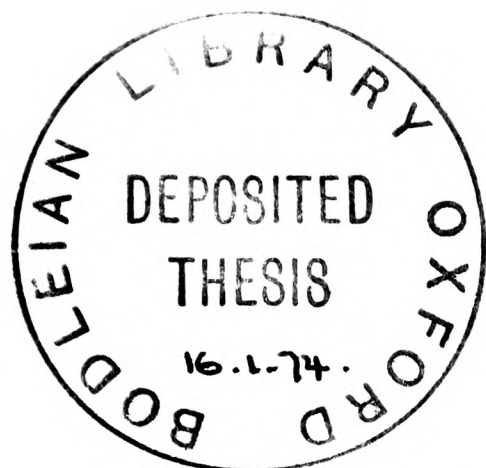


Descartes, Entretien avec Burman.
Translation with Introduction and
Commentary



by

J. G. Cottingham

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A B S T R A C T

The Conversation with Burman, a comprehensive and densely packed philosophical interview, is a work of extraordinary interest. In it, Descartes is closely questioned about some of the most central problems in his philosophy and expresses himself with a directness and informality which is not to be found in the published works or correspondence. Isolated references to the Conversation sprinkled through articles on Descartes, particularly in recent years, show that its importance is becoming increasingly recognised; but it has never been translated into English, and the work as a whole has received no systematic attention by philosophers. It is the aim of this thesis to fill both these gaps, by presenting an English version of the work and by providing a detailed philosophical commentary on the text. The main purpose of the Commentary is to show how the Conversation throws a fresh light on some of the most vexed and crucial issues in Descartes' philosophy.

In the first few pages of the interview, Burman tackles Descartes on three vital issues: Cartesian scepticism and the role of the malignant demon; the status of the Cogito, and the problem of the Cartesian Circle. Descartes' comments on these closely interrelated issues provide some of the richest material in the Conversation; and each topic receives extended treatment in a separate appendix to the Commentary.

The argument of these three sections is too detailed to summarize here. But there is a general emphasis which, in my view, reflects a distinctive bias in Descartes' approach in the Conversation: the solution to the problems is sought through analysis of the nature and actual workings of the human mind. Thus the analysis of scepticism and the Cogito is dominated by an account of the mind of the 'pre-philosophical man' and an examination of the sense in which he may be said to possess 'prior knowledge' of logical axioms; while the concept of 'mental attention' bulks large in the attempted resolution of the Circle.

Descartes' theory of the mind is in fact the most important theme running through the Conversation. The discussion covers the nature of thought and the doctrine of mental substance; the contents of the mind and the theory of ideas; adequate knowledge, essences and the innateness doctrine; and the problem of self awareness. Particularly interesting is the discussion of the activities of the mind: the 'hybrid' concepts of imagination and sense-perception, and the important distinction between imagination, 'conception' and 'understanding'. In following these overlapping strands in the Commentary, I have attempted to indicate the principle focus of philosophical interest in the Con-

versation, and to provide a critical analysis of the arguments involved and their relation to Descartes' philosophy as a whole.

No examination of Descartes' philosophy of mind would be complete without a discussion of his theory of the will; and Burman has some searching questions to put to Descartes on this subject. I have devoted a special appendix to Descartes' doctrine of freedom, which analyses the precise status of the claim that the human will is perfectly free in the light of the comments made to Burman about 'indifference' and the immutability of the divine will. The argument includes a critical examination of Descartes' appeal to 'inner awareness' as a proof of our freedom, which is particularly striking in the Conversation, and accords with the general bias noted above.

Not all parts of the Conversation are of equal philosophical interest, and I have accordingly kept the Commentary brief where the material does not relate to the principal themes indicated above (e.g. where the discussion delves into Descartes' account of the physical universe). One additional area which does receive attention in the Commentary is the group of questions posed by Burman on the subject of scientific method and Cartesian philosophy as a unified system. Under this heading come questions on the relation between mathematics, physics and metaphysics; the distinction between the job of the philosopher and that of the theologian; creation and causality; Descartes' views on final causes and his theory of scientific explanation.

In addition to the longer passages of analysis and criticism, the Commentary includes shorter notes which provide line by line elucidation of the text. The Conversation is almost impossible to read through without detailed editorial assistance, since the original manuscript jumps from

point to point with little indication of context. I have therefore (i) attempted to make the context of the discussion reasonably intelligible in each case and supplied any background information necessary for an understanding of the arguments; and (ii) commented briefly on any textual or linguistic difficulties where these affect the translation or involve points of philosophical interest. Finally, I have included a short introduction which discusses the background to the interview and the origins of the manuscript, and assesses the philosophical importance of the Conversation and its reliability as a source.

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INTRODUCTION

The Conversation with Burman is the report of a philosophical interview with one of the world's greatest philosophers. This alone is enough to place it in a genre of its own and to give it a unique interest. For the Conversation provides what the student of Philosophy so often yearns for in vain, the opportunity to see a philosopher being closely questioned about key aspects of his published work. To describe the Conversation as an 'interview' is perhaps slightly misleading, since the word, in its modern connotation, conjures up a picture of the radio or television confrontation. In one way, this is appropriate enough: the Conversation certainly has the immediacy and informality of a modern broadcast interview. But on the other hand, we tend to think of the interview as something essentially lightweight. Of course there can be, and have been, successful broadcast interviews with philosophers. But, even at their best, such encounters do not seem to do very much more than scratch the surface, philosophically speaking. A philosopher may give a general assessment of his work, or may reply to some principal criticisms or difficulties. Yet when Burman sat down with Descartes he had earmarked in advance over seventy texts from the Meditations, Replies to Objections, Notes against a Programme, Principles and Discourse; and he proceeded to raise over eighty specific points covering some of the most vital issues in Cartesian philosophy. Here then we have no journalistic interview but the most detailed and comprehensive philosophical discussion. If we combine this with the

fact that Descartes, usually so cautious and reticent, here holds forth with remarkable openness, and add the fact that the Conversation, held less than two years before his death, represents, apart from correspondence, the last recorded expression of Descartes' philosophical views, then the importance and fascination of this remarkable work need no further explaining.

Background to the meeting

Nothing is known of the encounter between Descartes and Burman beyond the bare bones that can be gleaned from the manuscript. On the first page there is a brief title - "Responsiones Renati des Cartes ad quasdam difficultates ex Meditationibus ejus etc. ab ipso haustae" - and then the place and date: "Egmondæ, April.16.1648". Alongside, in the margin, we find (in the same hand) "Per Burmannum qui 20 Aprilis communicavit Amstelodami cum Claubergio, ex cujus MS to ipsemet descripsi. Dordraci. Ad 13 et 14 Julij." And at the very end of the MS are the words "Amstelodami, April.20 anno 1648".

It seems, then, that Burman came to Descartes' country retreat at Egmond on April 16th 1648. The two men appear to have dined together (during the Conversation, Descartes illustrates the point that one can have two thoughts at once by saying "I now have the thought that I am talking and that I am eating" [see text, piece no. 6]). During and after the meal, Burman went through the passages he had prepared from Descartes' works (he evidently brought his texts with him) and put his questions to the philosopher. The two conversed in Latin as was still perfectly natural and normal in the seventeenth century for two scholars from different countries. In any case, Descartes' Dutch and Burman's French were probably both too shaky to make either vernacular language a really

comfortable medium for discussion. We know that Descartes, despite his long residence in Holland, never fully mastered the Dutch tongue. But he was, of course, a fluent writer of Latin; and, as for speaking, the formal debates and dissertations which were part of the curriculum at La Flèche would have given him a lifelong proficiency.

The house at which Descartes received Burman was at Egmond Binnen, near Alkmaar. It is the countryside around Egmond which, if anywhere, deserves to be called Descartes' 'home': notorious for his frequent changes of residence in the 1620s and 1630s, he was a permanent resident here (apart from three visits to France) from May 1643 until he left for Sweden in August 1649; his first house was at Egmond op den Hoef; then from 1644 onwards he lived at nearby Egmond Binnen. Here he was able to enjoy the quiet and secluded existence which he so valued - keeping to a simple routine and maintaining a careful diet based largely on produce from his kitchen garden. (AT XII 127/8; IV 640)*.

At the time of Burman's visit, Descartes, then fifty-two years old, was famous throughout Europe. With the exception of the Passions of the Soul (written earlier, but not published till 1649) all the works to be published in his lifetime had appeared, culminating with his magnum opus, the Principles, in 1644. Frans Burman, by contrast, was at the start of his career - a young man of twenty. (Later, in 1664, he was to become Professor of Theology at the University of Utrecht; his two-volume Synopsis Theologiae appeared in 1674; he died in 1679.) Born in Leyden in 1628, Burman was the son of a protestant minister who had fled to Leyden from Frankenthal during the Palatinate wars. How the young Burman gained an introduction to Descartes is not known: it is

* for the abbreviations see Bibliography.

possible that Descartes had met the Burman family at Leyden. (Adam points out that Abraham van der Heyden, Professor of Theology at Leyden, and later to become Burman's father-in-law, was a friend of Descartes. [AT XII 483]). At all events, Descartes' young guest seems to have had a generous reception; the Conversation must have taken a considerable time, and apparently Burman was able to get through all the questions he had prepared without being cut short. That Descartes was so free with his time should not be too much of a surprise; though he preferred the solitude of Egmond to the strains of Paris or the Dutch university towns, he was not the complete recluse which he is sometimes painted during this period. We know, for example, that his friend the Abbé Picot stayed with him at Egmond for three months, and that the philosopher was capable of taking a keen interest in local affairs (AT XII 475; 482). And no doubt Descartes found a lively discussion with a keen and quickwitted student more congenial than the theological debates with the 'learned doctors' at which he so often struggled to defend the orthodoxy of his views.

Four days after the Conversation, so our marginal note in the MS tells us, Burman made contact with Clauberg at Amsterdam. Here, apparently, the final version of the Conversation, as we now have it, was completed: as noted above, the words "Amstelodami, April.20 anno 1648" appear at the very end of our MS; moreover the unknown scribe who produced our MS at 'Dordracum' (Dordrecht) on the 13th and 14th of July states that he copied Clauberg's manuscript ("ex cujus MS to ipsemet descripsi"). It is impossible to say how much Clauberg contributed to the final version; possibly he helped Burman to 'write up' his notes of the meeting; but it seems more likely (see section on authenticity below) that Burman already had a full and comprehensive

account of the discussion which Clauberg merely copied. The man to whom we owe the survival of the Conversation was later to become a fairly well known exponent of the Cartesian school, though at the time of the meeting at Amsterdam he was only twenty-six - six years older than Burman. Born in 1622, John Clauberg became Professor of Philosophy and Theology first at Herborn and then at Duisburg (1651). His Defensio Cartesiana appeared in 1652, and in 1658 he published a detailed commentary on the Meditations (Paraphrasis in Renati Des Cartes Meditationes). This last work makes use in various places of material from the Conversation (see, for example, Commentary, p.57). Clauberg's collected works were published posthumously at Amsterdam in 1691.

The manuscript - editions

Clauberg's manuscript was copied by the unknown scribe of Dordrecht into a small quarto notebook. This later found its way into the library of the German theologian Crusius (1715-1775) (a note on the first page reads: "Ex. Bibl. M. Crusii", with the date 1751); and it now reposes in the Niedersächsische Staats- und Universitätsbibliothek at Göttingen (Cod. MS. Philol. 264).

The handwriting and lay-out of the MS leave much to be desired. The copyist's script is messy, and often - especially near the end - nearly illegible; the formation of the letters is not consistent, and there are frequent indecipherable abbreviations which have to be interpreted according to context. Except for the first page, where underlining is used, there is nothing to distinguish the introductory quotations from the text, and often only a page number at the beginning of a line will indicate that a new passage for discussion has been introduced. In deciphering the copyist's writing I have been greatly

indebted to Adam, who has produced a clear and well laid out Latin text in Volume Five of his standard edition of Descartes (AT V 146-179). The only criticism one can make of Adam as an editor is that he has sometimes, it seems to me, been over-zealous in emending the original where good sense can be made of it as it stands; the places where I have departed from Adam's text enough to affect the translation are indicated in the Commentary.

The Conversation was first published by the Revue bourguignonne de l'Enseignement supérieur in 1896. Apart from the standard text in Adam and Tannery already referred to, Adam published a text and French translation of the Conversation, with short notes*, in 1937, under the title Entretien avec Burman. (Although this title has no counterpart in the original Latin manuscript it has become the label under which the Conversation is most widely known.) This edition contains one or two minor corrections and improvements on the earlier text. There is another French version of the Conversation, by André Bridoux, in the Pléiade edition of Descartes (1953).

Format and Presentation

The Latin original is divided into eighty-two small pieces, which I have numbered for convenience. The number, in square brackets, appears before each piece. I have referred to the pieces in the commentary and elsewhere by the appropriate number with the prefix CB - for Conversation with Burman - e.g. "CB 25". Each piece in the text comprises (A) a quotation from one of the published works of Descartes and (B) some sort of discussion or commentary. (The only exception to this is CB 48, which

* These notes (eight short pages) are exceedingly brief and contain almost no exegesis of the text or philosophical criticism; though they do include one or two helpful cross-references to Descartes' writings which I have made use of in the Commentary.

contains some general remarks not related to a specific text.)

(A) Burman took all his quotations from the Latin editions of Descartes' works published in the 1640s by the house of Elzevir of Amsterdam. He introduced and identified each quotation by a reference, as follows:

- (i) quotations from the Meditations and the Replies to Objections (CB 1 - CB 47): by page-numbers of the 1642 edition. (This was the second edition of the Meditations - the first was published in Paris in 1641 - but it is generally regarded as the definitive edition (cf. AT VII xi ff.) and was the first to contain all seven sets of Objections and Replies.)
- (ii) quotation from the Notes against a Programme (CB 49): by page-number of the first edition of 1648.
- (iii) quotations from the Principles of Philosophy (CB 50-75): by Part and Article numbers of the first edition of 1644.
- (iv) quotations from the Discourse on Method (CB 76-82): by page-numbers of the first edition of the Latin translation of the Discourse; this translation of the original French edition of 1637 was made by Descartes' friend Etienne de Courcelles and published in 1644; it was seen and approved by the author.

In my text, I have retained Burman's original references at the beginning of each quotation (these may still be used, since Adam and Tannery indicate the original Elzevir pagination in their presentation of the texts in question); but I have also inserted - in brackets at the end of each quotation - volume and page references to the Adam and Tannery edition (AT) and to the standard English translation of Descartes by Haldane and Ross (HR). Nineteen of the pieces from the Principles are not translated in Haldane and Ross; of these, six are translated in

Anscombe and Geach's selection of Descartes' writings, and in these cases, I have referred to the page number of the Anscombe and Geach volume, using the prefix AG.

The quotations in the original MS are very brief: in each case Burman reproduces only the few Latin words relevant to the precise point he wishes to raise. It seemed to me desirable to indicate a little more of the context in each case, rather than forcing the reader constantly to turn up the original passage in Descartes. Accordingly, I have supplied rather fuller quotations than Burman provides. My procedure has been to go back to the original Latin text from which the words quoted by Burman are taken, and translate as much of the relevant passage as seemed necessary to make the context reasonably clear. The words in my translation which correspond to the few key words actually quoted by Burman have been italicised.

(B) The commentary or discussion which follows each quotation takes two main forms, viz. (i) straight commentary and (ii) dialogue with objections and replies. (i) The former can vary from a few brief words glossing a phrase or clarifying a point in the text (e.g. CB 8, CB 40) to a more extended piece of continuous prose (CB 21, 57). These pieces of commentary are presented as recording the direct pronouncements of Descartes, or "the author" (auctor) as he is called throughout. The grammatical form of the Latin is a curious mixture. Sometimes oratio recta is used (CB 25, 30), and Descartes may refer to himself in the first person (CB 29); sometimes there is the indirect construction ("the author says / holds that . . . " etc.) (CB 2, 3, 80); sometimes there is a mixture of both constructions (e.g. CB 58, which starts in oratio obliqua and slips into oratio recta). (ii) The second, and more

frequent form is that of a dialogue, in which Burman raises some objection, generally quite briefly, and Descartes replies, often at considerable length; sometimes there will be a further objection and a further reply, and so on (CB 9). The replies of Descartes exhibit the same characteristic mixture of direct and indirect speech already described. The letter R is generally used in the MS to designate these replies of Descartes, and I have followed this device in the translation. (Where an R is placed in brackets, it is omitted from the original.) I have also followed the practice of Adam in marking with an O, in brackets thus [O], the objections and questions attributable to Burman (in the MS, 'R' is the only mark provided). Passages without any letter prefix are the pieces of straight commentary described under (i) above. Finally, it should be noted that the straight commentary form sometimes breaks into the dialogue form in the course of a single piece (CB 22, 50). There is a potential editorial difficulty when this happens, since there is nothing in the MS to show where a comment of Descartes ends and an objection of Burman's begins. In fact there is generally no great problem about how a passage is to be split up between the two speakers; but once or twice (e.g. CB 28) I have quarrelled with Adam's distribution of the lines.

Authenticity and reliability as a source

No one, so far as I know, has ever questioned the authenticity of the Conversation, and there is no reason to doubt that it is the record of a genuine meeting. But it is important to remember that the text we have is not the work of Descartes but of Burman (perhaps with Clauberg's assistance); as a source, the piece thus lacks the direct authority of

Descartes' published works, or even his letters. It is true that Descartes' replies to Burman are described in the MS as "obtained directly from the man himself" (ab ipso haustae): Burman was proud of having got his material 'straight from the horse's mouth'. But we still have to face the question of how accurate a reporter Burman was. Did he meticulously record Descartes' comments, or do his own, possibly mistaken, impressions and interpretations creep in? Then again, we must face the possibility that Burman only made the briefest of notes while talking to Descartes, and waited until his meeting with Clauberg, four days later, before 'writing up' a full version. The worst possibility of all is that the version that has come down to us is not the work of the actual interviewer at all, but the imaginative reconstruction of Clauberg, prompted by Burman's verbal account of the meeting.

Here I think that the style of the MS can help us. It seems to me that the jumbled and bizarre mixture of direct and indirect speech (described above) argues strongly for the authenticity of the record. If the Conversation had been freely 'written up' four days after it occurred, we should expect a much more fluent and grammatically uniform style. What we in fact have is just what one would expect from someone hurriedly taking down remarks as they were being spoken: if one looks at the notes most people take at a lecture or discussion, I suggest that one will be likely to find just such a mixture of oratio recta and oratio obliqua as we find in the Conversation; the note-taker will slip back and forth from the actual words of the lecturer, to the indirect construction ('X's view is that . . .').

This argument is not of course conclusive, but I think it should incline us to regard the Conversation as a transcript of - or at least closely based on - the notes taken down directly by Burman at the time of the interview. In fact, even a full verbatim account of the proceedings is quite within the bounds of possibility, given that Burman employed the usual mixture of abbreviations and private shorthand which all of us develop. This sounds optimistic until one remembers the special nature of the Conversation. The discussion is not free-floating, but is broken into eighty-two short pieces, each closely tied to the particular text which Burman had earmarked in advance. So there would have been plenty of pauses, plenty of chances for Burman to get his account up to date before moving on to the next passage he wished to draw to Descartes' attention.

Even if Burman did take down Descartes' comments word for word, this does not entail that he was infallible. The best reporters make mistakes - a remark misheard, a wrong emphasis^{*}. But I think there are grounds for supposing that Burman's reporting was, on the whole, very faithful. Over and over again, in the remarks attributed to Descartes, the language and phrasing exhibit the characteristic ring and authority of the philosopher (see, for example, the firm replies at CB 49 and CB 7; or the fluent analysis at CB 79). Such stylistic criteria are, notoriously, dependent on subjective impressions; but we have the more objective criterion of content as a further check. We are not in the position of having to reconstruct a Socratic Descartes

* Adam suggests one particular area in which Burman may have gone astray: "le jeune huguenot Burman, à qui Descartes vu de loin apparaissait comme un papiste, exagéra sans doute . . . l'indifférence et l'irrévérence même de ses propos touchant les vérités morales et religieuses" (AT XII 484). But Descartes' reported comments on ethics and religion seem to me quite in character: see commentary on CB 80, 58, 78.

from the account of a Platonic Burman: Descartes' own prolific writings elsewhere, in the published works and the correspondence, can be used as a touchstone for testing the plausibility of the remarks which Burman puts into his mouth. This test should not be applied too rigidly: if the Conversation did nothing but repeat exactly what Descartes says elsewhere, it would not be of great philosophical interest; and in fact there is much that Descartes says to Burman which is either new, or formulated in a strikingly new way. But always, so far as I can see, the new material meshes with the fundamental structure of Descartes' philosophy; nothing is said which vitiates the coherence and consistency of the Cartesian system (or rather, where there are inconsistencies, they are ones which are already endemic in the system in any case). This is not to say that there are no difficulties; as with any interesting philosophical work there are puzzles and problem passages - these are discussed in detail in the Commentary. But it seems to me that there is nothing attributed to Descartes which is so bizarre or implausible as to lead us to suspect Burman of substantial carelessness or inaccuracy.

Value and philosophical importance

We began by noticing two of the features which give the Conversation its special appeal - the unique directness and vividness of the interview format, and the range and depth of the discussion. For both these virtues, a great deal of the credit must go to the young Burman.

First, in conducting his interview Burman is no passive disciple drinking in the master's pronouncements. His questions are searching and critical; and when he is not satisfied with a reply he will not let

matters rest, but will return for a second attack (cf. CB 6, 23, 24). It is this which gives us such a sense of immediacy - of confrontation, and which makes the Conversation so much more vital and readable than the more formal wrangling of the Objections and Replies or the more static explanatory passages in the letters.

Secondly, Burman understood the value of careful research and preparation. By earmarking in advance over seventy key passages from Descartes' works, Burman made sure that the interview would not be vague and general, but would tackle specific issues in depth. Moreover, despite its wide range, there is sufficient detail in the Conversation to cast a fresh light on many of the most crucial problems of Descartes' philosophy; as Adam enthusiastically notes, "toutes les grandes questions de la philosophie de Descartes, toutes les difficultés qu'elle soulève, y sont examinées"^{*}. A glance at the table of contents on p. 314 will show that this is no exaggeration: the 'big questions' discussed include the Cogito, the Cartesian Circle, innateness, the theory of ideas, understanding and imagination, thought and consciousness. In fact a large part of the interview deals with the central theme of Cartesian metaphysics - knowledge and the nature of the human mind.

A welcome feature of the Conversation from the point of view of the modern reader - though in some ways a surprising one - is that so much material is devoted to enduring philosophical issues, while comparatively little is concerned with the niceties of seventeenth-century theology. Burman, the son of a minister, and himself later to become a professional theologian, would perhaps have welcomed spending more time on matters relating to the Christian faith; but over and over again Descartes steers him away from this area with the slogan "let us leave that for the theo-

^{*} ADAM, p. xii.

logians to explain (CB 32, 58, 82). Another reason why the discussion does not get bogged down with theological technicalities is that Burman, a Protestant, is less interested in cross-questioning Descartes on the finer points of Catholic dogma which occupy so much time in some of the Objections and Replies and the Correspondence.

The result is that the great bulk of the Conversation centres around aspects of Cartesian philosophy that are of living interest to philosophers today - the key issues in Theory of Knowledge, Philosophy of Mind and Philosophical Psychology on which Descartes' thought is so fertile. Even in the passages which deal with the last three books of the Principles (CB 53-75) there is something of a philosophical bias: admittedly the discussion of points arising out of some of Descartes' more bizarre scientific theories will nowadays probably interest only the historian of science; but there remains enough material to provide some fascinating insights into Descartes' views on the philosophy and methodology of science.

Overall, then, the Conversation is a rich and absorbing work, a tribute to the intelligence of the Dutchman who engineered it, and a fresh and valuable illumination of the genius of Descartes at the height of his powers and maturity.

The replies of René Descartes to certain difficulties arising out of his Meditations, etc. Obtained directly from the author.

Egmond, April 16th, 1648.

