.D. 900. Following the Arab conquest of the Sassanid Empire in the seventh century and the gradual conversion of the population to Islam, Arabic became the official, literary, and written language, but Persian remained the language of court records. Persian, however, borrowed heavily from Arabic to enrich its own vocabulary and eventually adopted the Arabic script. In subsequent centuries, many Turkic words also were incorporated into Persian." (Hooglund, Eric J. Library of Congress. Federal Research Division, 1989: 84) •"There was an important change in the Safavid period in the position of the qā□īs and the jurisdiction of □urf or customary law courts. Already under the Seljūqs the religious institution had been incorporated into the general structure of the state, but it was not till Safavid times that the sharīa courts and the qā□īs were made subordinate to the temporal powers as represented by the □urf courts and the semi-military hierarchy under the dīvānbegī. 8 Chardin states that the qā□ī's influence had been diminishing for several centuries. Minorsky suggests that the diminution in his [Page 122] powers had been achieved by creating the offices of the □adr and Shaykh ul-Islām.1 The dīvānbegī, moreover, controlled all sharī□a courts and acted as the executive power for the decision of the sharī□a courts.2 Chardin maintains that there was no conflict of jurisdiction between the written (i.e. Qur'anic law) and customary law (i.e. □urf), because 'the latter being the stronger prevailed over the other without the least resistance'.3 Criminal justice was according to Chardin entirely outside the jurisdiction of the sharī□a courts.4" (Lambton, Ann K. S., 1912-, 1953: 121)	

		4. Codified Laws & Punishments (Presence)	4. Codified Laws & Punishments (Absence)
		•"Gradually, under Ri□ā Shāh, changes were brought about in local administration; in some cases the nature of this change was merely to give the force of law to what had been merely □urf or customary law before. On 20th. Ā□ar 1314 (December 1935) the law concerning kadkhudās (village headmen) was passed. According to this law, the kadkhudā was the representative of the landowner and was responsible for the execution of laws and regulations referred to him by the government (art. 1). In each village or group of villages a kadkhudā was to be appointed (art. 2). In khāli□eh land he was to be recommended by the local Finance Office, in vaqf land by the mutavallī or his representative, in large landed properties by the landowner, and in villages owned by several persons by those who owned the greater part of the property, to the governor or deputy-governor of the district, who would issue his order of appointment (art. 3). The qualifications for a kadkhudā were Persian nationality, a clean record, a reputation for honest dealing, trustworthiness and capability, residence in one of the villages in the area over which he was to be appointed, and that he should carry out some cultivation in the area (art. 4). The kadkhudā was to oversee agricultural affairs in accordance with the orders of the landowner. He could decide minor cases in the villages up to 50 rs. (approx. 5s. 10d.). He was to prevent disputes breaking out among the people; if and when they broke out he was to settle them, as far as possible by conciliation (art. 7). He was, in accordance with art. 23 of the Law for Criminal Trials, to prevent the flight of accused persons and the destruction of evidence, and was to report his actions as quickly as possible to the nearest gendarmerie post or deputy-governor (art. 8). If there was a delay of over fifteen days on the part of the landowner or landowners in recommending a person to be kadkhudā, the governor would appoint someone (art. 10). If the kadkhudā showed negligence in agricultural affairs he could be dismissed on the demand of the landowner or landowners (art. 11)." (Lambton, Ann K. S., 1912-, 1953: 189) •"It appears that up to the reign of Qub?d (d. A.D. 531) the land tax was assessed on the produce at varying rates according to the type of farming practised and the nature of the crops raised. During the reigns of Qub?d and his son and successor An?sh?rav?n it was assessed by measurement of the land, except in the case of date palms and fruit trees, the tax on which was assessed according to the number of trees. According to ?abar?, Qub?d began the measurement and An?sh?rav?n completed it (I, 2, 960). Grain paid 1 dirham per jar?b, vineyards 8 dirhams per jar?b, and trefoil 7 dirhams per jar?b; the rate for Persian date	

		4. Codified Laws & Punishments (Presence)	4. Codified Laws & Punishments (Absence)
		palms was 1 dirham per four trees, and for palms of inferior quality 1 dirham per six trees, and for olives 1 dirham per six trees. One to two ?af?z in land were also paid per jar?b on grain land. The tax was paid in three instalments per annum (I, 2, 961–3). Mas??d? gives a somewhat different account: according to him, Qub?d fixed the rate in the Saw?d for wheat and barley at 2 dirhams per jar?b [...]. The story of the incidents leading up to the change in the method of assessment is related in substantially the same form by many early Islamic writers. According to this tradition Qub?d when out hunting one day came to an orchard where a woman was making bread. Standing beside her was a child whom she kept restraining from taking some of the fruit. Qub?d asked her why she did this. She replied that the fruit was shared between her and the king, and since neither the latter nor his tax-collector had yet divided it, it was not lawful for her children to take any of the fruit. Qub?d is then alleged to have determined to abolish this custom and to assess the tax on the land instead of on the produce. Before he could carry out his determination he died. An?sh?rav?n, his son and successor, implemented his plan and imposed a land tax on the estates, arable lands, gardens, orchards, and vineyards throughout the country and imposed a poll tax exempting from it only a few persons [...]. Ibn ?auqal states that the tax was paid in the form of a share of the harvest in pre-Islamic times until the time of Qub?d. The latter established the payment of fixed rents throughout the province of F?rs, payable when the granaries and threshing-floors were full (Kit?b ??rat al-Ar?, ed. J. H. Kramers (Bibl. Geog. Arab.), ii. 303–4). Christensen believes that this reform in the taxation system was both a relief to the population and a benefit to the treasury. In later times it formed the basis of the assessment of the caliphs. [...] Hamad?n? is quoted by the T?r?khi Qumm as stating that Qub?d was the first person to measure the land and institute [land] registers, [to define] the boundaries of the lands and [to fix] the land tax, and that he instituted a d?v?ni khar?j in ?ulw?n, which he called the d?v?ni ?adl [...]. It seems likely that the land registers continued to be kept there. When Mu??w?ah appointed an official in charge of land tax in Mesopotamia, the list of crown lands which had been in the possession of the Sasanian king and his family had to be procured from ?ulw?n [...]." (Lambton, Ann K. S., 1912-, 1953: 15)	
26	Iroquois		• "Oneida alphabet [from Latin]." (Ager, Simon, 2013.)
27	Jivaro		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.m)

		4. Codified Laws & Punishments (Presence)	4. Codified Laws & Punishments (Absence)
28	Kanuri		• "Kanuri is used as a local lingua franca along with Hausa and Arabic. It was written with a version of the Arabic alphabet from about the 17th century, and is currently written with the Latin alphabet. A standardised spelling system based on the Maiduguri dialect and using the Latin alphabet, the Standard Kanuri Orthography, was developed during the 1970s and implemented in 1975. Kanuri is used as a medium of instruction in primary schools in Nigeria and Niger, and it is possible to study Kanuri up to PhD level." (Ager, Simon, 2013.) •"Still other languages used to be commonly written in the Arabic script and may occasionally still be, especially by well-educated Muslim scholars and by others as well. Particular mention should be made of [...] Kanuri [...]." (Kaye, Alan S., 1996: 744)
29	Kapauku		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.n) •"The sale of pigs for breeding or fattening purposes differs in the amount, type, and timing of payment, with the sex of the animal which is being sold. Sale of a male piglet is rather a simple affair. For such an animal one may either pay immediately the full customary price of 7 Km, or give only bo badii, a down payment of 1 Km with a stipulation of epaawa, “a later payment” of 10 Km. Epaawa is due at the time of the slaughter of the pig. The difference in the two prices (cash or bo badii with epaawa) is accounted for by the risk the seller takes in the delay of the full payment. To the buyer the postponed but higher final payment of 10 Km is advantageous because of the following reasons. Kapauku believe that the high price of the breeding animal is paid actually not for the body of the animal at the time of the sale, but for its hidden breeding quality and for the profit the buyer will make. Kapauku law, therefore, demands that a seller of a breeding pig, which is later stolen or prematurely dies, either refund the whole sale price or, if the buyer keeps the carcass of the dead pig, that he surrender his claim to the unpaid epaawa, the main payment. Because it is often hard to get money back from a seller who might meanwhile have spent it, the postponed payment, although higher than the immediate payment, gives the buyer a definite security that the seller will be able to comply with the rules of such a transaction. The uncertainty of getting back the original price is especially great in cases where the seller belongs to a political confederacy different from that of the buyer. A dispute under such circumstances may not result in any satisfactory solution for the buyer because there exists no interconfederational law that could force, or at least persuade the seller to pay back the owed price." (Pospisil, Leopold J., 1963: 211)
30	Khasi		• "In recent centuries, under Islamic influence, the Arabic script has become the written vehicle for some South Asian langauges [...], and under still more recent European influence, the Roman script has been introduced for still others (*e.g.*, Konkani, some Austro-Asiatic languages such as Khasi [....])." (Salomon, Richard, 1996: 372)

		4. Codified Laws & Punishments (Presence)	4. Codified Laws & Punishments (Absence)
31	Klamath		• "A number of methods of writing Klamath have been devised by linguists, such as Albert S. Gatschet, who published a dicionary, grammar and texts during the 1870s, and M.A.R. Barker who did the same during the 1960s, and by tribal elders. Barker's system most accurately represents the sounds of the language." (Ager, Simon, 2013.)
32	Kogi		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.o)
33	Korea	• "Chunchon said, 'Although this book has been given to the world, the men of the world do not as yet know it. The Nine Heaven Departments are under my control, and under me is Messenger Noimoon of the Nine Heavens, he who writes the laws, and Yumpang, the Angel, who assists him. There are four districts--Yangingsa, Chukteisa, Yoowangsa and Pooongsa. In each, there is a minister who has control. All of the spirits praise my government.'" (Clark, Charles Allen, 1932: 285) •"According to the sacred books of China, the king is concerned only with the general good. He watches to see that the laws are strictly obeyed, renders justice to all his subjects, protects the people against the exactions of high officials, etc. Such kings are rare in Korea. Usually the throne is occupied by do-nothings, by corrupt natures who are rotten with debauchery, old before their time, besotted and utterly incapable. And how should it be otherwise for unfortunate princes whose vocation from their earliest years is the throne, all of whose caprices are worshiped, to whom no one dares give advice, and whom a ridiculous form of etiquette shuts in their palace, in the midst of a harem, from the time when they are twelve or fifteen years old! In Korea, moreover, [XXVI] as in other countries in analogous circumstances, there are nearly always ambitious ministers to be found who speculate on their master's passions and seek to enervate him by an abuse of pleasure so that he cannot interfere in the affairs of the government, but will allow them to reign in his name." (Dallet, Charles Messner, Charles A., 1874: 23) •"Finally, the dynastic founders' convictions that law was a necessary concomitant of moral persuasion was demonstrated by the haste with which they adopted the Ming criminal code. Used as the criminal manual from the first year of the dynasty, its rendition into idu, known as Tae-My[unknown]ong nyul chikhae (Literal explanation of the Ming code), was completed as early as 1395. This Korean version, which differed only slightly from the Ming original, remained the authoritative criminal code until the end of the dynasty. [...] The translation of 1395 was based on the Ming code edition of 1389. For a summary of the adoption of Ming law in Korea, see Rich[unknown]o h[unknown]oten k[unknown]o, pp. 76-128."	

		4. Codified Laws & Punishments (Presence)	4. Codified Laws & Punishments (Absence)
		(Deuchler, Martina, 1935-, 1980: 88)	
34	Kuna		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.p)
35	Kurds	• "In the last two decades, the impact of the ongoing communication revolution on economy, politics and culture has been a major theme in academic and media debates and in the policy-making circles of governments and international bodies. Although new media technologies are transforming the entire world including the Middle East, these debates have largely focused on Western societies. This book provides the first study of the transformation of a Middle Eastern society, Kurdistan, in the context of the introduction of printing, recorded music, radio, television, and the Internet. It analyzes the complex and often conflictual interactions of media technologies, culture, statehood, nationalism and globalization." (Hassanpour, Amir, 2007.: [n.p])	
36	Lau Fijians		• "David Cargill (1809-1843), a [S]cottish missionary and pioneer in the study of the Fijian Language, devised a way of writing Fijian with the Latin alphabet based on the Ba'u (Bauan) dialect." (Ager, Simon, 2013.) •"Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.q)
37	Lepcha	• (Foning, A. R., 1987: 146) •"Later the three sons of zo khe bu and their families came down to Sikkim with their followers, invaded and conquered the country, thus breaking their most holy and sacred oath. At that time Lamaism had nearly reached its peak in Tibet, and the second son of zo khe bu and his two brothers introduced it into Sikkim. They collected all the Lepcha manuscripts and books containing the historical records, mythology, legends, laws, literature etc. of the Lepchas, and burnt them. They took the ashes to the high hills and blew them into the air and built Lamaist monasteries on the hills from which they had scattered the ashes of the burnt Lepcha books. Besides doing this, they also forced the Lepcha scribes to translate the Lamaist scriptures into Lepcha and made them read and venerate them as holy scriptures." (Siiger, Halfdan, 1967: 28)	
38	Lozi		• "This situation is obviously mainly a product of the fact that there is no adequate system of recording judgments and disseminating them through the country." (Gluckman, Max, 1967: 253) •"Clearly the kuta has no tradition of referring to records, and its illiterate members could not do so. There is one record only and no distribution of copies to other kutas. Furthermore, there are no scholars (with

		4. Codified Laws & Punishments (Presence)	4. Codified Laws & Punishments (Absence)
			the transient and exotic exception of myself) concerned with culling and analysing in writing the total body of precedents to produce convenient digests for judges." (Gluckman, Max, 1967: 257) •"Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.r)
39	Maasai		• "There is a Maasai dictionary, a Maasai translation of the Bible [in a Latinate script], and a few other publications, but generally the language is not used in writing very much." (Ager, Simon, 2013.) •"Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.d)
40	Mataco		• "There is an unwritten native law which states that no single family or individual shall suffer want as long as there are others who possess food." (Karsten, Rafael, 1932: 93) •"Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.s)
41	Maya		• "But in the relations the Chan Kom people have with one another, there has been no great change. The population has almost doubled, and the political authority has been achieved, without making Chan Kom over. It is still a community of one kind of people: rural, Maya toilers in the [Page 87] milpa; these people have added cattle-raising, business, and government to their activities. The new population shares with the old a common tradition, emphasizing industry and an earthy piety. All these people, old and new, think of themselves as Indians and as a people belonging to the bush, the milpa, and the settlement around the cenote. The increased experience with law and government has added a formality and a certain impersonality to proceedings that obey these sources of authority, but I cannot see that the personal and familial nature of the paramount social controls has been as yet significantly changed. The increase in size of the community and the rise to power have not changed the simple social structure of small family households grouped into patrilineal great families. It is still these family connections that principally guide conduct. And the same great families, on the whole, that prevailed seventeen years ago, today provide the leadership. When a decision is to be made, as formerly, the principal men of a family talk together, and then leaders of different families talk together, so that agreement on most issues is reached before any public action is taken. No new association, no new form of grouping, has been found necessary to carry on the enlarged affairs of the community." (Redfield, Robert, 1962)
42	Mbuti		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.t)
43	Mentawaians		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.u)
44	Mongol	• "The first Chinese legal sources for the history of the Mongols in the thirteenth-fourteenth centuries originate from the Yuan period. The	

		4. Codified Laws & Punishments (Presence)	4. Codified Laws & Punishments (Absence)
		Yuan dynasty was actually founded and governed by the Mongols. There had been a long tradition of Mongolian khaans3: 3. Here it is necessary to differentiate between ‘khan’ and ‘khaan’. In many books dealing with the history of the Mongols these two words are used synonymously. If one follows the meaning of the words in Mongolian chronicles, it becomes clear that Khaan was the title of the king of a state while Khan later designated the ruler of a region and its population.: Go to end note page creating state laws after the manner of the Mongolian statute book of Genghis Khaan, the Great Yasa (Ikh Yasag), which had been used since the start of the thirteenth century. In the case of the Yuan dynasty, however, this was unrealisable for various reasons. Because the dynasty comprised many and to a large extent settled Chinese peoples, it was necessary for the Mongolian kings to form their laws after the patterns of traditional Chinese legal ordinances in order to govern successfully. In addition, Khublai Khaan was very much influenced by Chinese culture. After the death of his father Tului, Genghis Khaan's son, he took over, at the age of 21, Tului's possessions of ten thousand subject families in Xinzhou as well as his mother's possessions in what is today Zhending in Hebei province, where he remained from this time. On the advice of his trusted Chinese minister, Yao Shu, Khublai had the first legislation revised in accordance with Chinese tradition. The most important laws dating from the Yuan period are the ‘New Ordinances from the Zhi Yuan Government’ (Zhi Yuan Xinge), the ‘State Codex of the Sacred Government of the Great Yuan Empire’ (Da Yuan shengzheng guochao dianzhang', often abbreviated to ‘Yuan dianzhang’) and the ‘Regulations in Systematic Order from the State Book of the Great Yuan Empire’ (Da Yuan tongzih Tiaoge)." (Bold, Bat-Ochiryn, 2001.: 5) •"The first Chinese legal sources for the history of the Mongols in the thirteenth-fourteenth centuries originate from the Yuan period. The Yuan dynasty was actually founded and governed by the Mongols. There had been a long tradition of Mongolian khaans. Here it is necessary to differentiate between ‘khan’ and ‘khaan’. In many books dealing with the history of the Mongols these two words are used synonymously. If one follows the meaning of the words in Mongolian chronicles, it becomes clear that Khaan was the title of the king of a state while Khan later designated the ruler of a region and its population[,] creating state laws after the manner of the Mongolian statute book of Genghis Khaan, the Great Yasa (Ikh Yasag), which had been used since the start of the thirteenth century. In the case of the Yuan dynasty, however, this was unrealisable for various reasons. Because the dynasty comprised	

		4. Codified Laws & Punishments (Presence)	4. Codified Laws & Punishments (Absence)
		many and to a large extent settled Chinese peoples, it was necessary for the Mongolian kings to form their laws after the patterns of traditional Chinese legal ordinances in order to govern successfully. In addition, Khublai Khaan was very much influenced by Chinese culture. After the death of his father Tului, Genghis Khaan's son, he took over, at the age of 21, Tului's possessions of ten thousand subject families in Xinzhou as well as his mother's possessions in what is today Zhending in Hebei province, where he remained from this time. On the advice of his trusted Chinese minister, Yao Shu, Khublai had the first legislation revised in accordance with Chinese tradition. The most important laws dating from the Yuan period are the 'New Ordinances from the Zhi Yuan Government' (Zhi Yuan Xinge), the 'State Codex of the Sacred Government of the Great Yuan Empire' (Da Yuan shengzheng guochao dianzhang', often abbreviated to 'Yuan dianzhang') and the 'Regulations in Systematic Order from the State Book of the Great Yuan Empire' (Da Yuan tongzih Tiaoge)." (Bold, B. (Bat-Ochiryn), 2001.: 5) •"Mongols did not develop a codified legal system until the thirteenth century. The Mongol legal code included categories ranging from religious to criminal law. These codes lasted until the Communist party came to power. The legal codes developed in the MPR stress collective over individual rights. Everyday affairs are regulated primarily by social censure." (Jankowiak, William R. Beierle, John, no date: 6) •"The system of government over this vast multinational and multilingual empire was based on the principles laid down in the famous Great Yasa of Chinggis-Khan. According to tradition, the Yasa the law was engraved on steel plates and was read each time a Mongol Emperor ascended the throne. The following are the basic prepositions of this curious historical document: 1. Faith in the Creator of heaven and earth, The lord of all. Preservation of religious tolerance and the freedom of conscience, along with the recognition of the oneness of the Godhead. 2. The exemption of religious servitors and physicians from all other social work. 3. Prohibition, under the penalty of death, against any person's proclaiming himself Khan, unless elected by the people's elders at a special diet convened particularly for that purpose. (The requirements for election to Khanship were; knowledge, ability, education, and descent from Chinggis-Khan. 4. In order to free the Khans from all pride and vainglory, Chinggis Khan's descendants are forbidden to assume long and sumptuous titles. 5. The granting of exemptions and privileges to high-ranking officials of the state. 6. The establishment of punishments from criminals: for ordinary stealing, if the culprit cannot pay three times the amount he has stolen, the punishment is to range from 7 to 700 lashes; for stealing of a graver kind, as for	

		4. Codified Laws & Punishments (Presence)	4. Codified Laws & Punishments (Absence)
		instance, the stealing of a horse, camel, etc., the death penalty is invoked. 7. The establishment of capital punishment for adulterers, the slaying of whom is to be permitted right on the spot where the transgression was committed. 8. The establishment of capital punishment for spies, false witnesses, witches, extortioners, and those practicing perversions against nature. 9. The prohibition of marriages among blood relatives once and twice removed, (it was established that wives had to be bought; polygamy was allowed, and marriage to two sisters was not forbidden.) 10. Prohibition against taking Mongols into personal service so as to uphold in them a sense of personal dignity and honor. 11. Struggle against the use of alcoholic beverages so as to eliminate drunkeness, (it was permitted to drink wine three times a month, but once a month was supposed to be preferable, and no drinking at all was best.)" (Maiskii, I. M. (Ivan Mikhailovich), 1884-1975 Dayton, Mrs. Kunitz, J., 1921: 518) •"Everything there has so far remained as it was hundreds of years ago, in the days of Genghis-Khan, or even earlier. Accordingly, the tamga, even nowadays, has all the characteristics of a universal organ of government and its competence extends to virtually every aspect of state power. The tamga keeps record of population figures (quite sloppily, to be sure, and moreover only of the male portion), it decides all administrative questions, [Page 588] administers justice, collects taxes, operates the urtons, manages state property, mobilizes and trains the armed forces, and represents the khoshun population at the aimak council. As a military unit, the khoshun is subject to the authority of the tsian' tsiun (Commander-in-chief); as an executive and judicial unit it is subject to the authority of the chulgan-darga (president of aimak seim). [...] The variety of the tamga's functions is reflected in the variety of the books it keeps. These books are: 1. Udarin-Gemdek — Book of Enteries. 2. Jisana-Khulga— Book of Expenses. 3. Albanu-Dansa— List of householders and tax assessments for each. 4. Khuragul-Dansa— List of “alba” tax payers with a record of how much alba, in money units, each is to pay (as well as how much he has already paid in.) 5. Tobchi-Dansa— A book in which a record is kept of all the alba sums received. 6. Dzaralun-Dansa— A book showing how the alba sums are being spent. 7. Jisana-Keregles Mungonoi Dansa— A book recording the apportionment among the tax payers of expenses going to the maintenance of the khoshun administration. 8. Dagaje-Shitkhekhe-Tobich-Dansa— A book of decisions and explanations regarding the legal actions of the Minister of Justice and the Chulgan-Darga. 9. Erin-Toliur-Dansa— A list of all the males in the khoshun (the list is revised every three years.)	

		4. Codified Laws & Punishments (Presence)	4. Codified Laws & Punishments (Absence)
		[Page 589] 10. Toktomyl-Albanu-Dansa— A book in which are entered the permanent alba payments, as for example, the “danshuk” (offering) for the Bogdo-Gegen, or expenses connected with oblations, offerings, etc." (Maiskii, I. M. (Ivan Mikhailovich), 1884-1975 Dayton, Mrs. Kunitz, J., 1921: 587) •"The circumstance that the full text of the Yassa has not come down to us is satisfactorily explained in general by the non-existence of printing at the time and particularly by the absence of a Mongolian written language.16 : 16 At that time the Mongols used Uigur and Chinese graphic signs. From the 1269 they used square characters, and only from 1911—the modern writing. See Laufer—”Outline of Mongolian Literature”, 1927, p.19.: The non-inclusion of the Great Yassa in the codification of the Yuan dynasty is fully explained by fact that Jenghiz Khan neither was nor had ever been a Chinese emperor, nor was the [Page 30] Yassa a collection of Chinese law. The contradiction with regard to the Yassa met in the works of foreign authors may be elucidated by the fact, that, printing being unknown, all the information about it was obtained through oral transmission, often at second and even third hand, the only written copies of the Yassa being kept in the state archives or in the record offices of princes which were generally not easily accessible, and quite inaccessible to foreigners.17: 17 The Mongols generally considered the Law as a thing to be disclosed to the initiated but hidden from the masses (v. further the example of the Khalkha Djirom)." (Riasanovsky, Valentin Aleksandrovich, 1937: 29) •"The organization of the judiciary was further developed in the legislation of the Oirats. Here the court took its place as a permanent institution of the State connected with the clan organization (the Hotons) and having two instances, the Hoton courts and the Chief Court (Zargo). These had definite rules governing their organization and activity, including material provisions and provisions governing procedure and providing for State compulsion. In the organization and activity of the Oirat courts, however, there still remained vestiges of the epoch of private reprisals. Thus, any suit (including criminal cases) was begun by the plaintiff (accuser) directly summoning the defendant (accused) to court and informing the court of such summons. The presence of both parties was considered indispensable, witnesses received rewards for their co-operation in the dischance of justice, etc. Besides this, there remained a certain, although, it is true, limited, number of cases in which the parties were permitted to take the law into their own hands, as for instance in the case of the seizure of a debt by the creditor after payment had thrice been demanded from the debtor in the presence of witnesses and due notice had been made to the Shulenga (art. 63). Successful	

		4. Codified Laws & Punishments (Presence)	4. Codified Laws & Punishments (Absence)
		tracking of a thief, concluded in the presence of honourable witnesses, led to the immediate application of the law concerning theft (without resort to court) (art. 62). It is evident that such taking of the law into one's own hands was permitted in undisputed cases: in the first case if the debt was not disputed by the debtor and in the second when the clarity and indisputability of the guilt was established by the presence of honourable witnesses. The further development of State principles in procedure may be observed in the legislation of the Northern Mongols and to a still greater extent among the Kalmucks. Thus the Khalkha Djirom forbade the killing of a thief (in flagrant delit), but when such killing took place it was not punished, the killer being merely forbidden to recover the stolen property and fine from the dead thief's property (IV, 24). This Code also forbade seizure of a debt by creditors and if such seizure took place during the day, the debt was declared annulled, while if it took place at night the culprit was punished as for theft (XIV, 13). It was prescribed that in such cases a petition for an award be made to the Noyon, and the execution of the recovery was entrusted to the Elchi (XIV, 26,29) while in these cases also the witnesses were rewarded (XIV)." (Riasanovsky, Valentin Aleksandrovich, 1937: 227) •"We can thus say with confidence that the criminal law of the Mongol-Oirat Regulations, the code of rewards, the system of punishment and the code of penalties. Comprising in general about half the total number of articles in the Regulations were expressions primarily of the customary law of the Mongol tribes." (Riasanovsky, Valentin Aleksandrovich, 1937: 166) •"One particular aspect of the memory of Chinggis is the law code, the famous Yasa." (Washington, Far Eastern and Russian Institute of the University of, 1956: 70)	
45	Mongor	• "One can expect divorces and repudiations, owing to the too great freedom which exists between the sexes. These two forms of termination of marriage rarely occur when there are several children in the family. Repudiation occurs more rarely than divorce, and the latter is not so frequent as one might suppose at first sight. Let us still remember that divorce and repudiation, like all the great acts of life, marriage, adoption, etc., are effected without the intervention of law courts. As long as they can arrange things among themselves, they do not resort to the law; they call upon its help when all other means of conciliation are exhausted." (Schram, Louis, 1962: 149) •"The Monguor language, also called Tu, is a member of the Eastern Mongolian Branch of the Altaic Family. Monguor is the most divergent of the Mongolian languages and shares 60 percent	

		4. Codified Laws & Punishments (Presence)	4. Codified Laws & Punishments (Absence)
		of its vocabulary with Mongolian. It has a large number of Han, a smaller number of Tibetan loanwords, and even some Turkish. Each of the five Monguor areas has its own dialect with the greatest dialectical differences found between the Huangnan and the Huzhu/Minhe areas. Some Huangnan Monguor speak Bonan, a closely related language. The Monguor in Datong County speak Chinese exclusively. Han characters are used in written communication. In 1979, a Tu script based on the Roman alphabet was devised and in 1988, a massive 70,000-entry Tu-Chinese dictionary was published." (Skoggard, Ian, 2005.: 1)	
46	Navajo		• "Navajo first appeared in writing in 1849 in the form of a Navajo word list published in the Journal of a Military Reconnaissance by Lt. James H. Simpson." (Ager, Simon, 2013.) •"Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.v)
47	Ojibway		• "James Evans, a Wesleyan missionary working at Norway House in Hudson's Bay, invented a syllabary for the Ojibwe language in about 1840. He had tried to produce a Latin-based orthography for Ojibwe, but eventually gave up and came up with a syllabary, based partly on Pitman shorthand." (Ager, Simon, 2013.) •"Writing: Latin script. Unified Canadian Aboriginal Syllabics script, no longer in use." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.) •"The Ojibway took reciprocal material relationships seriously. Giving credit, especially when preceded by some sort of gift-giving ceremony, helped foster good feeling between trader and Indian: the trader demonstrated trust in his clients, and this, in turn, would elicit a trustworthy response. Despite the lack of European-style sanctions—courts and police designed to protect private property—the trader could expect to receive a return for credit given, though, as will be seen, this might not necessarily involve complete repayment from the trader's point of view." (White, Bruce M., 1987: 233)
48	Ona		• "It is doubtful whether any of the Fuegian languages has words for numbers above three; the languages are poor in abstract terms and rich in concretes. No kind of writing exists, not even by notches, sticks, pictographs, etc. The nearest approach to such is symbolic face and body painting." (Cooper, John, 1917: 180) •"Warfare and disputes. --There were no established public procedures for determining criminal guilt and for inflicting punishment. The Ona were strongly given to revenge and were outspoken in their anger at a taint of honor or rights. There were no wars in which large numbers took part. Most group flghting was carried out by from 8 to 20 m.en on each side, each party commonly composed of relatives harking from a given extended family territory. The three chief causes of feuds and hostilities were murder, exploitative trespass on family territory, and suspicion of malicious witchcraft in cases of illness or death." (Cooper, John, 1946: 117)

