FINGERS AND NUMBERS

The British Resident at the court of the Sultan of Java and later President of the Ethnological Society of London, John Crawfurd, once declared (1863: 84) that, 'The social condition of a people is ... in good measure indicated by its number system.' Crawfurd's generalization provokes some irreverent considerations. By Crawfurd's standard French culture is more primitive than that of the Kédang in Indonesia; for the French use a mixture of methods to name multiples of ten, while the Kédang language, like English, applies a single procedure consistently from ten to ninety. Judged by their cumbersome numbers, the Danes stand at the very threshold of civilization (see figure 1).

Kédang lapses from the perfect rationality of the decimal system only in its name for nine, which Kédang makes up by adding four to five, a feature which Crawfurd and others interpret as showing influence from a primitive quinary or five-based system of counting. Kédang children however have their own set of distinctive names for the numbers one to ten (figure 2).

No doubt there are several phonological manipulations worthy of note in the list of Kédang children's nonsense numbers, among them rhyme (*bêang, mêang*), metathesis (*letêq, telu*) and vowel contrast (*sekiq, sukoq*). Of the possibly meaningful elements, I can identify only the following: the child's number one (*telu*) is the adult number three, *letêq* means 'to erect', *bêang* is a crow, and *mêang* differs only slightly from *mêan*, a superlative. But I shall have to leave these matters to qualified linguists. Perhaps I should record that my source for Kédang children's numbers was an illiterate man aged over seventy years, but whose youngest daughter was ten.

Figure 1: Number Naming as an Index of Civilization

	Danish	*French*	*Kédang*
10	tier	dix	pulu
20	tyve	vingt	purun sué (2 x 10)
30	tredive (3 x 10)	trente	purun telu (3 x 10)
40	fyrretyve (4 x 10)	quarante	purun apaq (4 x 10)
50	halvtredsindstyve ($\frac{1}{2}$ [of 20] from 3 x 20)	cinquante	purun lemé (5 x 10)
60	tresindstyve (3 x 20)	soixante	purun enéng (6 x 10)
70	halvfjerdsindstyve ($\frac{1}{2}$ [of 20] from 4 x 20)	soixante-dix (60 + 10)	purun pitu (7 x 10)
80	firsindstyve (4 x 20)	quatre-vingts (4 x 20)	purun buturai (8 x 10)
90	halvfemsindstyve ($\frac{1}{2}$ [of 20] from 5 x 20)	quatre-vingt-dix (4 x 20 + 10)	purun lemé-apaq (9 x 10)
100	hundrede	cent	ratu

Figure 2: Kédang Numbers

	1	2	3	4	5
Adult Number	udéq	sué	telu	apaq	lemé
Children's Number	telu	lubaq	letéq	lapéq	béang

	6	7	8	9	10
Adult Number	enéng	pitu	buturai	lemé-apaq	pulu
Children's Number	méang	melang	sekiq	sukoq	lubong

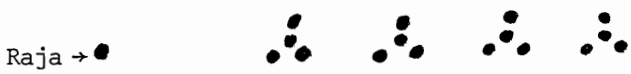
After a haphazard search, I have uncovered only two reports of alternative number names, one by Floyd Lounsbury (1946) and the other by Edwin Ardener (1957). Lounsbury recorded alternative numbers from a variety of North American peoples, but could explain them only as relics of lost languages. The alternative numerals of the Kpe of Cameroon Mountain on the other hand are used by children and compare therefore precisely with those of Kédang. There is no telling how many neglected lists of children's numbers might be collected from languages spoken by peoples living between these remotely situated communities, if only ethnographers looked for them. According to Crawfurd's principle, Kédang children obviously have attained a more superior state of civilization than have Kédang adults, since the children use a separate name for each of the first ten numbers.

Kédang children employ numbers in many of their games. I have already described (1975) *pan motiq*, the Kédang version of the widely distributed mancala, which in Kédang exploits the distinctive connotations of odd and even numbers, particularly those touching upon life, death and the transmission of souls. Children also recite an elaborate number chant when playing hide-and-seek.