[Meditations and Replies to Objections]

Medit. I

- [1] p.8: Whatever I have so far accepted as most true I have acquired either from the senses or through the senses.

[AT VII 18; HR I 145]

From the senses: i.e. from sight, by which I have perceived colours, shapes and such like. Leaving aside sight, however, I have acquired everything else through the senses, i.e. through hearing; for this is how I acquired and gleaned what I know, from my parents, teachers and others.

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The objection cannot be made here that this leaves out the common principles and ideas of God and of ourselves, which were never in the senses (Med., p. 34). For, firstly, I acquired these in the same way, through the senses, that is to say through hearing. Secondly, the author is considering at this point the man who is only just beginning to philosophize, and who is paying attention only to what he knows he is aware of. As regards the common principles and axioms, for example 'it is impossible that one and the same thing should both be and not be', men who are creatures of the senses, as we all are at a pre-philosophical level, do not think about these or pay attention to them. On the contrary, since they are present in us from birth with such clarity, and since we experience them inside ourselves, we neglect them and think about them only in a confused manner, but never in the abstract, or apart from material things and particular instances. Indeed, if people were to think about these principles in the abstract, no one would have any

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doubt about them; and if the Sceptics had done this, no one would ever have been a Sceptic: for they cannot be denied by anyone who carefully focuses his attention on them. Thirdly, here we are dealing primarily with the question of whether anything has real existence.

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- [2] p.13: I will suppose therefore that not God (who is supremely good and the source of truth) but rather some malignant demon of the utmost power and cunning has employed all his energies in order to deceive me.

[AT VII 22; HR I 148]

The author is here making us as doubtful as he can and casting us into as many doubts as possible. This is why he raises not only the customary difficulties of the Sceptics but every difficulty that can possibly be raised; the aim is in this way to demolish completely every single doubt. And this is the purpose behind the introduction at this point of the demon, which some might criticize as a superfluous addition.

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- [3] of the utmost power [ibid.]

What the author here says is contradictory, since malice is incompatible with supreme power.

- [4] p.155: But when we take note of the fact that we are thinking beings, this is a primary notion, which is not derived from any syllogism.

[Second Replies: AT VII 140; HR II 38]

- [0] But is not the opposite asserted at Principles I, 10?

R. Before this inference, 'I think therefore I am', the major 'whatever thinks is' can be known; for it is in reality prior to my inference, and my inference depends on it. This is why the author says in the Principles that the major premiss comes first, namely

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because implicitly it is always presupposed and prior. But it does not follow that I am always expressly and explicitly aware of its priority, or that I know it before my inference. This is because I am only attending to what I experience inside myself - for example 'I think therefore I am': I do not pay attention in the same way to the general notion 'whatever thinks is'. As I have explained before, we do not separate out these general propositions from the particular instances; rather, it is in the particular instances that we think of them. This then is the sense in which the words from page 155 cited here should be taken.

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[5] p.474: As for the assertion that it is self-contradictory that men should be deceived by God, this is clearly demonstrated from the fact that the form of deception is non-being, towards which supreme being cannot incline.

[Sixth Replies: AT VII 428; HR II 245]

As far as we are concerned, since we are composed partly of nothingness and partly of being, we incline partly towards being and partly towards nothingness. As for God, on the other hand, he cannot incline to nothingness, since he is supreme and pure being. This consideration is a metaphysical one and is perfectly clear to all those who give their mind to it. Hence, in as much as I have my faculty of perception from God, and in so far as I use it correctly, by only assenting to what I clearly perceive, I cannot be deceived or tricked by it; if I were, God would have to incline to nothingness. For this would be a case of God's deceiving me and so tending to non-being.

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[0] Someone however may still raise the following objection: after I have proved that God exists and is not a deceiver, then I can say that my mind certainly does not deceive me, since a reliable mind was God's gift to me; but my memory may still deceive me since

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I may think I remember something which I do not in fact remember.

This is because of the weakness of memory.

R. I have nothing to say on the subject of memory. Everyone should test himself to see whether he is good at remembering. If he has any doubts, then he should make use of written notes and so forth to help him. 20

[6] p.283: Lastly, as to the fact that I was not guilty of circularity when I said that the only reason we have for being sure that what we clearly and distinctly perceive is true is the fact that God exists; but that we are sure God exists only because we perceive this clearly: I have already given an adequate explanation of this point in the reply to the Second Objections, nos. 3 and 4, where I made a distinction between what we in fact perceive clearly and what we remember having perceived clearly.

[Fourth Replies: AT VII 245; HR II 114]

[0] It seems there is a circle. For in the Third Meditation the author uses axioms to prove the existence of God, even though he is not yet certain of not being deceived about these.

R. He does use such axioms in the proof, but he knows that he is not deceived with regard to them, since he is actually paying attention to them. And for as long as he does pay attention to them, he is certain that he is not being deceived, and he is compelled to give his assent to them. 5

[0] But our mind can only think of one thing at a time, whereas the proof in question is a fairly long one involving several axioms. Then again, every thought occurs instantaneously, and there are many thoughts which come to mind in the proof. So one will not be able to keep the attention on all the axioms, since any one thought will get in the way of another. 10

R. Firstly, it is just not true that the mind can only think of one thing at a time. It is true that it cannot think of a large number of things at the same time, but it can still think of more 15

than one thing. For example, I am now aware and have the thought that I am talking and that I am eating; and both these thoughts occur at the same time. Then, secondly, it is false that thought occurs instantaneously; for all our acts take up time, and I can be said to be continuing and carrying on with the same thought during a period of time. 20

[O] But on that showing, our thought would be extended and divisible. 25

R. Not at all. Thought will indeed be extended and divisible with respect to its duration, since its duration can be divided into parts. But it is not extended and divisible with respect to its nature, since its nature remains unextended. It is just the same with God: we can divide his duration into an infinite number of parts, even though God himself is not therefore divisible. 30

[O] But eternity is all at once and once for all (simul et semel).

R. That is impossible to conceive of. It is all at once and once for all, in so far as nothing is ever added to or taken away from the nature of God. But it is not all at once and once for all in the sense that it exists all at once (simul). For since we can divide it up now, after the creation of the world, why should it not have been possible to do the same before creation, since duration remains constant? Thus, eternity has now coexisted with created things for, say, five thousand years, and has occupied time along with them: so it could have done just the same before creation, if we had had some standard to measure it by. 35 40

Accordingly, since our thought is able to grasp more than one item in this way, and since it does not occur instantaneously, it is clear that we are able to grasp the proof of God's existence in its entirety. As long as we are engaged in this process, we are certain 45

that we are not being deceived, and every difficulty is thus removed.

- [7] The fact that there can be nothing in the mind, in so far as it is a thinking thing, of which it is not aware, seems to me self-evident.

[ibid.: AT VII 246; HR II 115]

[0] But how can it be aware, since to be aware is itself a thought. In order to have the thought that you are aware, you must move on to another thought; if you do this, you can no longer be thinking of the thing you were thinking of a moment ago. It follows that you cannot be aware that you are thinking, but only that you were thinking. 5

R. It is correct that to be aware is both to think and to reflect on one's thought. But it is false that this reflection cannot occur while the previous thought is still there. This is because, as we have already seen, the soul is capable of thinking of more than one thing 10 at the same time, and of continuing with a particular thought which it has. It has the power to reflect on its thoughts as often as it likes, and to be aware of its thought in this way.

- [8] For we can conceive of nothing in the mind, regarded in this way, that is not a thought or dependent on a thought.

[ibid.]

For example, the movement of the arm.

- [9] In view of this I do not doubt that the mind begins to think as soon as it is implanted in the body of an infant.

[ibid.]

[0] The author of these objections conjectured that it would follow from this that the mind must always be thinking, even in the case of infants.

R. The author agreed.

[O] But since we have an innate idea of God and of ourselves, would not the mind of an infant therefore have an actual idea of God?

R. It would be rash to maintain that, since we have no evidence relevant to the point. It does not however, seem probable that this is so. For in infancy the mind is so swamped inside the body that the only thoughts it has are those which result from the way the body is affected.

[O] But the mind can think of more than one thing at once.

R. It can, provided that one thought does not obstruct another, which is what happens in this case. The body has an obstructive effect on the soul. We are aware of this phenomenon in ourselves, when we prick ourselves with a needle or some sharp instrument: the effect is such that we cannot think of anything else. It is the same with men who are half asleep: they can scarcely think of more than one thing. In infancy therefore, the mind was so swamped inside the body that it could only think of bodily matters. The body is always a hindrance to the mind in its thinking, and this was especially true in youth.

As to the fact that we have no memory of the thoughts we had in infancy, this is because no traces of these thoughts have been imprinted on the brain, like this.... By the same token, there are many thoughts we had yesterday etc., which we cannot now remember. But the mind cannot ever be without thought; it can of course be without this or that thought, but it cannot be without some thought. In the same way, the body cannot, even for a moment, be without extension.

[O] But even if traces are not imprinted on the brain, so that there is no bodily memory, there still exists an intellectual memory, as undoubtedly is the case in angels, or disembodied souls, for

example. And this intellectual memory ought to enable the mind to remember its thoughts.

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R. I do not refuse to admit intellectual memory: it does exist. When, for example, on hearing that the word 'K-I-N-G' signifies supreme power, I commit this to my memory and then subsequently recall the meaning by means of my memory, it must be the intellectual memory that makes this possible. For there is certainly no relationship between the four letters (K-I-N-G) and their meaning, which would enable me to derive the meaning from the letters. It is the intellectual memory that enables me to recall what the letters stand for. However, this intellectual memory has universals rather than particulars as its objects, and so it cannot enable us to recall every single thing we have done.

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Medit. II

[10] p.18: But what am I to say now, when I am supposing that there is some deceiver who is supremely powerful and, if it is permissible to say so, malicious.

[AT VII 26; HR I 151]

The restriction is added here because the author is saying something contradictory in using the phrase 'supremely powerful and malicious', since supreme power cannot coexist with malice. This is why he says 'if it is permissible to say so'.

[11] p.21: Now in all this, even though I may be permanently asleep, and even though he who created me deceives me as much as he can, is there anything which is not just as true as the fact of my existence?

[AT VII 29; HR I 153]

But is it God who created me? For all I know, may not that demon who tricked me be the one who created me? At this point, however, I have not yet attained any knowledge about these matters, and I am

speaking of them only in a confused manner.

- [12] p.25: Or do I not rather perceive the nature of the wax better now, after a more careful investigation both of what it is and of the way in which it is known.

[AT VII 32; HR I 156]

The author made this investigation in the preceding section, where he examined all the attributes and accidents of the wax. He gradually saw all these attributes leave the wax, and others take their places.

- [13] p.421: Here, as frequently elsewhere, you merely show that you do not sufficiently understand what you attempt to criticize. For I did not abstract the concept of the wax from that of its accidents.

[Fifth Replies; AT VII 359; HR II 212]

[0] But the author seems to have done just that in this very Meditation, when he showed that the accidents leave the wax, which amounts to showing that the actual body or substance of the wax remains.

R. Nonetheless the author did not make the abstraction. For although he conceded and stated that these accidents, such as hardness, cold and so on, leave the wax, he also stated and expressly remarked that others always replace them, so that the wax is never without accidents. So at no point did the author abstract the wax from its accidents.

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- [14] p.254: But a created mind, even though it may perhaps really possess adequate knowledge of many things, can never know that it does so.... For in order to know it possessed this knowledge...it would have to equal the infinite capacity of God in its power of knowing: and this is quite impossible.

[Fourth Replies: AT VII 220; HR II 97]

[0] Why should this be necessary, since God has of his own accord limited this power in his creatures, so that we should have no need to equal his infinite power?

R. We do not know this. For example, let us take a triangle. This appears to be something extremely simple, which it seems we should easily be able to achieve adequate knowledge of. Yet none the less, we cannot do so. Even if we prove that it possesses all the attributes we can conceive of, nonetheless after, say, a thousand years another mathematician may detect further properties in it. It follows that we will never be certain that we have grasped everything that could have been grasped about it. The same can be said with regard to the body, and its extension, and everything else. As for the author, he has never attributed to himself adequate knowledge of any particular thing; but nonetheless he is certain that in many, if not all, cases, he has the sort of knowledge and the sort of foundations from which adequate knowledge could be - and perhaps already has been - deduced. But who can say?

Medit. III

[15] p.31: For certainly if I considered the ideas merely as certain modes of my thought, without referring them to anything else, they could scarcely give me any subject matter for error.

[AT VII 37; HR I 160]

[0] But since all error concerning ideas comes from their relation and application to external things, there seems to be no subject matter for error whatsoever if they are not referred to externals.

R. Even if I do not refer my ideas to anything outside myself, there is still subject matter for error, since I can make a mistake with regard to the actual nature of the ideas. For example, I may

consider the idea of colour, and say that it is a thing or a quality; or I may say that the colour itself, which is represented by this idea is something of the kind. For example, I may say whiteness is a colour; and even if I do not refer this idea to anything outside myself - even if I do not say or suppose that there is any white thing - I may still make a mistake in the abstract, with regard to whiteness itself and its nature or the idea I have of it. 10

[16] p.33: So perhaps there is in me some other faculty, not yet fully known to me, which produces these ideas [sc. of external things].

[AT VII 39; HR I 161]

[O] But I have already come to know that I am a thinking thing; and I know that these ideas cannot come from a thinking thing.

[R] But, firstly, this is only an objection and a doubt that can be raised. Secondly, I am not at this point concentrating on my nature to the extent to which I do subsequently when I reflect on it. Indeed, neither in the First Meditation, nor anywhere in the Second did I do this. But subsequently, a little later on in this Third Meditation when I reflect a little more carefully about myself, I solve this problem. 5

[17] p.37: If, on the other hand, no such idea can be found in me, I shall simply have no argument to convince me of the existence of a being apart from myself.

[AT VII 42; HR I 163]

[O] But is there not another argument later on in the Fifth Meditation?

R. At this point the author is speaking of the sort of argument that can take some effect of God as a premiss from which the existence of a supreme cause, namely God, can subsequently be inferred. 5
In fact, however, he discovered no such effect: after a most careful

survey of all the effects, he found none which would serve to prove God's existence except for the idea of God. By contrast, the other argument in the Fifth Meditation proceeds a priori and does not start from some effect. In the Meditations that argument comes later than the one here; the fact that it comes later, and the proof in this Meditation comes first, is the result of the order in which the author discovered the two proofs. In the Principles, however, he reverses the order; for the method and order of discovery is one thing, and that of exposition another. In the Principles, his purpose is exposition, and his procedure is synthetic.

[18] p.39: And since there can be no ideas which are not as it were of things...

[AT VII 44; HR I 164]

[0] But we have an idea of nothing, and this is not an idea of a thing.

R. That idea is purely negative, and can hardly be called an idea. In this passage the author is taking the word 'idea' in its strict and narrow sense. We do also have ideas of common notions, which are not strictly speaking ideas of things. But this is a rather extended use of the word 'idea'.

[19] p.41: I clearly understand...that my conception of the infinite, that is, God, is prior to my conception of the finite, that is, myself. For how could I understand that I doubted and desired - that is, lacked something - or that I was not completely perfect, unless there were in me some idea of a more perfect being, which enabled me to recognise my own defects by comparison?

[AT VII 45; HR I 166]

[0] But in the Discourse, p.31, the author says he has seen most clearly that knowledge was a greater sign of perfection than doubt. He must, then, have known this without reference to the perfect being;

and so it is not the case that his knowledge of God was prior to the knowledge of himself.

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R. In that part of the Discourse you have a summary of these Meditations, and its meaning must be explicated by reference to the Meditations themselves. In that part of the Discourse, then, the author recognises his own imperfection by recognising the perfection of God. He does this implicitly if not explicitly. Explicitly, we are able to recognise our own imperfection before we recognise the perfection of God. This is because we are able to direct our attention to ourselves before we direct our attention to God. Thus we can infer our own finiteness before we arrive at his infiniteness. Despite this, however, the knowledge of God and his perfection must implicitly always come before the knowledge of ourselves and our imperfections. For in reality the infinite perfection of God is prior to our imperfections, since our imperfection is a defect and negation of the perfection of God. And every defect and negation presupposes that which it falls short of and negates.

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[O] But in that case nothingness would have to presuppose being, would it not?

R. In Metaphysics our understanding of nothingness derives from that of being.

[20] p.42: For I experience already a gradual increase in knowledge; and I see no reason why...through its help I should not be able to acquire all the other perfections of God.

[AT VII 47; HR I 167]

[O] But how can knowledge contribute to the acquisition of all the other perfections of God?

R. It can do so to a very great extent. It is by knowledge that we become wiser and more prudent and know the other perfections

more clearly. Once we know them clearly, we will acquire them all the more easily, since wisdom and prudence will be able to provide us with the means to their acquisition.

[21] p.44: Had I been the author of my own existence...I should certainly not have denied myself any of the things which are rather easy to acquire (i.e. many forms of knowledge which I lack); nor indeed should I have denied myself any of the other things which I see are contained in the idea of God, since none of them seem to me to be any more difficult to acquire.

[AT VII 48; HR I 168]

Now here one must carefully distinguish between understanding, conception and imagination - a distinction of great value. Take for example the perfections of God. We do not imagine these, or conceive of them, but we understand them: the way in which God understands all things in a single mental act, or the way in which his decrees are identical with himself, are things which we understand, but we do not conceive of, since we cannot so to speak represent them to ourselves. Thus, we understand the perfections and attributes of God, but we do not conceive of them - or rather, in order to conceive of them, we conceive of them as indefinite. Now, if it was I who had given myself my nature and make-up, I would have given myself all the perfections of God. And I think I would have given myself these perfections in accordance with my indefinite conception of them. For example, I would have given myself greater knowledge than I now possess; and when I had that greater knowledge, I would then have given myself greater knowledge still, and so on. Now when indefinites are multiplied in this way they become infinite: or rather they become the infinite, since the infinite is the same as the indefinite multiplied in this way. As I increased my knowledge more and more in this way, I would by the same token have increased my other attributes (I do not think these would prove any harder than knowledge, since it is by means

of knowledge that they are to be attained) and I would end up as God. As it is, however, I know by experience that I cannot do this and am unable to increase my knowledge as I should like to. It follows that I do not derive my existence from myself, etc.

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[22] p.186: It is a greater thing to create or conserve a substance than to create or conserve the attributes or properties of a substance.

[Second Replies: AT VII 166; HR II 57]

I.e., 'than to create or conserve the attributes of that same substance.' One must not here start comparing one substance with the attributes of another.

[O] But surely the attributes are the same as the substance. So it cannot be 'a greater thing' to create the substance etc.

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R. It is true that the attributes are the same as the substance, but this is when they are all taken together, not when they are taken individually, one by one. So it is a greater thing to produce a substance than its attributes, if by producing all the attributes you mean producing each one individually, one after the other.

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[23] p.45: Nor can I escape the force of these arguments if I suppose that I have always existed as I now do, as though it followed from this supposition that there was no need to look for any author of my existence.

[AT VII 48; HR I 168]

[O] But surely it does follow, in the view of those who say that there can be nothing created from all eternity, citing as proof the fact that it would then be independent, like God himself.

R. Well, that is their view. As far as I am concerned, I do not see why God should not have been able to create something from eternity. Since God possessed his power from all eternity, I do not see any reason why he should not have been able to exercise it from

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all eternity.

[O] But a free cause is conceived of as prior to its effects and its purposes.

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R. But then it would have to follow that the decrees of God did not exist from eternity, especially since power and creation do not presuppose a greater action in God than his decrees. What is more decrees are acts of will, and so must the creation be, since it is merely the will of God. If it were anything else, the creation would involve something new happening to God.

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[O] But then we would have an infinite number.

R. What is absurd about that? Do we not get the same when we divide a quantity? People try to make a distinction here, but it is vacuous. And if you can have an infinite number in future eternity, which is what we believe as an article of faith, then why should not the same be true of past eternity?

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[O] But in the case of past eternity, the divisions are actual and all at once. But in future eternity, they are only in potentiality, and are never all at once and in actuality.

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R. The divisions in past eternity are not actualised all at once, for there is only one division for which this is so, namely the present. With respect to all the other divisions, it is the same as it is with future eternity. If, then, the one sort of eternity can exist, so can the other. Accordingly, if I existed from eternity, the parts into which my duration is divided would be separated, and they would none the less depend on God. The argument thus retains its force. However, the author took express care to keep off questions of this sort in his Meditations, so far as he was able, in order to avoid giving offence to the Schoolmen, and so forth.

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[24] p.48: But the mere fact that God created me is a very strong basis for believing that I am somehow made in his image and likeness.

[AT VII 51; HR I 170]

Compare also p.436: For although the three modes of action are quite different in kind there is less of a gap between natural production and divine, than there is between artificial and divine.

[Fifth Replies: AT VII 373; HR II 222]

[O] But why do you say that? Surely God could have created you without creating you in his image?

R. No. It is a common axiom and a true one that the effect is like the cause. Now God is the cause of me, and I am an effect of his, so it follows that I am like him. 5

[O] But a builder is the cause of a house, yet for all that the house is not like him.

R. He is not the cause of the house, in the sense in which we are taking the word here. He merely applies active forces to what is passive, and so there is no need for the product to be like the man. 10
In this passage, however, we are talking about the total cause, the cause of being itself. Anything produced by this cause must necessarily be like it. For since the cause is itself being and substance, and it brings something into being, i.e. out of nothing (a method of production which is the prerogative of God), what is produced must at the very 15
least be being and substance. To this extent at least, it will be like God and bear his image.

[O] But in that case even stones and such like are going to be in God's image.

R. Even these things do have the image and likeness of God, but 20
it is very remote, minute and indistinct. As for me, on the other hand, God's creation has endowed me with a greater number of attributes, and so his image is in me to a greater extent. I am not, however, taking 'image' here in the ordinary sense of an effigy or picture of something,

but in the broader sense of something having some resemblance with something else. The reason I used these particular words in the Meditations was that throughout the Scriptures we are said to be created in the image of God. 25

- [25] p.179: Substance: this term applies to every thing in which whatever we perceive is immediately located, as in a subject; or every thing by means of which whatever we perceive exists. By 'whatever we perceive' is meant any property, quality or attribute which we have a real idea of.

[Second Replies: AT VII 161; HR II 53]

In addition to the attribute which specifies the substance, one must think of the substance itself which is the substrate of that attribute. For example, since the mind is a thinking thing, there is in addition to the thinking a substance which does the thinking, and so on. 5

- [26] p.153: As for those who deny that they have the idea of God but instead of it form some idol etc., while they refuse the name, they concede the fact.

[Second Replies: AT VII 139; HR II 37]

'Idol' is in fact their equivalent of our 'idea'. But in so far as they form a real idea when they are forming the idol, the idea they form is materially false.

- [27] The conclusion is...that I have the power of conceiving that a number is thinkable that is greater than any number that can ever be thought of by me, and that I have received this power not from myself but from some other entity more perfect than I.

[ibid.]

This argument could not have any force for an atheist, who would not allow himself to be convinced by it. Indeed, it is not suitable for this purpose, and the author does not wish it to be

understood in this way. It must rather be conjoined with other arguments concerning God, since it presupposes such arguments, and takes God's existence as already proved by them. Thus, the author had already proved the existence of God from the idea of God in this part of the Replies, so the sense of this passage should accordingly be as follows: 'I know God exists and have proved it. At the same time, I notice that when I count I can never reach a highest number, but there is always a number that can be thought of, which is greater than any number that I can think of. It follows that the power of conceiving of this is something I do not derive from myself, but must have received from some entity more perfect than myself. And this entity is God, whose existence I have proved by means of the arguments already adduced.'

[28] p.153: With regard to your further point concerning the idea of an angel, than which we are less perfect, I readily admit that there is certainly no need for this idea to have been produced in us by an angel.

[ibid.: AT VII 138; HR II 37]

As far as the idea of an angel goes, it is certain that we form it from the idea we have of our own mind: this is the sole source of our knowledge of it. And this is so true that we can think of nothing in an angel qua angel that we cannot also notice in ourselves.