		4. Codified Laws & Punishments (Presence)	4. Codified Laws & Punishments (Absence)
49	Orokaiva		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.w) •"There is no judicial procedure among the Orokaiva, and no 'police force'. In so far as sorcery is concerned, by the way, these deficiencies are perhaps not altogether deplorable. The suspicion of sorcery, where it is backed up by ignorant legal authority, may go to extraordinary lengths of oppression. No Papuan people has reached that stage of legal development which would have made possible such condemnations as those of West Africa, by which some populations are said to have been almost decimated. Even in medieval Europe it was simply the fear of magic which led to the incredible abuses of the witch-trials. In these more advanced societies the belief in sorcery broke out in a new direction, and found another means of doing evil by assailing the imputed and frequently innocent sorcerers." (Williams, F. E. (Francis Edgar), 1928: 224)
50	Ovimbundu		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.x)
51	Palestinians	• "The police machinery is well organized and courts are acknowledged by the villagers as just and impartial. This has been attested by judgements in favour of Arab villagers when these brought to court cases against Jews, often including senior government executives. But, rather than bringing their disputes to these courts, the villagers do all they can in order to settle the cases themselves by a resort to certain customary norms and practices, which they refer to as 'Arab Justice', Al-Sh ar`u el-`Arabi, even if the disputes are at the same time dealt with by the civil courts. 'Arab Justice' is based on a flexible body of certain norms and precepts and is ultimately backed by customary forms of collective self-help exercised by patronymic groups. The Triangle Arabs find fundamental discrepancies between 'Arab Justice' and 'Israeli Justice'. During the Mandate, law in Palestine consisted of a mixture of Ottoman Islamic laws and English laws. When the State of Israel was founded, it was decided by the Temporary State Council that the same laws would continue to operate, with modifications necessitated by the establishment of the State and its agencies, unless those laws were repealed by the legislature. Since then Israeli law has been changing in response to the social needs of an industrial, overwhelmingly Jewish, society. Some of these changes have affected, for example, Islamic Family Law at many fundamental points: polygyny has become illegal and so has the hitherto legal right of a man to divorce his wife without her consent and without legal procedure. The minimum age of marriage has been fixed." (Cohen, Abner, 1972: 134) •"Blessings and curses may also be conditional and then it is a question of a person's behaviour in a more or less distant future. A person is	

		4. Codified Laws & Punishments (Presence)	4. Codified Laws & Punishments (Absence)
		threatened with a curse if he does a certain thing, and on the other hand he is promised a blessing if he does another certain thing. [...]. And afterward he read all the words of the law, the blessings and cursings, according to all that is written in the book of the law. According to a tradition in Palestine all the blessings were read with the people facing Mount Gerizim which is therefore called the Mount of Blessings; similarly the curses facing Mount Ebal which lies opposite and which is called the Mount of Curses [...] Joshua read the law: the blessings and cursings also to the women, the little ones and the strangers that were conversant among them who thereby were brought into physical contact with the potential blessings and cursings of the law. In Nehemiah X. 29 it is stated that the people entered into a curse, and into an oath, to walk in God's law, and to observe and do all the commandments of the Lord our Lord, and his judgments and his statutes. The covenant of God may be considered from the point of view of a blessing and a curse." (Granqvist, Hilma Natalia, 1890-, 1947: 150) •"Some higher commanders reportedly developed more formal legal institutions. According to one old man's account, rebels even possessed a written code of laws and regulations." (Swedenburg, Ted, 2003.: 134)	
52	Pashtun		• "Pukhtun ideal-type social organization and behaviour revolve around the concepts of Pukhtunwali, translated as the Pukhtun Code or the way of the Pukhtuns. Pukhtunwali is the core of Pukhtun social behaviour. Although unwritten and precisely undefined it is the theme of song, proverb, metaphor and parable and never far from men's minds; like most codes it is part-fiction and part-reality. A Mohmand sociologist observed of the Mohmands: 'Pukhto operates in every aspect of their social and cultural life' (Mohmand, 1966: 44). [...] In a society where there is no written or formal law the importance of an assembly is crucial in ordering society and preventing it from collapsing into anarchy. The jirga regulates life through decisions ranging from the location of a mosque to the settling of conflict within sub-sections, to larger issues such as regulating foreign relations with other tribes and even conveying decisions of the tribe to government. Decisions are based on a combination of Islamic law and Pukhto custom." (Ahmed, Akbar S., 1980: 89) •"They differ from the Settled Areas in that:: (1) no criminal or civil procedure codes of Pakistan apply;: (2) they are not subject to the payment of taxes or rents of any kind. Many peripheral Islamic tribes like the Kababish Arabs pay taxes (Asad, 1970:154) and there are officially appointed Sheikhs to collect them;: (3) they are loosely administered through a political administration whose main aim is to ensure general tribal peace, especially in headquarters and on major roads. The administrative arrangement of 'Pax Britannica', confirmed in the tribal treaties of 'accession' at the turn of the century, that whatever happens 100 yards off the road on either side is no concern of the administration, was respected by the government of Pakistan. The

		4. Codified Laws & Punishments (Presence)	4. Codified Laws & Punishments (Absence)
			designation of the head of the Agency, the Political Agent, underlines the contractual and political nature of the relationship. His designation contrasts with the officer in charge of a Settled District who is called by three names and wears three hats: for purposes of taxes he is District Collector, for administering law, the District Magistrate and for maintenance of law and order, the Deputy Commissioner. The Tribal Areas are federally administered but are attached to the Provincial Government of the North-West Frontier Province for administrative purposes because of geographical and historical reasons; (4) no political parties or modern politics are allowed [...]." (Ahmed, Akbar S., 1980: 9)
53	Pawnee		• "Neither personal relations nor the personnel of the household were cramped within a fixed kin structure. The individual personality was not trimmed down to fit the kin structure, but the structure was used to realize the individual personality. The Pawnee social structure was written into no statute book, nor did it have the status of doctrine, and there was no chain of command to enforce it. Therefore it was not frozen and clamped onto the people, but carried implicitly by them to serve them as they saw fit. No built-in guilt, acting as a surrogate for dominant power, forced them to narrow the scope of their personal lives. They were socially creative in every personal interrelationship they had. The world was raw and their life was hard, but it was also freer than ours. No religious or supernatural sanction enforced the social forms. The only [Page 51] possible penalty for transgression of kinship forms was adverse public opinion. This was a very important deterrent, but it was of a quite different quality from religious, military, or political sanctions, for it was within the network of the contemporary community, not in a specialized sector of it, and it was therefore possible for a person to cope with it in the course of daily living. Pawnee life was certainly not a Utopia. The time and the place in which it existed could allow no such hope, but in its freedom from dominance it had something we now can afford and don't know how to take." (Weltfish, Gene, 1965: 50)
54	San		• "Khoekhoe [Latinate] alphabet" (Ager, Simon, 2013.) •"Would she comprehend the world of publishing, print, reading, and publicity? She did understand the concept of writing as a method used to record speech for later interpretation by reading: she had told me that she would ask Richard Lee to write a letter to me, and she had seen other anthropologists and officials of the Tswana courts using writing in various contexts. She also knew enough about the marketplace—buying and selling, making and spending money—to understand the principle of a book as a commodity, like a piece of clothing, that sometimes sells and sometimes doesn't. Since I was planning to set aside a portion of whatever profit the book might make for the Kalahari People's Fund and, in an appropriate manner, for Nisa herself, it seemed important to discuss our shared financial interest in the book's success. All in all, I felt hopeful that when I did talk to her again, she would approve of the project. If not, I resolved that I would abide by her

		4. Codified Laws & Punishments (Presence)	4. Codified Laws & Punishments (Absence)
			wishes." (Shostak, Marjorie, 1981: 351)
55	Santal		• "The Santali alphabet, which is also known as Ol Cemet', Ol Ciki or simply Ol, was created in the 1920s .by Pandit Raghunath Murmu as part of his efforts to promote Santali culture. [...] Until the invention of this alphabet, Santali was either not written at all, or was written with the Bengali or Oriya alphabets." (Ager, Simon, 2013.) •"The tales are, as will be understood, written in genuine Santali, without any attempt at polishing, only obvious errors or slips of the pen having been corrected. Before the missionaries came, the Santals had no written language. What they had of 'literature' was all stowed away in their memory. Incantations, songs and certain other matters are in a stereotype form, often such as not to be always properly understood by the present generation. This is not the case with the folk-tales, where, within certain limits, there is full freedom for the narrator. The language of these may consequently vary as to individual form and expression. There is no literary style. Santali has not like some other Indian languages, as e. g. Bengali, a high or literary form, a colloquial and a vulgar form. The language of these tales is just as the people speak." (Bodding, Paul Olaf, 1921-1940: 42) •"Writing: Bengali script. Devanagari script, used in Nepal. Latin script, used in Bangladesh. Ol Chiki (Ol Cemet', Ol, Santali) script. Oriya script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.)
56	Saramaka		• "In terms of the use of symbolism, too, the contrast between men's and women's arts is clearly related to their differential contact with coastal society. Occasionally (though much less frequently than the literature would suggest), Saramaka men incorporate in their wood carvings a small mark that can be "read" as a specific message (see S. and R. Price 1980 a:189). These marks seem to emerge from the same admiration for the idea of literacy that prompted a Djuka man to develop his own "script" in the early twentieth century and that inspired a number of male messianic leaders to "read" inspirational passages from their open palms. Women are well aware of the use of symbolic marks in men's carving, but they are also adamant that the extra elements they add to their finished textiles or calabashes (see, for example, S. and R. Price 1980 a: figs. 93 and 255) are, in contrast to the men's, intended only as marks of ownership." (Price, Sally, 1933: 197)
57	Seminole		• "Creek first appeared in writing in 1736. Laws were being written in Creek from 1849, and a standard alphabet, the 'National Alphabet', was adopted in 1853. By the 1870s newpaper articles in Creek were being published." (Ager, Simon, 2013.) •"Concern with gossip and the anti-social uses of traditional medicine played a role in both managing individual behavior and giving expression to individual and intra-group conflicts. The advice and sanction of respected elders, together with camp and clan solidarity, formed the basis of social control. The modern tribal governments all operate police forces governed by tribal laws and codes. These systems function within the

		4. Codified Laws & Punishments (Presence)	4. Codified Laws & Punishments (Absence)
			context of both other governmental jurisdictions (federal, state, and local) and the continued, if modified, belief in traditional law and custom." (Jackson, Jason Baird, 2003.: 10)
58	Serbs	• "According to article 154 of Du[unknown]san's law code, women in the medieval Serbian state as well as in other South Slavic regions could serve as jurors. However, this was only for hearing evidence and not for passing judgments, and even then only for criminal and civil disputes concerning women. Nonetheless it is significant that they could participate to some extent in the settling of civil disputes which concerned the wider community. In a dispute over the boundary between Bjelo[unknown]sa and O[unknown]cinića in 1489, twenty-four feudal landowners were delegated. After the parties to the lawsuit had come to an agreement, twenty-four Bjelo[unknown]sević residents who had filed the suit along with their wives were first put under oath, after which the twenty-four feudal landowners were sworn in to testify." (Filipovic, Milenko S., 1982: 62)	
59	Shulh	• "The notion of oral testimony, on which the written act rests in fiqh, could not therefore find total application here. On the one side it is replaced, in case of conflict, by chirographic proof. Thus decided, in 1953, apropos a case of this kind, the Tribunal coutumier /Customary Court/ of the Seksawa. On the other side, it is surpassed by sworn law: plural oath among others. The witness is effaced before the coswearer. Here the ordeal, there the human word." (Berque, Jacques Bigwood, Jane, 1955: 463) •"All the effort of the jurisprudence, were it that of the great cadis of the Sous, has been dedicated to serving rather than amending this situation. It is that the ikhs thrust itself, with all its attachments of public law, upon the private law. Conjugal foyers on the one side, city on the other are pendant, one might say, on the two sides of the ikhs. In it is their point of junction, on each side of which profoundly different social rhythms reign. On the one side kinship and alliance, justiciable to the memory of the living, and finding their practical application in each successoral dispute. This is the reign of the writing. On the other side, larger and larger classifications are drawn up in echelon from the ikhs to the smallest political unit, the taqbilt, and from there perhaps to the great legendary divisions of North Africa: Maçmûda, Zenâta, etc. There the reign of unwritten law begins." (Berque, Jacques Bigwood, Jane, 1955: 477) •"But everything has become a notarial affair. The village t't'aleb, with functions quite laden with communal virtue, it is true, has become the artisan and, in certain respects, the arbiter of the juridical permanence of the group. The	

		4. Codified Laws & Punishments (Presence)	4. Codified Laws & Punishments (Absence)
		continuity of the latter in time has certainly lost in part original modes of expression such as -- one can at least imagine it -- the heroic legend or choral poetry. It is no longer expressed except under the abstract schemata of the act, of the formulary. But it has brought to it its competitive fervor and its sense of olden times. To the point that these acts have proliferated immensely, the mountains have become a library of charters, and all this literature has even known there a historical density inconceivable in the Morocco of the plains, or the so-called cities of written law." (Berque, Jacques Bigwood, Jane, 1955a: 494) •"Applied to the letter, the preponderance conferred on the written title, by a technique so imperfect and offering so little in guarantees of authenticity, over ancient possession apparently leads to the worst of hazards. In fact, the legitimation of which the documents speak is the notoriety of the group attaching such revendication to the well-known patrimony of the ikhs. This genealogical consciousness of the group, tied to the structure of the ground, is what must be referred to in order to give an account of the customary rule of action that has become incomprehensible beneath its cloak of written law. Deliberations of this sort, [...] denying any value to possession, have been found in Imt'ddan and in Idma. I have given elsewhere. [T]he text and the translation of the second of these documents, which it seems useful to reproduce, as much for its basic interest as for an illustration of the singular disposition of these groups to legislate." (Berque, Jacques Bigwood, Jane, 1955: 504) •"But everything has become a notarial affair. The village t't'aleb, with functions quite laden with communal virtue, it is true, has become the artisan and, in certain respects, the arbiter of the juridical permanence of the group. The continuity of the latter in time has certainly lost in part original modes of expression such as -- one can at least imagine it -- the heroic legend or choral poetry. It is no longer expressed except under the abstract schemata of the act, of the formulary. But it has brought to it its competitive fervor and its sense of olden times. To the point that these acts have proliferated immensely, the mountains have become a library of charters, and all this literature has even known there a historical density inconceivable in the Morocco of the plains, or the so-called cities of written law." (Berque, Jacques Bigwood, Jane, 1955b: 494) •"In its application to criminal acts the Berber azrif was characterized by great dependence upon oaths and upon the imposition of fines. This first feature (oaths) was the principal reason for the Berber court usually meeting in a mosque or at a market with an associated shrine, for in all cases the litigants swear by something to give efficacy to their oaths, and this is generally something which has great	

		4. Codified Laws & Punishments (Presence)	4. Codified Laws & Punishments (Absence)
		baraka (religious power or blessing) - such as the Koran, the mosque itself, or a saintly shrine. In Berber customary law, however, the oath is employed not only for its supernatural consequences, but also as a legal device, that is, the oath is used in judicial proceedings as a means of establishing the guilt or innocence of a person accused of a crime, and may be taken either by the accuser or by the accused, or by certain other persons who, in addition to the latter, swear to his innocence as conjurators. This procedure, which is also found in Moroccan Moslem law, has been described by Westermarck (1926, Vol. 1, pp. 509-510):" (Hoffman, Bernard G., 1967: 89)	
60	Somali		• "A note is due here on the transcription of the Somali language in this study. Although there have been several scripts devised for recording the Somali language, none has to date been adopted by the Somali government. The orthography used in this study was developed [Page 4] by myself acting independently of any government agency. It is my private script, which I use in recording Somali poetry and folklore. The following is a linguistic description of the symbols used in this orthography which differ from English. The International Phonetic Alphabet (I. P. A.) symbol is given for the reader's convenience.." (Galaal, Muusa H. I., 1968: 3) •"Musa Galaal has distinguished himself as a writer of the Somali traditions and culture and has produced many pamphlets, periodicals and books. His present book entitled "TERMINOLOGY AND PRACTICES OF THE SOMALI WEATHER LORE, ASTRONOMY AND ASTROLOGY" is yet another addition to the rare treasure of written records on Somali traditions. In this book, the author has shown that it is possible to write down the most valuable cultural aspects and traditions of our country which have so far been preserved in the memory of the people. Preservation of traditions and culture in the memory of the scholars cannot be permanent and, in fact, we have reached a stage when our valuable traditions are fast disappearing from the life of the people. The handicap of writing the rich traditions has all along been the lack of script for the Somali language. Musa Galaal has overcome this difficulty by writing his book in English." (Galaal, Muusa H. I., 1968: ii)
61	Taiwan Hokkien		• "Taiwanese first appeared in writing in the late 19th century in a Romanisation system known as Pe̍h-ōe-jī (POJ). Since then a number of different methods of writing Taiwanese have been devised, some using the Latin alphabet, some using Chinese characters, some using Japanese kana, and others using a mixture of the different scripts." (Ager, Simon, 2013.) •"There is another aspect of the law that should be briefly mentioned, that is, contract law. While marriage in China results in the creation of a new status, it has traditionally been preceded by a contract to marry. This contract was either oral or written. If it were an oral contract, the go-between, who invariably played a role in a Chinese marriage, served a very important function

		4. Codified Laws & Punishments (Presence)	4. Codified Laws & Punishments (Absence)
			as witness to the negotiations and the final contractual agreement" (Buxbaum, David C., 1978: 223)
62	Tarahumara		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.y)
63	Tikopia		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.z)
64	Tiv		• "Writing: Latin script, used since 1936." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.)
65	Tlingit		• "There are three orthographies currently in use for Tlingit. The oldest of these is the “Revised Popular” orthography which developed in the 1970s from the now abandoned system devised by Constance Naish and Gillian Story in the 1960s. [...]. In all three systems, all unaspirated sounds occuring at the end of syllables are written with symbols for the aspirated sounds." (Ager, Simon, 2013.) •"The history of Angoon and its people seems to fall into several “periods,” represented by different types of traditions of documentations. The white man would logically divide it into at least three temporal eras: (1) prehistoric, or prior to contact with Europeans in the 18th century, and lacking written records; (2) early historic, beginning perhaps with the discovery of Alaska in 1741, or with the first venture into Angoon territory by a European; this would be covered, especially in the later decades of the 18th century, by an increasing number of reports by explorers, traders, and the Russian-American Company; (3) recent historic, a well-documented period, beginning with the purchase of Alaska by the United States in 1867 and running into the present. For the native of Angoon the divisions are not quite the same, especially since the prehistoric and early historic periods could hardly be distinguished by a people whose contacts over many years with Europeans were only brief and intermittent. It was not, in fact, until 10 years after the purchase of Alaska by the United States that close association with the white man began. Then came the founding of the station at Killisnoo and the Presbyterian Mission school at Sitka which many Angoon children attended. Thus it is only within the memory of the old people that native history and white history really run side by side. Prior to this, some episodes in native tradition can be equated with events described in written documents, but others cannot. Often temporal clues are lacking, because the modern storyteller does not know, for example, whether firearms were used in the battles he describes." (De Laguna, Frederica, 1906-, 1960: 128)
66	Tongans		• "Tongan was first written by missionaries in the early 19th century using a number of different spelling systems. The current system was promulgated by the Privy Council of Tonga in 1943." (Ager, Simon, 2013.) •"The establishment of schools with the structure of a formal educational system has been one of the most effective forces in changing the culture of the villagers from primitive to folk-culture. Nevertheless it is easy to overassess the role that literacy plays in village-life. The

		4. Codified Laws & Punishments (Presence)	4. Codified Laws & Punishments (Absence)
			large majority of the villagers are able to write the Tongan language. Most of them can read Tongan. To what use however, are these abilities put? As far as one can judge there is very little use made of writing except in the very occasional signing of one's name to some legal or government document. The writing of letters is infrequent. The attitude of the villager here is that everything can wait until personal contact is established, either by personal visiting or by the use of a visiting intermediary. Similarly, the use of reading-skills is very limited. Its principal use for most is that of reading such familiar material as Bible-lessons or church hymns. Children in school naturally use simple reading-texts with secular topics. With school-days far behind, however, the Bible becomes all-important and here one's ability to read is sometimes almost entirely limited to its use in reviving memory of key-words in sacred texts that are otherwise well-remembered but temporarily forgotten. Some households also possess the single-paged printed combination almanac-calendar issued by the government printer. The only virtue of this calendar seems to lie in its possession, not in its use. Dated days are of no significance to the villager except to mark off one Sunday from another and this function is performed equally well or better by church-bell and pulpit-announcement." (Beaglehole, Ernest, 1906-Beaglehole, Pearl, 1910-, 1941: 49) •"The following account of the origin of the name Pukotala gives a picture of the method of transmitting orders from a chief to his tenants: On the island of Haano there are four villages. Starting from the northwestern end of the island, they are Muitoa, Haano or Lotohaano, Pukotala, and Fakakakai. The lord of the island, known as Tui Haa Ngana, holds sway over the first three, but Fakakakai never had a chief and as its name indicates is made up of people from different parts that have settled there. In the olden days when the chief desired to give notice to the people of some new arrangement, he summoned his attendants and matapule to Haano and told them what he wanted accomplished. A runner was dispatched to Pukotala to acquaint the folk there of Tui Haa Ngana's intentions. On the outskirts of the village was a big puko tree (“cottonwood”) and up this the runner used to climb and yell out at the top of his voice his chief's wishes. It was from this circumstance that the place derived its name: puko, cottonwood tree; tala, to tell." (Gifford, Edward Winslow, 1929: [n.p.]) •"In Tonga the genealogies of the great chiefs seem not to have been kept by the priests. These great genealogies were in the custody of the elderly woman of chiefly rank who memorized them and taught them to the young chiefs. With the adoption of writing, this custom of learning genealogies by heart has fallen into disuse. It is said that the women who were the repositories of the genealogies often discussed them among themselves and thus refreshed one another's memories. The genealogy which was supplied to me by the Queen of Tonga was set down from memory by the Tamaha Amelia with the aid of the chief named Shadrach Mumui. As soon as these two learned to write they decided to record the genealogies of the great

		4. Codified Laws & Punishments (Presence)	4. Codified Laws & Punishments (Absence)
			chiefs and this record which was begun more than 75 years ago has been continued down to date." (Gifford, Edward Winslow, 1929: 232) •"Most of the chiefs are young men who could make themselves understood in English, and when we asked them the names of the different islands, many of them would take a slate and write them down, some agreeing to a letter with Captain Cook's account, this they have learnt from the English missionaries, three of whom are settled here, and who to my astonishment, informed me they had begun to teach the natives writing only five months ago, and in that time they had completely exhausted their stock of Tonga literature, and were now learning English of their own. (Laws 1829)" (Lātūkefu, Sione, 1974: 56) •"When George Tubou became king in 1845 his people were in the white-heat of a conversion to Christianity. The missionaries had taught them to read and write, and to pass a simple code of law. They had imbued them with envy of the dignity of civilised States,—their law courts, their police, the uniforms and salaries of their officials, and their other blessings of civilisation—including taxes. All these the Tongans might have if they were shown how to begin. For years there was no one to direct their nascent aspirations. Their teachers had no enterprise, and devoted themselves to the spiritual rather than the temporal needs of their flock; but at last with the necessity came the man." (Thomson, Basil Home, 1894: 2)
67	Toradja		• "The litany of the priestesses is all in poetic style; the poetic form is indeed the only one in which formulary pieces can be preserved among peoples who are not familiar with written language, because in this way a very great measure of immutability is guaranteed. The rules of the meter are strict, four feet of two syllables, now recited as iambic, then as trochaic. For example: Oentoëmo kawalekoe, “a distant journey I have made,” 122 Awarimo kajanokoe “I have made a trip far away,” and Banja boeja meronangi, “I have to gain it from my sarong.” They are almost always parallelistic; hence the great need for alternate words which are sometimes again formed artificially, by dividing a word in two, for example, and then replacing one half by a synonym, as if, for example, in Netherlandish one were to interchange a word like gemak /”ease”/ with getam, because mak /”tame”/ and tam /”tame”/ are synonymous. " (Adriani, Nicolaus, 1865-1926; Kruijt, Albertus Christiaan, 1951: 619)
68	Trobriands		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.{)
69	Tukano		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.a)
70	Tzeltal		• "Tzeltal [latinate] alphabet" (Ager, Simon, 2013.)
74	Warao		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.b) •"In the absence of written records, the establishment

		4. Codified Laws & Punishments (Presence)	4. Codified Laws & Punishments (Absence)
			of an absolute chronology for a bogland population is wrought with uncertainties. But at the time of Level's report on the Missions of Guyana (1850:1–17), in the mid-nineteenth century, no permanent settlement existed as yet along the banks of the Winikina proper. Genealogical information substantiates this fact and indicates that this situation prevailed until 1928." (Wilbert, Johannes, 1980: 14)
72	Wolof		• "Although important as a trade language in West Africa since the early period of European contact, Wolof has no significant literary tradition. It has been written occasionally in Arabic and Roman letters, but systematic instruction in Romanized Wolof was begun only in the 1960s." (Coulmas, Florian, 1999)
73	Yanoama		• "Determining the age of people in anthropological or nonliterate populations poses a difficult and frequently impossible problem. It is one of the principal reasons for the relatively few demographic analyses of population dynamics in anthropological literature. Age as a measure of a life span assumes a unit of measurement and a counting system, both of which are cultural conventions. Western societies employ the cyclical relationship between the earth and the sun to measure time and they also use a unitary counting system which can handle the smallest to the largest numbers. By contrast, the Yanomama employ the cyclical relationship between the moon and the earth for their [Page 54] infrequent measurements of time. Their counting system identifies only three measured units--one, two, and a residual category “many,” which simply means more than two. Individuals do not know their age because there is no need for it, and there are no written records. The difficulties of estimating age exclusively from physical appearances are well known, especially in a culture alien to the investigator." (Early, John D. Peters, John F., 1990: 53) •"Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.c)
74	Yukut		• "Yakut first appeared in writing in 1692 as part of a book by the traveller N. Witsen and published in Amsterdam. The first literary work in Yakut Reminiscences by A. Y. Uvarovsky and its German translation was published in 1851 as a part of Otto N. Böhtlingk's work About the Yakut language. Böhtlingk used an alphabet based on Cyrillic with some special characters. Between 1922-1939 a version of the Latin alphabet devised by S.A. Novgorodov was used to write Yakut, and since 1939 the Cyrillic alphabet has been used." (Ager, Simon, 2013.) •"Yakut oral histories begin well before first contact with Russians in the seventeenth century. For example, OLONKHO (epics) date at least to the tenth century, a period of interethnic mixing, tensions, and upheaval that may have been a formative period in defining Yakut tribal affiliations. Ethnographic and archaeological data suggest that the ancestors of the Yakut, identified in some theories with the Kuriakon people, lived in an area near Lake Baikal and may have been part of the Uighur state bordering China. By the fourteenth century, Yakut

		4. Codified Laws & Punishments (Presence)	4. Codified Laws & Punishments (Absence)
			ancestors migrated north, perhaps in small refugee groups, with herds of horses and cattle. After arrival in the Lena valley, they fought and intermarried with the native Evenk and Yukagir nomads. Thus, both peaceful and belligerent relations with northern Siberians, Chinese, Mongols, and Turkic peoples preceded Russian hegemony. When the first parties of Cossacks arrived at the Lena River in the 1620s,. Yakut received them with hospitality and wariness. Several skirmishes and revolts followed, led at first by the legendary Yakut hero Tygyn. By 1642 the Lena valley was under tribute to the czar; peace was won only after a long siege of a formidable Yakut fortress. By 1700 the fort settlement of Yakutsk (founded 1632) was a bustling Russian administrative, commercial, and religious center and a launching point for further exploration into Kamchatka and Chukotka. Some Yakut moved northeast into territories they had previously not dominated, further assimilating the Evenk and Yukagir. Most Yakut, however, remained in the central meadowlands, sometimes assimilating Russians. Yakut leaders cooperated with Russian commanders and governors, becoming active in trade, fur-tax collection, transport, and the postal system. Fighting among Yakut communities decreased, although horse rustling and occasional anti-Russian violence continued. For example, a Yakut Robin Hood named Manchari led a band that stole from the rich (usually Russians) to give to the poor (usually Yakut) in the nineteenth century. Russian Orthodox priests spread through Yakutia, but their followers were mainly in the major towns. By 1900 a literate Yakut intelligentsia, influenced both by Russian merchants and political exiles, formed a party called the Yakut Union. Yakut revolutionaries such as Oiunskii and Ammosov led the Revolution and civil war in Yakutia, along with Bolsheviks such as the Georgian Ordzhonikidze. The consolidation of the 1917 Revolution was protracted until 1920, .in part because of extensive opposition to Red forces by Whites under Kolchak. The Yakut Republic was not secure until 1923. After relative calm during Lenin's New Economic Policy, a harsh collectivization and antinationalist campaign ensued. Intellectuals such as Oiunskii, founder of the Institute of Languages, Literature and History, and Kulakovskii, an ethnographer, were persecuted in the 1920s .and 1930s. The turmoil of Stalinist policies and World War II left many Yakut without their traditional homesteads and unaccustomed to salaried industrial or urban work. Education both improved their chances of adaptation and stimulated interest in the Yakut past." (Balzer, Marjorie Mandelstam, 2)