A Kédang game similar to jacks called *hode-tohêq* gives characteristic attention to the distinction between odd and even numbers. Odd, or as the Kédang put it incomplete, numbers are propitious, and in several contexts the Kédang will either avoid even numbers or else arbitrarily convert them into odd numbers to achieve a desired symbolic aim (see Barnes 1974, in preparation). While playing *hode-tohêq*, a Kédang child will throw a handful of candlenuts into the air, trying to catch them on the back of his hand. If he catçhes an even number, he must take one away. He throws the odd-numbered remainder into the air again and tries to catch them in his palm. This time, if he misses any his turn is over. If he does not miss, he picks up the remaining nuts and continues.

In other games, children group candlenuts into bunches (*bouq*) of specific number. In one example, called *huang bouq* or *huang mirêq* (the *bouq* or candlenut game), the children place a series of *bouq* in a row and a single nut, called the raja, in a line with them but further away (figure 3). The shape of the

Figure 3: The Kédang Candlenut Game



bouq is three nuts with a fourth on top. The players take turns throwing a nut at the raja. The first to hit the raja gets all the *bouq*, and the other players have to come up with more nuts. Each player throws one nut. If no one hits the raja, the players stand at the raja and take turns throwing one nut at a time at the various *bouq*. If anyone succeeds in knocking the top nut off a *bouq*, he gets that *bouq* and all *bouq* closer to the raja.

Seidenberg (1962: 9) identified what he calls the ritual division of numbers into odd and even among many peoples on all continents; certainly all Indonesian languages recognize it. Since Seidenberg places 2-counting at the beginning of the history of counting, his doctrine might be completed by deriving the distinction between odd and even numbers from a binary base. Dantzig (1930: 14) claims that Australians who have a binary system will rarely notice that two pins have been removed from a row of seven, but will immediately see that one pin is gone. According to Dantzig, the Australian's sense of parity is stronger than his number sense. By number sense Dantzig means the ability to perceive missing members of a set of objects, before the capacity to count is present. Whether Dantzig, and the ethnographer Curr from whom Dantzig derived his information, correctly interpreted the Australian indifference to missing pairs, I cannot determine. At any event, the Indonesian habit of designating odd and even numbers as incomplete and complete does suggest an underlying binary mode of thought.

A binary tendency underlies the procedures of multiplication and division which was practised in ancient Egypt and continued in Europe until the fifteenth century, when printed arithmetics introduced the modern techniques (Dantzig 1930: 26; Karpinski 1925: 3, 130). Multiplication was a succession of duplications; division was mediation, or continuous splitting of a number into successive halves.

There is a relationship in Kédang language between duality and indefinite multiplicity, which is exhibited in certain expressions concerning time and in a feature of etiquette having to do with commensality. To ascertain when something happened, a person must ask *weng piê deq?* (how many days ago?). To enquire when something will happen, the Kédang will say *luqa weng piê?* (tomorrow how many days?). *Weng suê* (two days), which might answer either question, may just mean several days. *Luqa weng suê*, 'two days from now', is a common way of speaking vaguely about future action. *Ewêng weng suê*, 'two days ago', often means no more than 'already several days ago'. *Numin-ewêng suê*, means 'two or more days or nights ago'. *Lumin weng suê* means 'two nights ago' or 'several nights ago'. However, when these phrases are used with any number other than two they always have the specific sense conveyed by that number.

Only through the preceding observations and evidence have I arrived at a satisfactory explanation of why the Kédang always say they are drinking their second cup of palm wine, no matter how long a feast may draw into the night. The puzzle is one that I have often had occasion to ponder, while sitting and drinking with

my friends until dawn. Kédang custom does not permit an individual at a feast or other common meal to lift his cup and drink without inviting all others present to do likewise. Then everyone must drink together. A meal is punctuated periodically by such invitations to drink in unison. There are various means of phrasing the call to drink, depending in part upon the stage the meal has reached and on the state of general inebriation achieved. On the first occasion the host or other leading figure says *tin tê* (let us drink). Thereafter the usual phrasing is *suê tê*, the general import of which is 'let us drink for the second time'.