[0] But on this view, an angel is going to be identical with our mind, since each is something that merely thinks.

R. It is true that both are thinking things. But this still does not prevent an angel from having many more perfections than our mind, or having perfections of a higher degree. Indeed, it is possible that they may even differ in kind. Thus St. Thomas wanted every angel to be of a different kind from every other, and he described each one in as much detail as if he had been right in their midst, which is how he got the honorific title of the 'Angelic Doctor'. Yet although he spent

more time on this question than on almost anything else, nowhere were his labours more pointless. For knowledge about angels is virtually 15 out of our reach, when we do not derive such knowledge from our own minds, as I have said. We just do not know the answers to all the standard questions concerning angels, e.g. whether they can be united with a body, or what the bodies were like which they frequently took in the Old Testament, and so on. It is best for us to follow Scripture 20 and believe they were young men, or appeared as such, and so forth.

Medit. IV

[29] p.53: And for this reason alone I consider that the customary search for final causes is totally useless in physics.

[AT VII 55; HR I 173]

Compare also p.438: And we cannot pretend that certain of God's purposes are more out in the open than others: all are equally hidden in the inscrutable abyss of his wisdom.

[Fifth Replies: AT VII 375; HR II 223]

This rule - that we must never argue from ends - should be carefully heeded. For, firstly, the knowledge of something's purpose never leads us to a knowledge of the thing itself; its nature remains just as obscure to us. Indeed this constant practice of arguing from ends is Aristotle's greatest fault. Secondly, all the purposes of God 5 are hidden from us, and it is rash to want to plunge into them. I am not speaking here of purposes which are known through revelation; it is purely as a philosopher that I am considering them. It is here that we go completely astray. We think of God as a sort of super-man, who thinks up such and such a scheme, and tries to realise it by such and 10 such means. This is clearly quite unworthy of God.

[30] p.55: And from the very fact that I can form an idea of it [sc. a faculty of infinite understanding], I perceive that it belongs to the nature of God.

[AT VII 57; HR I 174]

Since I know from my idea of God that he is the most perfect being and that all absolute perfections belong to him, I must only attribute to him what I know is absolutely perfect. Now take any attribute that I can form an idea of as meeting this requirement - anything I can think of as an absolutely perfect perfection: from the very fact that I can form an idea of it, I know that it belongs to the nature of God. 5

[31] For although God's will is incomparably greater than mine, both by reason of the knowledge and power that accompany it...and by reason of its object - by ranging over a greater number of items - it does not however seem any greater than mine when considered formally and precisely in itself.

[ibid.]

[0] But when considered in this abstract way, understanding is understanding, and so our understanding too is not going to differ from that of God, even though God's understanding ranges over a greater number of objects.

R. But understanding depends on its object and cannot be separated from it; so it is not the case that 'understanding is understanding'. Moreover, it is not just that our understanding ranges over fewer objects than that of God: rather, it is extremely imperfect in itself, being obscure, mingled with ignorance, and so on. 5

[0] But in that case our will too is imperfect. We will one moment, and not the next; one moment we have a volition, the next - when our will is imperfect - a mere velleity. 10

R. That simply shows that there is a lack of constancy in our volition, not that there is any imperfection in our will. Each occurrence

of the will is as perfect as the next: the fluctuation you speak of 15
has its origin in judgement, and is due to the fact that our judgement
is faulty.

[O] But judgement itself is an operation of the will.

R. It is indeed an operation of the will, and as such it is perfect.
Every imperfection under which the judgement labours comes from 20
intellectual ignorance. If this were removed, the fluctuation would
disappear too, and our judgement would be stable and perfect. But there
is no point in arguing like this on these matters. Let everyone just go
down deep into himself and find out whether or not he has a perfect and
absolute will, and whether he can conceive of anything which surpasses 25
him in freedom of the will. I am sure everyone will find that it is as I
say. It is in this, then, that the will is greater and more godlike
than the intellect.

[32] p.61: Moreover, although I do not have the power to
avoid error in the first way mentioned (i.e. by being
endowed with manifest perception of everything I
have to deliberate on), I can avoid error in the
second way, which depends merely on remembering to
withhold judgement on any matter where the truth is
not clear.

[AT VII 61; HR I 178]

[O] But in that case why should I not also have this ability
with regard to the pursuit of good and evil, or again with regard to
supernatural matters, since these things too depend on the will, and
the will is always autonomous and indifferent?

R. We must leave the latter point for the theologians to explain. 5
For the philosopher, it is enough to study man as he is now in his
natural condition. I have written my philosophy in such a way as to
make it acceptable anywhere - even among the Turks - and to avoid giving
the slightest offence to anyone. Now we have inner consciousness of our

freedom, and we know that we can withhold our assent when we wish. 10

In the pursuit of good and evil, however, when the will is indifferent with respect to each of the two it is already at fault, since it ought to seek after the good alone without any indifference, in contrast with the situation in theoretical subjects.

With regard to supernatural matters, the theologians teach that this 15 is an area where we are corrupted through original sin: we need grace to enable us to recognise and pursue the good in this sphere. Indeed, almost all sins have their source in ignorance, since no one can pursue evil qua evil. So it is through his grace that God has promised us eternal life - something no one would have thought of or ever aspired 20 to - in return for those good works of ours which in any case we were bound to perform. But it can be said that our will is corrupted by the emotions.

[33] p.479: For we cannot conceive that anything is thought of in the divine intellect as good or true or worthy of belief or action or omission, until the will of God has decided to make it so.

[Sixth Replies: AT VII 432: HR II 248]

[O] But what then of God's ideas of possible things? Surely these are prior to his will.

R. These too depend on God, like everything else. His will is the cause not only of what is actual and to come, but also of what is possible and of the simple natures. There is nothing we can think 5 of or ought to think of that should not be said to depend on God.

[O] But does it follow from this that God could have commanded a creature to hate him, and thereby made this a good thing to do?

R. God could not now do this: but we just do not know what he could have done. In any case, why should he not have been able to 10 give this command to one of his creatures?

Medit. V

[34] p.64: When for example I imagine a triangle, even though no such figure exists, or has ever existed, anywhere outside my thought, it still has a determinate nature or essence or form which is immutable and eternal and not fictitious or dependent on my mind; as is clear from the fact that various properties can be demonstrated of the triangle.

[AT VII 64; HR I 180]

[0] But since I can demonstrate various properties of a chimera, on your view not even a chimera is going to be a fictitious entity.

R. Everything in a chimera that can be clearly and distinctly conceived is a true entity. It is not fictitious, since it has a true and immutable essence, and this essence comes from God just as much as 5 the actual essence of other things. An entity is said to be 'fictitious', on the other hand, when it is merely our supposition that it exists. Thus, all the demonstrations of mathematicians deal with true entities and objects, and the complete and entire object of Mathematics and everything it deals with is a true and real entity. This object has 10 a true and real nature, just as much as the object of Physics itself. The only difference is that Physics considers its object not just as a true and real entity, but also as something actually and specifically existing. Mathematics, on the other hand, considers its object merely as possible, i.e. as something which does not actually exist in space 15 but is capable of doing so. It must be stressed at this point that we are talking of clear perception, not of imagination. Even though we can with the utmost clarity imagine the head of a lion joined to the body of a goat, or similar thing, it does not therefore follow that they exist, since we do not clearly perceive the link, so to speak, which 20 joins the parts together. For example, I may clearly see Peter standing, but I do not clearly see that standing is contained in and conjoined with Peter. Now if we are accustomed to clear perceptions we will never have

a false conception. As to whether our perceptions are clear or not, this is something we know perfectly well from our own inner awareness. This 25 is the point of all the explanations which the author went through in Book One of the Principles, and it is of very great benefit to be acquainted with them.

[35] p.68: There are many ways in which I realise that [my idea of God]...is the image of a true and immutable nature. First, there is no other thing I can think of such that existence belongs to its essence; second... I cannot intelligibly think of two or more Gods of this sort.

[AT VII 68; HR I 182]

[O] But why not, since they will still be Gods?

R. They would certainly not be Gods, since 'God' means something such that absolutely every perfection is included in it.

[O] But this is true of God taken as a kind of thing, so to speak, not as an individual; so that one God would not rule out another 5 in this way, any more than if one mind has all the perfections of a mind, this rules out another mind.

[R] But that is not a parallel argument. 'Mind' does not signify absolutely every perfection, as 'God' does. This is why these perfections can only be in one being. If there were several beings, 10 they would not be supreme, and so they would not be God on pain of contradiction. There is, however, no inconsistency in the fact that there are three Persons, since there is an identical essence, and they are one God.

[36] p.125: For we are so used to distinguishing essence from existence in the case of all other things, that we forget how in the case of God existence belongs essence to a greater degree than in the case of other things.

[First Replies: AT VII 116; HR II 19]

[0] But are we right to make the distinction? Is essence then prior to existence? And, in creating things did God merely give them existence?

R. We are right to separate the two in our thought, for we can conceive of essence without actual existence, as in the case of a rose 5 in winter. However, the two cannot be separated in reality in accordance with the customary distinction; for there was no essence prior to existence, since existence is merely existing essence. So one is really not prior to the other, nor are they separate or distinct.

[37] p.169: For all contradictoriness or impossibility resides simply in our thought, when we make the mistake of joining together mutually inconsistent ideas: it cannot occur in anything which is outside the mind.

[Second Replies: AT VII 152; HR II 46]

[0] But our ideas depend on real things. So if there is a contradiction in our ideas, there will also be one in the things themselves.

R. Our ideas do depend on things, in so far as they represent them. But nonetheless, there is no contradiction in things, but in 5 our ideas alone. For it is ideas alone that we join together in such a way that they are inconsistent one with another. Things, by contrast, are not inconsistent with each other, since all of them can exist: so no one thing is inconsistent with any other. With ideas, the opposite is the case: in our ideas we join together and unite separate things, 10 which taken on their own are not inconsistent. This is the origin of the contradiction.

[38] Moreover, contradictoriness in our concepts arises merely from their obscurity and confusion: there can be none in the case of clear and distinct ideas.

[ibid.]

[O] But why should there not be a contradiction in the case of clear ideas which are inconsistent one with another. Take, for example, the combination of the idea of a finite being with that of an infinite being.

R. Even if those ideas are clear when taken apart, they are certainly not clear when joined together. Your idea is thus very obscure, for the conception you have of the combination and unity of the two ideas is not clear but extremely obscure.

[39] p.445: When we examine through a magnifying glass those lines which appear straightest to us we find them to be quite irregular, with undulating curves throughout. And hence when in childhood we first saw a triangular figure drawn on paper, the figure could not have taught us how to conceive of a real triangle, as studied by geometricians.

[Fifth Replies: AT VII 382; HR II 227]

[O] But it is from the imperfect triangle that you frame in your mind the perfect triangle.

[R] But why then does the imperfect triangle provide me with the idea of a perfect triangle rather than an idea of itself?

[O] It provides you with both: firstly itself, and then, from that, the perfect triangle. For you deduce the perfect triangle from the imperfect.

[R] That cannot be. I could not conceive of an imperfect triangle unless there were in me the idea of a perfect one, since the former is the negation of the latter. Thus, when I see a triangle, I have a conception of a perfect triangle, and it is by comparison with this that I subsequently realize that what I am seeing is imperfect.

Medit. VI

[40] p.73: Further, I have the experience of making use of the faculty of imagination when I am occupied with those same material things; and from this it seems to follow that they do exist.

[AT VII 71; HR I 185]

I.e., my body, which I make use of in the course of my imagining.

- [41] p.74: For although I lacked it, [sc. the power of imagination],
I should none the less undoubtedly remain just the same
individual as I now am.

[AT VII 73; HR I 186]

I should then be like the angels, who do not imagine.

- [42] If there exists some body to which my mind is so conjoined
that it can apply itself to contemplate it, as it were,
whenever it pleases, it is possible that by this very
means I may imagine corporeal things.

[ibid.]

[0] What does 'to contemplate it' mean? Does it mean the same
as 'to understand it'? If so, why do you use a different expression?
If not, then the mind is more than an understanding or thinking thing,
and even before it has a body it has this ability to contemplate a
body. Or is this ability of the mind an effect of its union with the
body? 5

R. p.81: it is a special mode of thinking, which occurs as
follows. When external objects act on my senses, they print on them
an idea, or rather figure, of themselves; and when the mind attends to
these images imprinted on the gland in this way, it is said to perceive. 10
When on the other hand the images on the gland are not imprinted by
external objects but by the mind itself, which fashions and shapes
them in the brain in the absence of external objects, then we have
imagination. The difference between perception and imagination is
thus really just this, that in perception the images are imprinted by 15
external objects which are actually present, whilst in imagination the
images are imprinted by the mind without any external objects, and with
the windows shut, as it were. This makes it quite clear why I can
imagine a triangle, pentagon, and such like, but not for example a

chiliagon. Since my mind can easily form and depict three lines in the brain, it can easily go on to contemplate them, and thus imagine a triangle, pentagon etc. It cannot however trace out and form a thousand lines in the brain except in a confused manner, and this is why it does not imagine a chiliagon distinctly, but only in a confused manner. This limitation is so great that it is only with the greatest difficulty that we can imagine even a heptagon or an octagon. The author, who is a fairly imaginative man and has trained his mind in this field for some time, can imagine these figures reasonably distinctly; but others lack this ability. This now also makes it clear why we see the lines as if they were present in front of us, and it further explains the surprising mental concentration we need for imagining, and for contemplating the body in this way. All this is clear from what has been said.

[43] p.80: And first of all, since I know that all things which I understand clearly and distinctly can be produced by God just as I understand them, my ability to understand one thing clearly and distinctly apart from another is enough to enable me to be certain that the two are distinct.

[AT VII 78; HR I 190]

You cannot ask whether the mind is a substance or, instead, a mode; nor can you say that it can be both these, since that is a contradiction; if it is one, it is not the other. You can however pose the following question: since thinking or thought is an attribute, to what substance does it belong? To corporeal substance? Or rather to incorporeal and spiritual substance? The answer to this is clear. You have a clear conception of corporeal substance, and you also have a clear conception of thinking substance as distinct from, and incompatible with, corporeal substance, just as corporeal substance is incompatible with thinking substance. In view of this, you would be going against your own powers of reasoning in the most absurd fashion

if you said the two were one and the same substance. For you have a clear conception of them as two substances which not only do not entail one another but are actually incompatible.

[44] p.84: For nature teaches through the sensations of pain, hunger, thirst, etc. that I am not only present in my body as a sailor is present in a ship, but that I am very closely joined and, as it were, intermingled with it.

[AT VII 81; HR I 192]

[O] But how can this be, and how can the soul be affected by the body and vice versa, when their natures are completely different?

R. This is very difficult to explain. On this question our experience must suffice, since it is so clear on this point that it just cannot be gainsaid. This is evident in the case of the feelings etc. 5

[45] p.94: And although the parchedness of the throat does not always proceed, as it usually does, from the fact that a drink is necessary to the health of the body, but sometimes comes from some quite opposite cause, as in the case of a man with dropsy, yet it is much better that it should mislead on this occasion than that it should always mislead when the body is in good health.

[AT VII 89; HR I 198]

[O] But if this is the way our senses are naturally constituted, why did God not make up for this defect by giving the soul awareness of the errors of the senses, so that it could be on its guard against them?

R. God made our body like a machine, and he wanted it to function like a universal instrument which would always operate in the same manner in accordance with its own laws. Accordingly, when the body is in good health, it gives the soul a correct awareness; but when it is ill, it still affects the soul in accordance with its own laws, and the necessary result of this is a state of awareness under which the soul will be deceived. If the body did not induce this misleading 10

state it would not behave uniformly and in accordance with its universal laws; and then there would be a defect in God's constancy, since he would not be permitting the body to behave uniformly, despite the existence of uniform laws and modes of behaviour.

- [46] p.480: But the term surface is used in two ways by mathematicians: in the sense of a body whose length and breadth alone they are studying and which is considered apart from any depth even though the possession of some degree of depth is not ruled out; or, secondly, as a mere mode of body, when all depth is completely denied.

[Sixth Replies: AT VII 433; HR II 249]

The mathematicians conceive of a surface as consisting of many lines without depth, just as we call these boards, for example, flat, when we do not see any depth in them.

- [47] p.481: But I did not deny that it [sc. the surface] was the extremity of a body. On the contrary, it can quite properly be called the extremity of the contained body, as much as of the containing one, in the sense in which bodies are said to be continuous when their extremities are together.

[ibid.]

[0] When this is said it is not in accordance with the truth of the matter, for there is in fact only one extremity, common to both bodies: when, in the Schools, two bodies are said to be continuous when their extremities are together, this is merely in accordance with the ordinary way of talking. If then the extremities are together, or rather, as we put it, if there is one extremity belonging to each body, are the bodies contiguous or continuous? They seem to be continuous, since the fact that two bodies have an identical extremity seems quite sufficient for continuity. But if they are continuous, what are contiguous bodies going to be like? Are they those which have a third body in between them? But this is not what they are like.

R. It is immaterial to me how other people define these things.
I call two bodies continuous when their surfaces are joined so
 immediately that when they move it is in a single motion, and they
 both stop moving together. Bodies which do not behave like this are 15
 contiguous.

[48]

A point to note is that you should not devote so much effort
 to the Meditations and to metaphysical questions, or give them elaborate
 treatment in commentaries and the like. Still less should one do what
 some try to do, and dig more deeply into these questions than the author
 did: he has dealt with them quite deeply enough. It is sufficient to 5
 have grasped them once in a general way, and then to remember the
 conclusion. Otherwise, they draw the mind too far away from
 physical and observable things, and make it unfit to study them. Yet it
 is just these physical studies that it is most desirable for men to pursue,
 since they would yield abundant benefits for life. The author did 10
 follow up metaphysical questions fairly thoroughly in the Meditations,
 and established their certainty against the Sceptics, etc.; so that
 everyone does not have to tackle the job for himself, or need to
 spend time and trouble meditating on these things. It is sufficient
 to know the first book of the Principles, since this includes those 15
 parts of Metaphysics which need to be known for Physics, etc.

[Notes against a Programme]

[49]

[0] In the Notes against a Programme, p.42, the author says that
 no ideas of things, in the form in which we think of them, are provided
 by the senses, but that they are all innate. Does it then follow that

the mystery of the Trinity, for example, is innate?

R. The author does not say that all ideas are innate in him. 5

He says there are also some which are adventitious, for example the idea he has of the town of Leyden or Alkmaar. Secondly, even though the idea of the Trinity is not innate in us to the extent of giving us an express representation of the Trinity, none the less the elements and rudiments of the idea are innate in us, as we have an innate idea 10 of God, the number three, and so on. It is from these rudiments, supplemented by revelation from the Scriptures, that we easily form a full idea of the mystery of the Trinity. This is how the conception we have of it is formed.

Principles of Philosophy

Bk. I

[50] Art.23: And we must not think that God understands and wills as we do, by means of operations that are in a certain way distinct one from another; but rather that there is always a single identical and perfectly simple act by means of which he simultaneously understands, wills and brings about all things.

[AT VIII 14; HR I 228]

We cannot conceive of how this happens, only understand it. Any different conception we may have arises from the fact that we think of God as a man who accomplishes all things as we would - by means of many different acts. If however we pay careful attention to the nature of God, we shall see that we can only understand him as 5 accomplishing all things by means of a single act.

[0] It seems that this cannot be, since there are some of God's decrees which we can conceive of as not having been enacted and as alterable. These decrees, then, do not come about by means of the single act which is identical with God, since they can be separated 10 from him, or at least could have been. One example of this, among

others, is the decree concerning the creation of the world, with respect to which God was quite indifferent.

R. Whatever is in God is not in reality separate from God himself; rather it is identical with God himself. As far as concerns the decrees of God which have already been enacted, it is clear that God is unalterable with regard to these, and, from the metaphysical point of view, it is impossible to conceive of the matter otherwise. 15

As far as concerns ethics and religion, on the other hand, the opinion has prevailed that God can be altered, because of the prayers of mankind; for no one would have prayed to God if he knew, or had convinced himself, that God was unalterable. In order to remove this difficulty, and reconcile the immutability of God with the prayers of men, we have to say that God is indeed quite unalterable, and that he has decreed from eternity either to grant me a particular request or not to grant it. Coupled with this decree, however, he has made a simultaneous decree that the granting of my request shall be in virtue of my prayers, and at a time when, in addition, I am leading an upright life; the effect of which is that I must pray and live uprightly if I wish to obtain anything from God. This then is the situation from the point of view of ethics; and here, after weighing the truth of the matter, the author finds himself in agreement with the Comarists, rather than the Arminians or even, amongst his brethren, the Jesuits. 25 30

From the metaphysical point of view, however, it is quite unintelligible that God should be anything else but completely unalterable. It is irrelevant that the decrees could have been separated from God; indeed, this should not really be asserted. For although God is completely indifferent with respect to all things, he necessarily made the decrees he did, since he necessarily willed what was best, even though it was of his own will that he did what was best. 35 40

We should not make a separation here between the necessity and the indifference that apply to God's decrees: although his actions were completely indifferent, they were also completely necessary. Then again, although we may conceive that the decrees could have been separated from God, this conception is based merely on a deliberate logical construct: the distinction thus introduced between God himself and his decrees is a mental not a real one. In reality the decrees could not have been separated from God: he is not prior to them or distinct from them, nor could he have existed without them. So it is clear enough how God accomplished all things in a single act. But these matters are not to be grasped by our powers of reasoning, and we must never allow ourselves the indulgence of trying to subject the nature and operations of God to our reasoning.

[51] Art.26: For our part, in the case of anything for which, from some point of view, we are unable to discover a limit, we shall avoid asserting that it is infinite, and instead regard it as indefinite.

[AT VIII 15; HR I 230]

[0] This distinction is the author's invention. But someone is going to say: 'What is the world like? Does it not have set boundaries? Indeed, can anything exist as an actual individual entity without having a determinate nature and boundaries? And does not the same apply to number, quantity, etc.?' 5

R. As far as we are concerned, we are never able to discover a particular limit in these things, and so from our point of view they are indefinite. What is more they are perhaps infinite, since when the indefinite is multiplied again and again, as in this case, it is identical with infinity. So we can perhaps say that the world is infinite, and the same for number etc. But as far as God is concerned, maybe he has a conception and understanding of fixed limits in the 10

world, and in number, quantity etc. He may be aware of something greater than the world, or number etc., and so these things may be finite for him. As for us, we see that the nature of these things is beyond our powers, and realise that we cannot comprehend them since we are finite beings. Thus, from our point of view, they are indefinite or infinite. 15

[52] Art.48: Whatever objects fall within the sphere of our knowledge (perceptio) I regard either as things, or affections of things, or as eternal truths which have no existence outside of our thought.

[AT VIII 22; HR I 238]

[0] But what becomes of contingent truths, like 'the dog is running' and so on?

R. By 'eternal truths' the author here means what are called common notions, such as 'it is impossible for the same thing to be and not to be', and so on. As for contingent truths, these relate to existing things. Contingent truths involve existing things, and vice versa. 5

Bk. II

[53] Art.1: For we have a clear understanding of matter as a thing which is quite different from God and from ourselves or our mind; and we appear to see clearly that the idea of it comes to us from objects which are located outside of us, which it completely resembles.

[AT VIII 41; HR I 254]

[0] But why 'we appear to see' - an indication of doubt?

R. The reason I used that word is that perhaps anyone is capable of denying that we see the point in question. But in any case, what 'appears' to us is enough to prove what I want. For since we need to rely on our own minds and what we are aware of in ourselves, what we 'see' must ultimately reduce to what 'appears' to us. And what 5

appears to us in fact requires the existence of material objects as a source of the ideas in question.

- [54] Art.26: We do not use any more force to move a stationary ship in calm water than we use to stop it suddenly when it is moving; or rather we use only slightly more: for one must subtract the weight of the water displaced by the ship, and the viscosity of the water, both of which could gradually bring it to a halt.