		5. Criminal Records (Presence)	5. Criminal Records (Absence)
1	Akan		• "Akan languages started to be written down, mainly in religious publications, by Danish, German and British missionaries during the 17th and 18th centuries. There are currently three standardized orthographies for Asante, Akuapem and Fante, there is also a unified Akan orthography which was created during the 1980s. " (Ager, Simon, 2013.) •"The initial processes applicable to civil, oath, accused or criminal summonses have already been described. In order to meet the clerical service required for these forms, there is attached to the important Tribunals a Registrar's office where summonses and all the other processes are taken. The Registrar has charge of the cause list and the Record Books. In Akim Abuakwa the tribunal sits for five days in the week, Wednesday being excluded by the “Awukudae” custom, and Sunday by the British connexion and other Christian influences. Sittings of Tribunal last for about 6 to 10 working hours each day, and the Omanhene, as responsible judge, is always expected to be present throughout the day's sitting. We have already described the constitution of the Tribunal as consisting of the Omanhene, his Linguists, his four principal Executive Chiefs, the Queen-Mother, the non-Stool owning Elders and Councillors (including in the latter term the Christian Elders and Presbyters). The Tribunal is summoned by the “Kantamanto” or “woni-mini” drum (q.v.) and on the Omanhene taking his seat at the third beating of the drum, the Registrar proceeds to deal with his cause list." (Danquah, J. B. (Joseph Boakye), 1928: 97) •"Owing to the fact that writing was unknown until our contact with Europe, the processes of arrest and summons were carried on by set forms of verbal instruction or order. A chief despatching a State messenger or Ahenkwa to arrest a criminal provides him with a State emblem, such as a gold sword, and issues his instruction to him through an Okyeame in some such words as the following: “ Mate se Kwaku Kuma Akoton Amanyakurom asase a minnim ho fwe, enti k okyere no br e me”, “Information has reached me that Kwaku Kuma has sold Stool Land attached to the town of Manya without my knowledge and consent, therefore I hereby order you to arrest and bring him to me.” This formula differs slightly from that used in the case of accused summons: The Ahenkwa is provided with a State emblem, and the order is as follows: “ Mate s e Kwaku Kuma as ee Ntam enti h o h ofa no bre me”, “Information has reached me that Kwaku Kuma has abused the national oath (by swearing it against an improper person or on an improper occasion) therefore go and bring him before me.” In a ci[illegible] or oath summons the formal words are usually as follows “ Kwadjo Kotto se onè Kwaku Kuma wo nkuro (anase ake[illegible] ntam) enti kohyia no bra.” “Kwadjo Kotto alleges a claim (or an oath case) against Kwaku Kuma therefore go and invite the latter to come before me.” After the introduction of writing and British jurisdiction all these formulæ were replaced by printed forms in accordance with the regulations of the Native Jurisdiction Ordinance." (Danquah, J. B. (Joseph Boakye), 1928: 90) •"Twi is a tonal language and, since missionary work during the eighteenth and nineteenth centuries, has been written in Roman script." (Gilbert, Michelle, 1994: 11)

		5. Criminal Records (Presence)	5. Criminal Records (Absence)
2	Andamans		• "No marks on rocks, trees or other objects, made for purposes of record, are believed by them to exist, and, with the exception of the supposititious hieroglyphics, hereafter to be mentioned, nothing of the nature of writing is to be found among these tribes, nor have they any method of recording the name and exploits of a deceased chief or other individual who may have gained distinction during his life, save the narration --more or less garbled--of the same by their admiring descendants. The messenger who conveys intelligence to a distant encampment bears no outward token with him to testify to the authenticity or character of the communication he has to make." (Man, Edward Horace, 1932: 46)
3	Aranda		• "The socio-historical development of literacy in Arrernte : a case study of the introduction of writing in an aboriginal language and the implications for current vernacular literacy practices" (Kral, Inge, 2000.: 1)
4	Aymara		• "The Aymara originally used a collection of symbols, mainly pictures of people or things, as a mnemonic device. The symbols represented the things they portrayed or similar sounding words but never developed into a complete writing system. The symbols were originally written on animal skins using plant or mineral pigments but paper was substituted after the arrival of the Spanish in the 16th century." (Ager, Simon, 2013.)
5	Azande		• "Often, the chiefs ruled territories too extensive or too populated to permit direct relations to be established between them and their bakumba. They then delegate their powers to brothers, or sons, who in practice, do not remain attached to the central authority except through a contract of allegiance, vaguely feudal in nature. At the same time that it expands, the Azande chiefdom prepares within itself, the lines of least resistance, where the break will occur upon the disappearance of the chief. The great feudatories claim the right to total independence: almost inevitably, the struggle for hegemony will break out between them. It is this process of administration, required by the impossibility of administering at a distance, for lack of a means of written communication, which brings about the ruin of all the Azande empires which have succeeded. [Page xxii-xxviii(d)] Good for conquest, and for extension of the race, the Azande organization is incapable of constructing a centralized and durable empire." (Calonne-Beaufaict, Adolphe de, 1921: xxii) •"Writing: Latin script, used in Democratic Republic of Congo." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.)
6	Bahia Brazilians	• "The statistics released by the Bureau of Identification of the police of the Bahia confirm these data. The physical characteristics of 273 persons registered during several months of 1950 as merchants or employees of commercial firms were the following: One sees that among the merchants the majority is white; among the employees in commerce the majority is colored. This is explained by the fact that the profession of merchant is one in which the Whites predominate (1) in part because social ascent in this sector depends on financial possibilities.	

		5. Criminal Records (Presence)	5. Criminal Records (Absence)
		The informants in general could with difficulty mention the name of more than three or four colored persons having a notable position in commerce. Nevertheless, the names of some dark merchants who have occupied important offices in the Trade Association and in other important social institutions are mentioned." (Azevedo, Frieda, 1953: 67)	
7	Banyoro		• "Reading and writing were first used in Uganda by Arab traders from around 1844. Although the Arabs were the first to introduce written information (texts) in Uganda, they did not make any effort to teach reading and writing in Arabic outside the practice of the Islamic faith (Ssekamwa, 2000.). Literacy in the Roman alphabet was introduced into Uganda by Christian missionaries in the late 19th century. The first to arrive were the Anglican Church Missionary Society from England in 1877, followed by the Catholic White Fathers' Society from France in 1879. Both groups came with a mission to 'civilise', using religion and education. Literacy was therefore initially introduced into Uganda as an integral part of Christian religious practices, making Christianity the first social and institutional framework within which literacy found meaningful use in everyday life in Uganda. By embracing the Christian faith, the local people embraced a literate culture involving the use of the Bible, prayer books, hymn books and other religious texts (Byakutaga & Musinguzi, 2000.; Onono-Onweng, Holmes & Lumumba, 2004.; Ssekamwa, 2000.). Wherever the missionaries went, their first task was to learn the local languages, develop orthographies for that particular language, and translate and print Bibles, prayer books and hymn books in that language. The missionaries emphasised the use of local languages in their literacy work, which gave local languages status and acceptability within church practices. Initially literacy was taught directly in relation to Christian instruction and the preparation of new converts (Byakutaga & Musinguzi, 2000.; Parry, 2000.b). New converts, in the Anglican Church in particular, were inducted into the Christian faith through reading and writing biblical texts. Becoming a Christian often became closely associated with becoming literate. The Anglicans emphasised reading of the Bible by individuals themselves. Therefore, before the establishment of schools, reading was taught as a precondition for becoming an Anglican Christian. The Catholics on the other hand emphasised rote learning of prayers and religious doctrines printed in other Catholic literature and did not require learning how to read and write as a precondition, although they also conducted some literacy classes (see Byakutaga & Musinguzi, 2000.; Parry, 2000.a)." (Lyster, George Openjuru; Elda, 2007.: 99-100)
8	Bemba		• "The spelling of Bemba was standardised between 1972 and 1977 by the Zambian Ministry of Education." (Ager, Simon, 2013.) •"WritingBraille script. Latin script, primary usage." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.) •"The oral tradition redacted by homeostasis. There are innumerable changes in any living culture over time, but an oral culture does not have the technology for the

		5. Criminal Records (Presence)	5. Criminal Records (Absence)
			intellect to understand them as mutations. There is an oral tendency towards [Page 111] cultural homeostasis (Cf Ong 1982, 46-9). This process is impelled by the social function of memory, which stores only what is socially relevant and conveniently forgets all else in a “structural amnesia” (Goody 1977, 14; 1968, 307-09). New constituents of the cultural heritage are adapted to the old, as the people strive after meaning by harkening after their normative past. The result is that the oral Bemba have little perception of the past except in terms of the present (Richards 1960, 179). They lack writing as a mechanism, by which they could build up a body of chronologically ordered statements to compare with their present views (See above, 85ff). Any present adjustments to the tradition will be gradually introduced as having always been so conceived, convincing the people that the new is in fact part of the true, venerable version of the tradition. Oral transmission, as a performance, then, is not a mechanized memorization but an imaginative process of continuous creativity (Ong 1982, 57-68). It reconstitutes and transfers elements within the latitude of the tradition (Goody 1977, 116-17). An oral tradition is never “an inert acceptance of a fossilized corpus of themes and conventions,” but represents an “organic habit of recreating what has been received and handed on” (Lord 1964, xiii). Tradition is actually more of a process (traditio) than a product (tradita). Thus, even the successful debut of the Christian rendition of Lesa could be construed as due to this oral propensity to conceive of contemporary developments as “having always been so” in the tradition." (Maxwell, Kevin B. (Kevin Burns), 1941-, 1983: 110)
9	Blackfoot		• "The Blackfoot syllabary was devised by John William Tims (1857-1945), an Anglican missionary from England who spent 12 years from 1883 to 1895 among the Blackfoot people in the North-West Territories of Canada (now Alberta). " (Ager, Simon, 2013.)
10	Bororo		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.e)
11	Bosnian Muslims	No Data	No Data
12	Central Thai	• "Registration of population is a normal course for governments seeking to collect taxes and apprehend criminals, but few governments seek to tattoo or brand anyone except a criminal, for whom special surveillance is necessary. Vagrancy is a misdemeanor in many countries; a vagrant without satisfactory identification may be arrested and investigated; but rarely is lack of proper identification per se a crime punishable by permanent attachment to the government as a royal slave (th[unavailable]t luang) or to some official as a bondsman (phraj som) (Wales 1934:53; Rabibhadana 1969). Only under most unusual circumstances does a governor order soldiers to comb the backwoods and hill tracts for a harmless few who have decided to live apart from others. Most	

		5. Criminal Records (Presence)	5. Criminal Records (Absence)
		societies deem it a privilege for a person to [Page 82] live among its people and enforce exile or imprisonment on the delinquent few. But not Thailand. Exile was nonexistent and delinquents were killed." (Sharp, Richard Lauriston, 1907- Hanks, Lucien Mason, 1910-, 1978: 81)	
13	Chuuk		• "Missionaries devised a way to write Chuukese using the Latin alphabet during the 19th century. In the 1970s linguists modified the missionaries' system with the addition of the accented letters." (Ager, Simon, 2013.) •"Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.f)
14	Croats	• "Adjudication of civil and criminal law go through Supetar courts. The four grades of courts are as follows: first level is the commune; second, the District Court (Split); third, the Republic (Zagreb); and the fourth level is the Federal (Belgrade). Only questions on the constitutionality of a law are appealed to the fourth grade. All adjudications go through the first court at the commune level with a right of appeal to the district court and then to the Republic court. Adjudications are divided into civil and criminal, and there is a separate judge for each of these on the commune level, as in Supetar." (Bennett, Brian Carey, 1974: 73)	
15	Dogon		• "Writing: Unwritten." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.b)
16	Garifuna		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.g) •"The town, district, and national governments now regulate many aspects of individuals' lives which were previously dealt with by institutions within the ethnic collectivity or the extended family. For example, Punta Gorda now has a relatively large police force and arrests, though not frequent, do occur. The most common causes for arrest in 1979 and 1980, in approximate order of frequency, were use of indecent language, assault, housebreaking, stealing, rape, and indecent assault. With the growth of the marijuana 'industry' in the Toledo District, there appears to be an increasing number of arrests connected with the sale of marijuana." (Staiano, Kathryn Vance, 1986: 92)
17	Garo		• "Brief lists of Garo words were compiled by British officials in 1800, and Garo acquired a Latin-based spelling system during the late 19th century. This was devised by American Baptist missionaries and based on a northeastern dialect of Garo. A version of the Bengali alphabet is sometimes used to write Garo in Bangladesh. Garo publications include some collections of stories, weekly newspapers, school books, dictionaries and religious works, including the bible. People use the language for private correspondence and some signs." (Ager, Simon, 2013.)

		5. Criminal Records (Presence)	5. Criminal Records (Absence)
18	Guarani		• "Guaraní is one of the offical languages of Paraguay, along with Spanish, and started to appear in writing in the form of religious texts during the 18th century. [...] The Guaraní alphabet shown below was introduced after a Guaraní language congress in Montevideo, Uruguay. The idea was to take the spelling of Guaraní away from the Spanish model." (Ager, Simon, 2013.) •"The process of alphabetization in the mission schools, the translation of ideas of the dominant culture into the native language, particularly catechisms, was a powerful force of cultural domination. Catholic values and concepts were more easily transmitted to the Indians through catechism books and the repetition of sermons by the Indians as directed by the Jesuits. Although learning to read and write in their native language was part of the process of indoctrination, by becoming adept writers in their native language and learning mathematics, some of the Guaraní mission Indians could also keep track of their community property, better conduct their daily affairs, keep town council records, make financial transactions, and communicate with one another despite the long distances between missions. The Jesuit missions had one of the first printing presses in the Rio de la Plata. A number of native and Jesuit authors published their works at the missions of Santa Maria La Mayor and San Francisco Xavier during the early eighteenth century. These included the works by Father José Serrano, S.J., De la diferencia entre to temporal v lo eterno, Crisol de desenga[unknown]nos, con la memoria de la etermidad (1705), which included forty-three illustrations by a mission Indian, Juan Yapari: Paul Restivo, S.J., Explicación del catecismo de Nicolás Yapuguay (1722), Father Antonio Ruíz de Montoya's Vocabulario de la Lengua Guaraní ...(1722), Arte de la Lengua Guaraní with notes by Father Restivo (1722); and Casique Nicol[unknown]as Yapuguay's Explicaci[unknown]on del Catecismo en Lengua Guaraní (1724) and Sermones v eiemplos en Lengua Guaraní (1727). Basildes Britez Fari[unavailable]a, Hist[unknown]oria de la cultural guaraní (Asunción, n.p., 1988), 17-19. No ethnohistorian or linguist has studied these rare native catechisms to understand the process of evangelization of the Guaraní mission Indians during the Jesuit period. These works have been neglected because so few scholars of the Guaraní language can read the classical Guaraní of the Jesuit missions.: It is nearly impossible to assess how many or what [Page 132] percentage of the Guaraní mission Indians became literate. Literacy was not always confined to members of the native elites. According to the available historical evidence. Guaraní mission Indian fugitives, most of whom were peons, living in Buenos Aires and Santa Fe in the mid-1750s, kept in touch with events in their mission towns "through the letters they received" from other mission Indians. 33: Bernardo Nusdorffer, S.J. "Segunda parte de los sucedido en las Doctrinas despues que salió de ellas el Pe. Luis de Altamirano para Buenos Ayres..." 1753, BNRJ, Se[unknown]c[unknown]ao de Manuscritos, Roll 31846. Defensa de los Jesuitas 1.2.3.4. Guerra de los Guaranies, 8.2.25, folio 17.: Unlike the Maya, Mixtec, Nahua and other indigenous people in Mesoamerica, the Tupi-Guaraní and other tropical lowland South American Indians had no precolonial tradition of writing. The Guaraní literary tradition is similar to that of postconquest developments in colonial Mexico among the Nahua in that missionaries learned the native

		5. Criminal Records (Presence)	5. Criminal Records (Absence)
			languages, and then a whole native literature came into being, including dictionaries, grammars, catechisms, collections of sermons, and other writings. 34 : Frances Karttunen, “Nahuatl Literacy,” in The Inca and Aztec States, 1400-1800: Anthropology and History edited by George A. Collier, Renato Rosaldo, and John D. Wirth. (New York and London: Academic Press, 1982): 395-417.: The Guaraní mission musician and chief, Nicolás Yapuguay, authored a few religious texts published in the native language using the mission printing presses. His works include Explicación de el catechismo en lengua guaraní, Sermones y exemplos en Lengua Guaraní and Tábua dos graus de parentesco en guaraní . Bartomeu Melià, Marcos Vinicios de Almeida Saul, and Valmir Francisco Muraro. Q Guaraní , 339. These texts deserve further attention by the few scholars who are able to read classical Tupi-Guaraní. Only parts of the text. Explicaci[unknown]on de el catechismo en lengua guaraní , are available at the Archivo Provincial de Buenos Aires de la Compa[unknown]nia de Jesus.: These works are discussed in more detail in Chapter Five." (Ganson, Barbara Anne, 1994: 131) •"Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.h)
19	Hausa	• "There are a number of other official roles performed by persons employed by the sous-préfecture . The adjoint acts for the sous-préfet when the latter is absent. Yusufù, the present bookkeeper, is also treasurer and clerk to the sous-préfecture . Zuuzùu is the judge who handles all criminal cases taken to him from villages. Finally, the arrondissement police enforce compliance with directives emanating from the sous-préfecture . Enforcement sanctions include threats of imprisonment, lashings, and fines. Often in village moots, when defendants fail to pay their fines, they are threatened with being sent to the police. While I was living in Tudù, this tactic always produced quick payment, as the police have a reputation for physical brutality." (Faulkingham, Ralph Harold, 1971: 56)	
20	Highland Scots	• "Serious crime is rare in the island, though it was not always so. Some light on the life lived in Lewis nearly two centuries ago is found in the old records of the Sheriff Court of Ross County. The first minute in the records concerns the appointment of George Munro, Writer in Dingwall, as the first Sheriff Substitute ‘within the Island of Lewis’. The date is 1788. Munro's commission empowered him to sit ‘in the town of Stornoway or anywhere else he may find most eligible at the time within the said Island of Lewis and hold Sheriff courts there, judge, decide and determine in all causes civil and criminal coming before him.’ In those days a case might be raised in any of the county courts. In 1788, a regulation was made to save defenders from unnecessary trouble, hardship and expense in travelling to relatively distant courts where actions were raised against them; litigants had, before Munro's appointment,	

		5. Criminal Records (Presence)	5. Criminal Records (Absence)
		been faced with a long and hazardous journey to either Dingwall or Tain on the Scottish mainland." (Thompson, Francis G., 1973: 151)	
21	Hopi		• "Hopi is an Uto-Aztecan language spoken by approximately 5,000 people in northeastern Arizona in the USA. Although there are relatively few speakers, the language is still being passed on to children and about three quarters of the Hopi people speak Hopi as a native language. There are four main varieties of Hopi: First Mesa or Polacca, Mishongnovi or Toreva, Shipaulovi or Sipaulovi, and Third Mesa or Oraibi. They were identified by Benjamin Whorf, who was the first to analyse the Hopi language and who focused on the Mishongnovi variety. There is a Hopi-English dictionary edited by Emory Sekaquaptewa, and the language is promoted by the Hopi Literacy Project." (Ager, Simon, 2013.) •"Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.j) •"Marriage customs have been drastically modified. Early in the century an occasional Hopi couple was persuaded to go through a “White” ceremony, at the insistence of a missionary, school superintendent, or government official. Now it is customary for couples voluntarily to have a “White” civil or religious ceremony before entering into the protracted rites of a Hopi wedding. 4: 4. For a study of the traditional marriage ceremony at Oraibi, see H. R. Voth, “Oraibi Marriage Customs,” American Anthropologist, vol. 2, no. 2 (1900).: Go to end note pageThis change of custom does not necessarily indicate conversion but is based on a desire for official written records, since the Hopi have no writing. The people realize that documented weddings make it harder than was earlier the case to get a divorce. On the other hand, women, especially, feel that possession of written records simplifies numerous dealings with the American government. For example, legal documents make it easier for wives to get money allotments if their husbands go into the armed services, and women with official papers stand a far better chance of getting financial support in the event of divorce." (Titiev, Mischa, 1972: 328)
22	Iban		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.k)
23	Ifagao		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.l)
24	Igbo		• "But this view would not be entirely correct or fair. The Committee and the Society were concerned to minimize the number of radical changes to be introduced into the writing of the Language. The new symbols introduced by the new Africa orthography, as already said, required the manufacture of special [Page 370] typewriters for use in typing in Igbo language. This its opponents considered unduly expensive. Though it must be pointed out, that if the new script had been adopted for writing all African languages as originally suggested, the cost of such typewriters would have been greatly reduced. Also, argued the members of the S.P.I.L.C., the new characters of the Africa orthography made it impossible to send messages in the Igbo Language by teleprinter. In this regard, however, one may ask whether this can now be

		5. Criminal Records (Presence)	5. Criminal Records (Absence)
			done using the □nw□ orthography which uses more diacritic marks than are found in the standard Latin alphabet used in teleprinters. Whatever the case, however, the Government accepted the □nw□ Orthography and imposed it on all and sundry. With this the old and the new Africa orthography disappeared from the scene. This shows what could have been achieved if in those early days there had been a government that felt strongly enough on the matter and that came out with a firm decision on the two vexed questions of literary dialect and orthography." (Afigbo, A. E. (Adiele Eberechukwu), 1981: 369) •"The Igbo, like many of their neighbours, did not evolve an indigenous script with which to reduce their language to writing before the advent of European rule. Nor did their territory lie within the area of West Africa which was influenced by Islam and the Arabs who spread the use of the Arabic script as they went. For a time in this century scholarly attention was drawn to Nsibidi, an indigenous sign-writing which flourished on the Cross River basin and in the Eastern Igbo area. This has not been studied in detail, but its use was severely limited. Though it served important functions, as will be shown below, it did not evolve into a script for writing indigenous languages in the same way as the Roman or Arabic script did. As a result in the nineteenth century the missionaries found themselves faced with a tabula rasa as far as reducing Igbo language to writing was concerned. This problem was in no way limited to Igbo. It was one which the missionaries faced in most of Africa and Asia. Not surprisingly they sought a universal solution to this widespread problem. For the Igbo this global approach to the problem in time turned out to be unfortunate." (Afigbo, A. E. (Adiele Eberechukwu), 1981: 365)
25	Iran	• "Modern Persian is a continually evolving language that began to develop about A.D. 900. Following the Arab conquest of the Sassanid Empire in the seventh century and the gradual conversion of the population to Islam, Arabic became the official, literary, and written language, but Persian remained the language of court records. Persian, however, borrowed heavily from Arabic to enrich its own vocabulary and eventually adopted the Arabic script. In subsequent centuries, many Turkic words also were incorporated into Persian." (Hooglund, Eric J. Library of Congress. Federal Research Division, 1989: 84) •"There was an important change in the Safavid period in the position of the qā□īs and the jurisdiction of □urf or customary law courts. Already under the Seljūqs the religious institution had been incorporated into the general structure of the state, but it was not till Safavid times that the sharīa courts and the qā□īs were made subordinate to the temporal powers as represented by the □urf courts and the semi-military hierarchy under the dīvānbegī. 8 Chardin states that the qā□ī's influence had been diminishing for several centuries. Minorsky suggests that the diminution in his [Page 122] powers had been achieved by	

		5. Criminal Records (Presence)	5. Criminal Records (Absence)
		creating the offices of the □adr and Shaykh ul-Islām.1 The dīvānbegī, moreover, controlled all sharī□a courts and acted as the executive power for the decision of the sharī□a courts.2 Chardin maintains that there was no conflict of jurisdiction between the written (i.e. Qur'anic law) and customary law (i.e. □urf), because 'the latter being the stronger prevailed over the other without the least resistance'.3 Criminal justice was according to Chardin entirely outside the jurisdiction of the sharī□a courts.4" (Lambton, Ann K. S., 1912-, 1953: 121) •"Gradually, under Ri□ā Shāh, changes were brought about in local administration; in some cases the nature of this change was merely to give the force of law to what had been merely □urf or customary law before. On 20th. Ā□ar 1314 (December 1935) the law concerning kadkhudās (village headmen) was passed. According to this law, the kadkhudā was the representative of the landowner and was responsible for the execution of laws and regulations referred to him by the government (art. 1). In each village or group of villages a kadkhudā was to be appointed (art. 2). In khāli□eh land he was to be recommended by the local Finance Office, in vaqf land by the mutavallī or his representative, in large landed properties by the landowner, and in villages owned by several persons by those who owned the greater part of the property, to the governor or deputy-governor of the district, who would issue his order of appointment (art. 3). The qualifications for a kadkhudā were Persian nationality, a clean record, a reputation for honest dealing, trustworthiness and capability, residence in one of the villages in the area over which he was to be appointed, and that he should carry out some cultivation in the area (art. 4). The kadkhudā was to oversee agricultural affairs in accordance with the orders of the landowner. He could decide minor cases in the villages up to 50 rs. (approx. 5s. 10d.). He was to prevent disputes breaking out among the people; if and when they broke out he was to settle them, as far as possible by conciliation (art. 7). He was, in accordance with art. 23 of the Law for Criminal Trials, to prevent the flight of accused persons and the destruction of evidence, and was to report his actions as quickly as possible to the nearest gendarmerie post or deputy-governor (art. 8). If there was a delay of over fifteen days on the part of the landowner or landowners in recommending a person to be kadkhudā, the governor would appoint someone (art. 10). If the kadkhudā showed negligence in agricultural affairs he could be dismissed on the demand of the landowner or landowners (art. 11)." (Lambton, Ann K. S., 1912-, 1953: 189)	
26	Iroquois		• "Oneida alphabet [from Latin]." (Ager, Simon, 2013.)