By about the fifteenth cup, the Kédang are easily provoked into a conversation about the inappropriateness of continuing to call each cup the second one. For them *suê tê* is a kind of conventionalized joke. According to the Kédang an external government (for some the Japanese, for others the Dutch) once ordered them never to take more than two drinks of palm wine at a meal. Thereafter, they have observed this directive in word only, participants calling out *suê tê*, so that any official who chances to be passing by will not become suspicious. Whatever the historical truth of this explanation, old men have told me that when they were children (that is before the Dutch came in), their fathers used the same felicitation. The habit continues today, despite the fact that the present government places no restrictions on their drinking. The true explanation in my opinion is that in this context, as elsewhere, *suê* means simply indefinite multiplicity.

Perhaps the most startling of Seidenberg's claims is that the number base of a language corresponds to the number of persons in the basic ritual. At least he departs radically from the normal habit of deriving number systems from fingers and toes. Having asserted that the first such system was binary, he draws the consequence that counting did not start with finger-counting. Whether or not Seidenberg's theory carries conviction, it may appear to have value of a kind when juxtaposed to Crawfurd's complacent belief (1863: 111) that the decimal system is natural and that most of us would have had a duodecimal system, if man had been born with six fingers instead of five. Some traces of duodecimal counting do survive, giving occasion for the query whether a six-fingered race may once have succumbed to the five-fingered men of today.

The Kédang counting system is thoroughly decimal, but the names of numbers may be interpreted as giving evidence of quinary and quaternary scales. The Ende word for four is *wutu*, for eight *rua butu* (i.e. 2 **x** 4). On this exiguous evidence Crawfurd (1820: vol. 1, 255) attributed a former quaternary scale to Ende, Flores. Only by reference to Ende and the neighboring Ngadha language is any parallel to be discovered for the Kédang numeral eight. Eight however is not as might be expected *butu suê*, but *butu rai* (*rai* means 'many'); so the clarification to be derived from this ethnological comparison is incomplete. Whether there was ever a four-based system in the region is even less certain. It would be easier in any case to explain a quaternary base, following

Seidenberg, by reference to four ritual officers (commonplace in Flores), than in Crawfurd's fashion by referring to fingers, unless we presuppose that the base derived from a race with only four fingers on a hand.

No doubt the more sensible conclusion to draw is that not all of the simple number bases may be compared to features of human anatomy. But the notion of a four-fingered hand is not entirely improbable. While in the field, I attempted to get as complete a list of the parts of the human body as I could manage. My attempts to be thorough foundered however against one unforeseen obstacle: there was no name for the fourth finger (figure 4).

Figure 4: Kédang Names for Fingers

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hand -- ling

finger -- ling utun

fingernail -- ling urung

thumb -- ling inan (mother finger)

index -- ling kurkata (meaning unknown in Kédang)

middle -- ling maq-molan (witch finger)

ring --

little -- ling éken (meaning unknown in Kedang)

ling anaq (children fingers) -- all fingers but the thumb

ling datén (bad finger) -- the middle finger

ling diqén (good fingers) -- all fingers except the middle finger

ling tubar (head fingers) -- the middle three fingers

Many Indonesian languages, including Malay, distinguish the thumb from the other fingers as mother and children (in Kédang *inan*, *anaq*). But, as Fox (1971: 221) remarks of Roti, for languages in the vicinity of Kédang, the pair *ina* and *ana* is a chief

means of contrasting 'large' and 'small' for objects of a similar or familiar kind. Of more immediate interest is the antithesis between good and bad fingers. Malay calls the middle finger *jari hantu, malang* or *mati*, that is the ghost, unlucky or dead finger.[1] The Kédang say that the middle finger is the witch finger because it is longer than the others. Professor P.E. de Josselin de Jong alerted me to a Javanese quatrain which exploits Javanese finger names, and Mrs. Noes Carey and Dr. Peter Carey kindly supplied me with one of the several versions which exist. I give below only their English translation (with appropriate acknowledgement and thanks).