[AT VIII 55; AG 210]

This is something we see whenever a ship is sailing: water is displaced by the sides of the ship and piles up higher than the surrounding water. It stays piled up like this owing to its weight; so the water would be capable of halting the ship were it not driven on. What is meant by 'viscosity' is fairly widely known.

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- [55] Art.32: We may distinguish two different motions in a carriage wheel - a circular motion about the axle, and a motion straight forward along the line of the road. But that these are not in reality distinct is clear from the following: every single point on the moving object describes only one single line. It does not matter that the line is often very twisted, so that it seems to be produced by many different sorts of motion; for we can imagine any line at all - even a straight line, the simplest of all - as the product of an infinite number of different motions.

[AT VIII 58; AG 212]

It is of course very twisted since all the time it is moving on through a large number of circles, as the wheel moves about its axle. And the circles are not simple and perfect, but joined up and twisted in a continuous forward motion. This explains what I go on to say at the end of the section.

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- [56] Art.46: The first rule [sc. for determining how much the motion of a body is altered by collision with other bodies]

[AT VIII 68]

Since many were complaining of the obscurity of these laws, the author supplied a little clarification and further explanation in the French edition of the Principles.

Bk. III

[57] Art.2: But it would be the height of presumption if we were to suppose that all things were created by God for our benefit alone.

[AT VIII 81; HR I 271]

Nonetheless, it is a common habit of men to suppose they themselves are the dearest of God's creatures, and that all things are therefore made for their benefit. They think their own dwelling place, the earth, is of supreme importance, that it contains everything that exists, and that for its sake everything was created. 5
But what do we know of what God may have created outside the earth, on the stars and so on? How do we know that he has not placed on the stars other species of creature, other lives, and other "men" - or at least beings analogous to men? Maybe souls separated from bodies, or other creatures whose nature escapes us are able to live there. 10
And how do we know that God has not produced an infinite number of kinds of creatures, and thus, as it were, poured forth his power in the creation of things. All these matters are surely quite hidden from us, since God's purposes are hidden from us; and this is why we ought not to have so high an opinion of ourselves as to think that everything 15
in the universe is to be found here on earth, or exists for our benefit. For an infinite number of other creatures far superior to us may exist elsewhere.

[58] Art.45: For there is no doubt that the world was created from the very first with every perfection that it now has.

[AT VIII 99; AG 224]

The author could give an adequate explanation of the creation of the world based on his philosophical system, without departing from the description in Genesis. (Incidentally, if anyone can provide an explanation of this book the author will regard him as a 'mighty Apollo', and the same goes for the Song of Solomon and the Revelation). 5

The author did at one time attempt such an explanation of the creation, but he abandoned the task because he preferred to leave it to the theologians rather than provide the explanation himself. As far as Genesis is concerned, however, the story of the creation to be found there is perhaps metaphorical, as so ought to be left to the theologians. In 10 that case the creation should not be taken as divided into six days, but the division into days should be taken as intended purely for the sake of our way of conceiving of things; this was the way Augustine proceeded when he made the divisions by means of the thoughts of the angels. Why, for example, is the darkness said to precede the light? With regard to the 15 waters of the flood, they were undoubtedly supernatural and miraculous. The statement about the cataracts of the deep is metaphorical, but the metaphor eludes us. Some say they came down from heaven, and argue that this was where the waters were originally placed at the creation, on the grounds that God is said to have placed the waters above ha shamayim. But 20 this word is also very commonly used in Hebrew to denote the air, and I think that it is out of a prejudice of ours that we regard this as 'heaven'. Accordingly, the waters placed above the air are clouds. There is another word in Hebrew to denote the air, namely ha aretz.

[59] Art.46: From what has already been said we have established that the bodies which make up the universe are all composed of one and the same material, which is divisible in indefinitely many ways and is in actual fact divided into a large number of parts; these parts move in different directions and have a sort of circular motion....

[AT VIII 100; AG 225]

[0] But where was this assumed or proved?

R. In Book Two, where the author showed that all motion was in some way circular.

[60] So, if we may, we will suppose that the material of which the visible world is composed was originally divided by God into particles which were as nearly equal as possible, and of a size which was moderate, or intermediate when compared with those which now make up the heavens and stars.

[ibid.: AT VIII 101; AG 225]

He calls them 'moderate' by comparison with the first element; although they are too small, by a factor of one hundred or more, to be detected by our senses. He uses the word 'intermediate' because they occupy an intermediate position between the first and third element.

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[61] These particles taken together possessed the same quantity of motion as is now found in the universe; and their motions were of two kinds, each of equal force: first, they moved individually and separately about their own centres, so as to form a fluid body such as I take the heavens to be; and in addition they moved together in groups around certain other points...so as to make up as many different notices as there are now stars in the universe.

[ibid.]

[0] But this hypothesis, which seems rather complicated, is simple enough, and Regius appears to have deduced it all from motion.

R. It certainly is simple enough - indeed it is extremely simple, if we consider the infinite number of consequences deduced from it. A fluid body, which is what all this material is, moving in various different vortices: what simpler idea can there be, since it is the nature of a fluid body to move in and through vortices? As far as Regius is concerned, however, his proof is worthless. What is surprising is that in physics he has always been anxious to follow the views of

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the author and guess at them, even when he did not know them, whereas 10
in metaphysics he has done everything possible to contradict the author's
views, so far as his knowledge has allowed. However, this hypothesis
of the author is very simple, if we consider the almost infinite
number of things he has deduced from it; and the deductive chain
confirms the hypothesis. For the author subsequently saw that he could 15
deduce practically everything from it. And he is willing to swear before
God that when he was putting forward these hypotheses he had not yet thought
about fire, magnetism and the rest; it was only afterwards that he saw
that these things could be explained quite beautifully in terms of the
original hypotheses. Indeed, in the Treatise on the Animal, which he 20
worked on this winter, he noticed the following: although his aim
was merely to explain the functions of the animal, he saw that he could
hardly do this without having to explain the formation of the animal
right from the beginning. And this was something that he found to be
derivable from his principles, to the extent that he was able to give 25
a reason for the existence of the eye, nose, brain, and so on. He
clearly saw, moreover, that the nature of things was so constituted
in accordance with his principles that it could not be otherwise.
But these were all matters which he did not wish to go into at such
length and so he gave up writing the treatise. However he confesses 30
that the few thoughts that he had concerning the world are a source of
the greatest pleasure for him to look back on. He values them most
highly, and would not wish to exchange them for any other thoughts he
had about any other topic.

- [62] Art.50: It must be noted that the smaller these fragments of other particles are, the more easily they move and can be reduced to other even smaller fragments. The reason is that the smaller they get, the greater the surface-area which they have in proportion to their mass; and the number of other bodies they come up against is a function of the surface-area, whereas the extent to which they split up is a function of their mass.

[AT VIII 104]

This is a matter of mathematics. But it must be taken to apply to bodies having the same shape, for example two spheres; otherwise the ratio does not hold. See p. 160.

- [63] the greater surface area they have
[ibid.]

This is clear from the way a cube, for example, divides. If we take a cube, which is made up of six sides, and divide it into four parts, we shall have many more surfaces; and many more still if the process is carried further with each of the four parts.

- [64] the extent to which they split up is a function of their mass.

[ibid.]

The surface should not be excluded here, since the mass is not separate from it, nor is it separate from the mass; but here it is merely the theoretical notion of each of the two that we are introducing.

- [65] Art.53: We will not go wrong if we take all the material included in the space AEI and revolving round the centre S as the first heaven; and all that which makes up the innumerable other vortices revolving round the centres F, f, etc., as the second heaven; and lastly, whatever is found beyond these two heavens as the third heaven.

[AT VIII 106/7]

The author takes this third heaven to be the empyrean heaven, and he has argued that by comparison with the second heaven, let alone our own, it is immeasurably large. The fact that we think of our own heaven and earth as so large, and as containing all things, is due to prejudice. We think of the earth as the end of all things, and do not consider that it too is a planet which moves like Mars, Saturn, etc. - bodies we do not make so much of. Yet before the creation of this universe and of space, there was nothing, neither space nor anything else. But God existed, immeasurable and omnipresent, just as he is now. He was in himself; yet after he created the world he could not but be present in it.

[66] Art.63: And it must be noted besides that the force of light does not consist in the duration of some movement, but merely in pressure, or in the first effort towards movement, even though the movement itself does not perhaps ensue.

[AT VIII 115]

Pressure can happen without movement. For example we can take a metal instrument, or a piece of wood or metal, and press it with our hands on either side in such a way that no motion is produced, since of course the pressure and resistance on both sides are equal. The same thing happens in this case. Material of the second element is pressed against our eye; but since there is some resistance in the eye it exerts pressure in turn on the material. Thus there is pressure on each side, yet without any movement. Although people refuse to accept this explanation of the nature of light, in a hundred and fifty years time they will see that it is a good one, and that it is correct.

[67] Art.66. ('That the movements of these vortices must be somewhat deflected, so that they work in harmony'.)

[AT VIII 117/8]

It is scarcely possible to understand this figure without the help of eight or so little balls to demonstrate the movement. The author, despite the fact that he has accustomed his mind to imagining, was scarcely able to conceive of it without the balls. So others will find it much more difficult. For these things depend on mathematics and mechanics, and can be demonstrated better in a visual demonstration than they can in a verbal explanation. 5

[68] Art.68: Moreover, the inexplicable variety that is apparent in the way in which the fixed stars are located seems to make it quite clear that the vortices which revolve round them are not equal in size.

[AT VIII 119]

[O] But perhaps they are equal, and only seem unequal because of the unequal distance between them.

R. Well, that very fact would make them unequal in size. For the unequal distance between stars depends on the lack of equality in the vortices which surround them, and the vortices are therefore unequal in size. 5

[69] Art.83: ...and then also because it must be narrower in the region of the centre of any one of the neighbouring vortices than in the region of its other parts: for all these reasons it is necessary that sometimes some of the globules move faster than others, since they must obviously change their order so as to move from a broader to a narrower passage.

[AT VIII 138]

As is clear from the figure on p. 78, the material contained between S and the centre F of the neighbouring vortex is constricted in a more narrow space than that contained between S, E and F. This is because the material in the former case is constricted and compressed by S and F, which are mutually adjacent; whereas in the latter case there is no such compression from S, E and F, because the space there 5

is free, and there is nothing to constrict or compress the material.

[70] Art.144: Just as we see a top, by the mere fact of being given one twist by a child, acquire enough force to keep on moving for several minutes and complete several thousand rotations in this time, despite the fact that its mass is very small and its motion is being impeded by the air that surrounds it and also the earth it rests upon; just so it is easy to believe that a planet, by the mere fact that it was in motion when it was first created, could have carried on making its circuits right up to the present time, without any notable reduction in speed.

[AT VIII 194]

This comparison is clear enough. The top would always continue in its motion, were it not impeded by the air around it; though, because it is small, it only resists the air for a short time, viz. a few minutes; and in the same way the stars would always continue in their motion, were they not impeded by neighbouring bodies. However, since they are very large bodies they resist the air that surrounds them, and other bodies, all the more easily, and for several thousand years at that. This is because the larger a body is, the more easily it continues its motion and resists other bodies. And the author can testify that he has seen a child's top of rather large size carry on moving for nearly a quarter of an hour. And this was just because of its large size. So it is with the stars also. As to the top's having to resist the air, this is clear from the fact that when you get nearer to the top you notice a wind, which is produced by the resistance of the top and the motion which it sets up in the air.

[71] Art.150: However, there are other causes besides this for the earth's revolution about its own axis. If it was previously a bright star occupying the centre of some vortex, then it undoubtedly had this sort of spinning motion; and now, the material of the first element, which has been collected together in the centre of the earth, still retains a similar motion and so drives the earth.

[AT VIII 198]

That is from within, of course, in so far as it moves it by acting on its sides, in the same way as we see wind inflating a bladder by moving its sides as soon as it is blown into it.

Bk. IV

[72] Art.23: ('How all parts of the earth are pushed downwards by the celestial matter, and so become heavy.') Now, all the space around the earth is occupied either by particles of terrestrial bodies, or by celestial matter. All the globules of the celestial matter have an equal tendency to move towards each other and away from the earth, and thus no individual one has the force to displace any other. But the particles of terrestrial bodies do not have this tendency to so great an extent; so whenever any celestial globules have any terrestrial particles above them, they must exert all their force to displace them. So the gravity of any terrestrial body is not really produced by all the celestial matter surrounding it, but only and exactly by that part of it which rises into the space left by the body as it descends.

[AT VIII 213]

[O] But the more solid a body is, the greater its centrifugal force, as we can see in the case of a stone of a sling, which moves faster than a piece of wood. Now the terrestrial bodies are more solid, so...

R. The very principle you have introduced confirms my own view. 5
For in fact the terrestrial bodies are not more solid than the celestial globules; the opposite is true - or at least the two are equally solid - and so the celestial globules move faster. Secondly, the globules move far faster than the terrestrial bodies, since they are smaller. And the earth itself is a large body full of cavities and 10 pores, which means that it easily loses its motion and passes it on to another body. Thus, it cannot move as fast as the globules; and so the globules, moving faster than the terrestrial bodies, push them down and make them heavy.

- [73] Art.27: ('That gravity depresses bodies towards the centre of the earth.') Next we should note that, although the particles of celestial matter move in many different ways at the same time, none the less the total overall effect of their individual opposition one to another is what amounts to a state of equilibrium.

[AT VIII 216]

In this way the entire system is in a state of equilibrium. But this is a very difficult thing to conceive of, because it is a mathematical and mechanical truth. We are not sufficiently accustomed to thinking of machines, and this has been the source of nearly all error in philosophy. You can observe the total overall effect I speak of in the case of wind or air when it is blown into a bladder. The total effect is to fill the bladder and produce movements in it; thus the air is in what amounts to a state of equilibrium, even though the particles that make it up move agitatedly in various different ways.

5

- [74] Art.33: ('Distinction of terrestrial particles into three principal kinds.') The shapes of the particles of the third element...are very various, and...we may here distinguish the particles themselves into three principal kinds.

[AT VIII 220]

- [0] But how do we arrive at these three kinds?

R. Through reasoning, and then through experience, which confirms the reasoning. For we see that all terrestrial bodies are made up of the shapes in question: water is made up of oblong shapes, oil of branching shapes, and so on.

5

- [75] Art.125: ('How the particles of glass are joined together'). It is to be noted that, when two bodies with extended surfaces meet each other directly face on, they cannot get so near to each other, since there is a space in between which is occupied by globules of the second element; but when one is driven, or slides, on top of the other at an oblique angle, they can join together much more closely.

[AT VIII 270]

[O] But then they will still meet each other directly face on, except that this will merely be along a different side. And how is it that two bodies at rest against each other should stick together so firmly, when either one can easily move and thus be separated from the other?

5

R. When they are driven together directly face on, the globules of the second element which are trapped between them are not expelled. When they come together obliquely, hither and thither, in this shape, $\angle$, they can expel the globules and join up and make one continuous body. This is how glass moves at first when it is hot - hither and thither at high speed; it moves more slowly when it begins to cool, and then finally comes to rest when it is cold. But it is impossible to conceive of what makes a body continuous and immobile, except its being in a state of rest.

15

[O] But I could easily move such small particles with my hand, though I see they are now immobile.

R. If you could do this, the movements of your hand would be enough to destroy their state of rest, and so they would not be immobile. But in fact this is impossible, since the part of your hand which touches the parts of the hard body is softer than they are, and is thus unable to move them. The reasons for all this were explained quite adequately in Book Two. The nature of glass, which is otherwise so difficult to explain, is very easily accounted for on the basis of these principles.

20

From the Discourse on Method

[76] p.1: Nothing is more equally distributed amongst men than good sense: for everyone thinks he is abundantly provided with it; so much so that even those whose desires are hardest to fulfil, and who are dissatisfied with all their other natural endowments, do not generally wish for a greater degree of good sense than they already possess.

[Part I: AT VI 540 (1/2); HR I 81]

[0] But there are many obtuse men who frequently wish they had better and quicker minds.

R. I agree; there are indeed many who acknowledge themselves to be inferior to others in intelligence, memory and so on. But nonetheless, everyone thinks that he is so excellent as to be second to none, when it comes to judgement, and being qualified to give an opinion. Everyone is happy with his own opinions, and no two people think alike. This is what the author means by 'good sense' in this passage. 5

[77] p.15: But on closer examination, I observed, with regard to Logic, that the forms of syllogism, and almost all the other rules, are of less use for exploring the gaps in our knowledge than for explaining to others what we already know, or, like the art of Lully, for prattling copiously and without judgement on matters we are ignorant of.

[Part II: AT VI 549 (17); HR I 91]

This really applies not so much to Logic, which provides demonstrative proofs on all subjects but to Dialectic, which teaches us how to hold forth on all subjects. In this way it undermines good sense, rather than building on it. For in diverting our attention and making us digress into the stock arguments and headings, which are irrelevant to the thing under discussion, it diverts us from the actual nature of the thing itself. Professor Voetius is a past master at this: throughout his books he simply presents his opinions, lays down the law - declaring "this is how it is" - and then lumps together a lot of authorities. 5 10

[78] p.17: The long chains of reasoning, made up of very simple and easy steps, which are used by Geometers to prove the most difficult theorems, gave me the idea that all the items which fall in the province of human knowledge might be mutually related in the same sort of sequence.

[Part II: AT VI 550 (19); HR I 92]

[O] But is it not the case that in Theology too all the items are mutually related in the same sort of sequence and chain of reasoning?

R. Undoubtedly they are. But these are truths which depend on revelation, and so we cannot follow or understand their mutual connexion in the same way. And certainly Theology must not be subjected to our human reasoning, which we use for Mathematics and for other truths, since it is something we cannot fully grasp; and the simpler we keep it, the better Theology we shall have. If the author thought anyone would abuse his Philosophy by taking arguments from it and applying them to Theology, he would regret all the trouble he had taken. However, we can and should prove that the truths of Theology are not inconsistent with those of Philosophy, but we must not in any way subject them to critical examination. This is how the monks have opened the way to all the sects and heresies - I mean, through Scholastic Theology, which is something that should above all else have been stamped out. Why do we need to spend all this effort on Theology, when we see that simple country folk have just as much chance as we have of getting to heaven? This should certainly be a warning to us that it is much more satisfactory to have a Theology as simple as that of country folk than one which is plagued with countless controversies. This is how we corrupt Theology and open the way for disputes, quarrels, wars and such like. Indeed, the theologians have made such a habit of foisting every kind of doctrine on to the theologians of the opposing school and then denigrating it, that they have completely mastered the art of denigrating, and can scarcely do anything else but denigrate, even when they do not mean to.

[79] I knew that I should start with an examination of those items which were the simplest and easiest to grasp. And since I saw that, of all those who had sought the truth up to the present day, it was the mathematicians alone who had been able to discover a number of demonstrative proofs (i.e. certain and evident reasons), I had no doubt that the object of their inquiries was the easiest of all. So I knew I should examine this first, even though the only benefit which I expected to ensue was that my mind would gradually become used to recognising the truth, and to withholding assent from false reasoning.

[ibid.]

This benefit cannot be derived from Mathematics as it is commonly taught. For this consists almost entirely in the history of explanation of terms, and the like, all of which can easily be learnt by memorization. All this develops the memory, but not the intelligence. To enable the intelligence to be developed, you need mathematical knowledge, and this 5 is something which is not to be gleaned from books, but rather from actual practice and skill. The author had to teach himself the subject this way, since he had no books with him, and the results he obtained were very happy. However, not everyone has this aptitude for Mathematics: one needs a mathematical mind which must then be polished by actual 10 practice. Now this mathematical knowledge must be acquired from Algebra; but this is a subject in which we cannot do ourselves much good without the aid of a teacher - unless, that is, we are willing to follow step by step the lead which the author has given us in the Geometry, so as to end up with the ability to solve problems and discover truths 15 whatever they may be, just as a certain Frenchman did at Paris.

A study of Mathematics, then, is a prerequisite for making new discoveries, both in Mathematics itself and in Philosophy. You do not, however, need Mathematics in order to understand the author's philosophical writings, with the possible exception of a few mathemat- 20 ical points in the Dioptrics. The topics on which the author wants us to exercise our minds are very simple ones, such as the nature and

properties of the triangle and so on; these must be thought about and pondered on. Mathematics accustoms the mind to recognising the truth, because it is in Mathematics that examples of correct reasoning, which you will find nowhere else, are to be found. Accordingly, the man who has once accustomed his mind to mathematical reasoning will have a mind that is well equipped for the investigation of other truths, since reasoning is exactly the same in every subject. The fact that there are some people who are clever at Mathematics but less successful in subjects like Physics, is not due to any defect in their powers of reasoning, but is the result of their having done Mathematics not by reasoning but by imagining - everything they have accomplished has been by means of imagination. Now, in Physics there is no place for imagination, and this explains their signal lack of success in the subject.

Then again, Mathematics accustoms the mind to distinguishing arguments which are true and valid from those which are probable and false. For, in Mathematics, anyone who relies solely on probable arguments will be misled and driven to absurd conclusions; this will make him see that a demonstrative proof does not proceed from probable premisses, which in this respect are equivalent to false ones, but only from those which are certain. It is because philosophers have not followed this advice that they can never distinguish proofs from probable arguments in Philosophy and Physics; moreover, they nearly always try to argue in terms of probabilities, since they do not believe that there can be a place for demonstrative proofs in the sciences which deal with reality. And this is why the Sceptics and others have believed that the existence of God cannot be proved, and why many besides think that it is unprovable; whereas in fact it is conclusively provable, and, like all metaphysical truths, is capable of a more solid proof than the proofs of Mathematics. For if you were to go to the mathematicians and

cast doubt on all the things the author cast doubt on in his metaphysical enquiries, then absolutely no mathematical proof could be given with certainty; whereas the author went on to give metaphysical proofs in spite of the doubt. So the proofs in Metaphysics are more certain than those in Mathematics. And at every point, the author tried to provide 'mathematical' proofs, as they are commonly called, in his philosophy; though these cannot be grasped as such by those who are unfamiliar with Mathematics.

[80] p.20: Thus, in order that I should not remain irresolute in my actions while reason advised me to be so in my judgements, and so that I should start to live from that time on as happily as possible, I made up for myself a temporary code of ethics, consisting merely of three or four rules, which I should like to include here.

[Part III: AT VI 552(22); HR I 95]

The author does not like writing on ethics, but he was compelled to include these rules because of people like the Schoolmen; otherwise they would have said that he was a man without any religion or faith and that he intended to use his method to subvert them.

[81] p.36: But if we did not know that whatever reality and truth there is in us proceeds entirely from a supreme and infinite being, then no matter how clear and distinct our ideas were, we should have no reason for being certain that they were therefore true.

[Part IV: AT VI 562(39); HR I 105]

If we did not know that all truth has its origin in God, then however clear our ideas were, we would not know that they were true, or that we were not mistaken - I mean of course when we were not paying attention to them, and when we merely remembered that we had clearly and distinctly perceived them. For on other occasions, when we do pay attention to the truths themselves, even though we may not know God exists we cannot be in any doubt about them. Otherwise, we could not prove that God exists.

[82] p.56: It is true that there is nothing in the medicine which is currently practised of any remarkable utility. But, without having any intention of condemning it, I am confident that anyone, even a professional doctor, would agree that all the discoveries up to the present day are virtually nothing by comparison with what still remains to be known; and that men could achieve immunity from an infinite number of illnesses, both of the body and of the mind, and even perhaps from the feebleness of old age, if they only had a sufficiently extensive knowledge of the original causes of these maladies, and of all the remedies which nature has provided us with.

[Part VI: AT VI 575 (62); HR I 120]

Whether man was immortal before the Fall, and if so how, is not a question for the philosopher, but must be left to the theologians. And as to how men before the flood could achieve such an advanced age, this is something which defeats the philosopher; and it may be that God brought this about miraculously, by means of supernatural causes, and without 5 recourse to physical causes. Or then again it could have been that the structure of the natural world was different before the flood, and that it then deteriorated as a result of the flood. The philosopher studies nature, as he does man, simply as it is now; he does not investigate its causes at any more profound level, since this is beyond 10 him. However, it should not be doubted that human life could be prolonged, if we knew the appropriate art. For since our knowledge of the appropriate art enables us to increase and prolong the life of plants and such like, why should it not be the same with man? But the best way of prolonging life, and the best method of keeping to a healthy 15 diet, is to live and eat like the animals, i.e. eat as much as we enjoy and relish, but no more.