		5. Criminal Records (Presence)	5. Criminal Records (Absence)
27	Jivaro		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.m)
28	Kanuri	• "In the area of formal law, the Kanuri follow the same legal school prevalent throughout the Western Sudan--the Maliki legal school. Maliki law covers criminal law, rules of evidence, procedure, sentencing, property rights, contracts between individuals, law of marriage and divorce, inheritance and numerous other areas. Formal courts exist in Bornu, presided over by Kanuri Alkalis, or judges. The Alkali begins his training, like so many Kanuri boys, by study of the Koran with a Malam. He completes his training, at present, in the Legal School at Kano. Islamic law in Northern Nigeria falls within the general area of “Native Law and Custom.”" (Rosman, Abraham, 1966: 47)	
29	Kapauku		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.n)
30	Khasi		• "In recent centuries, under Islamic influence, the Arabic script has become the written vehicle for some South Asian langauges [...], and under still more recent European influence, the Roman script has been introduced for still others (*e.g.*, Konkani, some Austro-Asiatic languages such as Khasi [....])." (Salomon, Richard, 1996: 372)
31	Klamath		• "A number of methods of writing Klamath have been devised by linguists, such as Albert S. Gatschet, who published a dicionary, grammar and texts during the 1870s, and M.A.R. Barker who did the same during the 1960s, and by tribal elders. Barker's system most accurately represents the sounds of the language." (Ager, Simon, 2013.)
32	Kogi		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.o)
33	Korea	• "The Law Department attended to the making and mending of the laws, and closely connected with it was the Bureau of Police, which, although looking after the peace of the capital, carried out the requests of the Law Department in the matter of the detection and apprehension of criminals. The Police Department could do no more than carry on the preliminary examination of suspects, but for full trial and conviction it had to turn them over to the Law Department. " (Hulbert, Homer B., 1906: 47-49)	
34	Kuna		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.p)
35	Kurds	• "In civilized society, in contrast to primitive, membership is not held to be based on descent but on residence and property relations, and	

		5. Criminal Records (Presence)	5. Criminal Records (Absence)
		this form of society is represented by the state. This does not mean that the state does not use the primitive terminology, for, out of numerous examples, one might remember the insistence of the National Socialist government of Germany prior to the second World War on "blood" and "race." Of greater importance, the state has a different system of economy, because, depending on its constitution, it defines its resources as its own, as the personal property of its citizens, or both. The state in this sense is not a newcomer to Iraq, inasmuch as some of the earliest examples known in history were developed there, but, at least for some centuries, it has been a stranger to Kurdistan. It has been seen how, in the Rowanduz area, it has taken a large part in the administration of life. Youths are recruited to the army, not to the following of a chieftain, and the military forces and the police have the task of regulating public order. Matters of civil and criminal law are decided in its courts, and the important matters of inheritance, marriage, and divorce require its authorization. Students may, if they are able, study in its schools and the sick can avail themselves of its medical facilities. Perhaps more importantly, it has insisted on the classification of land, holdings belonging [Page 342] to the state, private persons, and the Islamic faith, and the regular collection of taxes. If the land is unregistered, it prefers to obtain the revenue directly from the users, and, if privately owned, from its legal holders. The Arab government of Iraq cannot be said to be a model of efficiency, but it has quantitatively superimposed an administration far different from that of the Turks or the chieftains." (Masters, William Murray, 1953: 341)	
36	Lau Fijians		• "David Cargill (1809-1843), a [S]cottish missionary and pioneer in the study of the Fijian Language, devised a way of writing Fijian with the Latin alphabet based on the Ba'u (Bauan) dialect." (Ager, Simon, 2013.) •"Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.q)
37	Lepcha	No Data	No Data
38	Lozi		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.r)
39	Maasai		• "There is a Maasai dictionary, a Maasai translation of the Bible [in a Latinate script], and a few other publications, but generally the language is not used in writing very much." (Ager, Simon, 2013.) •"Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.d)
40	Mataco		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.s)

		5. Criminal Records (Presence)	5. Criminal Records (Absence)
41	Maya		• "The principal use of literacy is to communicate formal information, as was the case in 1931. Many communications from offices of state or national government now arrive in Chan Kom, by mail, and not a few must be answered. The civil registrar, of course, enters his official records in blank books provided by the government. The hearing of a criminal charge or legal claim requires the making of official documents. Besides this increase of the use of literacy, for such official purposes, there is an increase of personal mail. Several letters of private correspondence arrive every week, and several go." (Redfield, Robert, 1962: 142)
42	Mbuti		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.t)
43	Mentawaians		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.u)
44	Mongol	• "The circumstance that the full text of the Yassa has not come down to us is satisfactorily explained in general by the non-existence of printing at the time and particularly by the absence of a Mongolian written language.16 : 16 At that time the Mongols used Uigur and Chinese graphic signs. From the 1269 they used square characters, and only from 1911—the modern writing. See Laufer—"Outline of Mongolian Literature", 1927, p.19.: The non-inclusion of the Great Yassa in the codification of the Yuan dynasty is fully explained by fact that Jenghiz Khan neither was nor had ever been a Chinese emperor, nor was the [Page 30] Yassa a collection of Chinese law. The contradiction with regard to the Yassa met in the works of foreign authors may be elucidated by the fact, that, printing being unknown, all the information about it was obtained through oral transmission, often at second and even third hand, the only written copies of the Yassa being kept in the state archives or in the record offices of princes which were generally not easily accessible, and quite inaccessible to foreigners.17: 17 The Mongols generally considered the Law as a thing to be disclosed to the initiated but hidden from the masses (v. further the example of the Khalkha Djirom)." (Riasanovsky, Valentin Aleksandrovich, 1937: 29) •"The organization of the judiciary was further developed in the legislation of the Oirats. Here the court took its place as a permanent institution of the State connected with the clan organization (the Hotons) and having two instances, the Hoton courts and the Chief Court (Zargo). These had definite rules governing their organization and activity, including material provisions and provisions governing procedure and providing for State compulsion. In the organization and activity of the Oirat courts, however, there still remained vestiges of the epoch of private reprisals. Thus, any suit (including criminal cases) was begun by the	

		5. Criminal Records (Presence)	5. Criminal Records (Absence)
		plaintiff (accuser) directly summoning the defendant (accused) to court and informing the court of such summons. The presence of both parties was considered indispensable, witnesses received rewards for their co-operation in the dischance of justice, etc. Besides this, there remained a certain, although, it is true, limited, number of cases in which the parties were permitted to take the law into their own hands, as for instance in the case of the seizure of a debt by the creditor after payment had thrice been demanded from the debtor in the presence of witnesses and due notice had been made to the Shulenga (art. 63). Successful tracking of a thief, concluded in the presence of honourable witnesses, led to the immediate application of the law concerning theft (without resort to court) (art. 62). It is evident that such taking of the law into one's own hands was permitted in undisputed cases: in the first case if the debt was not disputed by the debtor and in the second when the clarity and indisputability of the guilt was established by the presence of honourable witnesses. The further development of State principles in procedure may be observed in the legislation of the Northern Mongols and to a still greater extent among the Kalmucks. Thus the Khalkha Djirom forbade the killing of a thief (in flagrant delit), but when such killing took place it was not punished, the killer being merely forbidden to recover the stolen property and fine from the dead thief's property (IV, 24). This Code also forbade seizure of a debt by creditors and if such seizure took place during the day, the debt was declared annulled, while if it took place at night the culprit was punished as for theft (XIV, 13). It was prescribed that in such cases a petition for an award be made to the Noyon, and the execution of the recovery was entrusted to the Elchi (XIV, 26,29) while in these cases also the witnesses were rewarded (XIV)." (Riasanovsky, Valentin Aleksandrovich, 1937: 227)	
45	Mongor		• "Upon their return to the village, the village heads and the members of the families of the lover and the wife are called. In the presence of the whole populace, who very much relish this kind of distraction, the village heads begin the preliminary investigation of the affair. The case is examined to the bottom, and finally the lover is badly beaten and hung up by the thumbs until someone turns up who will act as guarantor for him. Then comes the woman, who is beaten on her bare back with leather lashes for as long as she does not manifest her regrets while adding good resolves for the future. Then the two culprits are taken through the village and exposed to the mockery of all; a herald precedes them, beating a drum and proclaiming their crime. It may happen that an indemnity on the part of the lover's family may be asked for the wrong done to the husband." (Schram, Louis, 1962: 162)
46	Navajo		• "Navajo first appeared in writing in 1849 in the form of a Navajo word list published in the Journal of a Military Reconnaissance by Lt. James H. Simpson." (Ager, Simon,

		5. Criminal Records (Presence)	5. Criminal Records (Absence)
			2013.) •"Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.v) •"Navajo Mountain, like most if not all communities in the world, has offenders who are recidivists and who cannot be reasoned with or reformed. It also has psychopaths whose uncontrolled behavior disrupts the community. By assimilating the dangerous criminal to a witch, the community made use of the traditional meeting and execution to rid the area of the hard-core criminal. This type of meeting is rare nowadays, because the killing of anyone, even an accused witch, is prosecuted as a Federal offense. We saw the mechanism in operation as it moved up to a certain point and then stopped. A psychopath, who had served time in Federal prison for incest with his own daughter and was presently molesting children and threatening to kill them if they exposed him, was feared as a witch. An habitual thief and his son, also an habitual thief, were called skinwalkers. It was said about a man who had been imprisoned for years for raping a white woman, and who soon after his release accidentally killed a friend during a drunken brawl, that he was making violent attacks on his relatives and was forcing incestuous relations on his mother, his grandmother, his aunts, and his sister. This was the first step toward an accusation of witchcraft. In all these cases, however, the community could go no further without running afoul of Federal authority. In the old days, such offenders, assimilated to witches, could have been executed with community approval." (Shepardson, Mary, 1970)
47	Ojibway		• "James Evans, a Wesleyan missionary working at Norway House in Hudson's Bay, invented a syllabary for the Ojibwe language in about 1840. He had tried to produce a Latin-based orthography for Ojibwe, but eventually gave up and came up with a syllabary, based partly on Pitman shorthand." (Ager, Simon, 2013.) •"Writing: Latin script. Unified Canadian Aboriginal Syllabics script, no longer in use." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.) •"The Ojibway took reciprocal material relationships seriously. Giving credit, especially when preceded by some sort of gift-giving ceremony, helped foster good feeling between trader and Indian: the trader demonstrated trust in his clients, and this, in turn, would elicit a trustworthy response. Despite the lack of European-style sanctions—courts and police designed to protect private property—the trader could expect to receive a return for credit given, though, as will be seen, this might not necessarily involve complete repayment from the trader's point of view." (White, Bruce M., 1987: 233)
48	Ona		• "It is doubtful whether any of the Fuegian languages has words for numbers above three; the languages are poor in abstract terms and rich in concretes. No kind of writing exists, not even by notches, sticks, pictographs, etc. The nearest approach to such is symbolic face and body painting." (Cooper, John, 1917: 180) •"Warfare and disputes. --There were no established public procedures for determining criminal guilt and for inflicting punishment. The Ona were strongly given to revenge and were outspoken in their anger at a taint of

		5. Criminal Records (Presence)	5. Criminal Records (Absence)
			honor or rights. There were no wars in which large numbers took part. Most group flghting was carried out by from 8 to 20 m.en on each side, each party commonly composed of relatives harking from a given extended family territory. The three chief causes of feuds and hostilities were murder, exploitative trespass on family territory, and suspicion of malicious witchcraft in cases of illness or death." (Cooper, John, 1946: 117)
49	Orokaiva		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.w) •"There is no judicial procedure among the Orokaiva, and no 'police force'. In so far as sorcery is concerned, by the way, these deficiencies are perhaps not altogether deplorable. The suspicion of sorcery, where it is backed up by ignorant legal authority, may go to extraordinary lengths of oppression. No Papuan people has reached that stage of legal development which would have made possible such condemnations as those of West Africa, by which some populations are said to have been almost decimated. Even in medieval Europe it was simply the fear of magic which led to the incredible abuses of the witch-trials. In these more advanced societies the belief in sorcery broke out in a new direction, and found another means of doing evil by assailing the imputed and frequently innocent sorcerers." (Williams, F. E. (Francis Edgar), 1928: 224)
50	Ovimbundu		• "The penalties for adultery were the same as those for murder. The woman appears to have escaped punishment, except that "her husband would not have her any more." The male adulterer had to pay the husband; if he could not pay or escape, the husband had the right to kill him. In the old days the price for adultery was two oxen, a pig, and a slave. At the present day a man who has committed adultery and made payment, possibly takes the woman and all children under three years of age. The husband has the right to decide whether the adulterer has the privilege of taking the woman and her children. An adulterer with one of the king's wives was castrated but not killed. He might, instead of mutilation, pay a very high price, while he himself along with his sisters and the sons of his sisters, would become slaves of the king. If a man could not pay, he might be sold as a slave in order to provide money for the fine. Criminal law did not distinguish between responsibility for intentional and unintentional offences." (Hambly, Wilfrid Dyson, 1934: 203). •"Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.x)
51	Palestinians	• "He receives and publicizes government announcements and demands, registers births and deaths (sometimes also marriages), acts as liaison-man between the village and the authorities and police, conveys information about criminal offenses and disturbances of public security, welcomes guests, meets the police or army officials who visit in the village, showing them what they are looking for or certifying that the sought-after person or object is not in the locality. The mukhtār endorses the identity of persons for the purpose of securing identification certificates, signs all other documents (the most important of which are	

		5. Criminal Records (Presence)	5. Criminal Records (Absence)
		landownership titles in places where land settlement has not been carried out), distributes sugar and rice rations etc. He is also authorized to execute arrests and deliver the prisoners to the police. The vast scope of authority makes it possible for the mukhtār to derive personal material gain from his office, if he so desires." (Shimoni, Yaacov, 1915- Neubart, Leo Patai, Raphael, 1946/1947: 264)	
52	Pashtun		• "As mentioned earlier no regular criminal and civil laws apply in the Agency, nor are there taxes, courts or municipal councils of any kind." (Ahmed, Akbar S., 1980: 51) •"They differ from the Settled Areas in that:: (1) no criminal or civil procedure codes of Pakistan apply;: (2) they are not subject to the payment of taxes or rents of any kind. Many peripheral Islamic tribes like the Kababish Arabs pay taxes (Asad, 1970:154) and there are officially appointed Sheikhs to collect them;: (3) they are loosely administered through a political administration whose main aim is to ensure general tribal peace, especially in headquarters and on major roads. The administrative arrangement of 'Pax Britannica', confirmed in the tribal treaties of 'accession' at the turn of the century, that whatever happens 100 yards off the road on either side is no concern of the administration, was respected by the government of Pakistan. The designation of the head of the Agency, the Political Agent, underlines the contractual and political nature of the relationship. His designation contrasts with the officer in charge of a Settled District who is called by three names and wears three hats: for purposes of taxes he is District Collector, for administering law, the District Magistrate and for maintenance of law and order, the Deputy Commissioner. The Tribal Areas are federally administered but are attached to the Provincial Government of the North-West Frontier Province for administrative purposes because of geographical and historical reasons; (4) no political parties or modern politics are allowed [...]." (Ahmed, Akbar S., 1980: 9)
53	Pawnee		• "Neither personal relations nor the personnel of the household were cramped within a fixed kin structure. The individual personality was not trimmed down to fit the kin structure, but the structure was used to realize the individual personality. The Pawnee social structure was written into no statute book, nor did it have the status of doctrine, and there was no chain of command to enforce it. Therefore it was not frozen and clamped onto the people, but carried implicitly by them to serve them as they saw fit. No built-in guilt, acting as a surrogate for dominant power, forced them to narrow the scope of their personal lives. They were socially creative in every personal interrelationship they had. The world was raw and their life was hard, but it was also freer than ours. No religious or supernatural sanction enforced the social forms. The only [Page 51] possible penalty for transgression of kinship forms was adverse public opinion. This was a very important deterrent, but it was of a quite different quality from religious, military, or political sanctions, for it was within the network of the contemporary community, not in a specialized sector of it, and it was therefore possible for a person to cope with

		5. Criminal Records (Presence)	5. Criminal Records (Absence)
			it in the course of daily living. Pawnee life was certainly not a Utopia. The time and the place in which it existed could allow no such hope, but in its freedom from dominance it had something we now can afford and don't know how to take." (Weltfish, Gene, 1965: 50)
54	San		• "Khoekhoe [Latinate] alphabet" (Ager, Simon, 2013.) •"Would she comprehend the world of publishing, print, reading, and publicity? She did understand the concept of writing as a method used to record speech for later interpretation by reading: she had told me that she would ask Richard Lee to write a letter to me, and she had seen other anthropologists and officials of the Tswana courts using writing in various contexts. She also knew enough about the marketplace—buying and selling, making and spending money—to understand the principle of a book as a commodity, like a piece of clothing, that sometimes sells and sometimes doesn't. Since I was planning to set aside a portion of whatever profit the book might make for the Kalahari People's Fund and, in an appropriate manner, for Nisa herself, it seemed important to discuss our shared financial interest in the book's success. All in all, I felt hopeful that when I did talk to her again, she would approve of the project. If not, I resolved that I would abide by her wishes." (Shostak, Marjorie, 1981: 351)
55	Santal		• "The tales are, as will be understood, written in genuine Santali, without any attempt at polishing, only obvious errors or slips of the pen having been corrected. Before the missionaries came, the Santals had no written language. What they had of 'literature' was all stowed away in their memory. Incantations, songs and certain other matters are in a stereotype form, often such as not to be always properly understood by the present generation. This is not the case with the folk-tales, where, within certain limits, there is full freedom for the narrator. The language of these may consequently vary as to individual form and expression. There is no literary style. Santali has not like some other Indian languages, as e. g. Bengali, a high or literary form, a colloquial and a vulgar form. The language of these tales is just as the people speak." (Bodding, Paul Olaf, 1921-1940: 42)
56	Saramaka		• "In terms of the use of symbolism, too, the contrast between men's and women's arts is clearly related to their differential contact with coastal society. Occasionally (though much less frequently than the literature would suggest), Saramaka men incorporate in their wood carvings a small mark that can be "read" as a specific message (see S. and R. Price 1980 a:189). These marks seem to emerge from the same admiration for the idea of literacy that prompted a Djuka man to develop his own "script" in the early twentieth century and that inspired a number of male messianic leaders to "read" inspirational passages from their open palms. Women are well aware of the use of symbolic marks in men's carving, but they are also adamant that the extra elements they add to their finished textiles or calabashes (see, for example, S. and R. Price 1980 a: figs. 93 and 255) are, in contrast to the men's, intended only as marks of ownership." (Price, Sally, 1933: 197)
57	Seminole		• "Creek first appeared in writing in 1736. Laws were being written in Creek from 1849, and a standard

		5. Criminal Records (Presence)	5. Criminal Records (Absence)
			alphabet, the 'National Alphabet', was adopted in 1853. By the 1870s newpaper articles in Creek were being published." (Ager, Simon, 2013.) •"Concern with gossip and the anti-social uses of traditional medicine played a role in both managing individual behavior and giving expression to individual and intra-group conflicts. The advice and sanction of respected elders, together with camp and clan solidarity, formed the basis of social control. The modern tribal governments all operate police forces governed by tribal laws and codes. These systems function within the context of both other governmental jurisdictions (federal, state, and local) and the continued, if modified, belief in traditional law and custom." (Jackson, Jason Baird, 2003.: 10)
58	Serbs	• "According to article 154 of Du[unknown]san's law code, women in the medieval Serbian state as well as in other South Slavic regions could serve as jurors. However, this was only for hearing evidence and not for passing judgments, and even then only for criminal and civil disputes concerning women. Nonetheless it is significant that they could participate to some extent in the settling of civil disputes which concerned the wider community. In a dispute over the boundary between Bjelo[unknown]sa and O[unknown]cinića in 1489, twenty-four feudal landowners were delegated. After the parties to the lawsuit had come to an agreement, twenty-four Bjelo[unknown]sević residents who had filed the suit along with their wives were first put under oath, after which the twenty-four feudal landowners were sworn in to testify." (Filipovic, Milenko S., 1982: 62)	
59	Shulh	• "The first part of the civil negotiations over dyt was then completed. The resolution of the criminal aspects was deferred until the following adewwal n-tqebilt . In the two northern tribes, this usually took place in November, and always followed the same conventional route. A party referred to simply as "the tribe", but in fact consisting only of the im z[unknown] ran "inspectors", the ayt arba'in "enforcers" and the tribal fuqaha and some igurramen , assembled at a set village at one end of the tribe and was treated to a huge feast provided: (a.) by any individuals inscribed in the tribal "book" as having committed a crime during the preceeding twelve months -- the provisioning of this feast (plus additional cash payments to the notables) being the "criminal penalty", or (b.) if nobody had committed a crime in the preceeding year, all the nearby villages had still to provide a feast, the cost being divided up by shares in takatin in the congregations of the area." (Hatt, Doyle Gordon, 1993: 287) •(Hoffman, Bernard G., 1967: 103)	

		5. Criminal Records (Presence)	5. Criminal Records (Absence)
60	Somali		• "A note is due here on the transcription of the Somali language in this study. Although there have been several scripts devised for recording the Somali language, none has to date been adopted by the Somali government. The orthography used in this study was developed [Page 4] by myself acting independently of any government agency. It is my private script, which I use in recording Somali poetry and folklore. The following is a linguistic description of the symbols used in this orthography which differ from English. The International Phonetic Alphabet (I. P. A.) symbol is given for the reader's convenience.." (Galaal, Muusa H. I., 1968: 3) •"Musa Galaal has distinguished himself as a writer of the Somali traditions and culture and has produced many pamphlets, periodicals and books. His present book entitled "TERMINOLOGY AND PRACTICES OF THE SOMALI WEATHER LORE, ASTRONOMY AND ASTROLOGY" is yet another addition to the rare treasure of written records on Somali traditions. In this book, the author has shown that it is possible to write down the most valuable cultural aspects and traditions of our country which have so far been preserved in the memory of the people. Preservation of traditions and culture in the memory of the scholars cannot be permanent and, in fact, we have reached a stage when our valuable traditions are fast disappearing from the life of the people. The handicap of writing the rich traditions has all along been the lack of script for the Somali language. Musa Galaal has overcome this difficulty by writing his book in English." (Galaal, Muusa H. I., 1968: ii)
65	Taiwan Hokkien		• "Taiwanese first appeared in writing in the late 19th century in a Romanisation system known as Pe̍h-ōe-jī (POJ). Since then a number of different methods of writing Taiwanese have been devised, some using the Latin alphabet, some using Chinese characters, some using Japanese kana, and others using a mixture of the different scripts." (Ager, Simon, 2013.)
62	Tarahumara		• "The subconscious formalization of Tarahumara law is perhaps its outstanding characteristic. No references are made to previous parallel cases during the trial, except perhaps to determine the former criminal record of the prisoner. No officers especially versed in the procedure or the decisions of the law are required. Still the gobernador gives a speech once a week, warning the people what happens to offenders. The audience is asked in the "sermon" not to take the law in its own hands, but to consult the officials in charge. There is considerable consistency shown in the administration of justice. Social disapproval, as expressed by the "scolding" punishment, has a good deal of effect, which shows that the group opinion must be fairly well in accord with the decision of the judge. On the whole, the system reflects a certain formality. The court itself is more of a council than a trial body, and is decidedly a formal group. All men have the right to listen and to voice their opinion. The officials sit in a row with their staffs in hand. The witnesses are called. All are heard. However, it must be emphasized again that the final decision of "guilty" or "not guilty" and the assigning of the punishment are solely in the hands of the gobernador ." (Bennett, Wendell Clark, 1935: 219) •"All the other types of officials found in Tarahumara society today seem to be quite clearly the result of Spanish influence. Capitanes, and soldados who act as

		5. Criminal Records (Presence)	5. Criminal Records (Absence)
			messengers and as an informal police force among the Tarahumaras today were nominated from earliest times by Spanish authorities, although this is no longer the case. It is probable, of course, that Tarahumara chiefs had occasional need of messengers and of warriors to apprehend wrongdoers long before the coming of the Spaniards. But the titles and functions of these lesser officials are so similar to their Spanish equivalent that it is difficult to avoid the conclusion that the Spaniards formalized, by nominating or supervising the election of capitanes and soldados, a practice which had therefore been informal among the Indians." (Champion, Jean René, 1970 [1963]: 374) •"Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.y)
63	Tikopia		• "In another direction also the maru serve to give expression to popular sentiment in contrast to the will of the chiefs. Sometimes an offence is committed and the chief for reasons of his own is unwilling to take action against the culprit. If public opinion is strongly against him, it may become mobilized through the agency of a maru and his relatives. These people, having observed that the proper penalty--banishment--will not be inflicted, determine to force the issue by a customary method of procedure. They assemble outside the house of the chief, then, on a given signal, they rush in and, catching him up in their arms, raise him from his seat into the air. While he is in this elevated position they pay him the utmost signs of respect. They press their noses to his knee and the sole of his foot. They use the most conciliatory and honorific forms of expression. At the same time they implore him to accede to their request and banish the criminal--to send him in his canoe out to sea to perish. The action of raising the chief in their arms is termed sapai , and is a mark of great respect. Their procedure is in fact a kind of compulsion by exaltation. For the chief to struggle would be undignified, so he is forced to remain on high until they release him. They on their side tacitly refuse to set him down until he has agreed to pronounce the sentence. In thus doing homage to the chief the maru and his relatives are putting [Page 186] him under an obligation. In recognition of this he is virtually forced to yield to their wishes. Theoretically it is possible for a chief to remain aloft in this manner, sitting still and making no reply to the men who thus abase themselves beneath him. But such conduct would be regarded as churlish on his part. However much he may inwardly resent their interference, he must show no sign. In practice, apparently, after a due pause to sustain his dignity, he always grants what they ask. His decision is probably affected by his realization of the strength of the public sentiment against the offender, which unless powerful would not receive expr" (Firth, Raymond William, 1949: 185) •"Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.z)
64	Tiv		• "The only records of criminal cases available in MbaDuku at the time I was working there were those from 1946 to 1950. The classification in the following table is that of the court scribe." (Bohannan, Paul, 1968: 23)

		5. Criminal Records (Presence)	5. Criminal Records (Absence)
65	Tlingit		• "There are three orthographies currently in use for Tlingit. The oldest of these is the “Revised Popular” orthography which developed in the 1970s from the now abandoned system devised by Constance Naish and Gillian Story in the 1960s. [...]. In all three systems, all unaspirated sounds occuring at the end of syllables are written with symbols for the aspirated sounds." (Ager, Simon, 2013.)
66	Tongans		• "Tongan was first written by missionaries in the early 19th century using a number of different spelling systems. The current system was promulgated by the Privy Council of Tonga in 1943." (Ager, Simon, 2013.) •"The establishment of schools with the structure of a formal educational system has been one of the most effective forces in changing the culture of the villagers from primitive to folk-culture. Nevertheless it is easy to overassess the role that literacy plays in village-life. The large majority of the villagers are able to write the Tongan language. Most of them can read Tongan. To what use however, are these abilities put? As far as one can judge there is very little use made of writing except in the very occasional signing of one's name to some legal or government document. The writing of letters is infrequent. The attitude of the villager here is that everything can wait until personal contact is established, either by personal visiting or by the use of a visiting intermediary. Similarly, the use of reading-skills is very limited. Its principal use for most is that of reading such familiar material as Bible-lessons or church hymns. Children in school naturally use simple reading-texts with secular topics. With school-days far behind, however, the Bible becomes all-important and here one's ability to read is sometimes almost entirely limited to its use in reviving memory of key-words in sacred texts that are otherwise well-remembered but temporarily forgotten. Some households also possess the single-paged printed combination almanac-calendar issued by the government printer. The only virtue of this calendar seems to lie in its possession, not in its use. Dated days are of no significance to the villager except to mark off one Sunday from another and this function is performed equally well or better by church-bell and pulpit-announcement." (Beaglehole, Ernest, 1906- Beaglehole, Pearl, 1910-, 1941: 49) •"The following account of the origin of the name Pukotala gives a picture of the method of transmitting orders from a chief to his tenants: On the island of Haano there are four villages. Starting from the northwestern end of the island, they are Muitoa, Haano or Lotohaano, Pukotala, and Fakakakai. The lord of the island, known as Tui Haa Ngana, holds sway over the first three, but Fakakakai never had a chief and as its name indicates is made up of people from different parts that have settled there. In the olden days when the chief desired to give notice to the people of some new arrangement, he summoned his attendants and matapule to Haano and told them what he wanted accomplished. A runner was dispatched to Pukotala to acquaint the folk there of Tui Haa Ngana's intentions. On the outskirts of the village was a big puko tree (“cottonwood”) and up this the runner used to climb and yell out at the top of his voice his chief's wishes. It was from this circumstance that the place derived its name: puko, cottonwood tree; tala, to tell." (Gifford, Edward Winslow, 1929: [n.p.]) •"In Tonga the genealogies of the great chiefs seem not

		5. Criminal Records (Presence)	5. Criminal Records (Absence)
			to have been kept by the priests. These great genealogies were in the custody of the elderly woman of chiefly rank who memorized them and taught them to the young chiefs. With the adoption of writing, this custom of learning genealogies by heart has fallen into disuse. It is said that the women who were the repositories of the genealogies often discussed them among themselves and thus refreshed one another's memories. The genealogy which was supplied to me by the Queen of Tonga was set down from memory by the Tamaha Amelia with the aid of the chief named Shadrach Mumui. As soon as these two learned to write they decided to record the genealogies of the great chiefs and this record which was begun more than 75 years ago has been continued down to date." (Gifford, Edward Winslow, 1929: 232) •"When George Tubou became king in 1845 his people were in the white-heat of a conversion to Christianity. The missionaries had taught them to read and write, and to pass a simple code of law. They had imbued them with envy of the dignity of civilised States,—their law courts, their police, the uniforms and salaries of their officials, and their other blessings of civilisation—including taxes. All these the Tongans might have if they were shown how to begin. For years there was no one to direct their nascent aspirations. Their teachers had no enterprise, and devoted themselves to the spiritual rather than the temporal needs of their flock; but at last with the necessity came the man." (Thomson, Basil Home, 1894: 2)
67	Toradja		• "The litany of the priestesses is all in poetic style; the poetic form is indeed the only one in which formulary pieces can be preserved among peoples who are not familiar with written language, because in this way a very great measure of immutability is guaranteed. The rules of the meter are strict, four feet of two syllables, now recited as iambic, then as trochaic. For example: Oentoëmo kawalekoe, “a distant journey I have made,” 122 Awarimo kajanokoe “I have made a trip far away,” and Banja boeja meronangi, “I have to gain it from my sarong.” They are almost always parallelistic; hence the great need for alternate words which are sometimes again formed artificially, by dividing a word in two, for example, and then replacing one half by a synonym, as if, for example, in Netherlandish one were to interchange a word like gemak /”ease”/ with getam, because mak /”tame”/ and tam /”tame”/ are synonymous. " (Adriani, Nicolaus, 1865-1926; Kruijt, Albertus Christiaan, 1951: 619)
68	Trobriands		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.{)
69	Tukano		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.a)
70	Tzeltal		• "Tzeltal [latinate] alphabet" (Ager, Simon, 2013.)
71	Warao		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.b)

		5. Criminal Records (Presence)	5. Criminal Records (Absence)
72	Wolof		• "Although important as a trade language in West Africa since the early period of European contact, Wolof has no significant literary tradition. It has been written occasionally in Arabic and Roman letters, but systematic instruction in Romanized Wolof was begun only in the 1960s." (Coulmas, Florian, 1999)
73	Yanoama		• "Determining the age of people in anthropological or nonliterate populations poses a difficult and frequently impossible problem. It is one of the principal reasons for the relatively few demographic analyses of population dynamics in anthropological literature. Age as a measure of a life span assumes a unit of measurement and a counting system, both of which are cultural conventions. Western societies employ the cyclical relationship between the earth and the sun to measure time and they also use a unitary counting system which can handle the smallest to the largest numbers. By contrast, the Yanomama employ the cyclical relationship between the moon and the earth for their [Page 54] infrequent measurements of time. Their counting system identifies only three measured units--one, two, and a residual category “many,” which simply means more than two. Individuals do not know their age because there is no need for it, and there are no written records. The difficulties of estimating age exclusively from physical appearances are well known, especially in a culture alien to the investigator." (Early, John D. Peters, John F., 1990: 53) •"Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.c)
74	Yukut		• "Yakut first appeared in writing in 1692 as part of a book by the traveller N. Witsen and published in Amsterdam. The first literary work in Yakut Reminiscences by A. Y. Uvarovsky and its German translation was published in 1851 as a part of Otto N. Böhtlingk's work About the Yakut language. Böhtlingk used an alphabet based on Cyrillic with some special characters. Between 1922-1939 a version of the Latin alphabet devised by S.A. Novgorodov was used to write Yakut, and since 1939 the Cyrillic alphabet has been used." (Ager, Simon, 2013.)