[The index-finger says to the little finger:]

Little Finger, Little Finger [let us] kill Middle Finger!

[The little finger replies:]

What is Middle Finger's Crime?

[The index-finger answers:]

His crime is that he surpasses us others.

[The thumb says:]

Don't, younger brothers, don't! Your elder brother is

[already] heading for misfortune.

With such conflict in the family, perhaps there are advantages in being neglected. Human beings attribute special qualities or virtues to their fingers in other places in the world too. According to MacCulloch in Mexico warriors favoured as an amulet the middle finger of the left hand of a woman who had died in childbirth. In Italy three joints of the ring-finger of an assassin are reduced to powder, mixed with a liquid, and sprinkled on the road between a lover's house and his sweetheart's, in order to bring back her affections. The Germans, typically, used to hang a man's finger in the beer-cask in order to cause the beer to sell fast (MacCulloch 1913: 495-496). It was with great relief that I read August Friedrich Pott's appendix on fingers in his book on numbers. Although Pott's book has been frequently plagiarized, his appendix on fingers has been neglected since

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[1] 'The magician ... stated that when Azrael stretched forth his hand to take the Heart of the Earth, the Earth-spirit caught hold of his middle finger, which yielded to the strain, and thus became longer than the rest, and received its Malay name of the "Devil's Finger" (*jari hantu*)' (Skeat 1900: 20).

publication.[2] The Kédang failure to name the fourth finger is not an isolated phenomenon, and therefore I can satisfy myself that by recording nothing for it, I have indeed completed my ethnographic chore. Pott reveals that in many languages widely scattered through the world this finger is actually called 'nameless'. Pott lists Sanskrit, Tibetan, Mongolic, Ossetic and Lithuanian as displaying the relevant feature. The fourth finger was called the ring-finger by other languages already in classical antiquity, but also the doctor finger, supposedly because the doctor used it to stir medicine (Pott 1847: 257, 284).

In the preceding remarks, I have presented stray ideas and scattered bits of fact left over from, and left out of, an essay on Kédang number use. The Kédang decimal system permits the Kédang to count as high as the ten thousands, and their use of numbers has led Professor C.R. Hallpike to exclude them from a list of societies whose concept of numbers is primitive. Despite not having concentrated specific research on these matters, I did collect enough information about numbers so that one book and one article have not exhausted all I know. I could not say for certain that there is not much more to learn. A good deal of the information presented in this essay is comparable to the subject-matter of the many books on primitive numbers, the sort of data, as Hallpike noted, that is easily accessible to amateur ethnographers. Crawfurd, who was an original and scholarly man, derived some of his views on primitive numbers from some languages of the Flores region, but there is no reason at all to think that Ende and Ngadha mathematical thought was less developed than that of Kédang.

The social anthropological study of numbers has not advanced much beyond these early efforts. When Hallpike prepared his own assessment,the only counter-example he could find to his generalizations about primitive number conceptions was my own at that time still largely unpublished material. My three efforts on Kédang numbers may make the point that even in a simple culture there are likely to be a variety of ways in which numbers are employed. To fix upon a few of the apparently more primitive of these without comprehending the rest is just as mistaken as it would be to judge the English conception of space alone by reference to units of measure such as inches, feet, yards and rods. The distinction between odd and even numbers is perhaps the most important principle in the Kédang system of classification, directly related by the Kédang to life and death. At the same time, the Kédang use their number concepts in addition, subtraction, multiplication and division to manage their very complicated transactions in the exchange of alliance prestations. None of these relatively advanced aspects of Kédang culture would be revealed

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[2] Hertz (1960: 157) however did refer to Pott's appendix, and it was through Hertz that I found my first clue in the case of the missing finger.

by a study devoted exclusively to the connection between number names and fingers.

R.H. BARNES

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