[O] This might work out all right in sound and healthy bodies, where the appetite is working properly for the benefit of the body; but it will not work for those who are sick. 20

[R] Nonsense. Even when we are ill nature still remains the same. What is more, it seems that nature plunges us into illnesses, so that

we can emerge all the stronger, and makes light of any obstacles in her way, provided we obey her. And perhaps if doctors would only allow people the food and drink they frequently desire when they are ill, they would often be restored to health far more satisfactorily than they are by means of all those unpleasant medicines. Indeed, experience confirms this. In such cases nature herself works to effect her own recovery; with her perfect internal awareness of herself she knows better than the doctor who is on the outside.

[O] But there is such an infinite number of foods etc.; so what choice should we make among them, and what order should we take them in, and so on?

R. This is something our own experience teaches us. We always know whether a food has agreed with us or not, and hence we can always learn for the future whether or not we should have the same food again, and whether we should eat it in the same way and in the same order. So, as Tiberius Caesar said [or Cato, I think], no one who has reached the age of thirty should need a doctor, since at that age he is quite able to know himself through experience what is good or bad for him, and so be his own doctor.

Amsterdam, April 20th, 1648.

COMMENTARY

Note: For abbreviations used in referring to editions of Descartes see page 319.

Other works cited in the Commentary are referred to by the author's or editor's name in CAPITALS, and are listed in full in the Bibliography.

All translations from Descartes are my own unless otherwise indicated.

CB 1 - 48. Meditations and Replies to Objections

This section deals with twenty-seven points from the Meditations and twenty from the Replies; the final piece (CB 48) is a general piece of advice on how to study the Meditations. The reader is referred to the Conspectus on p.314 for a summary of the topics discussed.

The section is divided into six groups of pieces, headed 'Medit. I', 'Medit. II' etc. In each group, first of all, passages from the appropriate Meditation are discussed, in the order in which they come in the original text. Then, after all the passages from the Meditation proper have been dealt with, Burman introduces various quotations from the Replies relevant to the Meditation under discussion. The only exception to this orderly procedure (except for the placing of CB 22 and 36 - see Commentary ad loc.) occurs in the first group of pieces (CB1 - 9). Here CB nos. 1 - 3 indeed deal with the First Meditation; but nos. 4 - 9 (from the Replies) concern issues more relevant to the subsequent Meditations (i.e. the Cogito, the Circle, the nature of the mind).

CB 1

lines 1 - 5 : From the senses...through the senses...

Here, in the first paragraph, we have an example of the philosophical richness of the Conversation. The casual reader of the passage quoted from the First Meditation might suppose that Descartes was merely referring

CB 1 (cont.)

in a general way to the fact that our ordinary beliefs are based on the perceptions of the five senses. But Descartes makes it clear to Burman that the phrase vel a sensibus vel per sensibus marks a specific distinction between two different sources of our beliefs. The distinction, as it is explained here, seems to be one between direct knowledge and derivative knowledge. At first sight this looks a bit like Russell's famous distinction between knowledge by acquaintance and knowledge by description. "In the presence of my table", writes Russell, "I am acquainted with...its colour, shape,...etc." (RUSSELL, p.25). This Russell calls knowledge by acquaintance. On the other hand, when I know some piece of information about the world - e.g. that the Emperor of China exists (or did in 1912) - this is knowledge by description.

But if this is the sort of distinction which Descartes had in mind, he has expressed himself very oddly in the remark to Burman about sight and hearing. Take sight first. Under knowledge by acquaintance Russell includes, for obvious reasons, the data of touch, taste etc., as well as sight: in the presence of my table I am acquainted with hardness and smoothness as well as colour and shape (loc.cit.). (Indeed, even my knowledge of shape is not, of course, derived from sight alone.) And similarly, my knowledge by description can be acquired otherwise than by hearing (e.g. by reading a book). Why then should Descartes have fastened exclusively on the senses of sight and hearing to gloss a sensibus and per sensibus respectively? One way out of the difficulty would be to deny that he did: we could alter "i.e." to "e.g." at lines one and three. (Adam's supplement 'scilicet' in both places is conjectural: the original merely has an indecipherable abbreviation.) But there are reasons against this solution. Clauberg, in his commentary on this part of the Meditations, makes the same special reference to sight and hearing that we find here. Moreover, he implies that Descartes regarded sight as par

CB 1 (cont.)

excellence the sense of discovery (inventionis sensum): the eyes are the windows of the mind, through which all the various data of colour, shape, movement etc., enter our consciousness. Similarly, hearing is par excellence the sensus disciplinae - the sense of learning. The other senses, says Clauberg, are passed over by Descartes because their contribution to our knowledge is by comparison negligible (since they only provide us with information about our immediate environment) (CLAUBERG, pp. 9, 10).

If we accept Clauberg's account, and combine it with our parallel with the Russell distinction, then what Descartes is saying is this: our knowledge (or what we have hitherto accepted as knowledge) is of two kinds, viz., (1) acquaintance with sensory data (colours, shapes etc.) - principally and typically through the sense of sight; and (2) descriptive knowledge (information about the external world, what exists and so forth) - principally and typically acquired through the 'sense of learning', hearing.

But there is still a serious difficulty with this interpretation. Whatever I have hitherto accepted as most true, says Descartes, I have acquired either from the senses or through the senses (*italics mine*). Yet, as Russell points out, the sort of knowledge that is opposed to error is knowledge that something is the case. It is only knowledge by description that can properly speaking be called knowledge of truths (RUSSELL, p.23). Is it not then a confusion for Descartes to include knowledge by acquaintance (knowledge of colours, shapes etc.) under the heading of 'what I have hitherto accepted as most true'? The confusion would be an easy one to make, for talk of perceiving colours and shapes is ambiguous. It might refer to (a) what Russell calls being acquainted with e.g. redness or roundness, which is not a belief or judgement at all but is, perhaps, a mental state or event, and as such seems to have no place in the Cartesian review of former beliefs. On the other hand, talk of my 'perceiving colours

CB 1 (cont.)

and shapes' might refer to (b) an implicit judgement - e.g. that something red (round) exists. Only this second item seems a proper candidate for inclusion in the review of former beliefs.

Descartes can be acquitted of this particular confusion however, for he himself is quite alive to the distinction in question. In the Sixth Replies, he explicitly distinguishes between on the one hand the 'immediate mental result of the stimulation of the bodily organs with which the mind is united' (e.g. perceptions (perceptiones) of pain, colours, sound, taste etc.) and, on the other hand, an actual judgement (judicium de rebus extra nos). (AT VII 437).

What then is the explanation of the inclusion of immediate perceptual data in the list of 'what I have hitherto accepted as most true'? The answer is that Descartes holds that even in this sphere there is, or can be, a residual judgemental element of a very special sort; so that there can, even here, be room for error. This strange notion is explained and discussed below under the heading material falsity; see on CB 15, p. 115ff.

line 7 : ...common principles...

These 'principia communia' are referred to further down as 'common principles and axioms' (lines 12/13). The example given at line 13 appears in the section on 'eternal truths' in the Principles (Bk. I, art.49), where it is also called a 'common notion' (notio); another example given is 'ex nihilo nihil fit'. There is a list of ten such propositions, under the heading "axioms or common notions" in the 'geometrical' proof of God's existence given in the Second Replies (AT VII 164/6).

line 8 : ...never in the senses (Med... p.34).

"page 34" is AT VII 39/40 (see Introduction, p. x); the reference is to Descartes' discussion of innate ideas in the Third Meditation, where God's existence is proved from the innate idea I have of God.

CB 1 (cont.)

lines 8/9: ...I acquired these...through hearing.

Descartes is not denying the innateness of the 'common principles'. His point is that unless we actually 'hear' them - i.e. are explicitly taught them by our logic tutor or whoever - we are not conscious of them at all (although they are implicitly presupposed by our ways of thinking about particulars; see lines 18/19 and CB 4). For Descartes' views on innate ideas see CB 49, and Commentary on CB 9.

line 10: ...the author is considering at this point...

Implicit in Descartes' comment here is a point of vital importance for a correct understanding of the First Meditation. Although Descartes speaks throughout in the first person ("whatever I have so far accepted..." etc.), the "I"-statements cannot be taken as reporting the considered philosophical views of the author. Rather, the writing is what might be called an exercise in dramatic projection. At the particular stage of the enquiry referred to here, for example, Descartes is putting himself in the role of the man who is "just beginning to philosophize" (line 11). As Professor Frankfurt notes: "the Descartes of the First Meditation affects a point of view which he has long since outgrown - that of someone who is philosophically unsophisticated and who has always been guided more or less unreflectively in his opinions by common sense." (FRANKFURT, p.4/5). However, there is a wider point at issue here which really applies to the style of the Meditations as a whole: for this see on CB 16, line 4.

line 12 : ...knows he is aware of (scit se nosse)

An awkward phrase to translate; Adam has "sait être en sa connaissance". To render "know he knows" would be misleading; for Descartes' man who is 'beginning to philosophize' is making a review of his hitherto accepted beliefs: these may or may not turn out to be cases of genuine knowledge.

CB 1 (cont.)

lines 14/15 : ...creatures of the senses...

Reliance on the senses for Descartes, as for Plato (cf. Republic 523 ff.), is the mark of the uncritical, 'prephilosophical' man. Descartes' description here of the way we think 'before we begin to philosophize' throws light on several important topics in the Meditations, and the whole section from lines 10-24 is of great interest. I shall be referring back to this passage in discussing (a) the nature and scope of the doubts raised in the First Meditation (Appendix A, p. 260); (b) Descartes' views on the sense in which we have innate knowledge (pp. 84 ff.); and (c) the way in which Descartes develops the Cogito argument (Appendix B, section III).

lines 23/4: ...cannot be denied...focuses his attention on them.

A very important remark which has crucial bearing on Descartes' attitude to the thorny problem of the 'Cartesian circle'. It should be compared with CB 6 and CB 31. There are two chief points worth noting about our passage here. (1) Descartes roundly asserts the ultimate impossibility of scepticism without any mention of the need to prove God's existence; the weight falls entirely on the indubitability of the 'common principles or axioms'. (2) Descartes does not simply assert that the axioms are indubitable tout court, but adds the proviso 'for anyone who carefully focuses his attention on them' (MS: "ab eo qui attente ad illa animadvertit negari non possunt"). A definite act of mental concentration is necessary. For both these points see further Appendix C, pp. 282 ff.

line 25 : ...the question of whether anything has real existence.

This is a rather free version of the idiomatic Latin: "hic praecipue de re existente agitur, an ea sit". The thought is rather compressed, but the point is clear enough. Descartes asserts in the First Meditation that all hitherto accepted beliefs have been acquired either from or through the

CB 1 (cont.)

senses; here at CB 1 he considers the imaginary objection "What about the common principles, which are innate?". His reply is in three parts, of which the first two (lines 8-9 and lines 10-24) are quite full and explicit; now at line 24, he says in effect: 'Thirdly, here we are principally concerned with questioning accepted beliefs about the external world': the implied continuation must be: 'but of course the common principles are not relevant to this issue, since they do not assert anything about real existence in the world.'

That Descartes' common principles lack existential import emerges explicitly (in another connexion) in Book I of the Principles, where Descartes says that the simplicissimae notiones (e.g. that it is impossible for that which thinks not to exist) 'provide us with no knowledge of anything that exists' (nullam rei existentiae notitiam praebent; AT VIII 8; cf. also AT VIII 23, line 25 ff.). These propositions thus fall into the class of what Hume was later to call 'relations between ideas' as opposed to 'matters of fact' (Enquiry, para. 20; Treatise, Appendix B); see further on CB 52. For Descartes' use of res, existere and allied concepts, see below on CB 34.

line 24 : ...here we are dealing primarily... (hic praecipue agitur)

The hic could be taken to refer to this particular part of the argument (the first stage of doubt). But I believe the point in fact applies to the First Meditation taken as a whole: see Appendix A, p. 257. The Synopsis supports this more general interpretation of the referent of hic: "In prima (sc. Meditatione) causae exponuntur propter quas de rebus omnibus, praesertim materialibus, possumus dubitare" (AT VII 12; my italics).

CB 2

line 3 : ...customary difficulties of the Sceptics...

The argument from illusion and the dreaming argument were not innovations of Descartes; indeed, Hobbes complained that a 'modern'

CB 2 (cont.)

philosopher like Descartes should bother to publish 'that old stuff' (vetera illa; AT VII 171). The old Pyrrhonian arguments about the reliability of the senses had been much discussed by the sceptics of the sixteenth century (see R.H.Popkin on the 'Nouveaux Pyrrhoniens': POPKIN, Chs. II, III); and the dreaming argument, too, has a long ancestry (cf. Plato, Theaetetus, 158). But the demon argument is Descartes' own special contribution*. See Appendix A for a full discussion of Descartes' comments here.

line 7 : ...which some might criticize as a superfluous addition.

This appears to be the sense of the curious clause in the MS: "quem sursum dari aliquis objicere potest". Adam suggests emending sursum to seorsum, and translates "qu'on peut lui objecter qu'il introduit hors de propos" (ADAM, ad.loc.). But the general gist is clear, in any case (see Appendix A, p.256).

CB 3

For the contradiction, see on CB 10, where the same point is made at greater length.

CB 4

This piece provides extremely valuable evidence for Descartes' views on the status of the Cogito; this is discussed in full in Appendix B, q.v.

line 1 : ...asserted at Principles I. 10?

Burman implies that Descartes asserted in the Principles that the conclusion of the Cogito was arrived at via a syllogism. This is not strictly true; and it is certainly incorrect that "the author says in the Principles that the major premiss comes first", as we are told further down (line 5). Thus, Burman's question, and the whole of Descartes' reported

* See however COPLESTON, vol.III, Part I, p.76 for possible historical antecedents.

CB 4 (cont.)

answer, incorporate a mistaken recollection of the text of the Principles.

This presents us with quite a problem. Either we accept the text as a correct record of what was said, which means that Descartes was less than particular about the accuracy of quotations from his published work, or else serious doubt is cast on the accuracy of Burman's reporting. And if he misreported this - one of the most vital exchanges in the Conversation - then the general reliability of the Conversation as a source is called into question.

In fact, however, the misquotation is much less serious than might at first appear. For although Descartes does not talk of syllogisms and major premisses in Principles I, 10, he does mention the proposition 'fieri non potest ut id quod cogitet non existat' ('it is impossible for that which thinks not to exist'), and says that one must have prior knowledge of this in order to arrive at 'cogito ergo sum'. So the necessity for prior knowledge of a general principle closely related to 'everything which thinks is' is asserted in the Principles. The gist of Burman's objection, then, remains that there is an apparent discrepancy between the Principles and the Second Replies - an objection of considerable force; and Descartes' reported reply makes good, indeed excellent sense, as a defence against this charge (see Appendix B, section III).

There is, however, a difficulty about this. At Principles I 10, the proposition

(1) It is impossible for that which thinks not to exist
is described as a 'very simple notion' which "does not provide knowledge of any existing thing". But consider the major premiss

(2) Whatever thinks exists.

Under the rules of traditional Aristotelian logic, this type of universal affirmative proposition was regarded as having existential import (i.e. as entailing that some thinking thing exists). Would not Descartes have

CB 4 (cont.)

been keenly aware of this, and so made a sharp distinction between (1), the 'notion' in the Principles, lacking existential import, and (2), the 'major' which Burman makes him talk about here?

What is more, it is sometimes suggested that Descartes' denial that the Cogito involves a syllogism (in the Second Replies) was made precisely to avoid the danger of a petitio principii that would arise if 'cogito ergo sum' were derived from a major premiss with existential import. If this view is correct, then the very last thing Descartes would have done is to go along with a careless assimilation of (1) to (2).

I am inclined to think, however, that when Descartes considered the proposition 'whatever thinks exists' the question of existential import simply did not occur to him. This may seem a tall order. But, firstly, the existential import of universal affirmatives, though it is a feature of the Aristotelian system, is not a glaring feature (its rejection would leave the validity of many of the most common argument patterns quite untouched*). There is a danger here of projecting back the mental habits of the twentieth century on to the seventeenth: the logical status of universal affirmatives and the difficulties of the Aristotelian square of opposition have bulked large in the minds of philosophers only since the advent of alternative logical systems. Secondly, at no point when Descartes discusses the syllogism does he show any awareness of the dangers of a petitio principii (nor is this raised by any of the objectors). When discussing the issue with Clerselier, Descartes makes it clear that he regards the supposed involvement of a major premiss in the Cogito as dangerous only because it lays him open to the charge of having been careless in his method of doubt and allowed an unexamined prejudice into his reasoning (AT IX 206).

* In the first figure, for example, all four principal moods (Barbara, Celarent, Darii, Ferio) remain untouched; only the 'weakened' moods (AAI, EAO) are affected by the question of existential import. cf. MITCHELL, p.45.

CB 4 (cont.)

In view of this I think it is quite possible that Descartes was capable of assimilating (1) to (2); it is quite possible that he was able to regard 'fieri non potest ut id quod cogitet non existat' and 'omne id quod cogitat existit' as variants on the same simple 'notion' which he regarded as lacking existential import. I do not mean that if challenged he would have maintained that there was no difference whatever between the two formulations. But I suggest that he might well have maintained that the 'simplicissima notio' of the Principles, and the 'generalis notio' discussed here at CB 4 line 11 are both ways of referring to the general logical principle which is 'implicitly pre-supposed' (line 6) when one asserts 'cogito ergo sum'.

One final point. The identical phrase 'general notion' which Burman reports here is used by Descartes elsewhere in connexion with the major premiss 'whatever thinks exists'. This is in the letter to Clerselier already referred to (AT IX 206). What is more, the general line taken in that letter (e.g. in the contrast between general propositions and particular instances) strongly backs up the authenticity of the analysis offered at CB 4.

I conclude that there is no sound reason for supposing that Burman had got his notes into a muddle at this point, or that his reconstruction of the argument is less than substantially accurate.

line 2 : Before this inference...

The text has 'ante hanc conclusionem', which two recent writers who have referred to this passage in the Conversation have translated as 'before this conclusion' (FRANKFURT, p.97; KENNY (1), p.51). But 'conclusion' seems inappropriate as a description of the entire phrase 'cogito ergo sum'; it would be normal in English to call sum the conclusion, and the phrase as a whole an argument or inference. And in fact conclusio in Latin is quite capable of bearing this more appropriate meaning. (The

CB 4 (cont.)

Oxford Latin Dictionary gives "the inferring or deducing of a proof" as the first meaning of 'conclusio'. Compare also the meaning of 'conclusion' in French.) Concludere is used to mean 'infer' at CB 17 and CB 19.

line 8 : ...or that I know it before my inference.

MS: "non ideo semper expresse et explicitè cognosco illam praecedere et scio ante meam conclusionem". I prefer to take ante as a preposition governing conclusionem, and scio as governed by the non at the beginning of the sentence with illam as the understood object. Adam however takes ante as adverbial and translates "mais je ne sais pas pour cela expressement et explicitement qu'elle précède, et je connais ma conclusion auparavant". But on either rendering the crucial point is the same, viz. that one can make the inference 'cogito ergo sum' without express and explicit awareness of the priority of the major premiss. See Appendix B section III.

line 11/12 : As I have explained before...

At CB 1, lines 16-20. See Appendix B, p. 269.

CB 5

This is one of the pieces which I have punctuated differently from Adam (see Introduction, p.xii). Adam gives the whole piece to Burman, except for the final reply on memory (lines 18-21). It seems to me more natural to make the first chunk (lines 1-11) a piece of straight commentary attributable to Descartes (the assertion at lines 6 ff. is particularly characteristic). If this is right, then it is only at line 12 that Burman breaks in with an objection. For this format, compare CB 22 and CB 50.

lines 3/4 : ...cannot incline to nothingness...

Descartes originally raised the question of God and deception in the

CB 5 (cont.)

First Meditation, and he takes it up again at the end of the Third Meditation. There he has some relatively straightforward arguments to prove that God cannot deceive: 'God is supremely perfect, but deception implies some defect (defectus)' (AT VII 52, line 7; cf. Principles I, 29); 'God is supremely good, but the will to deceive is a sign of malice (malitia)' (Fourth Meditation, ad. init.: AT VII 53, line 27). But the passage from the Sixth Replies quoted here by Burman refers back to a rather more complex argument in the Fourth Meditation (AT VII 54).

The original version of this argument involved the notion that human error is a negation or deficiency (defectus); now God, who is supremely real and positive, cannot be responsible for a negation; hence God cannot deceive. The trouble with this is that the criteria for something's being a negation are none too clear. The argument presupposes a simple uncontroversial distinction between positive and negative predicates: but there are serious difficulties about this (see below on CB 19). Moreover, Descartes himself was not quite satisfied with classing error as simply a negation (a 'pura negatio') since "it is the privation or lack of something which I should have" (AT VII 55).

Closely tied up with the negation argument is another, more obscure, argument involving the notions of 'being' and 'nothingness'; and it is this which Descartes attempts to develop and clarify here at CB 5 (he refers to it at line 5 as a 'metaphysical consideration'). The following steps seem to be involved:

- (1) God is pure being
 - (2) we human beings are a mixture of being and non-being
 - (3) our error derives from that part of us which involves non being
 - (4) God cannot incline to non-being
- hence (5) God cannot deceive.

Problems abound here. Why should error be somehow unreal, involve

CB 5 (cont.)

'non being' or 'nothingness'? Again, why should we erring humans be a 'mixture of being and non-being'? These claims can only be understood by tracing them back to their origin, which is unmistakably Platonic.

Plato, as is well known, described his 'Forms' as utterly perfect and quasi-divine (cf. Phaedrus, 250 c). This perfection of the Forms is closely linked to Plato's thesis that they belong to a higher order of being or reality than ordinary sensible particulars: they have 'complete' or 'pure' being (the form is " παντελῶς ὄν " or " εἰδικένῳ ὄν " [Republic 477a]). This arises from the claim frequently made by Plato that there is something unstable and temporary about the predicates applicable to sensible particulars: a particular X which is F cannot be said to really be F since it may be F from one point of view and not-F from another (e.g. Jane may be tall compared with Susan but short compared with Mary); or it may be F now and not-F later on (Jane may be beautiful now and ugly ten years later); the Forms, by contrast, possess their attributes eternally and unchangeably. (Republic 479a-d; Symposium 211a).

This Platonic way of looking at things is easily transferred to the theological sphere: God (like the Forms) has 'pure being' because he possesses his attributes permanently and unchangeably; the finite objects of the created world are less 'real' (have less 'being') because they possess their attributes less fully and permanently. It thus becomes natural for Christian writers familiar with the Platonic tradition to use phrases like 'pure being' when characterising the perfections of God. It is this background which Descartes is drawing on in the argument under discussion. The perfection of God is automatically linked with his 'reality' or 'pure being': God is 'utterly perfect real and positive being' (*ens summe perfectum reale & positivum*); non-being or nothingness is 'farthest removed from all perfection'; we imperfect humans are somewhere in between being and non-being (*medium quid inter Deum & nihil*) (AT VII 54, line 13 ff.).

CB 5 (cont.)

There is no space to discuss the validity of the Platonic arguments which are presupposed here (for some of the difficulties, see VLASTOS, p.10 ff.). But even if we grant Descartes his Platonic apparatus, the argument is still highly dubious. Even granting that God is 'supreme being' and that human imperfection and error involves 'non-being', why should God not be responsible for that error and imperfection? It does not help to be told that God cannot "incline to nothingness" (*ferri in nihil* - line 4) or "tend to non-being" (*tendere in non ens* - line 11), for we still want to know why being cannot be responsible for non-being. Here, however, another piece of traditional wisdom is lurking in the background, the principle that if X is responsible for Y then Y must somehow be 'in' X: 'nothing in the effect which was not in the cause'. Hence non-being cannot be an effect of God who is pure being. For further discussion of the curious principle involved here see below on CB 24, esp. p. 158.

line 7 : ...faculty of perception... (*facultas percipiendi*)

Descartes is referring to the *lumen naturale* - the faculty that enables us to 'intuit' or 'clearly and distinctly perceive' certain truths. For the natural light, see on CB 76.