		6. Transactional Records (Presence)	6. Transactional Records (Absence)
1	Akan		• "Tramma means literally cowries, the small shells from the Indian Ocean which, by the route from the north, found their way all over West Africa, and to this day may be seen used for small change in the native markets. The word came to be applied to a sale of movable or immovable property in the following manner. No contract of sale was valid in olden times unless a payment called tramma had been made. Tramma was the name derived from that sum, additional to the selling price, which was set aside and given to the witnesses of the transaction. It was a fixed proportional amount, and, at least for certain specified articles, seemed uniform, *e.g.* the tramma on the purchase of a cat—the old Ashanti bought cats as repositories of their okra or breath—was always a pesewa, about 1 d.; for a female slave, ntaku-anan, about 2 s.; for a male slave, ntakumiensa, [Page 235] 1 s. 6 d. In the case of such purchases no part of the tramma could be used by vendor or purchaser, and it was said that if a purchaser used any of it to buy food with it for his purchase, the slave or cat would die. This tramma may perhaps be called 'earnest money', but it was not originally paid to the vendor. If the transaction was afterwards repudiated, the receivers of the tramma were the witnesses to vouch for the transaction. The word therefore came to be used to designate a sale outright as opposed to awowa, 'pledge', or in case of land, 'mortgage'." (Rattray, R. S. (Robert Sutherland), 1923: 234)"Tramma means literally cowries, the small shells from the Indian Ocean which, by the route from the north, found their way all over West Africa, and to this day may be seen used for small change in the native markets. The word came to be applied to a sale of movable or immovable property in the following manner. No contract of sale was valid in olden times unless a payment called tramma had been made. Tramma was the name derived from that sum, additional to the selling price, which was set aside and given to the witnesses of the transaction. It was a fixed proportional amount, and, at least for certain specified articles, seemed uniform, *e.g.* the tramma on the purchase of a cat—the old Ashanti bought cats as repositories of their okra or breath—was always a pesewa, about 1 d.; for a female slave, ntaku-anan, about 2 s.; for a male slave, ntakumiensa, [Page 235] 1 s. 6 d. In the case of such purchases no part of the tramma could be used by vendor or purchaser, and it was said that if a purchaser used any of it to buy food with it for his purchase, the slave or cat would die. This tramma may perhaps be called 'earnest money', but it was not originally paid to the vendor. If the transaction was afterwards repudiated, the receivers of the tramma were the witnesses to vouch for the transaction. The word therefore came to be used to designate a sale outright as opposed to awowa, 'pledge', or in case of land, 'mortgage'." (Rattray, R. S. (Robert Sutherland), 1923: 234)
2	Andamans		• "No marks on rocks, trees or other objects, made for purposes of record, are believed by them to exist, and, with the exception of the supposititious hieroglyphics, hereafter to be mentioned, nothing of the nature of

		6. Transactional Records (Presence)	6. Transactional Records (Absence)
			writing is to be found among these tribes, nor have they any method of recording the name and exploits of a deceased chief or other individual who may have gained distinction during his life, save the narration --more or less garbled--of the same by their admiring descendants. The messenger who conveys intelligence to a distant encampment bears no outward token with him to testify to the authenticity or character of the communication he has to make." (Man, Edward Horace, 1932: 46)
3	Aranda		• "The socio-historical development of literacy in Arrernte : a case study of the introduction of writing in an aboriginal language and the implications for current vernacular literacy practices" (Kral, Inge, 2000.: 1)
4	Aymara		• "In the case of pawn [in modern times], the transaction is usually entered into because of the need to pay for an emergency or for a fiesta obligation. Due to social pressure, the loan is seldom sought from anyone outside the community. When there is a default in payment, access to the legua kallpa is turned over permanently to the lender. In a few cases, papers are drawn up in the county seat, recording the exchange. But, by and large, the transaction involves only the two individuals (or families) concerned. If there is some dispute as to how the matter should be settled, the jilakata mediates it." (Carter, William E., 1965: 69)
5	Azande		• "Often, the chiefs ruled territories too extensive or too populated to permit direct relations to be established between them and their bakumba. They then delegate their powers to brothers, or sons, who in practice, do not remain attached to the central authority except through a contract of allegiance, vaguely feudal in nature. At the same time that it expands, the Azande chiefdom prepares within itself, the lines of least resistance, where the break will occur upon the disappearance of the chief. The great feudatories claim the right to total independence: almost inevitably, the struggle for hegemony will break out between them. It is this process of administration, required by the impossibility of administering at a distance, for lack of a means of written communication, which brings about the ruin of all the Azande empires which have succeeded. [Page xxii-xxviii(d)] Good for conquest, and for extension of the race, the Azande organization is incapable of constructing a centralized and durable empire." (Calonne-Beaufaict, Adolphe de, 1921: xxii)
6	Bahia Brazilians	• "Briefs, transcripts, certified copies, deeds, decisions, appeals, reports, inventories, and position papers were produced in Portuguese, Italian, and Latin throughout the dispute. These materials, scattered in Brazil, Portugal, and Italy, provide an incredible record of one engenho's history. More important, because of the contested ownership of the property and testamentary obligations on it, extremely careful annual accounting records were kept over long periods of time. [...] Together with the other documentary evidence, these series of accounts are an indispensable source [...]." (Schwartz, Stuart B., 1985: 497) •"Bahia had more than three hundred engenhos	

		6. Transactional Records (Presence)	6. Transactional Records (Absence)
		[...]. [...] They recorded the division of sugar with lavradores, kept a record of production for the tithe, and as wills indicate, knew precisely their active and passive debts. [...] For some engenhos, it is possible from wills and notarial records to trace changes of ownership, and we have occasional glimpses of internal operations from inventories made at the time of transfer. But these are momentary visions, snapshots in time, lacking continuity." (Schwartz, Stuart B., 1985b: 489)	
7	Banyoro		• "A few weeks, sometimes months, later the mukaga is paid. On the appointed day a representative of the girl's family, who may (but need not) be a relative, goes to the suitor's father's home, perhaps accompanied by a friend. He and his companion are courteously received; they are given coffee-berries to chew, tobacco to smoke, and a jar of beer to drink. Then a goatskin is spread out and the money brought and counted. Nowadays the bride's representative (who is probably literate and has been chosen partly for this reason) may make out a receipt. Before he leaves he may ask for a shilling 'shoe-money', to pay for the sandal-leather he has used in walking between the two households. He may also demand a shilling for a grass head-ring; this might have been needed in former times when a load of cowry shells could have formed part of the marriage payment. And he may, finally, demand a small sum of money (z'enjunju, literally 'for the blows') to recompense him for the energy expended in beating the cattle (had there been any cattle) along the road home. All these small payments must be made." (Beattie, J. H. M. , 1958: 8)
8	Bemba		• "The Bemba had no form of writing prior to their contact with the European world at the end of the nineteenth century." (Maxwell, Kevin B. (Kevin Burns), 1941-, 1983: xvi) •"The advent of British rule at the beginning of the twentieth century introduced new authorities, a new economy of money, wage-labor and commerce, and new government functions. [....] [A]ll along the British made documentary agreements with Bemba chiefs, based upon the trappings of English law contracts. The oral authorities, of course, did not understand that by their marks on paper, they were ceding territorial rights and resources for the pittance of manufactured goods they were given. They certainly could not have intended to disinherit their tribes and to deprive tribal posterity of land rights. The chiefs, in fact, were not so much proprietors as custodians of tribal land, which belonged to the ancestral spirits, the real "owners of the land" bene calo . To the literate colonial authorities, it was a simple quid pro quo commercial transaction documenting a transfer of real estate (Meebelo 1971, 29-31). " (Maxwell, Kevin B. (Kevin Burns), 1941-, 1983b: 122) •"[T]he oral Bemba have little perception of the past except in terms of the present (Richards 1960, 179). They lack writing as a mechanism, by which they could build up a body of chronologically ordered statements to compare with their present views (See above, 85ff). Any present adjustments to the tradition will be

		6. Transactional Records (Presence)	6. Transactional Records (Absence)
			gradually introduced as having always been so conceived, convincing the people that the new is in fact part of the true, venerable version of the tradition. Oral transmission, as a performance, then, is not a mechanized memorization but an imaginative process of continuous creativity (Ong 1982, 57-68)." (Maxwell, Kevin B. (Kevin Burns), 1941-, 1983c: 110)
9	Blackfoot		• "Besides this, they often made a more enduring record of these acts, by reproducing them pictographically on robes, cowskins, and other hides. There is now in my possession an illuminated cowskin, presented to me by Mr. J. Kipp, which contains the record of the coups and the most striking events in the life of Red Crane, a Blackfoot warrior, painted by himself. These pictographs are very rude and are drawn after the style common among Plains Indians, but no doubt they were sufficiently lifelike to call up to the mind of the artist each detail of the stirring events which they record." (Grinnell, George Bird, 1962: 248) •"[H]eraldry was a prominent feature in Blackfoot life. By this term, we mean those conventions by which deeds are recorded and accredited, with their social privileges and responsibilities. [...] Women do not ordinarily perform such deeds but often recount the embroidering of robes, their resistance of temptation, etc., when about to perform some ceremonial function, a truly analogous." (Wissler, Clark, 1911: 36)
10	Bororo		• "It is a kind of contract with the spirit, to whom he must swear fidelity." (Colbacchini, Antonio, 1942: 184)
11	Bosnian Muslims	• "In return for taxes received, the marketplace management provides the space and facilities necessary for market participants to conduct their transactions. The three employees in the central marketplace, for example, set up tables, collect taxes, rent scales, keep various records, sometimes arbitrate disputes between vendors, and clean up the mess afterwards." (Lockwood, William G., 1975: 141)	
12	Central Thai	• "In villagers' eyes if not those of the government, full rights of ownership in land are established by the traditional practice of clearing and farming a section of forest, the four points of which have been marked by wooden stakes. Such a system lasted as long as it did because of the general abundance of land suitable for agriculture. Local scarcities did develop but those without sufficient land to support themselves and their families found it relatively easy to move on to where unclaimed land was available. It was as the result of such a local scarcity that Hua Kok was founded by families from Bang Saphan and Wang Thong. In this type of situation the loss of rights to a plot of land did not pose a basic threat to one's right to a livelihood, nor were there any significant incentives for dispossessing others of their land. Consequently land has been managed with little reference to government legislation and few bothered to avail themselves of the legal rights granted by various land certificates. It must also be remembered that from the government's	

		6. Transactional Records (Presence)	6. Transactional Records (Absence)
		point of view the careful regulation of land rights has not had the importance it did, for example, in feudal systems in which tax was levied on fixed productive assets of land." (Kemp, Jeremy, 1992: 119)	
13	Chuuk		• "The German administration also made a registry of land holdings. The registry was incomplete, and corporation titles were registered in the names of the corporation heads, the sowuppwún. Often thereafter they were treated as if they were individual rather than corporate holdings, the written deed being used as evidence of individual ownership in court. These deeds are still important legal documents in Truk's courts today, serving as crucial evidence in many disputes, although the courts, now well aware of the fraudulent use to which these deeds were sometimes put in the past, seek to investigate each case as best they can. The Japanese encouraged transmission of property from parent to child and apparently sought to weaken the matrilineal lineages, looking with little favor upon matrilineality as a principle of organization." (Goodenough, Ward H., 1974: 78)
14	Croats	• "There was a period from 1278 to 1357 when Venice controlled Brac. It was during this period, in 1305. that the first statute was drawn up on Bra[unknown]c. (It was first published in 1656.) The Croatian councils on the island approved the statute. Although, apparently not Roman, the law base shows a Latin influence as well as Croatian. It had characteristics of the feudal socio-economic system with relics of Slavic social and juridicial regulations coming out of family-tribe autonomy. The communal government was that of a Croatian nobility with a feudal system of individual and common commune land. The statute listed four categories of peasants: those who cultivated land owned by the commune, those who cultivated communal land which had been rented to someone else, those who cultivated their own land, and those who cultivated land owned by the church or by nobility. The statute indicated that viticulture and olive oil production had developed by this time. Also, cereals were being cultivated. Wine was sold through Split to Venice, and grains were imported from Bosnia, Croatia, and Venice. The statute restricted the export of grains from the island and the importation of wine. Sheep and goat raising were important and mules and horses are mentioned. Apparently all the commerce went through Venice. The statutes remained in effect until the fall of the Venetian Republic in 1797. Hvar copied the statute in 1331. (Cerineo, 1940: 90-96.)" (Bennett, Brian Carey, 1974: 10) •"In The Gift Marcel Mauss writes about systems of obligatory gift giving, which, he says, are not simply material but also moral transactions. He associates them with a particular stage of social evolution. Mauss writes ". . . the spirit of gift exchange is characteristic of societies which . . . have not yet reached the stage of pure individual	

		6. Transactional Records (Presence)	6. Transactional Records (Absence)
		contract, the money market, sale proper, fixed price and weighed and coined money." (1967:45). Along the same lines, Polanyi provides a typology that includes three basic forms of economic exchange: a) reciprocal exchange, or prestation; b) redistribution; and, c) market exchange (Polanyi, 1968). These too are characteristic of different kinds of social organization. [Page 392] Reciprocity is the dominant form of exchange in small scale societies with subsistence economies, such as hunting and gathering, or pre-industrial peasant societies. Reciprocal exchange occurs between individuals who have continuing rights and obligations towards one another: in most cases they belong to the same moral community. The exchange may be not only of material significance, but also is a way of establishing or reaffirming a social tie. Market exchange, by contrast, is impersonal: it typically involves money; and it is not assumed that any relationship between the two parties will continue after the immediate transaction is completed. Milograd, today, is a modern industrial town, with markets, department stores and speciality shops. Everyone participates, to some extent, in the market economy: it is virtually impossible today to remain entirely self-sufficient. Yet sometimes people symbolically deny the commercial aspect of an exchange. Business transactions are treated as social occasions; food and drink is offered; the idiom of reciprocity is called into play. Exchanges of goods and services are treated, in these cases, as prestations. They create or reaffirm social obligations which transcend any particular exchange. Doing business in this fashion is very time-consuming. It is not an economic necessity. But some people behave as if it were. " (Gilliland, Mary Katherine, 1986: 391-392)	
15	Dogon		• "For the priest, the duge is a badge, a pledge of alliance, the seal of a contract; the returned ancestor, realizing he has not been forgotten, becomes beneficial for the entire clan, which honors him and asks him for children, harvests, wealth and prosperity of all kinds, protection against danger, and intercession before the god Amma." (Dieterlen, Germaine, 1941: 250)
16	Garifuna		• "The use of these essential resources—both group labor and implements—has resulted in a set order of compensation. When there is no immediate exchange of labor as between one sifting and the other baking, co-workers receive some of the finished product. There is a descending order in which the ereba one receives depends on the amount of work and the type of implement borrowed. For example, a woman who helps with the peeling and grating, receives one ereba. Because of the need to give away so much a woman may end up with between two-thirds and one-half of the total amount she bakes. Women have responded by processing only a small amount, between 10 to 15 cassava bread, using one co-worker. Another strategy is not to tell others about her own plans thereby discouraging them from coming in to help uninvited or

		6. Transactional Records (Presence)	6. Transactional Records (Absence)
			even to mislead them about when she will be processing." (Palacio, Joseph O., 1982: 120)
17	Garo		• "Kokam is a payment given to those who slaughter a cow in honor of the deceased. [...] The organizer receives the kokam from the household of the dead man, and like magual this is most appropriately a brass heirloom gong, though something else may be substituted if no gongs are available. The gong is carried back to the organizer's village, where the cow is killed and a slender wooden post erected to advertise the event. The gong thus acquired can be used for nothing other than to be returned to the original family when somebody in the acquiring family dies. At that time the original family must sacrifice a cow in return. In other words, the kokam gifts form a symbolic record of the obligations that are set up for returning the honor of killing a [Page 200]. cow, and in this way households bestow honor upon one another." (Burling, Robbins, 1963: 199)
18	Guarani		• "The process of alphabetization in the mission schools, the translation of ideas of the dominant culture into the native language, particularly catechisms, was a powerful force of cultural domination. Catholic values and concepts were more easily transmitted to the Indians through catechism books and the repetition of sermons by the Indians as directed by the Jesuits. Although learning to read and write in their native language was part of the process of indoctrination, by becoming adept writers in their native language and learning mathematics, some of the Guaraní mission Indians could also keep track of their community property, better conduct their daily affairs, keep town council records, make financial transactions, and communicate with one another despite the long distances between missions. The Jesuit missions had one of the first printing presses in the Rio de la Plata. A number of native and Jesuit authors published their works at the missions of Santa Maria La Mayor and San Francisco Xavier during the early eighteenth century. These included the works by Father José Serrano, S.J., De la diferencia entre to temporal v lo eterno, Crisol de desenga[unknown]nos, con la memoria de la etermidad (1705), which included forty-three illustrations by a mission Indian, Juan Yapari: Paul Restivo, S.J., Explicación del catecismo de Nicolás Yapuguay (1722), Father Antonio Ruíz de Montoya's Vocabulario de la Lengua Guaraní ...(1722), Arte de la Lengua Guaraní with notes by Father Restivo (1722); and Casique Nicol[unknown]as Yapuguay's Explicaci[unknown]on del Catecismo en Lengua Guaraní (1724) and Sermones v eiemplos en Lengua Guaraní (1727). Basildes Britez Fari[unavailable]a, Hist[unknown]oria de la cultural guaraní (Asunción, n.p., 1988), 17-19. No ethnohistorian or linguist has studied these rare native catechisms to understand the process of evangelization of the Guaraní mission Indians during the Jesuit period. These works have been neglected because so few scholars of the Guaraní language can read the classical Guaraní of the Jesuit missions.: It is nearly impossible to assess how many or what [Page 132] percentage of the Guaraní mission Indians became

		6. Transactional Records (Presence)	6. Transactional Records (Absence)
			literate. Literacy was not always confined to members of the native elites. According to the available historical evidence. Guaraní mission Indian fugitives, most of whom were peons, living in Buenos Aires and Santa Fe in the mid-1750s, kept in touch with events in their mission towns “through the letters they received” from other mission Indians. 33: Bernardo Nusdorffer, S.J. “Segunda parte de los sucedido en las Doctrinas despues que salió de ellas el Pe. Luis de Altamirano para Buenos Ayres...” 1753, BNRJ, Se[unknown]c[unknown]ao de Manuscritos, Roll 31846. Defensa de los Jesuitas 1.2.3.4. Guerra de los Guaranies, 8.2.25, folio 17.: Unlike the Maya, Mixtec, Nahua and other indigenous people in Mesoamerica, the Tupi-Guaraní and other tropical lowland South American Indians had no precolonial tradition of writing. The Guaraní literary tradition is similar to that of postconquest developments in colonial Mexico among the Nahua in that missionaries learned the native languages, and then a whole native literature came into being, including dictionaries, grammars, catechisms, collections of sermons, and other writings. 34 : Frances Karttunen, “Nahuatl Literacy,” in The Inca and Aztec States, 1400-1800: Anthropology and History edited by George A. Collier, Renato Rosaldo, and John D. Wirth. (New York and London: Academic Press, 1982): 395-417.: The Guaraní mission musician and chief, Nicolás Yapuguay, authored a few religious texts published in the native language using the mission printing presses. His works include Explicación de el catechismo en lengua guaraní, Sermones y exemplos en Lengua Guaraní and Tábua dos graus de parentesco en guaraní . Bartomeu Melià, Marcos Vinicios de Almeida Saul, and Valmir Francisco Muraro. Q Guaraní , 339. These texts deserve further attention by the few scholars who are able to read classical Tupi-Guaraní. Only parts of the text. Explicaci[unknown]on de el catechismo en lengua guaraní , are available at the Archivo Provincial de Buenos Aires de la Compa[unknown]nia de Jesus.: These works are discussed in more detail in Chapter Five." (Ganson, Barbara Anne, 1994: 131)
19	Hausa		• "By long-distance trade I mean the purchase or sale and the transfer of goods, mostly of perishable nature, across a distance of several hundred miles, principally between the savanna and the forest belt of West Africa. The trade is conducted within the framework of traditional, indigenous arrangements and involves no systematic resort to such modern institutions as banking, insurance, police, civil courts, or the exchange of documents, although very large amounts of money are employed in it, involving extensive credit arrangements, often between total strangers from different tribes." (Cohen, Abner, 1969)
20	Highland Scots	• "Early in the eighteenth century the present area of the parish of Uig was held from the Seaforth clan chief by 26 tacksmen, whose names are recorded in the judicial-rental of 1718, (Fig. 4). They, presumably, had sub-tenants but of these there is no record. Elsewhere in Lewis the same rental records many small tenants holding direct off the chief but in Uig, apparently, the tacksman and sub-tenant system remained intact. Although we cannot be certain of their precise extent, the	

		6. Transactional Records (Presence)	6. Transactional Records (Absence)
		distribution of the tacks coincides fairly well with that of the better agricultural ground (Fig.2). [...] Five of them cluster round Uig bay, four were in the Valtos-Reef area, and three around the strait of Little Bernera. All these districts have machair; together they accounted for three quarters of the meal and more than half the sheep and money rents. What is more, these rents represented 27% of the total rental of Lewis, whereas by 1887 Uig yielded only 17% of the rental and by 1901 the proportion was reduced to 14%. The relative decline of Uig is largely due to the growth of Stornoway; this shift in the centre of gravity of Lewis has tended to exaggerate the remoteness and isolation of Uig in the present century." (Moisley, Henry Alan, 1962: 9)	
21	Hopi		• "Marriage customs have been drastically modified. Early in the century an occasional Hopi couple was persuaded to go through a “White” ceremony, at the insistence of a missionary, school superintendent, or government official. Now it is customary for couples voluntarily to have a “White” civil or religious ceremony before entering into the protracted rites of a Hopi wedding. 4: 4. For a study of the traditional marriage ceremony at Oraibi, see H. R. Voth, “Oraibi Marriage Customs,” American Anthropologist, vol. 2, no. 2 (1900).: Go to end note pageThis change of custom does not necessarily indicate conversion but is based on a desire for official written records, since the Hopi have no writing. The people realize that documented weddings make it harder than was earlier the case to get a divorce. On the other hand, women, especially, feel that possession of written records simplifies numerous dealings with the American government. For example, legal documents make it easier for wives to get money allotments if their husbands go into the armed services, and women with official papers stand a far better chance of getting financial support in the event of divorce." (Titiev, Mischa, 1972: 328)
22	Iban		• "Her sitting by the fire after childbirth normally takes forty-one days. To calculate the number of days she undergoes during her confinement, marks are being inserted on a pole with lime. The marking on the pole is done because in the past the Ibans had no calender. Nowadays, because all people are literate, the counting of days for such period is based on a calender, like other races. The type of timber used in the fire to warm her will depend on where she lives. If she lives upriver, she is asked to use timber from the malam, lensat , or manding trees. " (Sandin, Benedict, 1976: 9)
23	Ifagao		• "Real estate of this kind continues in the hands of the creditor until the debt be paid. Transfers of the same piece of land may go on indefinitely. The transfers are witnessed each time by the agent who obtains the loan for the person in whose charge the field is. This agent receives as his fee about five to twelve per cent of the value of the loan obtained. He is the only witness necessary. His fee is paid him in the first place by the creditor. But the fee is added to the amount loaned, and must be returned by the debtor when the debt is paid.

		6. Transactional Records (Presence)	6. Transactional Records (Absence)
			As soon as the agent has received his fee, it is his duty to inform his oldest son, in case he be of sufficient age, otherwise his wife or a brother, of the terms of the transaction. This is a precautionary measure against his death and the consequent leaving of the transaction without a witness." (Barton, Roy Franklin, 1919: 45) •"Responsibility of go-betweens.—Go-betweens are responsible to both parties to a transaction, for the correct rendering of tenders, offers, and payments. Their word binds only themselves, however— [Page 58] not their principals. Go-betweens are not agents of one party more than another. They are supposed to be impartial, and interested only in consummating the transaction involved in order to get their fee." (Barton, Roy Franklin, 1919: 57)
24	Igbo	• "Another aspect of pre-colonial trade in Igboland, which requires mention here, is the question of currency. It is as yet [Page 139] impossible to be precise as to when money transaction was introduced into Igboland. But one thing which is quite clear is that this development preceded the dawn of the European era in West African trade. It would appear that by the eighteenth century much of the commercial transactions in Igboland were done in money. Using information gathered in the nineteenth century and early in this century, one would discover that many currencies were in use in pre-colonial Igboland. These included salt, □m□m□, cowries, manillas, brass rods and copper wires." (Afigbo, A. E. (Adiele Eberechukwu), 1981: 138) •"The Court Member exhorted people to remember that taxes were now due, whereupon a lively gossip ensued about those who had already paid tax and obtained their receipt tally and could now lend the tally to those who had not paid so that they could go to neighbouring markets safely without fear of seizure by the police for non-payment. Those present would not discuss the question definitively as they said the Court Member must give them due notice and they would come to his compound: but he had none the less used the occasion to notify the village of taxation dates." (Green, M. M. (Margaret Mackeson), 1964: 132) •"Second, the candidate obtains his personal sacred treasure box, carved to his order with decorations. This will serve as a permanent mnemonic record of his achievement, ultimately to become part of his patrilineal descendants' estate and a symbolic dwelling place into which his ghost can be invoked by calling his name." (Henderson, Richard N., 1972: 258)	
25	Iran	• "It appears that up to the reign of Qub?d (d. A.D. 531) the land tax was assessed on the produce at varying rates according to the type of farming practised and the nature of the crops raised. During the reigns of Qub?d and his son and successor An?sh?rav?n it was assessed by measurement of the land, except in the case of date palms and fruit trees, the tax on which was assessed according to the number of trees. According to ?abar?, Qub?d began the	

		6. Transactional Records (Presence)	6. Transactional Records (Absence)
		measurement and An?sh?rav?n completed it (I, 2, 960). Grain paid 1 dirham per jar?b, vineyards 8 dirhams per jar?b, and trefoil 7 dirhams per jar?b; the rate for Persian date palms was 1 dirham per four trees, and for palms of inferior quality 1 dirham per six trees, and for olives 1 dirham per six trees. One to two ?af?z in land were also paid per jar?b on grain land. The tax was paid in three instalments per annum (I, 2, 961–3). Mas??d? gives a somewhat different account: according to him, Qub?d fixed the rate in the Saw?d for wheat and barley at 2 dirhams per jar?b [...]. The story of the incidents leading up to the change in the method of assessment is related in substantially the same form by many early Islamic writers. According to this tradition Qub?d when out hunting one day came to an orchard where a woman was making bread. Standing beside her was a child whom she kept restraining from taking some of the fruit. Qub?d asked her why she did this. She replied that the fruit was shared between her and the king, and since neither the latter nor his tax-collector had yet divided it, it was not lawful for her children to take any of the fruit. Qub?d is then alleged to have determined to abolish this custom and to assess the tax on the land instead of on the produce. Before he could carry out his determination he died. An?sh?rav?n, his son and successor, implemented his plan and imposed a land tax on the estates, arable lands, gardens, orchards, and vineyards throughout the country and imposed a poll tax exempting from it only a few persons [...]. Ibn ?auqal states that the tax was paid in the form of a share of the harvest in pre-Islamic times until the time of Qub?d. The latter established the payment of fixed rents throughout the province of F?rs, payable when the granaries and threshing-floors were full (Kit?b ??rat al-Ar?, ed. J. H. Kramers (Bibl. Geog. Arab.), ii. 303–4). Christensen believes that this reform in the taxation system was both a relief to the population and a benefit to the treasury. In later times it formed the basis of the assessment of the caliphs. [...] Hamad?n? is quoted by the T?r?khi Qumm as stating that Qub?d was the first person to measure the land and institute [land] registers, [to define] the boundaries of the lands and [to fix] the land tax, and that he instituted a d?v?ni khar?j in ?ulw?n, which he called the d?v?ni ?adl [...]. It seems likely that the land registers continued to be kept there. When Mu??w?ah appointed an official in charge of land tax in Mesopotamia, the list of crown lands which had been in the possession of the Sasanian king and his family had to be procured from ?ulw?n [...]." (Lambton, Ann K. S., 1912-, 1953: 15)	
26	Iroquois		• "In addition to a shortgage of homes, other factors, acting as constraints or incentives on individual behavior, contribute to land disputes. A primary disruptive factor is the lack of surveyed and recorded boundaries. What little surveying has been done is

		6. Transactional Records (Presence)	6. Transactional Records (Absence)
			largely an amateur meets and bounds attempt, using topographical features rather than distance and bearing. Often the topographical feature's permancy is questionable, such as a meandering stream or a tree that dies. When property is exchanged the transaction is rarely recorded at the county recorder's office. At one time reservation property transactions were recorded by the tribal clerk but this book cannot be found. With no formal and controlled system of registering property lines and exchanges, conditions are ripe for all kinds of claims and counterclaims. One man tells of accepting a parcel of land as collateral for a debt. He says the debt was never paid and so he offered to sell the land to a third party. The original owner claims he repaid the debt and that the land is still his." (Evaneshko, Veronica, 1974: 192)
27	Jivaro		• "In actual practice, trading partners do not keep a strict accounting of transactions. Since a variety of valuables is exchanged by two “friends” at one time and since the Jívaro do not value numeration, the exchange is often slightly uneven. In terms of Jivaroan morality, however, it is apparently unthinkable that a “friend” would consistently attempt to take advantage of his partner in such transactions. To do so would jeopardize the continuance of the amigri relationship, and possibly the obligation of the host partner to protect the life of his partner against any local enemies." (Harner, Michael J., 1973: 130)
28	Kanuri	• "Like other district capitals, Magumeri’s highest ranking person is the District Head. As a district capital it also contains a Junior Primary School, a court house, an infrequently used District Council House, and a district office in which the tax records are kept by a Chief Scribe. These features are shown in the diagram below." (Cohen, Ronald, 1960: 6)	
29	Kapauku		• "One of the basic characteristics of the Kapauku economy is its true monetary quality. Most of the goods and services are not distributed through barter or gifts, [Page 301] as is the case in many primitive societies. On the contrary, most of the exchanges in this Kapauku society are accomplished by means of the sale contract. A sale presupposes existence of currency. The question arises whether a society with a primitive technology, such as the Kapauku, does have true money, a possibility questioned by Firth (1939: 6). According to the less rigid definitions of money proposed by some anthropologists (*e.g.*, Herskovits, 1952: 45), there is no question that Kapauku cowries function as money. The economists usually define it as “any commodity or token that serves as the common medium of exchange and the common measure of value” (Umbreit et al., 1948: 50). If we compare this definition with the use and function of Kapauku cowrie shells and two types of their necklaces, we have to conclude that these Papuans indeed possess true money. The Kapauku cowrie shell and necklaces are used as payment for food (rats, marsupials, pork), domesticated animals (pigs and chickens), crops, land, artifacts (canoes, planks, net bags, etc.), as well as reimbursement for garden work and services (magical curing, surgery, breeding of pigs, etc.). They are used to pay for the lease of land and for

		6. Transactional Records (Presence)	6. Transactional Records (Absence)
			damages in the form of blood money or legal fines, and they form the substance of the bride price. The value of objects is invariably expressed in terms of money. If a Kapauku is asked how large was his pig when it was slaughtered, he answers by stating how much money he obtained from the sale of its meat. Similarly, he estimates the value of a living pig as, for example, wijamagaataago, “a twelver,” or a pig worth 12 Kapauku cowrie shells." (Pospisil, Leopold J., 1963: 300) •"Nature and functions of Kapauku credit . Kapauku extend credit to individuals for reasons having little to do with immediate monetary profit. The nature of the Kapauku conception of interest is mainly responsible for this state of affairs. Unlike people in our culture, the Kapauku do not believe that time is money. Consequently, if interest is paid in this Papuan society, the amount bears little relationship to the duration of the credit. The native stipulates the amount of interest to be paid when the credit is given, irrespective of the date at which the money will have to be repaid. As a matter of fact, there is never a thought given to the duration of the credit. Legally speaking, all debts have to be repaid upon the creditor’s request, at any time. Also, payment of interest is not legally enforced. It is only moral pressure and the fear of acquiring a reputation for being dishonest and not keeping promises, that induce the debtor to pay the stipulated amount, including the interest. This attitude toward interest is partially responsible for the fact that only rarely is it charged. Credit is extended to people because it constitutes the most important form of generosity and is a sure way to acquire great prestige. The discussion of the political and legal implications of extension of credit in Part II, “Botukebo Village as a Segment of the Kapauku Sociopolitical Structure,” shows clearly that we have to look in this direction to find the main reason for and the main function of credit. As stated before, debtors constitute some of the best followers and political supporters a man can have. Many follow the decisions of a wealthy and generous man in anticipation of credit or because his generosity promises security in the form of future loans in time of financial need. A wealthy but stingy man is not likely to become a headman. Thus generosity in the form of extension of monetary credit forms a prerequisite for the assumption of political and legal leadership in Kapauku society. There is an ultimate feedback from the sphere of politics into the province of the headman’s finances in the sense that he, being a headman, can easily borrow money [Page 350] when he needs it, can secure the best and most reliable pig breeders, and receives merchandise (pigs, woti shell, etc.) at bargain prices. His political and legal status assures him that a man will seldom attempt to deceive or rob him in business transactions." (Pospisil, Leopold J., 1963: 349)
30	Khasi		• "Trade takes place between villages, with the plains areas, and between highland and lowland areas. Barter (though to a lesser extent now) and currency are the media of exchange." (Hugh R. Page, Jr., 1992: 123)
31	Klamath	No Data	No Data

		6. Transactional Records (Presence)	6. Transactional Records (Absence)
32	Kogi		• "Outside of the region of the Don Diego River, which owes its importance to these sales and purchases in connection with the family migrations, the sales of lands, of sugar cane plantings, or of platano plantings are also rather frequent. The economic instability of the tribe makes it easy for an individual to sell his platano planting in order to buy a sugar cane planting to try to improve his 121 situation by selling panela. If this industry does not yield sufficiently either, he again sells the sugar cane planting and his trapiche and buys a plot for planting potatoes. Thus the cultivated lands are in good part subject to change of ownership. These negotiations are almost never made on the basis of direct exchange or by the payment of money, but rather on credit. An individual buys a planting of sugar cane, for example, and makes a personal promise in the presence of chance witnesses to pay the amount asked when he sells the first panela. Since the panela transaction, however, is made with the mestizos, who are shrewd traders, the yield from the sale of panela is very small. The amount is not paid or not paid in full, and the debtor thus finds himself in a disagreeable situation with the creditor. These transactions in arable land almost always have grave consequences for both parties, and tensions between families or whole towns are aggravated for this reason." (Reichel-Dolmatoff, Gerardo Muirden, Sydney, 1951: 118)
33	Korea	• "Each yangban and hyangban household also had to keep a copy of its official census registration (ho-jok tung-bon) as proof of its class membership, to avoid taxes and military or labor service." (Biernatzki, William Eugene, 1931-, 1967 [1973]: 18) •"Since the genealogy book is printed only about every thirty years an exact record of births, deaths, and other important events is entered in this book “by the oldest man recorded in it” using a brush and ink. " (Biernatzki, William Eugene, 1931-, 1967 [1973]b: 18) •"For more than two centuries Korea has been so enfeoffed to China that Chinese has become the official language of the government and of high society. All government employees must write their reports in Chinese, and the annals of the king [Page 79] and of the kingdom, proclamations, edicts of mandarins, court decisions, scientific books, inscriptions on monuments, correspondence, merchants' registers and account books, signs on shops, etc. are all in Chinese characters." (Dallet, Charles; Messner, Charles A.; , 1874: 78) •"“They have abundance of old Books, both Printed and Manuscript, so choicely kept that none but the King's Brother is trusted with them. Copies of them with Cuts, are kept in several Towns, that in case of Fire they may not be quite lost. Their Almanacks are made in China , they themselves wanting skill to make them. They print with Boards or Wooden Cuts, and lay one Cut to each side of the Paper, and so strike off a Leaf. They cast Accounts with little long Sticks, as we do with Counters. They know not how to keep Books of Accounts or Shopbooks, but when they buy any thing, they set down the Price under it, and write on it what they made of it,	

		6. Transactional Records (Presence)	6. Transactional Records (Absence)
		and so find what profit or Loss.”" (Hamel, Hendrik, 1918: 147)	
34	Kuna		• "Today they handle any public business that involves writing or translation. They write almost exclusively in Spanish, even translating oral testimony out of Kuna in order to record it. They translate for non-Kuna visitors, accompany monolingual chiefs on missions, translate letters received by the village, write out travel permissions, keep attendance at both traditional congresses and local singing gatherings, write minutes of adjudications and other important meetings, keep lists, record laws, take periodic censuses, and write anything else the village asks of them." (Howe, James, 1986: 112) •"Although until recently most Kuna have been unschooled, villages have used their literate members extensively, to record cases, laws, judgments, and permits, to organize village finance and labor, and to keep up extensive external communication." (Howe, James, 1986: 22) •"Ethnic relationships to Central and South American cultures .—Summarizing in a a general way the material culture of aboriginal southeastern Panama as contrasted with that of northern Central America some generalizations may be made. Wherever the culture traits of the Chocó differ from those of the Tule and Cuna it is the latter stock rather than the former that represents a marginal culture related to that of the Maya on the north and of the Andean peoples on the south. Most of the traits possessed by both the Caribbean slope tribes, Cuna and Tule, and by the Chicó of the southern isthmian slope are typical of the South American lowland forest culture of the Caribs and Arawaks. The stone arrowheads and feathered shafts of northern Central American are supplanted by arrows with heavy foreshafts. Former employment of poisoned blowgun darts to stun game general; travel and transport entirely by boat; much hexagonal weave openwork and lapped-edge basketry; loomwork, but also beaten bark breech clouts and aprons; pottery coarse and crude;Calabash sieves and drinking vessels; vocal rather than instrumental music; polygamy; purification of menstruating women; traces of the couvade, divination, and use of the bull roarer; but absence of masks, books, calendars, temples, kings, coca chewing, [131] priesthood, and other traits characterize aboriginal southeastern Panama as distinct from northern Central America and from the Andean culture area as well, although possessing many traits marginal to them." (Krieger, Herbert William, 1889-, 1926: 128-131) •"Nuts are stored in a special hut by the beach, the depositor owning those he leaves there. They are delivered to the trading schooner as a whole batch, the village representative receiving the cash, credit or trade. Some Indians are shrewd sellers, but there is no record of any false dealing, and the verbal agreements are kept to the last letter. " (Marshall, Donald Stanley, No date.: 86)

		6. Transactional Records (Presence)	6. Transactional Records (Absence)
35	Kurds	• "By the late 8th millennium BC society in Kurdistan had become sufficiently complex to need records for commercial transactions. These records first appear in Kurdistan as variously shaped clay tokens, each shape signifying an item of trade and a number. The tokens began carrying extra markings on them by 7500 years ago. As the messages they carried became more complex for each transaction, the tokens were encased in clay casings, and sometimes strung through a central hole so that the sequence of tokens could form a sentence (Schmandt-Besserat 1986, Nissen, 1986)." (Izady, Mehrdad, 1992: 25) •"[An] indigenous token system continued to be used as the primary means of record keeping for a longer time." (Izady, Mehrdad, 1992b: 25)	
36	Lau Fijians		• "Exchange is effected mainly by means of barter, although occasionally by the ceremonial presentation pattern. It is practically always carried on between relatives who act as hosts to the traders, housing and feeding them while they remain on the island. Goods are usually exchanged not singly but in piles. There are no fixed prices and there is no medium of exchange. (See pages 209-.210.) First the initial payment or gift is made. The exchange is satisfactory if the return payment or gift is “levu” (big) for quantity is very important. Each transaction involves a unique adjustment between economic necessity and rivalry for social prestige on the part of traders. " (Thompson, Laura, 1940: 212)
37	Lepcha		• "Col. Lloyd was the originator of the idea of building a sanatorium for the hard worked servants of the East India Company [...] he not only issued a proclamation of takeover of the Darjeeling area on behalf of the East India Company in Lepcha language, but also carried on the work of administration in that language. Documents were written in the Lepcha script. [...][R]eceipt-books used to be printed in Lepcha." (Foning, A. R., 1987: 160)
38	Lozi		• "This situation is obviously mainly a product of the fact that there is no adequate system of recording judgments and disseminating them through the country." (Gluckman, Max, 1967: 253) •"Clearly the kuta has no tradition of referring to records, and its illiterate members could not do so. There is one record only and no distribution of copies to other kutas. Furthermore, there are no scholars (with the transient and exotic exception of myself) concerned with culling and analysing in writing the total body of precedents to produce convenient digests for judges." (Gluckman, Max, 1967: 257) •"The judges also prefer direct to circumstantial evidence, but they have frequently to decide cases on the basis of the latter. This is forced on them in many cases where it is impossible to obtain direct evidence, such as disputes about titles to land in the distant past, since there is no registration of land and there are no written records. In ‘The Case of the Prince's Gardens’ (p. 57, above), one judge even found against the land-borrower because he had not disputed the land until two important witnesses against him were dead. Furthermore, the Lozi do not have detectives to collect

		6. Transactional Records (Presence)	6. Transactional Records (Absence)
			evidence nor, as stated above, any techniques for fixing responsibility by finger-printing, comparison of hairs and blood, etc. They use both clocks and calendars nowadays, but on the whole their activities are still timed by season and sun. Hence judges cannot cross-examine meticulously on the respective timing or dating of reported actions. In 'The Case of the Violent Councillor' checking of times by judges occurred in cross-examination which I did not quote in detail, but the standards were the flexible times of gardening and fishing activities and of meals." (Gluckman, Max, 1911-1975, 1967: 108)
39	Maasai		• "Although the opportunity to migrate for wage labor had been available earlier, it was not until the 1960s that Maasai, who traditionally sold their stock only from absolute necessity, entered the monetary economy; they remain essentially self-sufficient." (Spencer, Paul, 1995: 208).
40	Mataco	No Data	No Data
41	Maya	• "[W]e found it common to lend money, sometimes in large amounts, apparently usually with a written receipt given; if the borrower is not a close friend or relative, it is likely that interest will be asked." (Redfield, Robert, 1962: 64)	
42	Mbuti	No Data	No Data
43	Mentawaians		• "It may finally be remarked that no record is kept of the deeds of ancestors nor of their names. Hence it is impossible to collect genealogies or historic traditions. All the Mentawei stories have nameless heroes." (Loeb, Edwin Meyer, 1962 [1928]: 425)
44	Mongol	• "Everything there has so far remained as it was hundreds of years ago, in the days of Genghis-Khan, or even earlier. Accordingly, the tamga, even nowadays, has all the characteristics of a universal organ of government and its competence extends to virtually every aspect of state power. The tamga keeps record of population figures (quite sloppily, to be sure, and moreover only of the male portion), it decides all administrative questions, [Page 588] administers justice, collects taxes, operates the urtons, manages state property, mobilizes and trains the armed forces, and represents the khoshun population at the aimak council. As a military unit, the khoshun is subject to the authority of the tsian' tsiun (Commander-in-chief); as an executive and judicial unit it is subject to the authority of the chulgan-darga (president of aimak seim). [...] The variety of the tamga's functions is reflected in the variety of the books it keeps. These books are: 1. Udarin-Gemdek — Book of Enteries. 2. Jisana-Khulga— Book of Expenses. 3. Albanu-Dansa— List of	

		6. Transactional Records (Presence)	6. Transactional Records (Absence)
		householders and tax assessments for each. 4. Khuragul-Dansa— List of “alba” tax payers with a record of how much alba, in money units, each is to pay (as well as how much he has already paid in.) 5. Tobchi-Dansa— A book in which a record is kept of all the alba sums received. 6. Dzaralun-Dansa— A book showing how the alba sums are being spent. 7. Jisana-Keregles Mungonoi Dansa— A book recording the apportionment among the tax payers of expenses going to the maintenance of the khoshun administration. 8. Dagaje-Shitkhekhe-Tobich-Dansa— A book of decisions and explanations regarding the legal actions of the Minister of Justice and the Chulgan-Darga. 9. Erin-Toliur-Dansa— A list of all the males in the khoshun (the list is revised every three years.) [Page 589] 10. Toktomyl-Albanu-Dansa— A book in which are entered the permanent alba payments, as for example, the “danshuk” (offering) for the Bogdo-Gegen, or expenses connected with oblations, offerings, etc." (Maiskii, I. M. (Ivan Mikhailovich), 1884-1975 Dayton, Mrs. Kunitz, J., 1921: 587) •"The record was divided into 12 chapters and 144 articles. The first chapter dealt with temples, the Bourkhans and the Lamas; the second with the way in which disputes were settled which arose between Lamas, officials and commoners; Chapter III with the various lists, the Yassak and other taxes and their payment; Chapter IV with the discharge of official duties; Chapter V with the collection of local dues, rewards, and the upkeep of local and district postal stations, as well as the repairing of roads; Chapter VI. Matchmaking and litigations between husbands and wives; Chapter VII. Debts; Chapter VIII. Control of the consumption of alcoholic liquors and the playing of cards; Chapter IX. Theft and searches; Chapter X. Trespassing on pastures, the allotment of hay and corn fields and the purchase and sale of corn; Chapter XI Precaution against fire, incendiarism in forests, and the supply of carts to Oolooses; Chapter XII. Miscellaneous matters." (Riasanovsky, Valentin Aleksandrovich, 1937: 71)	
45	Mongor	• "Let us note that in the marriage of a girl, even though there is only one single go-between, no marriage contract is written nor even a list of the gifts to be offered; while in the marriage of a widow, although there are two go-betweens, a contract is necessary, duly signed by the widow's parents-in-law and the go-betweens." (Schram, Louis, 1962: 32) •"The guests have been arriving since ten o'clock in the morning, some on foot, others on horseback. The guests' mounts are attached to ropes tied to stakes driven into the ground in the area in front of the door, just as nomads do in front of the tent. All the neighbors, on duty, await the guests in this area, who as they arrive are conducted into a room in the side buildings of the courtyard. In the room, on the wall facing the door, is hung a religious image. The guest bows to it, kneeling. A Chinese has taken up his stand on the k'ang; he holds a brush in his hand	

		6. Transactional Records (Presence)	6. Transactional Records (Absence)
		and writes in the register of festivities the name of the guest and notes conscientiously the gifts he brings. The master of ceremonies takes these, thanks the guest, claims that he has been too generous, and the guest leaves the room." (Schram, Louis, 1962: 46)	
46	Navajo		• "Navajos are not a record-conscious people [...]." (Adair, John, 1913-; Deuschle, Kurt W.; Barnett, Clifford R.; Rabin, David L.; , 1970: 16) •"Book credit against local checks breaks down into three basic classes: credit against unemployment checks, against relief checks, and against paychecks. The procedures in each case are essentially the same." (Adams, William Yewdale, 1927-; , 1963: 190)
47	Ojibway		• "During the early twentieth century, Indians kept a record of their balances either on wooden sticks stamped with Hudson's Bay Company seals, or in made beaver coins. The manufacture of these coins seems to have been the first step toward cash transactions. Yet since only the Company made them, it guaranteed that Indians would not trade with rival traders.: Go to end note page produced by the Company. Both were useful in ensuring that Indians would trade at the Bay posts, since they were of no value elsewhere. By the 1920's., some Indians were asking for their balances in cash if the value of the furs exceeded their debts. Another method of keeping Indians from competitors at this date was to give them a short supply of matches forcing them to return to the post frequently, since by 1910, Indians could not survive in the winter without matches." (Bishop, Charles A., 1974: 82)
48	Ona		• "It is doubtful whether any of the Fuegian languages has words for numbers above three; the languages are poor in abstract terms and rich in concretes. No kind of writing exists, not even by notches, sticks, pictographs, etc. The nearest approach to such is symbolic face and body painting." (Cooper, John, 1917: 180)
49	Orokaiva		• "Finding a village where we meant to lunch deserted for the time, we steal a bunch of bananas, cook them, and go on our way with invigorated and cheerful carriers. To account for this act of pillage we need only leave a stick or two of tobacco by the remains of the banana bunch, tied to a sprig of croton, which happens to be the heratu of a rather distinguished old native who is with me. We may then feel that we have not only made payment but given the fullest possible account of our behaviour." (Williams, F. E. (Francis Edgar); Murray, Hubert, 1930: 115)
50	Ovimbundu		• "Currency, in the sense of money, is quite a recent introduction to the Ovimbundu. To the end of their trading activities, cloth ('trade goods') was the standard of exchange. Although dependence upon world markets caused prices to fluctuate with the course of the rubber trade, as we have seen, there was not, however, the great range which follows the fluctuations of the money market through a course of inflation and deflation. The Ovimbundu had had some dealings in money before the time of World War I, when there was a silver coinage, so

		6. Transactional Records (Presence)	6. Transactional Records (Absence)
			that the depreciation which set in about 1921 was all the more confusing to them. This is not the place to discuss the finances and banking of Angola, but it must be noted that the conversion of the 'Escudo' into the 'Angolar' in 1928 at the rate of Ag. 0,80 to Esc. 1$00 greatly increased the sense of confusion among the natives. This was only to be expected when the native tax remained at Ag. 80,00 where it was Esc. 80,00 before, whereas daily wages to contract labourers became Ag. 0,80 where before they were Esc. 1$00. The confusion was considerable.2: 2 For finance, currency, banking, and economic conditions in general, see Department of Overseas Trade, Economic Conditions in Angola, H.M.S.O., 1929. There are also reports for 1923 and 1925, but the one for 1929 covers the previous decade. Taxes began to be levied soon after military occupation, but for some years they were very small, especially in relation to opportunities for earning." (Childs, Gladwyn Murray, 1949)
51	Palestinians	• "[A]n attempt was being planned to write a secret contract of the marriage of Fā□ima to Ibrāhīm Ma□ar, with Fā□ima's father signing as her guardian (wali). It was alleged also that Fā□ima's father's wife would try to get Fā□ima's thumb-print (while she was asleep) on a document empowering her father to act as her guardian. " (Cohen, Abner, 1972: 9999) •"[M]arriage contracts were recorded on printed forms and kept in separate registers. Such forms included space to record the name, age, place of residence, religion and profession of bride and groom, the names of agents or guardians, of witnesses, and of the court registrar. The marital status of the bride was defined as virgin (bikr) or non-virgin (thayyib), the amount and nature of the dower were taken down, including whether payment of part of it was deferred to dissolution through repudiation or widowhood, and specific marriage stipulations could be included." (Moors, Annelies, 1995: 84) •"He receives and publicizes government announcements and demands, registers births and deaths (sometimes also marriages), acts as liaison-man between the village and the authorities and police, conveys information about criminal offenses and disturbances of public security, welcomes guests, meets the police or army officials who visit in the village, showing them what they are looking for or certifying that the sought-after person or object is not in the locality. The mukhtār endorses the identity of persons for the purpose of securing identification certificates, signs all other documents (the most important of which are landownership titles in places where land settlement has not been carried out), distributes sugar and rice rations etc. He is also authorized to execute arrests and deliver the prisoners to the police. The vast scope of authority makes it possible for the mukhtār to derive personal material gain from his office, if he so desires." (Shimoni, Yaacov, 1915- Neubart, Leo Patai, Raphael, 1946/1947: 264)	

		6. Transactional Records (Presence)	6. Transactional Records (Absence)
52	Pashtun		• "The asymmetrical mode. Durrani often talk of the marriage of a woman as a 'sale' and of the brideprice as a 'price', the words used being those appropriate to any economic transaction. When they discuss brideprice, they do so using a generic term (walwar), but they always recognise that a contract may be one of two kinds, the 'chopped-up' (kotara) or the 'named' (mosamma). In the kotara contract the amount is fixed before witnesses at the engagement ceremony; once this sum has been paid, the groom or his guardian can insist the wedding be held. With a mosamma brideprice, the amount is not fixed at the engagement ceremony, rather the contract is open-ended and whatever the bride's guardian asks as brideprice must be paid before the wedding can be held." (Lindisfarne, Nancy, 1981: 395)
53	Pawnee	• "He comes forward with his little child, who carries a small stick and hands it to the chief, who turns it over to the assistant chief, who passes it on to the record keeper." (Fletcher, Alice Cunningham, 1845-; Murie, James R.; Tracy, Edwin S., 1904: 256) •"A man is selected to notch a stick as a record of the number of ponies presented to the Fathers and to whom each pony is given. " (Fletcher, Alice Cunningham, 1845-; Murie, James R.; Tracy, Edwin S., 1904: 100)	
54	San		• "Would she comprehend the world of publishing, print, reading, and publicity? She did understand the concept of writing as a method used to record speech for later interpretation by reading: she had told me that she would ask Richard Lee to write a letter to me, and she had seen other anthropologists and officials of the Tswana courts using writing in various contexts. She also knew enough about the marketplace—buying and selling, making and spending money—to understand the principle of a book as a commodity, like a piece of clothing, that sometimes sells and sometimes doesn't. Since I was planning to set aside a portion of whatever profit the book might make for the Kalahari People's Fund and, in an appropriate manner, for Nisa herself, it seemed important to discuss our shared financial interest in the book's success. All in all, I felt hopeful that when I did talk to her again, she would approve of the project. If not, I resolved that I would abide by her wishes." (Shostak, Marjorie, 1981: 351)
55	Santal		• "But besides matters for which registration in a formal meeting of the whole village is necessary, there are other contracts and gifts for which registration is demanded but to a lesser degree. Such cases include: (i) the showing of bare itat' and its receipt, (ii) the payment of the bride price, (iii) the grant of presents at bahu bande and jawae dhuti, (iv) the conveyance of land to a custodian, and (v) the engagement of a servant." (Archer, W. G. (William George), 1984: 14) •"[T]he village officials or in certain cases only the villagers must witness the transaction and register it on behalf of the village. " (Archer, W. G. (William George), 1984b: 14) •"A people whose only means of recording facts consists of tying knots in strings, and who have no bards to hand

		6. Transactional Records (Presence)	6. Transactional Records (Absence)
			down a national epic by oral tradition, can hardly be expected to preserve the memory of their past long enough or accurately enough for their accounts of it to possess any historical value." (Biswas, Prophilla Chander, 1984b: 9999)
56	Saramaka		• (Price, Richard Price and Sally, 1994: 296) •"In terms of the use of symbolism, too, the contrast between men's and women's arts is clearly related to their differential contact with coastal society. Occasionally (though much less frequently than the literature would suggest), Saramaka men incorporate in their wood carvings a small mark that can be "read" as a specific message (see S. and R. Price 1980 a:189). These marks seem to emerge from the same admiration for the idea of literacy that prompted a Djuka man to develop his own "script" in the early twentieth century and that inspired a number of male messianic leaders to "read" inspirational passages from their open palms. Women are well aware of the use of symbolic marks in men's carving, but they are also adamant that the extra elements they add to their finished textiles or calabashes (see, for example, S. and R. Price 1980 a: figs. 93 and 255) are, in contrast to the men's, intended only as marks of ownership." (Price, Sally, 1933: 197)
57	Seminole		• "On 1 January 1966 the Seminole tribe took over the direction of the cattle program for a four-year period. The board and Superintendent Quinn became the decision makers, and their directives were implemented by the state extension agent who acted as cattle manager. The cattlemen's association became merely an advisory, educational, and marketing organization. Under the new cattle regulations adopted by the board, every owner had to sign an agreement that clearly delineated rights, privileges, and responsibilities; penalties could be [Page 102] imposed on owners who did not adhere to the regulations. "The expectation was that a written agreement would stop the dissension and controversy arising from misunderstanding of the role of cattle raiser."44: 44. Garbarino, Big Cypress, 116.: Go to end note page By the end of the year Quinn reported that the number of individually owned herds had been reduced to approximately sixty-seven and each was profitable. Yet after paying loans and fees, income was low: the twenty-six cattle owners at Brighton had an average income of $2,092 during the 1966–69 planning period; twenty-two cattlemen at Big Cypress averaged a slightly higher $2,290.45: 45. Kersey, "Economic Prospects," 2.: Go to end note page Beginning with fiscal year 1968 the financial burden of the cattle program was transferred from the Seminole land development account to the newly formed Seminole Indian Cattle Improvement Enterprise. At that time the loan due to the federal government for land development exceeded $411,000; within two years it would add another $250,000 to the tribal debt. The Cattle Improvement Enterprise consolidated the operations of six separate bull-improvement and cattle programs on the reservations. The comprehensive plan devised by Superintendent Quinn remained in effect for many years, while the cattle owners continued to be a contentious group within the Seminole tribe." (Kersey, Harry A., 1996: 101)

		6. Transactional Records (Presence)	6. Transactional Records (Absence)
58	Serbs	• "Exchange of Fields. When a property is divided the brothers try to get their fields grouped in one place. When plots are small and separated, they may be exchanged. This is done in writing. The party which cancels the exchange contract must pay a high fee in compensation." (Pavlovic, Jeremija M., 1973: 126)	
59	Shulh	• "That any land at all is ever for sale is thus a reflection of differing valuations placed upon land. Nobody sells off his main fields or irrigated land, but small, out-of-the way bur fields might be disposed of under the proper conditions. Sale is always validated by a written contract, the attestation to the transaction being drawn up by a notary (' adl), the same paper then serving as a "deed" to the property." (Hatt, Doyle Gordon, 1993: 390)	
60	Somali	• "[T]he practice among the Migiurtini of drawing up in writing the contracts that transfer the ownership of a planting. (It may be that such a practice pertains to the tribes inhabiting the coastal commercial centers; it does not seem likely to me that among the "gentes" of the interior, where it would be very difficult to find a person not illiterate, the written contract is used. " (Cerulli, Enrico, 1959: 113) •"The Arab merchant who wants to send a caravan into the interior draws up with a Somali Migiurtino a contract by which the merchant consigns to the Migiurtino a specified quantity of wares to be sold in the interior." (Cerulli, Enrico, 1959: 116)	
61	Taiwan Hokkien	• "There is another aspect of the law that should be briefly mentioned, that is, contract law. While marriage in China results in the creation of a new status, it has traditionally been preceded by a contract to marry. This contract was either oral or written. If it were an oral contract, the go-between, who invariably played a role in a Chinese marriage, served a very important function as witness to the negotiations and the final contractual agreement" (Buxbaum, David C., 1978: 223)	
62	Tarahumara		• "Finally, the relative isolation of the Sierra partially accounts for the absence of markets in which the Tarahumaras might both buy and sell the goods and skills which many have learned from Spaniards, Mestizos, and Blancos." (Champion, Jean René, 1970 [1963]: 535)
63	Tikopia		• "The Tikopia have no fixed calendar and no names for the months or for the days or nights of the month. They count moons or nights of the moon for specific purposes, as in estimating pregnancy or periods between events, but they use no tallies to assist them in this. The term tau, meaning literally 'a measurement' or 'count is used for a season and sometimes for a year as a whole, but has no great precision." (Firth, Raymond William, 1940: 2)

		6. Transactional Records (Presence)	6. Transactional Records (Absence)
64	Tiv		• "There-upon the young husband, or ex-husband, produced his receipt on which the scribe had made a note at the first hearing several months before. The guardian complained loudly that a mere paper was taken as evidence against his word, that Tiv were becoming as bad as Europeans in regulating their lives by papers, and that talking a matter over would be much better than looking at a paper and making a decision out of hand." (Bohannan, Paul, 1968: 23)
65	Tlingit		• "The Conclusion reiterates the thesis that Tlingit oral tradition is structurally congruous to Tlingit social structure, and suggests further that the genres of oral tradition follow the pattern of exchange of goods, services, and marriages as identified by previous analysts of Tlingit social structure." (Dauenhauer, Richard, 1975: 1)
66	Tongans		• "The copra station, to which a copra board official comes weekly to weigh and pay out returns for copra, is a particular boon for Tahitapu. The presence of this station precludes the expensive and inconvenient necessity of transporting copra to Neiafu and is undoubtedly an added stimulus to enthusiastic and regular copra production in Tahitapu." (Marcus, George E., 1978: 139)
67	Toradja		• "Before the food is served for the guests, the following ceremony takes place. A boy or a girl who still has both parents sits down next to the tadoe on the rain mat (with ax and stones under it). The tadoes kneads a ball out of the new rice and sticks this on a native needle; sometimes a little piece of the rice crust in the little pot is used for this. With the needle the tadoe counts from 1 to 4 on the lips of the child, while the latter keeps his eyes closed, and shoves the rice into his mouth. The child closes his lips firmly on the needle, and, after the tadoe has counted from 1 to 7, she pulls out the needle." (Adriani, Nicolaus, 1865-1926; Kruijt, Albertus Christiaan, 1951: 176) •"People know nothing about the legal regulations of the fiqh / fikh , Moslem law/. And Malay fiqh-books are unknown. At most a few visitors to Mecca have heard the word fiqh sometime. But if a fiqh book were available, it would be of little use, for no one can read Arabic writing, and only a few can read Boeginese /Buginese/ with a great deal of difficulty. The few regulations about which this one and that one knows something to say have been picked up fortuitously from a passing hadji or pandita who knew more about them. Otherwise the old pagan adat continues to rule." (Adriani, Nicolaus, 1865-1926; Kruijt, Albertus Christiaan, 1951: 313)
68	Trobriands		• "They were usually able to settle things amicably, but where a deadlock was reached, several elders of the clans could be called in to give further information to the councillors. Some of these claims might concern cases in which a considerable lapse of time had occurred since the rightful owner had temporarily disposed of some of his garden land, and in which the succeeding generation or generations have not handed back the land to the descendant of the original man who parted with the ground. In such cases the present holder of the land often does his level best to retain the ownership;