Throughout this passage the threat of the 'Cartesian circle' looms in the background. If I use the faculty of perception correctly, by only assenting to what I clearly perceive, says Descartes, I cannot be deceived (lines 8-9). Why not? Evidently because the faculty is the gift of God (line 7); compare the remark at line 14-15: "a reliable mind was God's gift to me" (*ingenium...a Deo rectum accepi*). But if the reliability of the mind can only be established after God's existence has been proved, how do we manage to prove his existence in the first place? See below on CB 6, line 1.

line 8/9 : ...cannot be deceived...

There is a danger here of Descartes' argument proving too much. If it is (logically) impossible that we should be deceived by God, how is this

CB 5 (cont.)

to be reconciled with the undoubted fact that we do sometimes go astray? This difficulty is discussed in the Fourth Meditation, where Descartes offers two explanations of the fact that we are occasionally subject to error. The first is really a non-explanation: we just cannot understand the hidden purposes of God (AT VII 55). The second has to do with the perfect and unlimited power of our will (see on CB 31 line 18). In the Sixth Meditation, there is a third argument which trades on the fact that the created universe works in accordance with fixed laws: see below on CB 45.

line 15 : ...but my memory may still deceive me...

Compare Principles I 44: "A very frequent source of error is that there are many things which we think we have perceived in the past; these get stored in our memory and we give our assent to them, just as if we had actually perceived them, even though in fact we have never done so." (AT VIII 21).

line 18 : I have nothing to say on the subject of memory.

Descartes' off-hand and dismissive reply is very striking, and it is strong evidence against a popular modern view that the role of God in the Cartesian system is that of guarantor of the veracity of memory. See Appendix C, section II.

CB 6

line 1 : It seems there is a circle...

Descartes was never quite able to allay the suspicion that his defence of human knowledge involved circular reasoning. The authors of the Second Objections first raised the issue (AT VII 124/5); Descartes' reply (ibid. 140) did not apparently satisfy Arnauld, who brought the matter up again in the Fourth Objections. Descartes referred Arnauld back to his earlier reply (passage quoted here at CB 4); but Burman clearly regards the charge as still far from answered. For a full discussion of the

CB 6 (cont.)

problem, and of Descartes' remarks to Burman here and at CB 81, see Appendix C.

line 2 : ...uses axioms...

For example "tantundem esse debet in causa efficiente & totali quantum in ejusdem causae effectum" (AT VII 40). For the term axiom which is not actually used in the Third Meditation (though it is in the Second Replies - AT VII 165 ff.) see on CB 52. The proof of God's existence referred to is the one which starts from the existence of an idea of God in the mind.

line 9 : ...our mind can only think of one thing at a time...

It is essential to Descartes' rebuttal of the charge of circularity that the mind be able to focus on the premisses which prove God's existence all at once. It is not enough to review them in turn; they must all be attended to together. For the certainty and guarantee of truth lasts only so long as the attention (quandiu attendit - line 6; see further Appendix C, p.284ff). Burman, however, doubts whether the mind can really attend to all the relevant axioms at once; will not one thought impede the next (line 13/14)?

This is a serious and disturbing objection which Descartes never really answers satisfactorily. He does give a straightforward example, taken from his own immediate experience, to show that one can think of two things at once (line 18/19). But the two thoughts offered are of absolutely minimal complexity (compare one of the propositions involved in proving God's existence - e.g. the one quoted in the note on line 2 above). And this is not the only trouble. For, as Burman ought to have pointed out, the important question is not of whether we can 'think of' (*concipere*) two things at once, but whether we can carefully concentrate on more than one proposition at the same time. It is concentration that is necessary for the guarantee of veracity.

The distinction between merely 'thinking of' something and positively attending to it is rather like the distinction between merely seeing

CB 6 (cont.)

something and positively looking at it. And indeed the parallel between cognitive and visual attention (a parallel Burman himself may have thought of after the Conversation was over - see below on line 16) is alarmingly unfavourable to Descartes' case. It is a well known fact that when we concentrate on one object in our visual field, all the other objects automatically go out of focus. But the question now springs to mind - is not just the same thing true in the case of mental concentration? Must not careful attention to one proposition be at the expense of the others 'going out of focus'? If this is so (and experiment by introspection - one of Descartes' own favoured methods - seems to confirm it) then the empirical facts which Descartes requires for his solution to the circle just do not obtain.

line 11 : ...every thought occurs instantaneously... (omnis cogitatio fit in instanti)

Burman would have done better to stick to the simple point that one cannot concentrate on two propositions at once (see above). But in the course of making the point he commits himself to the thesis that every thought occurs in an instant - a thesis which Descartes has little trouble in demolishing. Descartes simply observes (line 21) that all our acts take up time, and that one can continue thinking the same thing for some time.

Descartes' rebuttal in fact seems so elementary that one wonders how Burman can possibly have advanced the thesis in the first place. But it is possible that an ambiguity in the concept 'thought' (cogitatio) underlies what is apparently a simple empirical mistake. By a cogitatio one might mean the object of thought - that which is before the mind - i.e. an idea or proposition (cf. the Second Replies, where a cogitatio is defined as that of which we are aware - AT VII 160). A cogitatio in this sense is not an event at all, but rather a timeless object; so it is at least conceivable that someone, focusing on the idea that cogitationes have

CB 6 (cont.)

no duration, might call them 'instantaneous'. Alternatively, however, one might use cogitatio to refer to the psychological act of thinking of something, i.e. some sort of mental process. This must be how Descartes takes it when he implies that cogitatio is an act (actio, line 21). A cogitatio in this subjective, or psychological sense must of course take up time; depending on the circumstances, it may be fleeting or protracted.

line 16/17 : ...cannot think of a large number of things at the same time...

In the margin of the original MS at this point we find "Conf. Dioptr., p.148". (The page reference is to the 1644 Latin edition of the Discourse, Dioptric, etc.; this is the edition from which all quotations from the Discourse which occur in the Conversation are taken. See Introduction, p. x .) The passage referred to (AT VI 621) contains this strikingly relevant sentence: "it is impossible for us to see distinctly more than one object at a time " (*fieri non posse ut amplius quam unum objectum simul distincte intueamur*). The purpose of the marginal note would thus seem to be to point out Descartes' view on the limitations of ordinary visual attention, and contrast it with the powers of mental attention he optimistically ascribes to us here in the Conversation. The note may perhaps represent an afterthought of Burman on how he might have presented his objections concerning the 'circle' more forcefully; for the parallel with vision suggests a serious flaw in Descartes' solution of the problem (see above on line 9).

line 24/25 : ...thought would be extended and divisible.

Burman here attempts a reductio ad absurdum of Descartes' position. His point, presumably, is that it is inconsistent with Descartes' own dualistic doctrines that thought, which belongs to the world of mind (res cogitans) should be characterised in terms which appear to place it in the world of matter (res extensa). (For the absolute logical gulf between the nature of mind and matter in Descartes' system, cf. CB 43.)

CB 6 (cont.)

One might expect Descartes to reply that there is a difference between temporal extension and spatial extension. And this is apparently what he does; though he expresses the distinction rather oddly as a distinction between something's being 'extended-as-to-its-duration', and essentially extended or 'extended-as-to-its-nature' (the term 'nature' is more or less interchangeable with 'essence' in Descartes; see below on CB 34). Thought can take time, Descartes admits, but that does not mean that it is extended substance: its duration, but not its 'nature' is extended and divisible.

This is all very well, but might not duration be relevant to essence? If my mind is a succession of different thoughts which are discrete occurrences occupying time like any other process, does this not, at least *prima facie*, cast doubt on the alleged indivisibility of my essence as a thinking being? Descartes attempts to clear this up by means of a comparison with the eternal nature of God (lines 29-31, and 34 ff.). In his nature or essence God is an indivisible whole; but in spite of this his duration can be divided up into an infinite number of parts (line 30): eternity does not exist all at once (simul, line 36; for the phrase 'simul et semel' see below on line 32).

Now to assert the divisibility of God, even if only 'quoad durationem' was apparently a somewhat unorthodox position to take; at any rate, only two months later we find Descartes reverting to the more standard view and saying that the duration of God (unlike that of the human mind) is tota simul (letter to Arnauld, 4 June 1648; AT V 193). Can we accept that Descartes contradicted himself so glaringly within the space of two months? I think the disparity can be accounted for if one remembers the informal atmosphere of the Conversation: Descartes may have been more ready to try out slightly heterodox ideas with the young Protestant Burman than he was in a formal reply to a respected Catholic theologian like

CB 6 (cont.)

Arnauld. At all events, Descartes seems to have concluded on reflexion that the comparison between God and the human mind was not nearly as helpful to his case as he had at first supposed. For, as he himself admits in the same letter to Arnauld, our own thought displays a 'successiveness' which cannot be attributed to the thought of God: "manifeste cognoscitur successio in cogitationibus nostris, qualis in cogitationibus divinis nulla potest admitti" (ibid.).

It seems, then, that Descartes' argument here in the Conversation is doubly inadequate. Even if he had been prepared to stick to the theologically sticky suggestion that God is divisible-as-to-his-duration, this would still not provide the right sort of parallel with the human mind. For the problem remains that in the case of human thought (unlike that of God) there is an undeniable discreteness, a movement or succession from one thought (or set of thoughts) to the next. And this seems to threaten the 'essential indivisibility' of the mind. God, after all, is something of a special case. We know a priori, as a truth of the natural light, that he is indivisible - that "nothing can be added to or taken away from his nature" (line 35). But since this is not so in the case of the human mind, what is to rule out the possibility of a radical interruption of the succession of thoughts; or what is to prevent a large portion of my mental life becoming 'detached' (e.g. by amnesia)? Descartes surely needs an independent argument to show that such an occurrence would not detract from my 'essential nature'. Yet this, so far as I know, he never offers. What is more, on Descartes' own argument in the Third Meditation, the logical possibility of fragmentation of mental life seems very much open: for without the conserving power of God, there would be nothing to guarantee my continued existence from one moment to the next (AT VII 48/9).

Descartes might have replied to this that a mind, even after such a

CB 6 (cont.)

traumatic occurrence, would still be a whole undivided mind. For 'we cannot conceive of half a mind, as we can conceive of half a body, however small' (Synopsis, AT VII 13). But this is far from conclusive. For, it seems to me, the decision to call the traumatized mind a whole undivided mind is no less debatable than the original claim that the mind is indivisible.

The conclusion from our discussion of this section must be that neither Descartes' distinction between duration and essence, nor his comparison between the mind and God, can do the work he requires of them in order to vindicate his thesis that the essential nature of thought/the mind is indivisible.

line 32 : ...all at once and once for all. (simul et semel)

Descartes (line 30) had cited God as an example of something which, like thought, can be regarded as having temporal duration even though he is essentially or 'in his nature' unextended and indivisible. Burman now objects, using a highly compressed and almost untranslatable phrase of the Schoolmen, that eternity (the eternal being of God) is simul et semel.

Though the general sense of this is clear (viz. that God's eternal being somehow transcends our ordinary temporal categories and so cannot be said to involve duration in any ordinary sense), the precise force of the two Latin terms in this context is hard to pin down. To begin with, the proposition 'eternitas est simul' is logically odd. 'Simul' is a two-place predicate: X and Y can be simul if they occur at the same time; but a single object can hardly be just 'simultaneous' tout court. Presumably the point is that there are no two distinct or separate times within eternity (i.e. if, per impossibile, one could speak of two separate occasions within eternity, they would necessarily count as simultaneous). 'Eternitas est semel' is equally difficult: perhaps the idea is that there is no 'semel, bis, ter' - no 'once, twice, thrice' - involved in eternity,

CB 6(cont.)

but only semel.

line 42/3 : ...if we had had some standard to measure it by.

There are some interesting philosophical tensions underlying this part of the discussion. We have the concept of eternity (and of an eternal God), but how does this mesh with the idea of a material universe of finite duration? It is easy to run into paradoxes when we start asking questions like 'how much of eternity elapsed before God created the universe?' Nor is this simply a problem for theology. Analogous awkward questions can arise in modern cosmological theories; consider the current theory that the universe originated in a 'Big Bang' at 'time zero'; what, on such a theory, are we to make of the question 'how much time elapsed before the Big Bang?'

Descartes' approach to this sort of difficulty seems logical enough. Given that we apply some fixed time standard to our history since the creation, why should we not hypothetically 'project back' the same standard on to the time before the creation (or, for that matter, the Big Bang). Thus, any time scale t , $t+1$, $t+2$..., which we use to measure the time that has elapsed since the creation at t , can hypothetically be 'run backwards' ($t-1$, $t-2$, ...). The 'hypothetically' is in place because if the scale is expressed in, say, solar revolutions, these will not of course have occurred at any time earlier than t . But we can still make sense of the phrase 'five thousand years before the creation' by taking it to refer to a time t such that, had there been a sun, it would have completed five thousand solar revolutions between t and the creation. (This seems to be Descartes' drift in the rather awkward sentence translated at lines 40-43.) Thus the Cartesian answer to the question 'how far back does time prior to the creation (the Big Bang) extend?' is 'infinitely far'. As Descartes points out at CB 23, if we can accept the notion of a future eternity (belief in which is an article of the Christian faith), there should be no additional difficulty in the idea of a past eternity.

CB 6 (cont.)

(CB 23, line 17 ff.; see Commentary ad loc.)

A footnote worth adding is that the idea of 'projecting back' a time scale on to the period prior to creation depends on the premise that, in Descartes' words, 'duration remains constant' (line 39). The conception of time implied here is of course the classical one, which is sometimes expressed by the model of time as a river flowing endlessly at a uniform rate. Since modern (post-Einsteinian) science has largely abandoned this model, Descartes' 'solution' to the difficulty about time before the birth of the universe would hardly appeal to modern cosmologists (it is doubtful, for example, whether any sense at all would be attached by scientists today to the supposition that time can 'elapse' prior to the existence of a matter). This is not to say that there are no philosophical difficulties in modern cosmological theories about the birth of the universe at 'zero time'; but their resolution (if there is one) lies outside the boundaries of Cartesian thought.

CB 7

Burman's quotation focuses attention on the concepts of thought (cogitatio) and awareness (conscientia) which are so crucial in Descartes' philosophy. The immediate background to the quotation is as follows. In the course of his proof of the existence of God in the Third Meditation, Descartes had argued that: (a) my existence requires some conserving power; (b) this power cannot be inside me, else I should be aware of it; ergo (c) it must be external to me. Now clearly, in order to make step (b), Descartes must hold that I am aware of everything inside me. 'Me', in the context of the Third Meditation, refers to a thinking thing, a mind. Descartes, then, is committed to the following thesis (call it '(1)'):

(1) (x) x is in my mind $\rightarrow$ I am aware of x.

Now it was just this thesis that Arnauld had objected to in the Fourth

CB 7 (cont.)

Objections (AT VII 214); our quotation here at CB 7 is from Descartes' reply to Arnauld.

In his reply, Descartes defends his thesis on purely a priori grounds: it is a "self-evident truth" (per se notum). Descartes goes on to explain that everything in the mind, qua thinking thing, is a thought (cogitatio) or dependent on a thought (see quotation at CB 8). That is:

- (2) (x) x is in a mind $\rightarrow$ x is a cogitatio (or dependent on a cogitatio)

'Cogitatio', almost a technical term in Descartes' philosophy, is defined precisely in the Second Replies (AT VII 160):

- (3) Cogitatio = df. Whatever is in us in such a way that we are immediately aware of it.

Now clearly proposition (2), coupled with the stipulative definition (3) logically entails the truth of (1). (1), (2) and (3) are thus closely inter-linked, and may be regarded as the logical core of Descartes' theory of mind. But one may be forgiven for thinking there is something distinctly arbitrary in all this. Does not the fact remain that there are many things which are normally described as 'in the mind' which the mind is just not aware of? (Arnauld had cited the faculties of an infant in its mother's womb.) Burman raises some of these empirical considerations at CB 9; here at CB 7, however, he attacks the theory on the ground that it is internally incoherent.

Burman's objection

Burman's objection takes the form of a reductio ad absurdum, in the loose sense that he derives not a formal contradiction, but an unpalatable and awkward consequence from Descartes' theory (lines 1/5). His reasoning may be represented as follows. Suppose you have a thought (cogitatio) - call it A; then, in virtue of (3) above, you must be aware of A. But now this awareness is something in the mind; so, in virtue of (2), it must be a cogitatio. Let us call this new cogitatio B. So far then, the position

CB 7 (cont.)

is that in order to have the thought A, you must have the thought B. But the mind cannot have two thoughts at once. It follows that one cannot be aware of having the thought A at the time when A is in the mind, but only afterwards.

Unfortunately, however, Burman's reasoning depends on the premiss that the mind cannot have more than one thought at a time. And this is a proposition which Descartes, as he gently points out at line 10, has already rejected (see above on CB 6, line 9).

The objection revised

Although Burman's attack fails, it can, I think, be recast in such a way as to expose a serious incoherence in Descartes' theory. The key is the proposition "to be aware is itself a thought" (*conscium esse est cogitare* - line 1), which suggests that Burman would have done better to develop his attack in terms of an infinite regress argument. This would run as follows. Suppose you have a thought - call it A; then, in virtue of (3), you must be aware of A. But now this awareness is something in the mind; so, in virtue of (2), it must be a thought. Let us call this new thought B. So far, then, the position is that in order to have the thought A you must have the thought B. But, if we now consider the thought B, an identical process of reasoning applies. By (3), you must be aware of B. But this awareness is something in the mind; so in virtue of (2), it must be a thought. We now have a new thought in the picture - call it C. And so on *ad infinitum*.

It is sometimes (correctly) argued that not all regresses are vicious. But the regress here is certainly of the vicious variety; for it shows that, if Descartes' theory were correct, the mind would have to perform an infinite number of operations (go through an infinite number of cogitationes) in order to have a single thought. And this is clearly impossible and absurd.

Interestingly enough, the possibility that Descartes' theory was

CB 7 (cont.)

vulnerable to some sort of regress attack had been canvassed by Hobbes in the Second Objections. This is what he says (in language faintly reminiscent of Burman's at CB 7):

I do not realise that I am thinking by means of another thought (cogitatio); for although someone may think that he was thinking (which thought is just the same as remembering), it is quite impossible to think that one is thinking, or know one knows. For an infinite question would arise: 'How do you know that you know that you know...?'

(AT VII 173)

In his reply to Hobbes, Descartes is largely concerned with combating specific materialistic tenets of the English philosopher; and in the process he seems to have overlooked the importance and danger of the regress argument. He does refer briefly to it, but only in a very cavalier fashion:

It is irrelevant to say, as the philosopher does here, that one thought cannot be the subject of another thought. For who, apart from the objector himself, ever supposed that it could be?

(AT VII 175)

Unfortunately for Descartes, the answer to his rhetorical question is that he himself supposed that one thought could be the subject of another thought. As we have seen, his own theory that everything in the mind is a cogitatio of which the mind is directly aware (conscius) demands as much. This is made quite explicit when Descartes says to Burman that to be aware is both to think and to reflect on one's thought (*conscium esse est cogitare et reflectere supra suam cogitationem*; line 7/8): the 'reflection' here has to be a cogitatio which has as its object the original thought.

line 10 : ...soul is capable...

I have followed the standard practice of translators of Descartes in rendering 'anima' as 'soul' and 'mens' as 'mind'. It should be borne in mind, however, that the two terms are more or less interchangeable in Descartes: 'anima' (here) and 'mens' (e.g. at CB 6, line 15) are both simply names for thinking substance (*res cogitans*). Cf. CB 9, lines 10 and 16.

CB 8

line 1 : For example, the movement of the arm.

This is made a little clearer if we compare the passage from the Second Replies (AT VII 160) where Descartes defines thought (*cogitatio*) as 'whatever is inside us in such a way that we are immediately aware of it'. He goes on to say:

I have inserted immediately so as to exclude the consequences of thoughts; a voluntary movement, for example, certainly originates in a thought, but it is not itself a thought.

Descartes thus holds the view that, when I am aware of raising my arm, it is only the mental component (presumably the volition to raise my arm) that I am immediately aware of. The movement itself, though 'dependent on' a *cogitatio*, is not itself a cogitatio, and so is not an object of immediate awareness.

CB 9

line 5: ...and of ourselves...

"Dei & nostri" (MS). The text is perfectly in order here; mysteriously, Adam prints "Dei nostri" as the original text and suggests "Dei et nostri" as an emendation! (AT V 149).

By the 'idea of ourselves' is meant the idea of ourselves as thinking beings. Compare a letter to Mersenne of June 1641, where Descartes lists as examples of innate ideas 'God, mind, body, triangle...' etc. (AT III 383).

line 6/7 : ...actual idea of God.

Burman is still bothered by the Cartesian thesis that one is aware (*conscius*) of everything in one's mind (see above on CB 7). He argues here that the thesis sorts ill with Descartes' hypothesis of innate ideas. An innate idea (e.g. of God) is certainly a mental content, so it ought to follow, on Descartes' view, that the infant is aware of it. And if awareness is to mean anything at all, then the idea in question must be

CB 9 (cont.)

fully and completely present to the mind (*actualis*), not merely a potentiality. In his reply, Descartes is forced to modify his thesis, and concede that, in the case of infants, there are probably at least some mental contents which the mind is not completely aware of.

Descartes on Innate Ideas

The question 'if some truths are innate, why do small children appear to be ignorant of them?' is a notoriously difficult one for innatists. (Compare Locke's strictures in the Essay on Human Understanding: Bk. I, Ch. 2, §5.) The most common solution is that the ideas are present in embryonic form, waiting for a Socratic 'midwife' to draw them out (see Plato, Theaetetus 149 ff.; Meno 81 ff.). Thus, Leibniz speaks of innate ideas as "des inclinations, des dispositions, des habitudes, ou des virtualités" (Nouveaux Essais sur L'Entendement Humain: Preface, para. 4). The difficulty with this solution is that the 'potential' or 'embryonic' presence of the ideas is such a vague concept that one wonders how it really differs from the empiricist hypothesis that all ideas are gradually acquired through experience. 'S has innate potential knowledge of X' risks becoming merely a portentous way of saying 'S can learn X'.

Descartes himself had apparently toyed with this approach to the problem. In the Notes against a Programme he observes that the position of Regius (who had denied the need for postulating innate ideas) differs from his own only verbally. "I never wrote or believed", he goes on, "that the mind needs innate ideas in the sense of something different from its faculty of thinking" (AT VIIIB 357). He goes on to say that ideas are innate in the sense in which certain diseases are innate: "not that the infants of such families suffer from the diseases in their mother's womb, but because they are born with a certain disposition (dispositio) or liability (facultas) to contract them." (ibid., p.358).

Here in the Conversation, however, (which took place less than a year

CB 9 (cont.)

later than the writing of the Notes) Descartes seems to be trying to move away from the concept of potential or dispositional presence, by introducing an auxiliary hypothesis to account for the fact that the mind is not fully aware of the ideas in infancy. The ideas are present all right, Descartes seems to want to say here at CB 9, but they are impeded or obstructed by bodily thoughts (lines 10-12 and 15 ff.). This 'interference' which the intellect suffers from the body is a familiar theme with Descartes. Compare CB 1, where we are told how 'men of the senses' (*homines sensuales*) have only a confused grasp of the ideas present inside them from birth. Here at CB 9, a comparison is made with 'men who are half-asleep' (*homines semisomnolenti*; line 19); the mind is submerged or swamped inside the body (*immersa*; lines 10 and 20) - a metaphor which also occurs in the Principles (I, 47). And the same general idea is expressed at Principles I 71:

In early childhood our mind was so closely bound to the body that it was filled simply with the thoughts by means of which it felt what was happening to the body, and had no time for any others.