		6. Transactional Records (Presence)	6. Transactional Records (Absence)
			and unless there are people alive who remember the transaction or unless the claimant can remember the old-time legends connected with the ground in question, it is possible for the present holder to keep his title to the land. However, the weight of public opinion sometimes forces an issue on its own account, and where two claimants come to blows, the loser of the fight might be forced to give up any claims to the land. In the olden days, it is doubtful if a fight would ever eventuate, for commoners as a rule held no title to land except through a person of rank, and then the title was one of usufruct only [...]." (Austen, Leo, 1945: 49)
69	Tukano		• "The litany's contents reflect this goal. Diachronic exchange is its foremost theme. Exchange among the Wanano is the mode through which interaction occurs between properly placed social entities, whether they be individuals or groups. Synchronic exchange occurs in various spheres of social life, including the exchange of marriage partners, languages, or material goods. Diachronic exchange involves the receipt of an ancestor's name, which breathes life into an individual; through the name, the ancestor endows the recipient with a right to social existence, as well as a particular placement and a concomitant set of social, economic, and ritual privileges. The recipient, in exchange, owes the ancestor, and the social group, the responsibility of living up to the name. To a Wanano, the bearer of an ancestral name is the "exchange" for that ancestor, his present incarnation. In this way, ancestor and descendant exchange life-giving acts. This exchange principle cycles ranked names down through the generations, abolishing time and perpetuating rank order. " (Chernela, Janet Marion, 1993: 82)
70	Tzeltal	• "The Indian Fiador carries the accounts of the debt, counting with corn grains, and is responsible for collecting the money from his fellow villagers and for paying the debt to the Ladino . [...] In any big transaction, such as the buying of barrio lands, the Ladino will insist in having him to be fiador , and without him, the Indians cannot carry on their purchases. If the Indians refuse him certain special privileges, he can easily blackmail them by refusing to play the fiador role for them. Of course, he cannot carry his demands too far, without endangering his authority or even his person." (Hunt, Muriel Eva Verbitsky, 1962: 31)	
71	Warao		• "In a closing comment I should like to point out that from an ethnoecological point of view the Warao universe is inherently capable of being transported to and established in another milieu. Its dynamics stem from an existing contract of compelling mutuality between man and the supernaturals who, like partners, rely on each other to provide goods that are lacking to either side. To establish such a contract the Warao had to inventory carefully their environment and exchange regional resources. [Page 148] As a navigational people the Warao are mobile and accustomed to travel, to trade, and to record transactions mentally over long spans of time until a particular arrangement can be realized. I have given the example of the novice shaman

		6. Transactional Records (Presence)	6. Transactional Records (Absence)
			who spends years in acquiring the paraphernalia of his office through interzonal exchange with fellow Warao or on overland and overseas journeys to deal with foreigners." (Wilbert, Johannes, 1979: 147)
72	Wolof		• "The written record, however, naturally favors the possibility that the borrowing was from a European rather than from an African source. The peoples of Senegal and the Gambia have been in contact with European culture since the beginning of the sixteenth century, longer than any of the other West African peoples. The Wolof, who traded first with the Portuguese, then with the British, Dutch, and French, observed the European technique of evaluating goods with some commodity used as a standard, and later they saw European currency itself in use. In the Gambia, as in other parts of the West Coast of Africa, trade with the Europeans resulted in the invention of a standardized token of value—usually a trade good—wherever the indigenous population did not already have some type of money of its own. One such "invention," widely used during the days of the slave trade in the Senegambian region and along the entire Windward Coast, was the "Iron Bar," a measure of value to which other goods were related. The trade became known as "the bar trade," and, when Moore was on the Gambia, he noted that a bar was equivalent to one pound of fringe, two pounds of gunpowder, one ounce of silver, or a hundred gunflints (Wyndham 1935:67). The price of trade goods stated in bars varied from one place to another, and some bars were worth more than others. Nevertheless, iron bars functioned adequately as a standard of value. They, as well as European cloth, gold dust, copper bars, and cowrie shells, were used in various parts of the coast, and as Wyndham (1935:70) says:" (Ames, David W., 1955: 1021)
73	Yanoama		• "Determining the age of people in anthropological or nonliterate populations poses a difficult and frequently impossible problem. It is one of the principal reasons for the relatively few demographic analyses of population dynamics in anthropological literature. Age as a measure of a life span assumes a unit of measurement and a counting system, both of which are cultural conventions. Western societies employ the cyclical relationship between the earth and the sun to measure time and they also use a unitary counting system which can handle the smallest to the largest numbers. By contrast, the Yanomama employ the cyclical relationship between the moon and the earth for their [Page 54] infrequent measurements of time. Their counting system identifies only three measured units--one, two, and a residual category "many," which simply means more than two. Individuals do not know their age because there is no need for it, and there are no written records. The difficulties of estimating age exclusively from physical appearances are well known, especially in a culture alien to the investigator." (Early, John D. Peters, John F., 1990: 53)
74	Yukut		• "Yakut oral histories begin well before first contact with Russians in the seventeenth century. For example, OLONKHO (epics) date at least to the tenth century, a period of interethnic mixing, tensions, and upheaval that may have been a formative period in defining Yakut

		6. Transactional Records (Presence)	6. Transactional Records (Absence)
			tribal affiliations. Ethnographic and archaeological data suggest that the ancestors of the Yakut, identified in some theories with the Kuriakon people, lived in an area near Lake Baikal and may have been part of the Uighur state bordering China. By the fourteenth century, Yakut ancestors migrated north, perhaps in small refugee groups, with herds of horses and cattle. After arrival in the Lena valley, they fought and intermarried with the native Evenk and Yukagir nomads. Thus, both peaceful and belligerent relations with northern Siberians, Chinese, Mongols, and Turkic peoples preceded Russian hegemony. When the first parties of Cossacks arrived at the Lena River in the 1620s,. Yakut received them with hospitality and wariness. Several skirmishes and revolts followed, led at first by the legendary Yakut hero Tygyn. By 1642 the Lena valley was under tribute to the czar; peace was won only after a long siege of a formidable Yakut fortress. By 1700 the fort settlement of Yakutsk (founded 1632) was a bustling Russian administrative, commercial, and religious center and a launching point for further exploration into Kamchatka and Chukotka. Some Yakut moved northeast into territories they had previously not dominated, further assimilating the Evenk and Yukagir. Most Yakut, however, remained in the central meadowlands, sometimes assimilating Russians. Yakut leaders cooperated with Russian commanders and governors, becoming active in trade, fur-tax collection, transport, and the postal system. Fighting among Yakut communities decreased, although horse rustling and occasional anti-Russian violence continued. For example, a Yakut Robin Hood named Manchari led a band that stole from the rich (usually Russians) to give to the poor (usually Yakut) in the nineteenth century. Russian Orthodox priests spread through Yakutia, but their followers were mainly in the major towns. By 1900 a literate Yakut intelligentsia, influenced both by Russian merchants and political exiles, formed a party called the Yakut Union. Yakut revolutionaries such as Oiunskii and Ammosov led the Revolution and civil war in Yakutia, along with Bolsheviks such as the Georgian Ordzhonikidze. The consolidation of the 1917 Revolution was protracted until 1920, .in part because of extensive opposition to Red forces by Whites under Kolchak. The Yakut Republic was not secure until 1923. After relative calm during Lenin's New Economic Policy, a harsh collectivization and antinationalist campaign ensued. Intellectuals such as Oiunskii, founder of the Institute of Languages, Literature and History, and Kulakovskii, an ethnographer, were persecuted in the 1920s .and 1930s. The turmoil of Stalinist policies and World War II left many Yakut without their traditional homesteads and unaccustomed to salaried industrial or urban work. Education both improved their chances of adaptation and stimulated interest in the Yakut past." (Balzer, Marjorie Mandelstam, 2)

		7. Printing (Presence)	7. Printing (Absence)
1	Akan		• "Akan languages started to be written down, mainly in religious publications, by Danish, German and British missionaries during the 17th and 18th centuries. There are currently three standardized orthographies for Asante, Akuapem and Fante, there is also a unified Akan orthography which was created during the 1980s. " (Ager, Simon, 2013.) •"Owing to the fact that writing was unknown until our contact with Europe, the processes of arrest and summons were carried on by set forms of verbal instruction or order. A chief despatching a State messenger or Ahenkwa to arrest a criminal provides him with a State emblem, such as a gold sword, and issues his instruction to him through an Okyeame in some such words as the following: " Mate se Kwaku Kuma Akoton Amanyakurom asase a minnim ho fwe, enti k okyere no br e me", "Information has reached me that Kwaku Kuma has sold Stool Land attached to the town of Manya without my knowledge and consent, therefore I hereby order you to arrest and bring him to me." This formula differs slightly from that used in the case of accused summons: The Ahenkwa is provided with a State emblem, and the order is as follows: " Mate s e Kwaku Kuma as ee Ntam enti h o h ofa no bre me", "Information has reached me that Kwaku Kuma has abused the national oath (by swearing it against an improper person or on an improper occasion) therefore go and bring him before me." In a ci[illegible] or oath summons the formal words are usually as follows " Kwadjo Kotto se onè Kwaku Kuma wo nkuro (anase ake[illegible] ntam) enti kohyia no bra." "Kwadjo Kotto alleges a claim (or an oath case) against Kwaku Kuma therefore go and invite the latter to come before me." After the introduction of writing and British jurisdiction all these formulæ were replaced by printed forms in accordance with the regulations of the Native Jurisdiction Ordinance." (Danquah, J. B. (Joseph Boakye), 1928: 90) •"Twi is a tonal language and, since missionary work during the eighteenth and nineteenth centuries, has been written in Roman script." (Gilbert, Michelle, 1994: 11)"Twi is a tonal language and, since missionary work during the eighteenth and nineteenth centuries, has been written in Roman script." (Gilbert, Michelle, 1994: 11)"Twi is a tonal language and, since missionary work during the eighteenth and nineteenth centuries, has been written in Roman script." (Gilbert, Michelle, 1994: 11)
2	Andamans		• "Writing: Unwritten." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.a) •"No marks on rocks, trees or other objects, made for purposes of record, are believed by them to exist, and, with the exception of the supposititious hieroglyphics, hereafter to be mentioned, nothing of the nature of writing is to be found among these tribes, nor have they any method of recording the name and exploits of a deceased chief or other individual who may have gained distinction during his life, save the narration --more or less garbled--of the same by their admiring descendants. The messenger who conveys intelligence to a distant encampment bears no outward token with him to testify to the authenticity or character of the communication he has to make." (Man, Edward Horace, 1932: 46)

		7. Printing (Presence)	7. Printing (Absence)
3	Aranda		• "The socio-historical development of literacy in Arrernte : a case study of the introduction of writing in an aboriginal language and the implications for current vernacular literacy practices" (Kral, Inge, 2000.: 1)
4	Aymara		• "The Aymara originally used a collection of symbols, mainly pictures of people or things, as a mnemonic device. The symbols represented the things they portrayed or similar sounding words but never developed into a complete writing system. The symbols were originally written on animal skins using plant or mineral pigments but paper was substituted after the arrival of the Spanish in the 16th century." (Ager, Simon, 2013.)
5	Azande		• "Often, the chiefs ruled territories too extensive or too populated to permit direct relations to be established between them and their bakumba. They then delegate their powers to brothers, or sons, who in practice, do not remain attached to the central authority except through a contract of allegiance, vaguely feudal in nature. At the same time that it expands, the Azande chiefdom prepares within itself, the lines of least resistance, where the break will occur upon the disappearance of the chief. The great feudatories claim the right to total independence: almost inevitably, the struggle for hegemony will break out between them. It is this process of administration, required by the impossibility of administering at a distance, for lack of a means of written communication, which brings about the ruin of all the Azande empires which have succeeded. [Page xxii-xxviii(d)] Good for conquest, and for extension of the race, the Azande organization is incapable of constructing a centralized and durable empire." (Calonne-Beaufaict, Adolphe de, 1921: xxii) •"Writing: Latin script, used in Democratic Republic of Congo." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.)
6	Bahia Brazilians	• "This study deals primarily with the families of the upper classes, partly because the sources available for the study of upper-class Brazilians are much more varied than those on the lives of the poor. Many sources afford glimpses into the imagination and ideas of the poor, but they cannot compare with what we can learn of the mental lives and values of prosperous Brazilians. For example, this study makes extensive use of memoirs and private correspondence, and virtually all the extant documents of this kind are by upper- and middle-class individuals. It uses the newspapers, which were written by and for the literate upper ranks of society. And it uses Brazilian fiction, primarily realist and satirical novels, which were written for a cultivated audience and often from an upper-class stance. For similar reasons, this study focuses on the capital city of Salvador and the traditional heart of the province, the Recôncavo plantation counties around the Bay of All Saints. This region was the center of population and of the economic and political life of Bahia during the Empire. The identification of city and province was so strong that the city of Salvador was often called “Bahia” by Brazilians inside and	

		7. Printing (Presence)	7. Printing (Absence)
		outside the province. Although the scope [Page 8] of this study extends occasionally to other regions, such as the backlands fringes and the southern cacao frontier, the official archival sources and the literature of memoirs, biographies, and genealogies are richest for the Recôncavo. The scope of its conclusions should thus be carefully surveyed. There is much to learn of the Brazilian people from the study of the upper class; there is much to learn of Rio Grande do Sul from the study of the Bahian Recôncavo; but we should keep the boundaries in mind as we develop contrasts and generalizations." (Borges, Dain, 1994: 7)	
7	Banyoro		• "Reading and writing were first used in Uganda by Arab traders from around 1844. Although the Arabs were the first to introduce written information (texts) in Uganda, they did not make any effort to teach reading and writing in Arabic outside the practice of the Islamic faith (Ssekamwa, 2000.). Literacy in the Roman alphabet was introduced into Uganda by Christian missionaries in the late 19th century. The first to arrive were the Anglican Church Missionary Society from England in 1877, followed by the Catholic White Fathers' Society from France in 1879. Both groups came with a mission to 'civilise', using religion and education. Literacy was therefore initially introduced into Uganda as an integral part of Christian religious practices, making Christianity the first social and institutional framework within which literacy found meaningful use in everyday life in Uganda. By embracing the Christian faith, the local people embraced a literate culture involving the use of the Bible, prayer books, hymn books and other religious texts (Byakutaga & Musinguzi, 2000.; Onono-Onweng, Holmes & Lumumba, 2004.; Ssekamwa, 2000.). Wherever the missionaries went, their first task was to learn the local languages, develop orthographies for that particular language, and translate and print Bibles, prayer books and hymn books in that language. The missionaries emphasised the use of local languages in their literacy work, which gave local languages status and acceptability within church practices. Initially literacy was taught directly in relation to Christian instruction and the preparation of new converts (Byakutaga & Musinguzi, 2000.; Parry, 2000.b). New converts, in the Anglican Church in particular, were inducted into the Christian faith through reading and writing biblical texts. Becoming a Christian often became closely associated with becoming literate. The Anglicans emphasised reading of the Bible by individuals themselves. Therefore, before the establishment of schools, reading was taught as a precondition for becoming an Anglican Christian. The Catholics on the other hand emphasised rote learning of prayers and religious doctrines printed in other Catholic literature and did not require learning how to read and write as a precondition, although they also conducted some literacy classes (see Byakutaga & Musinguzi, 2000.; Parry, 2000.a)." (Lyster, George Openjuru; Elda, 2007.: 99-100)
8	Bemba		• "The spelling of Bemba was standardised between 1972 and 1977 by the Zambian Ministry of Education." (Ager, Simon, 2013.) •"WritingBraille script. Latin script, primary usage." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.)

		7. Printing (Presence)	7. Printing (Absence)
			•"The Bemba had no form of writing prior to their contact with the European world at the end of the nineteenth century." (Maxwell, Kevin B. (Kevin Burns), 1941-, 1983: xvi) •"The oral tradition redacted by homeostasis. There are innumerable changes in any living culture over time, but an oral culture does not have the technology for the intellect to understand them as mutations. There is an oral tendency towards [Page 111] cultural homeostasis (Cf Ong 1982, 46-9). This process is impelled by the social function of memory, which stores only what is socially relevant and conveniently forgets all else in a “structural amnesia” (Goody 1977, 14; 1968, 307-09). New constituents of the cultural heritage are adapted to the old, as the people strive after meaning by harkening after their normative past. The result is that the oral Bemba have little perception of the past except in terms of the present (Richards 1960, 179). They lack writing as a mechanism, by which they could build up a body of chronologically ordered statements to compare with their present views (See above, 85ff). Any present adjustments to the tradition will be gradually introduced as having always been so conceived, convincing the people that the new is in fact part of the true, venerable version of the tradition. Oral transmission, as a performance, then, is not a mechanized memorization but an imaginative process of continuous creativity (Ong 1982, 57-68). It reconstitutes and transfers elements within the latitude of the tradition (Goody 1977, 116-17). An oral tradition is never “an inert acceptance of a fossilized corpus of themes and conventions,” but represents an “organic habit of recreating what has been received and handed on” (Lord 1964, xiii). Tradition is actually more of a process (traditio) than a product (tradita). Thus, even the successful debut of the Christian rendition of Lesa could be construed as due to this oral propensity to conceive of contemporary developments as “having always been so” in the tradition." (Maxwell, Kevin B. (Kevin Burns), 1941-, 1983: 110)
9	Blackfoot		• "The Blackfoot syllabary was devised by John William Tims (1857-1945), an Anglican missionary from England who spent 12 years from 1883 to 1895 among the Blackfoot people in the North-West Territories of Canada (now Alberta). " (Ager, Simon, 2013.)
10	Bororo		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.e)
11	Bosnian Muslims		• "In the late 1880’s and 1890’s some Sarajevo Muslims inaugurated an intellectual and cultural campaign to change the prevailing attitudes of the Muslim landowning class. Their program of moderate reform won the enthusiastic backing of Austrian officials. Pressed by Serbian and Croation nationalist agitation, Sarajevo Muslims wished to inspire greater pride in the Bosnian Muslim ethnic group and revitalize the landowning elite. They hoped to make the landowning class more responsive to the demands of the late nineteenth century without weakening its economic foundations. To this end they organized a large reading society. (Kiraethana) and founded a moderate progressive newspaper, Bo[unknown]snjak " (Donia, Robert J., 1986: 50)

		7. Printing (Presence)	7. Printing (Absence)
12	Central Thai		• "These complex changes require that this book be brought up-to-date in order to retain its value for understanding the ways the Thais deal with the present-day experience of life in an urbanizing and increasingly anonymous society. Because of this, the new edition analyses current trends of change in the religious and political make-up of Thai society and brings related events into focus. This study also considers the current school curriculum and newspaper commentary. From all this it will become apparent that, in spite of the rapid changes going on, basic patterns of thought seem to hold their own, and continue to affect the understanding of social life." (Mulder, Niels, 1996: 7)
13	Chuuk		• "Missionaries devised a way to write Chuukese using the Latin alphabet during the 19th century. In the 1970s linguists modified the missionaries' system with the addition of the accented letters." (Ager, Simon, 2013.) •"Before the Spanish Government had gained sufficient influence in the islands, the people of Truk lived under the rule of numerous petty chiefs who were constantly engaging in inter-district and inter-island warfare. In Spanish and German times, Catholic and Protestant missionaries Christianized and subdued the warlike tendencies of the population, but many of the old suspicious attitudes still show in present-day culture patterns. The numbers of Spanish and Germans who came to Truk at any one time were relatively small; they left their mark on the people in the folklore, in the religion and in the alphabet which they applied to the Trukese language, teaching the people to read and write. It was left to the Japanese to make the most impression on the native economy." (Fischer, Ann M.. 1950: 7) •"Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.f) •(Zharnitskaya, Maria, 1994: 78)
14	Croats	No Data	No Data
15	Dogon		• "Writing: Unwritten." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.b)
16	Garifuna		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.g)
17	Garo		• "Brief lists of Garo words were compiled by British officials in 1800, and Garo acquired a Latin-based spelling system during the late 19th century. This was devised by American Baptist missionaries and based on a northeastern dialect of Garo. A version of the Bengali alphabet is sometimes used to write Garo in Bangladesh. Garo publications include some collections of stories, weekly newspapers, school books, dictionaries and religious works, including the bible. People use the language for private correspondence and some signs." (Ager, Simon, 2013.)
18	Guarani		• "Guaraní is one of the offical languages of Paraguay, along with Spanish, and started to appear in writing in the form of religious texts during the 18th century. [...] The Guaraní alphabet shown below was introduced after a Guaraní language congress in Montevideo, Uruguay.

		7. Printing (Presence)	7. Printing (Absence)
			The idea was to take the spelling of Guaraní away from the Spanish model." (Ager, Simon, 2013.) •"The process of alphabetization in the mission schools, the translation of ideas of the dominant culture into the native language, particularly catechisms, was a powerful force of cultural domination. Catholic values and concepts were more easily transmitted to the Indians through catechism books and the repetition of sermons by the Indians as directed by the Jesuits. Although learning to read and write in their native language was part of the process of indoctrination, by becoming adept writers in their native language and learning mathematics, some of the Guaraní mission Indians could also keep track of their community property, better conduct their daily affairs, keep town council records, make financial transactions, and communicate with one another despite the long distances between missions. The Jesuit missions had one of the first printing presses in the Rio de la Plata. A number of native and Jesuit authors published their works at the missions of Santa Maria La Mayor and San Francisco Xavier during the early eighteenth century. These included the works by Father José Serrano, S.J., De la diferencia entre to temporal v lo eterno, Crisol de desenga[unknown]nos, con la memoria de la etermidad (1705), which included forty-three illustrations by a mission Indian, Juan Yapari: Paul Restivo, S.J., Explicación del catecismo de Nicolás Yapuguay (1722), Father Antonio Ruíz de Montoya's Vocabulario de la Lengua Guaraní ...(1722), Arte de la Lengua Guaraní with notes by Father Restivo (1722); and Casique Nicol[unknown]as Yapuguay's Explicaci[unknown]on del Catecismo en Lengua Guaraní (1724) and Sermones v eiemplos en Lengua Guaraní (1727). Basildes Britez Fari[unavailable]a, Hist[unknown]oria de la cultural guaraní (Asunción, n.p., 1988), 17-19. No ethnohistorian or linguist has studied these rare native catechisms to understand the process of evangelization of the Guaraní mission Indians during the Jesuit period. These works have been neglected because so few scholars of the Guaraní language can read the classical Guaraní of the Jesuit missions.: It is nearly impossible to assess how many or what [Page 132] percentage of the Guaraní mission Indians became literate. Literacy was not always confined to members of the native elites. According to the available historical evidence. Guaraní mission Indian fugitives, most of whom were peons, living in Buenos Aires and Santa Fe in the mid-1750s, kept in touch with events in their mission towns "through the letters they received" from other mission Indians. 33: Bernardo Nusdorffer, S.J. "Segunda parte de los sucedido en las Doctrinas despues que salió de ellas el Pe. Luis de Altamirano para Buenos Ayres..." 1753, BNRJ, Se[unknown]c[unknown]ao de Manuscritos, Roll 31846. Defensa de los Jesuitas 1.2.3.4. Guerra de los Guaranies, 8.2.25, folio 17.: Unlike the Maya, Mixtec, Nahua and other indigenous people in Mesoamerica, the Tupi-Guaraní and other tropical lowland South American Indians had no precolonial tradition of writing. The Guaraní literary tradition is similar to that of postconquest developments in colonial Mexico among the Nahua in that missionaries learned the native languages, and then a whole native literature came into being, including dictionaries, grammars, catechisms, collections of sermons, and other writings. 34 : Frances Karttunen, "Nahuatl Literacy," in The Inca and Aztec

		7. Printing (Presence)	7. Printing (Absence)
			States, 1400-1800: Anthropology and History edited by George A. Collier, Renato Rosaldo, and John D. Wirth. (New York and London: Academic Press, 1982): 395-417.: The Guaraní mission musician and chief, Nicolás Yapuguay, authored a few religious texts published in the native language using the mission printing presses. His works include Explicación de el catechismo en lengua guaraní, Sermones y exemplos en Lengua Guaraní and Tábua dos graus de parentesco en guaraní . Bartomeu Melià, Marcos Vinicios de Almeida Saul, and Valmir Francisco Muraro. Q Guaraní , 339. These texts deserve further attention by the few scholars who are able to read classical Tupi-Guaraní. Only parts of the text. Explicaci[unknown]on de el catechismo en lengua guaraní , are available at the Archivo Provincial de Buenos Aires de la Compa[unknown]nia de Jesus.: These works are discussed in more detail in Chapter Five." (Ganson, Barbara Anne, 1994: 131) •"Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.h)
19	Hausa		• "Similarly, but perhaps less revolutionary in this context, is the fact that work in the theatre promotes interaction among different classes and ethnic groups within the country. This has been one of the aims of the government of Niger in promoting theatre and the other cultural activities for the national festivals. Before the Diffa Festival in 1981, Le Sahel, Niger's only newspaper, made this statement [...]." (Beik, Janet, 1984: 73)
20	Highland Scots	• "Other small industrial activities in the island during the nineteenth century included the business of Alexander MacPherson, chemist, druggist, stationer and printer, who set up in Stornoway in 1842. He brought across the Minch with him Lewis's first demy-size hand printing press, which was still in use on 1 January 1889 to produce the first issue of the short-lived The Lewisman . Copies of this earliest Lewis newspaper can be seen at Stornoway Public Library. Early in the 1890s Thomas Nicolson also set up as a printer." (Thompson, Francis G., 1973: 127)	
21	Hopi		• "Hopi is an Uto-Aztecan language spoken by approximately 5,000 people in northeastern Arizona in the USA. Although there are relatively few speakers, the language is still being passed on to children and about three quarters of the Hopi people speak Hopi as a native language. There are four main varieties of Hopi: First Mesa or Polacca, Mishongnovi or Toreva, Shipaulovi or Sipaulovi, and Third Mesa or Oraibi. They were identified by Benjamin Whorf, who was the first to analyse the Hopi language and who focused on the Mishongnovi variety. There is a Hopi-English dictionary edited by Emory Sekaquaptewa, and the language is promoted by the Hopi Literacy Project." (Ager, Simon, 2013.) •"Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.j) •"Marriage customs have been drastically modified. Early in the century an occasional Hopi couple was persuaded to go through a "White" ceremony, at the insistence of a missionary, school superintendent, or government official. Now it is customary for couples voluntarily to have a "White" civil or religious ceremony before entering into the protracted rites of a Hopi wedding. 4: 4. For a study of the traditional marriage ceremony at

		7. Printing (Presence)	7. Printing (Absence)
			Oraibi, see H. R. Voth, “Oraibi Marriage Customs,” American Anthropologist, vol. 2, no. 2 (1900).: Go to end note pageThis change of custom does not necessarily indicate conversion but is based on a desire for official written records, since the Hopi have no writing. The people realize that documented weddings make it harder than was earlier the case to get a divorce. On the other hand, women, especially, feel that possession of written records simplifies numerous dealings with the American government. For example, legal documents make it easier for wives to get money allotments if their husbands go into the armed services, and women with official papers stand a far better chance of getting financial support in the event of divorce." (Titiev, Mischa, 1972: 328)
22	Iban		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.k)
23	Ifagao		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.l)
24	Igbo		• "But this view would not be entirely correct or fair. The Committee and the Society were concerned to minimize the number of radical changes to be introduced into the writing of the Language. The new symbols introduced by the new Africa orthography, as already said, required the manufacture of special [Page 370] typewriters for use in typing in Igbo language. This its opponents considered unduly expensive. Though it must be pointed out, that if the new script had been adopted for writing all African languages as originally suggested, the cost of such typewriters would have been greatly reduced. Also, argued the members of the S.P.I.L.C., the new characters of the Africa orthography made it impossible to send messages in the Igbo Language by teleprinter. In this regard, however, one may ask whether this can now be done using the □nw□ orthography which uses more diacritic marks than are found in the standard Latin alphabet used in teleprinters. Whatever the case, however, the Government accepted the □nw□ Orthography and imposed it on all and sundry. With this the old and the new Africa orthography disappeared from the scene. This shows what could have been achieved if in those early days there had been a government that felt strongly enough on the matter and that came out with a firm decision on the two vexed questions of literary dialect and orthography." (Afigbo, A. E. (Adiele Eberechukwu), 1981: 369) •"The Igbo, like many of their neighbours, did not evolve an indigenous script with which to reduce their language to writing before the advent of European rule. Nor did their territory lie within the area of West Africa which was influenced by Islam and the Arabs who spread the use of the Arabic script as they went. For a time in this century scholarly attention was drawn to Nsibidi, an indigenous sign-writing which flourished on the Cross River basin and in the Eastern Igbo area. This has not been studied in detail, but its use was severely limited. Though it served important functions, as will be shown below, it did not evolve into a script for writing indigenous languages in the same way as the Roman or Arabic script did. As a result in the nineteenth century the missionaries found themselves faced with a tabula rasa