The fact that the Principles (1644) takes essentially the same line as that presented to Burman, suggests that the 'present but submerged' solution represented Descartes' official position; while the 'dispositional' account offered to Regius was more of an aberration. This is strongly confirmed by the letter to 'Hyperaspistes' written in 1641, which uses language strikingly similar to that of the Conversation. The relevant passage (AT III 424) is worth quoting at length:

We know by experience that our minds are so closely joined to our bodies as to be almost always acted upon by them; and though in an adult and healthy body the mind enjoys some liberty to think of other things than those presented by the senses, we know there is not the same liberty in those who are sick or asleep or very young; and the younger they are the less liberty they have. So if one may conjecture on such an unexplored topic, it seems reasonable to think that a mind newly united to an infant's body is wholly occupied with perceiving or feeling the

CB 9(cont.)

ideas of pain pleasure heat cold and other similar ideas which arise from its union and as it were intermingling with the body. Nonetheless it has in itself the ideas of God, itself and all the truths as are called self-evident, in the way in which adults have when they are not attending to them; it does not acquire these ideas later on as it grows older. I have no doubt that if it were taken out of the prison of the body, it would find them within itself.

(trans. follows Kenny: K.111)

There seems no doubt that this picture, drawn in such meticulous detail, and corresponding so closely to that presented in the Principles and the Conversation, represents the substance of Descartes' theory of innate ideas and their place in human development. Interestingly enough, the picture is almost exactly the opposite of that drawn in Wordsworth's famous ode. It is in infancy, when the demands of the body are most pressing, that the shades of the prison house are most tightly closed around us. As we grow up, and the signals from the body become less peremptory and obstructive, the ideas we are born with are allowed freer scope to make themselves felt.

A further development

The problem of infant knowledge is returned to at CB 49 (q.v.), where Burman asks whether the idea of the Trinity is innate. The example is well taken. God is one of the concepts listed by Descartes as innate along with mind, body and a triangle (AT III 303, et passim): now it may (perhaps) be plausible to suppose that the idea of a triangle is in some sense 'inside' a child; but it just seems to stretch things a little too far to suppose that there is also inside him, waiting to emerge, the highly sophisticated and advanced concept of the Three-in-One and One-in-Three. In his reply to Burman, Descartes seems at first to be retreating into the old let-out of potentiality:

Even if the idea is not innate in us to the extent of giving us an express representation of the Trinity, nonetheless the elements and rudiments of the idea are innate in us. (Etiam si illa idea tam expresse, ut nobis Trinitatem repraesentet, innata

CB 9 (cont.)

non sit, ejus tamen elementa et rudimenta nobis innata sunt.)
 CB 49, lines 8-10).

Descartes does not, however, mean by this that the idea of the Trinity is present in rudimentary form - as a potentiality. Closer examination reveals that he is in effect making a distinction between simple and complex ideas. The idea of the Trinity is a complex idea, built up amongst other things of the idea of God and the idea of the number three. It is these latter, more simple ideas which are innate, and are the elements out of which the complex idea of the Trinity is built up, at a later date (*ibid.*, lines 11-14).

The theological character of the example should not blind us to an important insight here which helps the innatist to escape from the dilemma we started with. The dilemma was between, on the one hand, attributing to a child ready-made explicit knowledge of, e.g. Euclid's Forty-Third theorem, which risks making the innateness theory just plain false; and on the other hand, talking of 'potential knowledge of' or a 'disposition to acquire' the theorem, which risks making the theory vague and ultimately trivial. The new suggestion is that we should regard only certain basic 'rudimentary' or 'elemental' ideas as innate (in this case, perhaps the basic concepts presupposed by Euclidian geometry); these are the logical building blocks out of which a grasp of the more advanced truths, like the Forty-Third theorem, are later acquired - no doubt with the aid of sensory stimuli. The suggestion of course falls very far short of solving all the problems of innatism; nor is it without problems of its own: it is not going to be at all easy, for example, to specify exactly which are the elemental concepts and truths we are born with. But nonetheless an important step has been taken towards making the theory both more precise and less obviously implausible. Finally, the new development enlarges the scope of innatism in an important way: the phenomenon of learning, the fact that the growing child gradually acquires and builds up new concepts,

CB 9 (cont.)

now stands a chance of being accommodated within the theory, instead of being politely ignored.

Are all ideas innate?

In discussing a passage from the Notes against a Programme, Burman shows by his question that he thinks Descartes believes all ideas to be innate (CB 49, lines 1-3). This is certainly not an unreasonable inference from what is said in the Notes. The page referred to by Burman (p.42 of the original edition - to be found in AT VIIIB 358) contains the assertion that "in no case are ideas of things provided by our senses, in the form in which we fashion them by thought" (*quales eas cogitatione formamus*). And in the next sentence we are told:

There is nothing in our ideas which was not innate in the mind or faculty of thinking, except for the circumstances which concern experience - for example when we judge this or that idea, which we now have present to our thought, to relate to certain things located outside us....

These passages, however, are very odd. For if they mean what Burman thinks they mean, they apparently contradict the famous passage in the Third Meditation, where ideas are classified as innate, adventitious or fictitious. In view of this conflict, Kenny has suggested that the three-fold classification in the Meditations cannot be intended as a distinction based on difference of origin:

The distinction between innate and adventitious ideas is not that there are some ideas (such as that of God) that are innate and others (such as those of heat) that are adventitious, but that one and the same idea (e.g. that of heat) is, qua capacity, innate and is, qua episode, accompanied with extramental judgment, adventitious.

(KENNY (1), p.105)

This is an ingenious attempt to do justice to the strange passage from the Notes quoted above; but it can hardly be right. For one thing, the idea of God is going to be difficult to fit into this interpretation. On the Kenny view, it could either be regarded as innate or adventitious, depending on whether it involves an extra-mental judgement. But the idea

CB 9 (cont.)

of God necessarily involves an extramental judgement (since God's essence entails, for Descartes, his real, extra-mental existence); so the idea of God ought necessarily to be regarded as adventitious. In fact, however, though the idea of God is very frequently called innate by Descartes (CB 1, CB 9, CB 49; AT III 383; VII 51; VII 133), it is never called adventitious. Secondly, and conclusively, Descartes makes it quite clear to Burman at CB 49 that the distinction between adventitious and innate ideas is a genuine division into two separate classes of idea. The idea of God, or the number three, is innate. But not all ideas are innate, says Descartes: some are adventitious. The idea of what a town is like (something clearly acquired through experience) is cited as an example of an adventitious idea (lines 5-7).

How then are we to do justice to what is said in the Notes? First of all, it seems to me that, rather than bend the rest of Descartes' teaching to fit the Notes, we must realise that it is the Notes which need special treatment. It should be clear by now that what Descartes has to say about innate ideas in this highly compressed and exceedingly polemical work is expressed in language strongly conducive to misunderstanding. We have already noted how the conception of innate ideas as 'dispositions' is at complete variance with the standard view consistently held by Descartes from 1641 through to 1648. And now we have another thesis (that all ideas are innate) which conflicts with what Descartes wrote elsewhere, and which, moreover, he specifically denies having asserted when discussing the Notes with Burman.

In view of this, what Descartes says in the Notes cannot be taken as if it were a piece of straightforward exegesis of his theory of innate ideas. What Descartes is doing instead, I suggest, is offering a very specific counter-argument against the position of Regius. This after all is what we should expect, given the general character and purpose of the

CB 9 (cont.)

Notes. Now Regius had put forward an essentially empiricist thesis: to postulate innate ideas is, according to him, redundant (Articles XII, XIII, XIV; AT VIIIB 345). Descartes now tries to show that this position is incoherent. On Regius' view, all ideas are acquired via sensory experience - through observation or teaching (Art. XIII, ibid.). But even the simplest act of sense-perception, Descartes argues, requires an innate capacity for interpreting the raw sensory input. The senses do not, and cannot, transmit ideas to the mind. What the senses feed in are merely, as Descartes puts it, 'corporeal motions' (AT VIIIB 359). "In no case are ideas of things provided by our senses in the form in which we fashion them by thought". It follows, according to Descartes, that in order to explain any perception at all we have to posit an innate faculty (*facultas cogitandi*) which 'converts the corporeal motions into ideas' - i.e. processes and interprets the data. The tables are thus neatly turned on Regius. For Regius himself had suggested the existence of a '*facultas cogitandi*' as an alternative to the theory of innate ideas (Art. XII). What Descartes' argument, if valid, shows, is that not only does such a faculty exist from birth; but that a full analysis of the vital role it plays leads us to recognise an element of innateness in all perception.

The thesis presented to Regius, then, is a thesis about sense-perception, and, in particular, about the limitations of the senses on their own (cf. AT VIIIB, 358, line 20; HR I 442, ad fin.: 'any man who rightly observes the limitations of the senses...'). It in no way modifies the standard Cartesian thesis about the innateness of basic concepts and eternal truths, or the distinction between innate and adventitious ideas - a distinction which is reasserted in the Notes (AT VIIIB 358, line 5). (Actually, one relevant point does emerge concerning adventitious ideas: even an adventitious idea acquired via sense-perception, e.g. my idea of what Alkmaar is like, is not the product of the senses alone; an innate

CB 9 (cont.)

faculty for processing the sensory input is a *sine qua non*).

The above interpretation seems to me to explain the apparent (but only apparent) clash between the Notes and the rest of Descartes' writings; and as far as I can see, it makes almost everything that is said in the Notes consistent with Descartes' standard doctrine. There remains the awkward passage where Descartes says that ideas are innate in the sense in which generosity and gout are innate (above, p.84). But even here, Descartes has been talking primarily of the facultas cogitandi, which, he is about to argue, has a role in all perception (just to confuse matters, however, he does seem at one point to regard innate ideas as identical with, or at any rate inseparable from, this faculty; AT VIIIb 357, line 26 ff.). At all events, if we take Descartes to have in mind the faculty which processes sensory input, the suggestion that this is innate in the sense in which gout and generosity are innate makes perfect sense. Just as an infant may be born with a liability or disposition to contract a disease, or be generous, so we are all born with a predisposition to interpret the signals from the senses in a certain way; we have, as it were, a built-in programme for processing the data.

Innateness and Perception

Finally, a brief word on whether Descartes was right to posit an innate faculty involved in all sense perception. Notice, firstly, that Descartes' theory is not just a 'rationalistic' flight of fancy arrived at purely a priori. There are several passages showing that Descartes regards the question of how much is innate as in large part empirical; at CB 9, for example, in discussing the idea of the Trinity, in infants, Descartes says that more evidence is needed before a firm view can be taken (lines 8-9); that is, presumably, we need to know more about the ways in which young children think and develop. (Cf. the cautious "if we may

CB 9 (cont.)

conjecture on such an unexplored topic" in the letter to Hyperaspistes quoted above, p.85) In this respect, Descartes' approach to innatism is not impossibly far removed from that of Noam Chomsky in our own day, who describes his hypothesis of an innate language faculty as an empirical hypothesis which is falsifiable.

There is, I think, another striking similarity in the approaches of Descartes and Chomsky. Both, it seems to me, are strongly influenced towards embracing innatism by a sort of via negativa - that is, by considering what they take to be the patent inadequacies of the alternative (empiricist) approach. One of Chomsky's most frequent arguments for his theory is what he claims is the manifest inadequacy of the alternative empiricist hypothesis that a child just "picks up" language merely from what he hears from parents and others. The extreme meagreness of the data presented to children when learning makes it just wildly implausible, according to Chomsky, to suppose that mere subjection to external stimuli can account for the development of a rich and innovative linguistic competence (CHOMSKY (1) p.4; (2) p.63). Now Descartes' arguments, as presented to Regius, are very similar to this in their strategy. The chief argument for the rôle of an innate faculty in all perception, Descartes says in effect, is the manifest inadequacy of the alternative empiricist view of perception; for how on earth could mere "corporeal motions" (mere jangling of atoms and nerve fibres) by themselves be sufficient for the production of ideas? (AT VIIIB 359).

Whatever the merits or demerits of the Chomskian argument, it seems to me that the corresponding argument in Descartes is very weak. Firstly, Descartes' argument depends ultimately on the distinction between 'primary' and 'secondary' qualities - the view that the only properties which are really "in" objects are the motions, shapes and sizes of various particles, while the other sensible properties are in some sense just 'subjective'.

CB 9 (cont.)

This is a view which I think can be shown to be philosophically incoherent (see on CB 15). But secondly, even if we grant Descartes his thesis that all that is really going on 'out there' is jostlings of molecules and janglings of nerve fibres, this still does not prove that the faculty for interpreting them is innate. It might, for instance, be acquired gradually in the first few months of life. Although it does seem essential that the brain of the newborn infant possess some predispositions, however rudimentary, for the processing of information. But we must wait for neurophysiology to give us a detailed answer on this.

line 19/20 : ...scarcely think of more than one thing.

MS: "Sic homines semisomnolenti de nulla alia re vix cogitant". Adam suggests emending the text here, but the pleonasm is probably good dog-Latin. What Descartes seems to mean is that when we are half-asleep the mind is so 'swamped' with confused bodily stimuli that it loses the power to focus coherently on a number of thoughts at once.

line 26 : ...imprinted in the brain, like this...

In the MS, there follows a curious squiggle which, as Adam notes, could have been intended as some kind of illustration of a brain-trace, or alternatively, may just be a crossing-out by the copyist (AT V 150). Some sort of illustration, however, seems more likely. See the Letter to Meyssonier, of 29 January 1640, where Descartes compares the 'impressions preserved in the memory' to 'folds which remain in the paper after it has once been folded' (AT III 20; K 70).

The idea of 'traces' or 'vestiges' physically present in the cerebrum has a rather modern ring to it; but it was a traditional scholastic doctrine that the seat of the 'sensible' or 'corporeal' memory was in the brain - more precisely the occipitum (GILSON (1), No.276, p.178); this is a fairly commonsense hypothesis to arrive at in view of phenomena like amnesia caused by a bang on the back of the head. Descartes, however,

CB 9 (cont.)

takes the view that the traces may be located throughout the brain, and in some cases even in parts of the rest of the body: "for instance, the skill of a lute-player is not only in his head but partly in the muscles of his hands, and so on" (letter to Meyssonnier already cited; cf. letter to Mersenne of 1 April 1640, AT III 48). Descartes denies the crude Aristotelian view that the physical traces are actual images or likenesses of what is remembered (cf. AT VI 112/3; Aristotle, De Mem. 450a 30 ff.).

line 29 : ...it cannot be without some thought...

This is the orthodox Cartesian doctrine. Compare Principles I, 64:

Thought and extension may be taken as modes of substance; that is, in so far as one and the same mind can have many different thoughts, and one and the same body, while retaining the same size, can be extended in various different ways.

Up to a point the parallel is clear. Just as a lump of stuff - e.g. the famous piece of wax - can take on various shapes, so that no one shape is essential to its being that particular lump of stuff (though having some shape or other is essential); in the same way, the mind can have many different thoughts, so that no one thought is essential to its being that particular mind (though some thought or other is essential). If we probe deeper, however, two awkward questions arise. First, the various shapes of the wax are modifications of its extension - ways in which it can be extended: but what are the various thoughts modifications of? Second, our ability to talk about 'one and the same' piece of wax depends on some enduring feature that remains despite the modification in shape: in this case, as Descartes puts it, it retains the same size or mass (quantitas). But what is it that remains despite the change from one thought to another?

Descartes was to return to the problem of the parallel between res cogitans and res extensa in a letter to Arnauld, written a few months after the Conversation (AT V 221); though Descartes does little more than

CB 9 (cont.)

restate the standard doctrine, one or two points emerge which enable us at least to have a shot at answering the two awkward questions above.

With regard to our first question ('What are the various thoughts modifications of?') it appears that the 'thoughts' which had been referred to in the Principles are to be regarded as modifications or 'modes' of thought (*modi cogitandi; modi cogitationis*). This sounds a muddle; but there is, as Descartes admits, an ambiguity in the word 'thought' (*cogitatio*). Sometimes we find the word used loosely to denote a particular act of thinking (e.g. "this or that thought" - *cogitatione hac aut illa* - CB 9 line 29); but it is more properly used, in the Cartesian system, as an abstract noun ('Thought' or 'Thinking') referring to that which constitutes the nature of the mind ("*cogitatio, sive natura cogitans, in qua puto mentis humanae essentiam consistere*": AT V 221). (It is this second sense of 'cogitatio' which Anscombe and Geach suggestively, but perhaps over-explicitly, render 'consciousness'; see AG 69 and xlvii). Concerning our second question ('What is it that remains despite the change from one thought to another?'), Descartes offers us a slightly more evocative parallel with the mind, viz. that of a flame. The nature of the flame is extension (*extensio*), but it can take on various shapes (*figurae*) which are modes of extension (*modi extensionis*). In the same way, the nature of the mind is thought (*cogitatio*), but it can take on (*recipere*) various modes of thought (*modi cogitationis*), or 'produce various acts of thinking' (*elicere actus cogitandi*). The advantage of the flame analogy is that it avoids the need to bring in talk of an enduring mass or quantity. For we do not, in point of fact, individuate flames by reference to a stable quantity of matter: a given flame just is a series of rapidly changing shapes of a certain sort. Does Descartes, then, mean to imply that the mind just is a series of rapidly changing acts of thinking? This last question must be postponed until we examine the Cartesian theory of substance (see below on CB 22).

CB 9 (cont.)

For the paradoxical thesis that the mind is, literally, always thinking, compare the letter to Gibieuf of 19th January 1642:

The reason why I believe that the soul is always thinking is the same as that which makes me believe that light is always shining, even when there are no eyes to look at it, or that heat is always hot, even when no one is being warmed by it, or that body (or extended substance) always has extension, or that, in general, what constitutes the nature of a thing is always in it so long as it exists. This means that it would be easier for me to believe that the soul stops existing at those times when people say it stops thinking, than to believe it is without thought. I do not see any difficulty in my view, except that the supposition of thoughts going on even when no memory of them remains with us afterwards might seem redundant. But if you consider that every night, and even while awake, we have had thousands of thoughts of which no trace remains in the memory an hour later...you will find it is easier to accept my view than to hold that a substance whose nature is to think can exist without any thought at all.

[AT III 478/9; K 125]

line 33 : ...intellectual memory...

Aristotle had assigned memory primarily to the sense-faculty (τὸ αἰσθητικόν) rather than the intellectual faculty (τὸ νοητικόν), on the grounds that memory is common to men and animals (De Mem. 450a 10). Aquinas, however, distinguished between memoria intelletiva, whose job was to conserve general concepts or universals, and memoria sensitiva, (possessed by animals as well as men) by means of which particular impressions are stored (Cont. Gent. II 74; cf. GILSON (1), p.177/8).

As we can see from this exchange with Burman, Descartes accepted both the distinction made by Aquinas and the role assigned by him to intellectual memory (viz. that of concept retention). Other passages from the correspondence make it clear that, despite his interest in the physiology of 'sensitive' memory, Descartes regards the intellectual memory as entirely independent of the body "je reconnais une autre [memoire], du tout intellectuelle, qui ne dépend que de l'âme seule": letter to Mersenne; AT III 48; K 72).

What is behind Descartes' adherence to the doctrine of intellectual memory? There are no doubt good doctrinal reasons for having a belief in

CB 9 (cont.)

a completely non-physical faculty of memory (survival of the personality after death, for instance, would hardly make sense without it). But the argument for the existence of intellectual memory which Descartes presents to Burman here is of quite a different kind. Despite its initial obscurity, it raises some fascinating philosophical issues.

There is no relationship (affinitas) between the letters K-I-N-G and the meaning of the word (line 42); ergo, Descartes seems to argue, my ability to grasp the meaning when I hear the word must be due to intellectual memory. What Descartes means by 'relationship' (affinitas) is obscure. There is certainly a conventional relationship between 'king' and the concept king, viz. that of sign to significatum. Presumably, then, Descartes means that there is no natural, non-arbitrary relationship between the term and its meaning (in the way there is, perhaps, between the symbol  and the idea of a man). But what is to prevent a connexion being as it were artificially forged by a process of conditioning, so that the appearance or sound of the word 'king' becomes a stimulus to which we respond by coming up with the relevant idea? Talk of stimulus and response might seem to take us centuries away from Descartes' conceptual frame of reference. But in fact Descartes himself brilliantly anticipated the modern notion of a conditioned response. In a letter to Mersenne (18 March 1630; AT I 134; K 8) Descartes talks of the fact that various sounds can 'evoke ideas in our kind'. He goes on:

I think that if you thoroughly whipped a dog five or six times to the sound of the violin, he would begin to whine and run away as soon as he heard that music again.

The example is particularly awkward for Descartes' position here at CB 9; for there is certainly no 'affinitas' between the sound of a violin and the idea of being whipped.

Descartes, however, has an answer to this criticism. He would have denied that the violin is, for the dog, genuinely the sign of an idea.

CB 9 (cont.)

This is made clear in the letter to Newcastle of 23rd November 1646 (AT IV 574; K 207):

If you teach a magpie to say good-day to its mistress when it sees her coming, all you can possibly have done is to make the emitting of this word the expression of one of its feelings. For instance, it will be an expression of the hope of eating, if you have habitually given it a titbit when it says the word. Similarly, all the things which dogs, horses and monkeys are made to do are merely expressions of their fear, their hope or their joy; and consequently they can do these things without any thought.

The topic here is, of course, the making rather than the recognition of signs. But the crucial point to emerge if we combine what is said in the letter with the remarks to Burman is this. Descartes holds that the use (production and recognition) of genuine signs requires a special intellectual faculty peculiar to the human species. The letter to Newcastle goes on:

There has never been found an animal so perfect as to use a sign to make other animals understand something which had no connection with its feelings.

Whether Descartes is right about this is, of course, largely an empirical question. If (as some remarkable recent experimental work with chimpanzees seems to suggest (see PREMACK)) animals can be taught to use genuine signs, then the idea of a special human faculty goes by the board: in Cartesian terms, brutes will have to be allowed 'intellectual memory'. By 'genuine' signs, I mean to convey that, as Descartes puts it, "the signs must be relevant to the topic so as to exclude the speech of parrots", and that they must be "more than cries of joy or sadness, etc." (to Newcastle, ibid.). Another important requirement (which is also demanded by the notion of 'intellectual memory' - see CB 9 line 45) is that the signs be universal: that is, the user must understand that a given sign refers indifferently to any member of the relevant class, irrespective of particularities of time and circumstance (e.g. I must understand that 'man' means any man, not just Daddy; and that food means something even when I am not hungry).

CB 9 (cont.)

Underlying Descartes' comments here to Burman, then, there is, I suggest, the notion that our understanding of universal signs like 'king' is in an important sense stimulus-free, so that such understanding cannot be explained simply in terms of a 'sensitive' memory shared by animals. We began, however, by observing that the concept of 'intellectual' memory carries the connotation of a faculty which is not only not shared by animals but is also completely non-physical. It follows that the doctrine of intellectual memory entails a commitment to a faculty which is not only 'species specific' but also independent of any physical (brain) process. Although many modern philosophers and psychologists would go along with Descartes concerning the first of these properties, there would not seem to be any compelling reasons, apart from theological ones, for accepting the second.

CB 10

lines 1/2 : ...saving something contradictory...

This repeats what was asserted at CB 3. But both comments are rather strange. The proposition 'there exists a supremely powerful and malignant being' is not, on the face of it, inconsistent. It is easy to see that supposing God to be malicious might involve inconsistency; but the malignant demon was apparently introduced precisely to avoid this ("I will suppose, therefore, that not God, who is supremely good and the fount of truth, but rather that some malignant demon..." etc.; AT VII 22). What is more, the let-out clause "if it is permissible to say so" (*si fas est dicere*) suggests an attempt to avoid impiety rather than logical incoherence (compare the French version '*si je l'ose dire*'). In fact, on the strength of this very passage, Descartes had been accused of blasphemy in maintaining that God was a deceiver (see letter to the Curators of Leyden University, 4th May 1647; AT V 7-10; K 218).