		7. Printing (Presence)	7. Printing (Absence)
			as far as reducing Igbo language to writing was concerned. This problem was in no way limited to Igbo. It was one which the missionaries faced in most of Africa and Asia. Not surprisingly they sought a universal solution to this widespread problem. For the Igbo this global approach to the problem in time turned out to be unfortunate." (Afigbo, A. E. (Adiele Eberechukwu), 1981: 365)
25	Iran	• "At the same time that calligraphy was running such an exciting course the subsidiary arts of the book were equally put under tribute. The paper-maker was encouraged to exploit his utmost resources (cf. p. 190) and by the fifteenth [Page [105]] century novel tints and delicate polychrome spanglings became all the rage, especially for lyrical poetry. In one lovely little volume of poems in the De Motte Collection each page with its single verse has been stained and sequined to correspond to the emotional tone of each successive mood. To these basal elements were added the fully developed talents of the illuminator and gilder who decorated the margins of the pages (Fig. 47),1 worked up the intricate frontispieces and designed chapter headings and other subsidiary ornaments. Of these gorgeous frontispieces, and particularly of the beautiful little panels of the chapter headings of the late fifteenth and early sixteenth centuries, it is impossible to speak temperately. The unapproachable perfection of their technique, their harmonies of colour and movement, the clear logic of their interrelations must leave every sensitive observer inarticulate. Here is a vast mass of material as extensive and varied as the scores of Johann Sebastian Bach, unstudied and almost unseen (Fig. 48).2" (Pope, Arthur Upham, 1930: 104-105)	
26	Iroquois		• "Oneida alphabet [from Latin]." (Ager, Simon, 2013.)
27	Jivaro		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.m)
28	Kanuri		• "IT IS DIFFICULT TO IMAGINE the young M. Zarami memorizing the Koran, locked nightly in his room, wearing only a loincloth, and spurred on by his father's lashes. For today, he is a man of the world, bright-eyed, alert, well-dressed, and handsome. He is knowledgeable of both world and African politics from listening to the news broadcast in Hausa by many foreign radio stations. 1 : Foreign powers attempt to reach the people of Northern Nigeria by beaming in radio programs in Hausa, the area's most widely spoken language.: In addition, he regularly reads both Hausa and English newspapers, although his English skills are relatively undeveloped. Another source of information about his country and continent is government officials, whose association he has enjoyed through active involvement in party politics for the past ten years." (Peshkin, Alan, 1972: 99)
29	Kapauku		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.n)

		7. Printing (Presence)	7. Printing (Absence)
30	Khasi		• "In recent centuries, under Islamic influence, the Arabic script has become the written vehicle for some South Asian langauges [...], and under still more recent European influence, the Roman script has been introduced for still others (*e.g.*, Konkani, some Austro-Asiatic languages such as Khasi [....])." (Salomon, Richard, 1996: 372)
37	Klamath		• "A number of methods of writing Klamath have been devised by linguists, such as Albert S. Gatschet, who published a dicionary, grammar and texts during the 1870s, and M.A.R. Barker who did the same during the 1960s, and by tribal elders. Barker's system most accurately represents the sounds of the language." (Ager, Simon, 2013.)
32	Kogi		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.o)
33	Korea	• "“They have abundance of old Books, both Printed and Manuscript, so choicely kept that none but the King's Brother is trusted with them. Copies of them with Cuts, are kept in several Towns, that in case of Fire they may not be quite lost. Their Almanacks are made in China , they themselves wanting skill to make them. They print with Boards or Wooden Cuts, and lay one Cut to each side of the Paper, and so strike off a Leaf. They cast Accounts with little long Sticks, as we do with Counters. They know not how to keep Books of Accounts or Shopbooks, but when they buy any thing, they set down the Price under it, and write on it what they made of it, and so find what profit or Loss.”" (Hamel, Hendrik, 1918: 147)	
34	Kuna		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.p)
35	Kurds		• "In the last two decades, the impact of the ongoing communication revolution on economy, politics and culture has been a major theme in academic and media debates and in the policy-making circles of governments and international bodies. Although new media technologies are transforming the entire world including the Middle East, these debates have largely focused on Western societies. This book provides the first study of the transformation of a Middle Eastern society, Kurdistan, in the context of the introduction of printing, recorded music, radio, television, and the Internet. It analyzes the complex and often conflictual interactions of media technologies, culture, statehood, nationalism and globalization." (Hassanpour, Amir, 2007.: [n.p])
36	Lau Fijians		• "David Cargill (1809-1843), a [S]cottish missionary and pioneer in the study of the Fijian Language, devised a way of writing Fijian with the Latin alphabet based on the Ba'u (Bauan) dialect." (Ager, Simon, 2013.) •"Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.q)

		7. Printing (Presence)	7. Printing (Absence)
37	Lepcha		• "The real history of Lepcha literature goes back to the times when the first of the Buddhist Lamas came from Tibet and started to get the Tibetan religious scriptures and books translated into the language of the aboriginal Lepchas. This was primarily and mainly undertaken for the purpose of proselytizing the shamanistic autochthons, and converting them to their own faith, Buddhism. According to some scholars, whatever books there were in the land were collected and made a bonfire of. This is another controversial subject. However, not going into it deeply, let us see in what way these plain translations helped to maintain a continuity of the written part of the language for at least a little over two centuries." (Foning, A. R., 1987: 153)
38	Lozi		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.r)
39	Maasai		• "There is a Maasai dictionary, a Maasai translation of the Bible [in a Latinate script], and a few other publications, but generally the language is not used in writing very much." (Ager, Simon, 2013.) •"Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.d)
40	Mataco		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.s)
47	Maya		• "The actual uses of literacy are so few as to be easily mentioned. The comisario, or some other literate man, reads the official communications occasionally sent to the village by the national or the state government, by the Liga or by the Agrarian Commission. One or two men are able to compose replies without the aid of the teacher. Two kinds of books exist and are consulted. One is the church calendar; to this recourse is had when a name is sought for a new-born infant. The other is the booklet of Catholic prayers, in print or in manuscript; there are several of these and they are studied by those maestros cantores who happen to be literate, that they may perfect their knowledge of the ritual used at novenas (see p. 151). There is one man (and probably no other) who owns and occasionally reads a Spanish New Testament (see p. 229). This man has also come very recently to read the Merida newspaper, which is occasionally sent to Chan Kom for the teacher; sometimes he explains to others of the village items that have interested him." (Redfield, Robert, 1934: 17)
42	Mbuti		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.t)
43	Mentawaians		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.u)
44	Mongol		• "The circumstance that the full text of the Yassa has not come down to us is satisfactorily explained in general by the non-existence of printing at the time and particularly by the absence of a Mongolian written language.16 : 16 At that time the Mongols used Uigur and Chinese graphic signs. From the 1269 they used square characters, and only from 1911—the modern writing. See Laufer—"Outline of Mongolian Literature", 1927, p.19.: The non-inclusion of the Great Yassa in the codification of the

		7. Printing (Presence)	7. Printing (Absence)
			Yuan dynasty is fully explained by fact that Jenghiz Khan neither was nor had ever been a Chinese emperor, nor was the [Page 30] Yassa a collection of Chinese law. The contradiction with regard to the Yassa met in the works of foreign authors may be elucidated by the fact, that, printing being unknown, all the information about it was obtained through oral transmission, often at second and even third hand, the only written copies of the Yassa being kept in the state archives or in the record offices of princes which were generally not easily accessible, and quite inaccessible to foreigners.17: 17 The Mongols generally considered the Law as a thing to be disclosed to the initiated but hidden from the masses (v. further the example of the Khalkha Djirom)." (Riasanovsky, Valentin Aleksandrovich, 1937: 29)
45	Mongor	• "In 1644 T'u-ssu Lu Yung-ch'ang, ancestor of the ninth generation and successor of Lu Kuang-tsu, was killed in Lien Ch'eng by brigands. Lien Ch'eng was destroyed, the palace burned down, and the wooden blocks used for the printing of the Chronicles disappeared in the flames (Vol. II, sect. 3, 52). After the recomposition of the Chronicles by Lu Chi-hsun wooden blocks must have been carved, if not during his lifetime, certainly during and before the end of the incumbency of his successor Ju Kao (1852–1893), because the biography of Ju Kao is not printed in the Chronicle, but is added, written in pencil, after 1850." (Schram, Louis, 1961: 70B)	
46	Navajo		• "Navajo first appeared in writing in 1849 in the form of a Navajo word list published in the Journal of a Military Reconnaissance by Lt. James H. Simpson." (Ager, Simon, 2013.) •"Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.v)
47	Ojibway		• "James Evans, a Wesleyan missionary working at Norway House in Hudson's Bay, invented a syllabary for the Ojibwe language in about 1840. He had tried to produce a Latin-based orthography for Ojibwe, but eventually gave up and came up with a syllabary, based partly on Pitman shorthand." (Ager, Simon, 2013.) •"Writing: Latin script. Unified Canadian Aboriginal Syllabics script, no longer in use." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.)
48	Ona		• "It is doubtful whether any of the Fuegian languages has words for numbers above three; the languages are poor in abstract terms and rich in concretes. No kind of writing exists, not even by notches, sticks, pictographs, etc. The nearest approach to such is symbolic face and body painting." (Cooper, John, 1917: 180)
49	Orokaiva		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.w)
50	Ovimbundu		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.x)

		7. Printing (Presence)	7. Printing (Absence)
57	Palestinians	• "Poetry, rather than the novel, has been the most prevalent mode of critical literary expression among the Arabs in Israel. The reasons are structural and historical. In the former case, the absence of a viable Arab novel in Israel is due not only 'to the fact that poetry as an art vehicle is more effective and suitable for diffusion, but because [of] the publishing conditions surrounding Arab writers in the occupied land', as the late Kanafani, a well-known Palestinian [Page 182] writer, has remarked. Thus, there are no independent Arab publishing houses in Israel, similar to those which exist in the Jewish sector. Almost all political parties, from Communists to Zionists, operate their corresponding Arab publishing houses. Moreover, some of the Arab religious organizations participate in Arabic publishing. Rakah, and to a lesser extent Mapam, have provided an outlet for radical Arab literature. However, in all cases the party line prevailed in terms of what was allowed to be published. In the case of Mapam, its Arabic publishing efforts at one time included pirating books published in the Arab world. In this way, Israeli Arab readers had a limited access to non-political writings emanating from the neighbouring countries, in particular from Egypt." (Zureik, Elia, 1979: 181)	
52	Pashtun	No Data	No Data
53	Pawnee		• "Neither personal relations nor the personnel of the household were cramped within a fixed kin structure. The individual personality was not trimmed down to fit the kin structure, but the structure was used to realize the individual personality. The Pawnee social structure was written into no statute book, nor did it have the status of doctrine, and there was no chain of command to enforce it. Therefore it was not frozen and clamped onto the people, but carried implicitly by them to serve them as they saw fit. No built-in guilt, acting as a surrogate for dominant power, forced them to narrow the scope of their personal lives. They were socially creative in every personal interrelationship they had. The world was raw and their life was hard, but it was also freer than ours. No religious or supernatural sanction enforced the social forms. The only [Page 51] possible penalty for transgression of kinship forms was adverse public opinion. This was a very important deterrent, but it was of a quite different quality from religious, military, or political sanctions, for it was within the network of the contemporary community, not in a specialized sector of it, and it was therefore possible for a person to cope with it in the course of daily living. Pawnee life was certainly not a Utopia. The time and the place in which it existed could allow no such hope, but in its freedom from dominance it had something we now can afford and don't know how to take." (Weltfish, Gene, 1965: 50)
54	San		• "Khoekhoe [Latinate] alphabet" (Ager, Simon, 2013.) •"Would she comprehend the world of publishing, print, reading, and publicity? She did understand the concept of writing as a method used to record speech for later interpretation by reading: she had told me that she

		7. Printing (Presence)	7. Printing (Absence)
			would ask Richard Lee to write a letter to me, and she had seen other anthropologists and officials of the Tswana courts using writing in various contexts. She also knew enough about the marketplace—buying and selling, making and spending money—to understand the principle of a book as a commodity, like a piece of clothing, that sometimes sells and sometimes doesn't. Since I was planning to set aside a portion of whatever profit the book might make for the Kalahari People's Fund and, in an appropriate manner, for Nisa herself, it seemed important to discuss our shared financial interest in the book's success. All in all, I felt hopeful that when I did talk to her again, she would approve of the project. If not, I resolved that I would abide by her wishes." (Shostak, Marjorie, 1981: 351)
55	Santal		• "The tales are, as will be understood, written in genuine Santali, without any attempt at polishing, only obvious errors or slips of the pen having been corrected. Before the missionaries came, the Santals had no written language. What they had of 'literature' was all stowed away in their memory. Incantations, songs and certain other matters are in a stereotype form, often such as not to be always properly understood by the present generation. This is not the case with the folk-tales, where, within certain limits, there is full freedom for the narrator. The language of these may consequently vary as to individual form and expression. There is no literary style. Santali has not like some other Indian languages, as e. g. Bengali, a high or literary form, a colloquial and a vulgar form. The language of these tales is just as the people speak." (Bodding, Paul Olaf, 1921-1940: 42)
56	Saramaka		• "In terms of the use of symbolism, too, the contrast between men's and women's arts is clearly related to their differential contact with coastal society. Occasionally (though much less frequently than the literature would suggest), Saramaka men incorporate in their wood carvings a small mark that can be "read" as a specific message (see S. and R. Price 1980 a:189). These marks seem to emerge from the same admiration for the idea of literacy that prompted a Djuka man to develop his own "script" in the early twentieth century and that inspired a number of male messianic leaders to "read" inspirational passages from their open palms. Women are well aware of the use of symbolic marks in men's carving, but they are also adamant that the extra elements they add to their finished textiles or calabashes (see, for example, S. and R. Price 1980 a: figs. 93 and 255) are, in contrast to the men's, intended only as marks of ownership." (Price, Sally, 1933: 197)
57	Seminole		• "Creek first appeared in writing in 1736. Laws were being written in Creek from 1849, and a standard alphabet, the 'National Alphabet', was adopted in 1853. By the 1870s newpaper articles in Creek were being published." (Ager, Simon, 2013.)
58	Serbs	• "Milo[unknown]s also accomplished administrative work. He was responsible for a code of laws and improved internal government; and, although himself unlettered, founded many schools, and set up a printing press for books and a newspaper. Printing presses had appeared in Serbia and	

		7. Printing (Presence)	7. Printing (Absence)
		Montenegro as early as the fifteenth century; but had invariably been destroyed by the Turks. The educated Serbs and Croats from Austria-Hungary again came to Serbia's assistance, as well as the bishops of the now independent Serbian Church. But Milo[unknown]s, who had assimilated some of the qualities of a pasha, became more and more of an autocrat; and this passion for power did not suit Serbia, always democratic in her customs. He annoyed the other chiefs too, because he refused to give them great estates; so Serbia remained a nation of peasant proprietors. In 1838 he was obliged to grant a constitution, though he again tried to say: "Not yet." At this time he assumed the title of Chief of all the Serbs. Six months later he quietly abdicated, in a mood of disgust. But it is said that, before crossing the Save, he exclaimed: "I shall die ruler of Serbia!" These words came true, for the people, tired of Alexander Karadjordjević's misrule, recalled the "Old Lord" in 1858, and he reigned, less absolutely, for two years before his death at the age of eighty." (Lodge, Olive, 1941: 48)	
59	Shulh		• "One must not expect to find in the texts of the Moroccan authors information that would permit one to study the institutions of a province far away from the Empire. First of all, /xii/ historic sources truly worthy of the name are rare in this country; the writers of recent centuries, especially those whose information is most important to us because it explains the present more, scarcely tell us anything except the greatest events of each sovereign's reign; for the nineteenth century, barely a few pages of Akensous and of Ahmed en Nasiri bring us the brief account of the Sultan's expeditions or set down the weakened echo of the wars that took place in the Atlas. For the tribes, even in the zaouias there are scarcely any archives that can fill the gaps of the official history; sometimes only a few records give us the names of vanished leaders, or, still more rarely, the flyleaf of a law book bears, in the awkward hand of a poor village scholar, the mention of the date of the great events [Page vii] /xii cont./ that struck his mind, death of holy personages, passage of the Sultan's armies, struggles of villages or cantons." (Montagne, Robert, 1930: vi)
60	Somali		• "A note is due here on the transcription of the Somali language in this study. Although there have been several scripts devised for recording the Somali language, none has to date been adopted by the Somali government. The orthography used in this study was developed [Page 4] by myself acting independently of any government agency. It is my private script, which I use in recording Somali poetry and folklore. The following is a linguistic description of the symbols used in this orthography which differ from English. The International Phonetic Alphabet (I. P. A.) symbol is given for the reader's convenience.." (Galaal, Muusa H. I., 1968: 3) •"Musa Galaal has distinguished himself as a writer of the Somali traditions and culture and has produced many pamphlets, periodicals and books. His present book entitled "TERMINOLOGY AND PRACTICES OF THE SOMALI WEATHER LORE, ASTRONOMY AND ASTROLOGY" is yet another addition to the rare treasure of written records on Somali traditions. In this book, the author has shown that it is possible to write down the most valuable

		7. Printing (Presence)	7. Printing (Absence)
			cultural aspects and traditions of our country which have so far been preserved in the memory of the people. Preservation of traditions and culture in the memory of the scholars cannot be permanent and, in fact, we have reached a stage when our valuable traditions are fast disappearing from the life of the people. The handicap of writing the rich traditions has all along been the lack of script for the Somali language. Musa Galaal has overcome this difficulty by writing his book in English." (Galaal, Muusa H. I., 1968: ii)
67	Taiwan Hokkien		• "Taiwanese first appeared in writing in the late 19th century in a Romanisation system known as Pe̍h-ōe-jī (POJ). Since then a number of different methods of writing Taiwanese have been devised, some using the Latin alphabet, some using Chinese characters, some using Japanese kana, and others using a mixture of the different scripts." (Ager, Simon, 2013.)
62	Tarahumara		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.y)
63	Tikopia		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.z)
64	Tiv		• "Writing: Latin script, used since 1936." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.)
65	Tlingit		• "There are three orthographies currently in use for Tlingit. The oldest of these is the “Revised Popular” orthography which developed in the 1970s from the now abandoned system devised by Constance Naish and Gillian Story in the 1960s. [...]. In all three systems, all unaspirated sounds occuring at the end of syllables are written with symbols for the aspirated sounds." (Ager, Simon, 2013.) •"The history of Angoon and its people seems to fall into several “periods,” represented by different types of traditions of documentations. The white man would logically divide it into at least three temporal eras: (1) prehistoric, or prior to contact with Europeans in the 18th century, and lacking written records; (2) early historic, beginning perhaps with the discovery of Alaska in 1741, or with the first venture into Angoon territory by a European; this would be covered, especially in the later decades of the 18th century, by an increasing number of reports by explorers, traders, and the Russian-American Company; (3) recent historic, a well-documented period, beginning with the purchase of Alaska by the United States in 1867 and running into the present. For the native of Angoon the divisions are not quite the same, especially since the prehistoric and early historic periods could hardly be distinguished by a people whose contacts over many years with Europeans were only brief and intermittent. It was not, in fact, until 10 years after the purchase of Alaska by the United States that close association with the white man began. Then came the founding of the station at Killisnoo and the Presbyterian Mission school at Sitka which many Angoon children attended. Thus it is only within the memory of the old people that native history and white history really run side by side. Prior to this, some episodes in native tradition can be equated with events described in written

		7. Printing (Presence)	7. Printing (Absence)
			documents, but others cannot. Often temporal clues are lacking, because the modern storyteller does not know, for example, whether firearms were used in the battles he describes." (De Laguna, Frederica, 1906-, 1960: 128)
66	Tongans		• "Tongan was first written by missionaries in the early 19th century using a number of different spelling systems. The current system was promulgated by the Privy Council of Tonga in 1943." (Ager, Simon, 2013.) •"The establishment of schools with the structure of a formal educational system has been one of the most effective forces in changing the culture of the villagers from primitive to folk-culture. Nevertheless it is easy to overassess the role that literacy plays in village-life. The large majority of the villagers are able to write the Tongan language. Most of them can read Tongan. To what use however, are these abilities put? As far as one can judge there is very little use made of writing except in the very occasional signing of one's name to some legal or government document. The writing of letters is infrequent. The attitude of the villager here is that everything can wait until personal contact is established, either by personal visiting or by the use of a visiting intermediary. Similarly, the use of reading-skills is very limited. Its principal use for most is that of reading such familiar material as Bible-lessons or church hymns. Children in school naturally use simple reading-texts with secular topics. With school-days far behind, however, the Bible becomes all-important and here one's ability to read is sometimes almost entirely limited to its use in reviving memory of key-words in sacred texts that are otherwise well-remembered but temporarily forgotten. Some households also possess the single-paged printed combination almanac-calendar issued by the government printer. The only virtue of this calendar seems to lie in its possession, not in its use. Dated days are of no significance to the villager except to mark off one Sunday from another and this function is performed equally well or better by church-bell and pulpit-announcement." (Beaglehole, Ernest, 1906- Beaglehole, Pearl, 1910-, 1941: 49) •"The following account of the origin of the name Pukotala gives a picture of the method of transmitting orders from a chief to his tenants: On the island of Haano there are four villages. Starting from the northwestern end of the island, they are Muitoa, Haano or Lotohaano, Pukotala, and Fakakakai. The lord of the island, known as Tui Haa Ngana, holds sway over the first three, but Fakakakai never had a chief and as its name indicates is made up of people from different parts that have settled there. In the olden days when the chief desired to give notice to the people of some new arrangement, he summoned his attendants and matapule to Haano and told them what he wanted accomplished. A runner was dispatched to Pukotala to acquaint the folk there of Tui Haa Ngana's intentions. On the outskirts of the village was a big puko tree (“cottonwood”) and up this the runner used to climb and yell out at the top of his voice his chief's wishes. It was from this circumstance that the place derived its name: puko, cottonwood tree; tala, to tell." (Gifford, Edward Winslow, 1929: [n.p.]) •"In Tonga the genealogies of the great chiefs seem not to have been kept by the priests. These great genealogies were in the custody of the elderly woman of chiefly rank who memorized them and taught them to the young chiefs. With the adoption of writing, this custom of learning genealogies by heart has fallen into disuse. It is

		7. Printing (Presence)	7. Printing (Absence)
			said that the women who were the repositories of the genealogies often discussed them among themselves and thus refreshed one another's memories. The genealogy which was supplied to me by the Queen of Tonga was set down from memory by the Tamaha Amelia with the aid of the chief named Shadrach Mumui. As soon as these two learned to write they decided to record the genealogies of the great chiefs and this record which was begun more than 75 years ago has been continued down to date." (Gifford, Edward Winslow, 1929: 232) •"Most of the chiefs are young men who could make themselves understood in English, and when we asked them the names of the different islands, many of them would take a slate and write them down, some agreeing to a letter with Captain Cook's account, this they have learnt from the English missionaries, three of whom are settled here, and who to my astonishment, informed me they had begun to teach the natives writing only five months ago, and in that time they had completely exhausted their stock of Tonga literature, and were now learning English of their own. (Laws 1829)" (Lātūkefu, Sione, 1974: 56) •"When George Tubou became king in 1845 his people were in the white-heat of a conversion to Christianity. The missionaries had taught them to read and write, and to pass a simple code of law. They had imbued them with envy of the dignity of civilised States,—their law courts, their police, the uniforms and salaries of their officials, and their other blessings of civilisation—including taxes. All these the Tongans might have if they were shown how to begin. For years there was no one to direct their nascent aspirations. Their teachers had no enterprise, and devoted themselves to the spiritual rather than the temporal needs of their flock; but at last with the necessity came the man." (Thomson, Basil Home, 1894: 2)
67	Toradja		• "The litany of the priestesses is all in poetic style; the poetic form is indeed the only one in which formulary pieces can be preserved among peoples who are not familiar with written language, because in this way a very great measure of immutability is guaranteed. The rules of the meter are strict, four feet of two syllables, now recited as iambic, then as trochaic. For example: Oentoëmo kawalekoe, “a distant journey I have made,” 122 Awarimo kajanokoe “I have made a trip far away,” and Banja boeja meronangi, “I have to gain it from my sarong.” They are almost always parallelistic; hence the great need for alternate words which are sometimes again formed artificially, by dividing a word in two, for example, and then replacing one half by a synonym, as if, for example, in Netherlandish one were to interchange a word like gemak /”ease”/ with getam, because mak /”tame”/ and tam /”tame”/ are synonymous. " (Adriani, Nicolaus, 1865-1926; Kruijt, Albertus Christiaan, 1951: 619)
68	Trobriands		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.{)
69	Tukano		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.a)

		7. Printing (Presence)	7. Printing (Absence)
70	Tzeltal		• "Tzeltal [latinate] alphabet" (Ager, Simon, 2013.)
71	Warao		• "Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.b) •"In the absence of written records, the establishment of an absolute chronology for a bogland population is wrought with uncertainties. But at the time of Level's report on the Missions of Guyana (1850:1–17), in the mid-nineteenth century, no permanent settlement existed as yet along the banks of the Winikina proper. Genealogical information substantiates this fact and indicates that this situation prevailed until 1928." (Wilbert, Johannes, 1980: 14)
72	Wolof		• "Although important as a trade language in West Africa since the early period of European contact, Wolof has no significant literary tradition. It has been written occasionally in Arabic and Roman letters, but systematic instruction in Romanized Wolof was begun only in the 1960s." (Coulmas, Florian, 1999)
73	Yanoama		• "Determining the age of people in anthropological or nonliterate populations poses a difficult and frequently impossible problem. It is one of the principal reasons for the relatively few demographic analyses of population dynamics in anthropological literature. Age as a measure of a life span assumes a unit of measurement and a counting system, both of which are cultural conventions. Western societies employ the cyclical relationship between the earth and the sun to measure time and they also use a unitary counting system which can handle the smallest to the largest numbers. By contrast, the Yanomama employ the cyclical relationship between the moon and the earth for their [Page 54] infrequent measurements of time. Their counting system identifies only three measured units--one, two, and a residual category “many,” which simply means more than two. Individuals do not know their age because there is no need for it, and there are no written records. The difficulties of estimating age exclusively from physical appearances are well known, especially in a culture alien to the investigator." (Early, John D. Peters, John F., 1990: 53) •"Writing: Latin script." (Lewis, M. Paul; Gary F. Simons; Charles D. Fennig (eds.), 2013.c)
74	Yukut		• "Yakut first appeared in writing in 1692 as part of a book by the traveller N. Witsen and published in Amsterdam. The first literary work in Yakut Reminiscences by A. Y. Uvarovsky and its German translation was published in 1851 as a part of Otto N. Böhtlingk's work About the Yakut language. Böhtlingk used an alphabet based on Cyrillic with some special characters. Between 1922-1939 a version of the Latin alphabet devised by S.A. Novgorodov was used to write Yakut, and since 1939 the Cyrillic alphabet has been used." (Ager, Simon, 2013.) •"Yakut oral histories begin well before first contact with Russians in the seventeenth century. For example, OLONKHO (epics) date at least to the tenth century, a period of interethnic mixing, tensions, and upheaval that may have been a formative period in defining Yakut tribal affiliations. Ethnographic and archaeological data suggest that the ancestors of the Yakut, identified in some theories with the Kuriakon people, lived in an area near

		7. Printing (Presence)	7. Printing (Absence)
			Lake Baikal and may have been part of the Uighur state bordering China. By the fourteenth century, Yakut ancestors migrated north, perhaps in small refugee groups, with herds of horses and cattle. After arrival in the Lena valley, they fought and intermarried with the native Evenk and Yukagir nomads. Thus, both peaceful and belligerent relations with northern Siberians, Chinese, Mongols, and Turkic peoples preceded Russian hegemony. When the first parties of Cossacks arrived at the Lena River in the 1620s,. Yakut received them with hospitality and wariness. Several skirmishes and revolts followed, led at first by the legendary Yakut hero Tygyn. By 1642 the Lena valley was under tribute to the czar; peace was won only after a long siege of a formidable Yakut fortress. By 1700 the fort settlement of Yakutsk (founded 1632) was a bustling Russian administrative, commercial, and religious center and a launching point for further exploration into Kamchatka and Chukotka. Some Yakut moved northeast into territories they had previously not dominated, further assimilating the Evenk and Yukagir. Most Yakut, however, remained in the central meadowlands, sometimes assimilating Russians. Yakut leaders cooperated with Russian commanders and governors, becoming active in trade, fur-tax collection, transport, and the postal system. Fighting among Yakut communities decreased, although horse rustling and occasional anti-Russian violence continued. For example, a Yakut Robin Hood named Manchari led a band that stole from the rich (usually Russians) to give to the poor (usually Yakut) in the nineteenth century. Russian Orthodox priests spread through Yakutia, but their followers were mainly in the major towns. By 1900 a literate Yakut intelligentsia, influenced both by Russian merchants and political exiles, formed a party called the Yakut Union. Yakut revolutionaries such as Oiunskii and Ammosov led the Revolution and civil war in Yakutia, along with Bolsheviks such as the Georgian Ordzhonikidze. The consolidation of the 1917 Revolution was protracted until 1920, .in part because of extensive opposition to Red forces by Whites under Kolchak. The Yakut Republic was not secure until 1923. After relative calm during Lenin's New Economic Policy, a harsh collectivization and antinationalist campaign ensued. Intellectuals such as Oiunskii, founder of the Institute of Languages, Literature and History, and Kulakovskii, an ethnographer, were persecuted in the 1920s and 1930s."