Nonetheless it is clear from our passage here at CB 10 that it was

CB 10 (cont.)

concern about the logical status of his supposition that was Descartes' principal reason for adding the restrictive clause. One way in which a contradiction might arise here is that the supposition of a supremely powerful demon, though not incoherent in itself, is incoherent given the existence of a God of the Christian type. For if one holds that there exists one and one only omnipotent being who is benevolent $[(\exists x)Ox \ \& \ Bx \ \& \ (y) Oy \rightarrow y=x]$, then the supposition of an all-powerful non-benevolent being $[(\exists x)Ox \ \& \ -Bx]$ will yield a contradiction. It is more likely, however, that Descartes regarded the demon hypothesis as strictly speaking incoherent per se, since supreme power implies perfection and perfection is inconsistent with the will to deceive. Compare AT V 8 (letter referred to already):

Since the context required me to make the supposition of some supremely powerful deceiver, I make the distinction between the good God and the evil demon; and I said that if per impossibile there were such a supremely powerful deceiver, he would still not be the good God, since he would have the defect entailed by deceitfulness (deceptio), but could only be regarded as some malignant demon.

[italics mine; see also on CB 5 above]

CB 11

lines 1/2 : But is it God...

I follow the MS: "Sed an Deus? Non, nescio, potius genius ille qui me deludit, qui me etiam creavit." Adam prefers to emend the text here, but the original just about makes sense if we understand 'est' in front of 'genius' (though the isolated 'nescio' is rather harsh). The general sense, in any case, is not in doubt.

line 2/3 : At this point however I have not yet attained knowledge...

See below on CB 16 and CB 17.

CB 12 and 13

These pieces are discussed in the Commentary on CB 22, q.v.

CB 14Adequate knowledge

In the Fourth Replies, Descartes asserted that one could never know one had adequate knowledge: if one could, one's knowledge would have to be infinite ('one's power of knowing would have to equal the infinite capacity of God'). Burman, as his question shows, had missed the point of the reference to God. The point has nothing to do with theology, but is simply a reductio ad absurdum of the proposition that a finite mind can know it possesses adequate knowledge of anything.

The argument Descartes presents to Burman (lines 4-11) is relatively straightforward, and can be summarised as follows. S has adequate knowledge of X if he knows all the properties that really belong to X. (This definition is given in the Fourth Replies, AT VII 220 line 8.)* But now, if S is not omniscient, it is always possible that for any set of properties $F_1 - F_n$ that he knows X to possess, X in fact has a further property, F_{n+1} , of which he is ignorant. So although S may in fact often possess adequate knowledge of X (i.e. although $F_1 - F_n$ may in fact exhaust the properties of X) S can never know that his knowledge is adequate. Descartes' illustration with the triangle is admirable and self-explanatory.

Descartes' doctrine of adequate knowledge seems to me clear and all of a piece. Frankfurt however has argued (FRANKFURT, p.142) that "Descartes gives apparently conflicting accounts of whether or not a finite mind can have adequate knowledge of anything". According to Frankfurt, Descartes tells Arnauld in the Fourth Replies that adequate knowledge is comparatively easy to come by; whereas he tells Burman in our passage here that it is difficult or impossible. But this is highly

* "Omnes proprietates quae sunt in re cognita". Here at CB 14 the term 'attribute' (attributum) is used in place of 'property' (line 7): but the two terms are often used synonymously by Descartes: cf. AT VII 383, where Descartes says that 'property' (proprietas) is to be taken "pro quolibet attributo, sive pro omni eo quod de re potest praedicari".

CB 14 (cont.)

misleading. What Descartes actually says to Arnauld is that a finite mind 'even though it may really have adequate knowledge of many things, cannot however know he has such knowledge' (AT VII 220 lines 12-14). And this is exactly what Descartes says to Burman: it is not adequate knowledge per se that is described as difficult or impossible, but merely the certainty that one's knowledge is adequate. The only point in Frankfurt's favour is that at line 6, discussing the triangle "which it seems we should easily be able to achieve adequate knowledge of" (rem...quam facile adaequare posse videremur), Descartes adds "yet nonetheless we cannot do so" (sed nihilominus illum adaequare non possumus). But what follows makes it clear that the phrase 'illum adaequare non possumus' was just a loose way of talking. The point is not that we cannot in fact know all about the triangle, but that we can never be sure we know all about it: we can never be certain we have grasped everything which it was possible to grasp ("nos nunquam certi simus nos omnia illa comprehendisse quae de ea re comprehendi poterant"; see line 10). The issue is finally clinched at the end of the passage: Descartes says he has never claimed adequate knowledge of anything; but nonetheless he is pretty convinced that he does in fact possess the sort of knowledge and foundations "from which adequate knowledge could be - and perhaps already has been - deduced" (my italics). By no stretch of the imagination is this the language of one who believes adequate knowledge is 'difficult or impossible' for a finite mind to attain.

Adequate knowledge and 'sum res cogitans'

Although, as we have seen, Descartes gives a clear and coherent account to Burman of his views on adequate knowledge, he does not explain how they help to deal with Arnauld's original objection. Arnauld's question was: "how does it follow, from the fact that one is not aware of anything, besides thought, that belongs to one's essence, that nothing else does in

CB 14 (cont.)

fact belong to it?" (AT VII 199: this was the question Descartes had claimed he was going to deal with, in the Preface to the Meditations (AT VII 8).) How, in other words, does Descartes know that he has not left out some vital property of himself? In order to know this, Arnauld had argued, Descartes would have to know that his knowledge of himself was adequate (AT VII 200). Descartes' reply to this, backed up by the remark to Burman we have discussed, only seems to make matters worse. One can never, it appears, know one's knowledge of anything is adequate. But in that case, it seems that not only has Descartes failed to show how he knows he has not overlooked some property; he necessarily could not have succeeded.

Arnauld's reasoning, however, is faulty. To have adequate knowledge of X is to know all that is true of X (above, p.101). But I certainly do not need to know all that is true of something in order to know its essence. I do not, for instance, need to know that gold is mined in South Africa in order to know the essence of gold. Or, to take a less contingent example, a non-mathematician who is far from knowing all the properties of a triangle can still know the essence of a triangle. This appears to be the gist of Descartes' reply to Arnauld: adequate knowledge is not required (AT VII 220). Nevertheless, the substance of Arnauld's question - 'how do you know you have not omitted something vital from your essence?' - remains. Descartes' conception of himself as essentially a thinking thing does not, perhaps, need to be based on adequate knowledge of himself; but it does need to be based on some grounds. Here is what Descartes says about this:

It is one thing for our knowledge to be completely adequate - of which fact we could never know for certain...and quite another for it to be adequate enough for us to see that we have not rendered it inadequate by intellectual abstraction.

[AT VII 221]

Apparently, then, I can never know my knowledge of X is adequate, but I can

CB 14 (cont.)

know I have not rendered it inadequate. How, then, does inadequacy in our knowledge manifest itself? We are not told any more in the Fourth Replies; but a first shot might be the following. Suppose I have an idea of an X which is F, and I think Fness belongs to the essence of X. One way I might test this conception to see whether it was inadequate would be to imagine X without F, and ask myself 'could it still be X?' If it could, then my knowledge of X must be inadequate. But this is still very weak. For this process will only weed out non-essential features from my conception of X. It will not guarantee that those which pass the test are the only essential properties. Arnauld's question 'how do you know that you have left nothing out?' still presses. We need to know not just that our conception of X as F is non-inadequate, but that it is complete, as an account of the essence of X.

Now Descartes does mention a requirement of completeness in the section from the Fourth Replies already quoted from; unfortunately Descartes leaves it very obscure both what the criteria for completeness are, and how I can know they are satisfied. There is, however, as Kenny has pointed out (KENNY (1), p.94), a little more information in a letter to Gibieuf of 1642 (AT III 475; K 124). There we are told:

the idea of a substance with its extension and shape is a complete idea, because I can conceive it alone, and deny of it everything else of which I have an idea.

Does this definition fill the gap? Kenny thinks not; the account given, he argues, makes it unlikely that we could ever know we have any complete ideas; "to do so we would not only have to know about every idea we have, but would also have to know the relationship of every idea to every other" (KENNY (1), p.95). Kenny is indeed right if Descartes is saying here that, in order to know that my conception of X as essentially F is complete, I have to go through every other property I have an idea of, and see whether it may be denied of X. But, despite appearances, I do not

CB 14 (cont.)

think that Descartes is saying this. The crucial phrase in the letter, it seems to me, is "because I can conceive of it alone". In order to see that Fness constitutes the complete essence of X, we have to imagine X with the property F, and no others whatsoever. If X can still exist under this description, it follows that no other property is essential to X. For nothing without which a thing can exist is comprised in its essence.

This interpretation is strongly confirmed by a passage right at the beginning of the Fourth Replies (from which the last sentence in the paragraph above is actually a quotation). Descartes argues that I can imagine myself existing with thought and no other attributes. So, even though there may in fact be many other properties belonging to me (some of which I may not even be aware of) I can be sure that they are not essential. For "nothing without which a thing can exist seems to me to be included in its essence" (AT VII 219, lines 17-26). Thus, though I can never know that my idea of myself is adequate, I can know that it is complete - it includes all the essential features.

If this procedure for testing the completeness of an idea is satisfactory then Descartes can be credited, at the end of the day, with a plausible defence of the claim that his essence is thinking. But the argument does leave one feeling a little uncomfortable. How, for example, can Descartes be sure he would exist even if he had no body? Descartes' answer is that he can be sure because he can imagine himself to exist without a body (God could conceivably have created him with a mind and nothing else; loc.cit.). The reasoning behind this seems perfectly correct. Suppose, e.g., that I think the property of being yellow constitutes the essence of gold. In order to find whether I am right, I apply the completeness test and imagine something which is yellow and has no other properties whatsoever. Could this still exist as gold? Clearly not. On

CB 14 (cont.)

the other hand, if I imagine myself as having the property of thinking and no other properties whatsoever, I could still exist as 'me'. I could still mentally assert 'cogito ergo sum'.*

The results of our discussion, then, are as follows:

- (1) I am not (and cannot be) sure that my knowledge of myself is adequate.
- (2) I do not need to be sure of this in order to be sure I know my essence.
- (3) In order to be sure I know my essence, I have to be sure that my knowledge of myself is complete.
- (4) I can be, and am, sure of this.

A final objection. Is my idea of a triangle as a three-sided plane figure complete? It seems it should be, on Descartes' test, since if I were to conceive of something simply as a three-sided plane figure, without any other properties, it would still undoubtedly be a triangle. But surely, one may object, there are plenty of other properties that are just as essential to triangularity. So the test for completeness still fails to guarantee that an essential property has not been left out.

This objection rests, I think, on an ambiguity in our use of 'essence' and 'essential'. The essence of triangularity, in one sense, is simply three-sidedness. In another sense its essence includes all necessary properties of triangles. The trouble here is that, in the case of

* (1) I use the awkward phrases "could still exist as gold", and - even more bizarre - "could still exist as 'me'" to remind the reader of the Cartesian slogan 'nothing without which a thing can exist is comprised in its essence'. (2) One might object that the argument about thinking holds for any property: if you are aware of yourself as being six foot tall it follows simply from this that you exist. But you cannot be aware of yourself as having the property of being six foot tall and having no other properties; this would be self-contradictory, since being aware of yourself as six foot tall entails that you are aware that you have the property of thinking (in the Cartesian sense). (3) It is important to distinguish the argument advanced above from another argument which Norman Malcolm attributes to Descartes, viz.: 'I can doubt that my body exists but not that I exist; therefore my body does not pertain to my essence'. This reasoning, as Malcolm ingeniously shows, is invalid. (MALCOLM, section 11).

CB 14 (cont.)

mathematical concepts, there is no distinction between 'essential' and 'accidental' properties, since all the properties which are part of a given object are necessarily connected with it (none can be denied without contradiction). In view of this, I think that Descartes has a plausible reply to the objection raised. It is true that the idea of triangle as a three-sided plane figure, though complete, leaves out many properties that are 'essential'. But all these properties are logically derivable from its three-sidedness. Thus, if I have a complete idea of X as F (where F is a property or set of properties), I can be sure that no properties, except those logically derivable from Fness, have been omitted. Thus Descartes can be sure that if his idea of himself as a thinking being passes the test for completeness, then he has omitted no properties except those logically derivable from the property of thinking.

Now those who object that Descartes' account of human essence may have left out something are not worried about properties logically derivable from thought. They are of course thinking in particular of the property of having a body. Yet though such objectors may claim that it is impossible to think without a body, it would be difficult to maintain that this is logically impossible. In fact, in recent times it has been argued that the concept of disembodied mental existence is logically incoherent*; but since such a view would rule out, for a start, the existence of God, this line of attack is not open to objectors like Arnauld. I conclude that Descartes' position can be defended at least against any attack of the type which he had to contend with in the Fourth Objections.

* Terence Penelhum, for example, moves close to this position, arguing that we have no satisfactory criterion for the identity of persons which does not ultimately depend on bodily identity (PENELHUM Chs. 5, 6). Cf. below on CB 28 line 5.

CB 14 (cont.)lines 16/17 : ...who can say?

Some rhetorical question of this sort seems called for here, but I have deliberately left the English rather vague since the original cannot satisfactorily be recovered at this point. The MS has what looks like "qs", followed by an indecipherable abbreviation, then "hoc foret?" Adam prints "quis enim hoc ferat?" and translates "Mais qui oserait l'assurer?" (ADAM, p.23).

CB 15Descartes' theory of ideas

Both CB 15 and CB 18 (q.v.) involve Descartes' use of the philosophically notorious term 'idea'. It will be convenient to discuss CB 18 first, since this deals with Descartes' general use of the term 'idea', while CB 15 concerns the more specific problem of error concerning ideas. The starting point in CB 18 is the quotation from the Third Meditation which says that all ideas are 'as it were of things' (*nullae ideae nisi tanquam rerum* esse possunt: AT VII 44*). Later in this passage, and elsewhere (e.g. AT VII 232), Descartes implies that ideas 'represent' things (*repraesentare*): he says so explicitly at CB 37 line 4 q.v., and also in the French version of our quotation at CB 18, in which, moreover, ideas are compared to images: "*les idées étant comme des images, il n'y en peut avoir aucune qui ne nous semble représenter quelque chose*" (AT IX 34/5). This fits with an earlier passage in the same Meditation, where Descartes says that ideas are 'tanquam rerum imagines' - like images of things: "*quaedam ex his [sc. cogitationibus] tanquam rerum imagines sunt, quibus solis proprie convenit ideae nomen; ut cum hominem vel Chimaeram vel Coelum vel Angelum vel Deum cogito*" (some of my thoughts are as it were images of things, and these alone are, strictly speaking, called ideas; for example,

* The quotation at CB 18 inaccurately substitutes tantum rei for tanquam rerum. For similar carelessness over quotations see on CB 21.

CB 15 (cont.)

when I think of a man or a Chimera or heaven, or an angel, or God) (AT VII 37).

According to Descartes' theory then, when I think of something (X) I have an idea which 'represents' X (is "as it were of" X; is "as it were an image of" X). 'Idea' as it appears in this theory is used in the strict sense of the term (proprie). This last point is confirmed by the remark to Burman at CB 18: in the passage from the Third Meditation, the author was using the word 'idea' in the strict and narrow sense (*proprie et stricte*; line 5). Before we proceed, however, two caveats should be observed. (i) The first is that when Descartes says that ideas proper represent things, or are as it were of things (*tanquam rerum*), he does not mean that an idea proper must be of something existing extra-mentally; for he includes a chimera as a thing which I can have an idea of. 'Thing' (*res*) in this context thus includes, e.g., imaginary or mythological objects which I may think of as well as those actually around in the world (for this notion of objecthood see on CB 34). (ii) The second caveat is that Descartes does not, in saying the idea represents, or is as it were an image of, a thing, mean to say that the idea is literally a little picture; for he frequently asserts that we have an idea of God, while admitting that we cannot imagine or picture God: see, for example, the comments to Hobbes (AT VII 179-181); and the letter to Mersenne of July 1641, where Descartes talks of ideas of the pure mind (e.g. that of God) which we conceive of without an image (*sans image*) (AT III 395; K 107). (For 'pictures' and Descartes' theory of the imagination, see below on CB 21).

In view of the above points, it is not particularly easy to grasp exactly what Descartes' theory entails. The idea is tanquam imago - but one can have an idea without an image; it is tanquam rei - but the res need not have extra-mental existence. But at any rate we can say that an idea proper is something which I have in my mind when I think of some

CB 15 (cont.)

object like a man or a chimera or God; and this idea stands in some special, though not very clearly defined, relationship to what is thought of. This thesis about 'ideas' in the strict sense I shall call the 'strict thesis'.

Elsewhere, however, Descartes uses 'idea' in a much wider sense than that employed in the strict thesis. Sometimes he says that we have an idea of X when we merely know the meaning of the word (or phrase) X. (I call this the 'loose thesis'). Thus, in the definition given in the Second Replies, my being able to use words intelligently is stated to be a sufficient condition for my having an 'idea' of what the words mean: "*nihil possim verbis exprimere intellegendo id quod dico quin ex hoc ipso certum sit, in me esse ideam ejus quod verbis illis significatur*" (AT VII 160). This must be what Descartes has in mind when he talks to Burman at CB 18 lines 5-7 about a 'rather extended' use of 'idea': in this wider sense I can be said to have an idea of a 'common notion' (i.e. a proposition like 'ex nihilo nihil fit' - see on CB 1 line 7). Similarly with the idea of 'nothing': this word does not stand for any object of thought - it merely signifies the absence of one (it is "purely negative" line 3); hence Descartes says it should not really be called an idea (sc. in the strict sense). Nevertheless, it is still natural for both Burman and Descartes to talk about our 'idea' of nothing (line 1; line 3 "that idea...etc."); this is in the loose sense, where the mere understanding of the word makes talk of a corresponding idea appropriate.

Descartes does not say whether we have idea (loose) of 'and', 'but', 'though', etc., but his loose thesis seems to demand as much. A further problem here is that Descartes has no very clear principles of individuation for ideas. When I have an idea of brother, and an idea of male sibling, for example, do I have three ideas, or two, or one? The picture is complicated further by the example of the extended use of 'idea' given to Burman at CB 18; when I have an idea of a 'common notion' like 'nothing

CB 15 (cont.)

comes from nothing', do I have an idea corresponding to each word in the sentence, and an idea corresponding to the meaning of the sentence as a whole? Again, we are never really told; nor does Descartes' remark to Mersenne that both words and propositions can express ideas help us very much (AT III 395; K 106).

The loose thesis, then, is not without its difficulties. Further, what is the point behind it? Why should we be asked to say that S has an idea of X whenever S understands what the word (or sentence) X means? Clearly some special weight is meant to attach to the notion of an idea: it is meant to play some important logical or explanatory role. To discover what this is, it is best to focus on the strict thesis; for it is the strict thesis that is clearly meant to embody the central and paradigm uses of the term 'idea', and it is here that we must expect to discover the real nature and motivation of Descartes' theory.

In the strict thesis, the idea proper is a mental item - one of my cogitationes - which stands in some relation ('representing' or whatever) to the object (X) I think of. The idea is apparently distinct from the word "X" and from the object X itself; moreover, it is the idea, not the word or the object, which I am directly aware of: it is "through immediate perception of it that I am aware of a given thought " (AT VII 160; cf. VII 181). This conception of the idea as a sort of mental link-man between word and object suggests that Descartes regards the introduction of ideas as contributing something to the theory of meaning. He seems to be trying to explain my possession of the concept 'triangle'/ my grasp of the meaning of 'triangle'/ my intelligent use of the word 'triangle'/ by saying that what goes on in such a case is that I contemplate some intermediate mental entity - an idea which 'represents' the object triangle.

But does this really explain anything? How exactly does my idea of triangle help me to understand the meaning of 'triangle'? What exactly

CB 15 (cont.)

is it that I have before my mind? Is the idea perhaps akin to a Lockean abstract general idea (except that in Descartes' case the idea would be innate rather than formed by abstraction)? This does not seem promising: Locke's 'ideas' are notoriously hard to pin down, but at some points at least they appear to be some kind of mental image or picture. Yet Descartes' ideas are not this: the idea, though "tanquam imago" is not itself an "imago" for as we have seen Descartes himself denies as much in the case of God. Is it then the meaning, the significatum of 'triangle' that I have before my mind when I have an idea of a triangle? Is Descartes introducing what Ryle has called "a Third Realm whose denizens are Meanings" (RYLE, p.262/3)? This can hardly be so: the idea cannot be what an expression means, since Descartes says that I have an idea of what an expression means (AT VII 160; quoted above p.110). Furthermore, if an idea was the meaning of an expression 'X', it would be hard to see why it should be described as a quasi-image of X, or as representing X.

It is this alleged relation of representation between idea and thing which makes Descartes' theory such an obscure one. To see just how complex and mysterious the relation is, let us take the idea of a chimera. In addition to the word 'chimera', we have the idea, and the thing (res). But res cannot, as we have noted, mean a thing which actually exists extramentally: it must mean merely 'object of thought'. It is this which the idea is 'as it were of'. We thus have an obscurely related triad: (1) word, (2) idea (representans), (3) object of thought (representatum); an alarming ontological jungle which without more information (which Descartes simply does not supply) throws little but gloom on the question of what it is to understand the word 'chimera'. Interestingly enough, an attempt to trim things down slightly is made in a marginal note to the Latin edition of the Discourse (1644) where Descartes identifies the idea with the object of thought (res cogitata): "the name idea is to be taken generally

CB 15 (cont.)

for any object of thought in so far as it has simply a kind of objective existence in the understanding" (AT VI 559). On this pruned version of the theory, when I think of a man, or a chimera, I have an idea which, instead of representing or being a quasi-image of the object of thought, is the object of thought.

This notion of an idea as an object of thought suggests that Descartes' ideas may after all turn out to be what we should call concepts. And this indeed seems to come closest to what Descartes has in mind. It fits the loose thesis: I can be said to have a concept of nothing, of the maxim ex nihilo nihil fit, and indeed of what is meant by any expression which I understand. It fits too the strict thesis up to a point: the talk of ideas being 'as it were of' things fits with the normal English idiom under which I can be said to have a concept of God or man. Descartes himself comes close to glossing his ideas as concepts when dealing with an objector who had complained he did not understand what Descartes meant by 'idea': if someone has a concept corresponding to the words 'God', 'soul' etc., says Descartes, then he must know what is meant by the term 'idea'; for it is nothing else but the concept he has ("what he conceives of"):

s'il a conceu quelque chose par ces noms...il a sceu en mesme temps ce qu'il falloir entendre par leurs idées, puisqu'il ne faut entendre autre chose que cela mesme qu'il a conceu.

[AT III 392; K 105]

But to equate Descartes' ideas with our 'concepts' is simply to substitute one piece of jargon for another. It is still not clear that there is anything philosophically useful or illuminating beneath the jargon. Consider the phrase 'S has the concept X' in modern usage. One way of interpreting this would be in terms of a Rylean or 'dispositional' analysis: on this view, to attribute the concept X to S is simply a way of referring to that fact that S can use the word (or phrase) X correctly and intelligently; when I have a concept, I do not, on this account, have it

CB 15 (cont.)

in the way in which I possess a book but in the way I possess a skill; to say that I have the concept X is not to say that there is something which I have, but to say that there is something which I can do. Now on this analysis, the concept or idea of X cannot possibly have an explanatory role to perform: if to say I have the idea of X is merely a way of saying that I understand what the word 'X' means, then the introduction of ideas cannot possibly solve any problems about how I understand the meanings of words.

An alternative way of construing 'S has the concept X' - one used for example by some modern psychologists, is to take the expression as referring to something 'internal' - something which is in some sense 'in' S's mind. This looks much more promising from the Cartesian point of view; moreover, it seems to me that there are no decisive philosophical objections, a priori, to the introduction of the idea, or concept, as an internal mental item of some sort. Nevertheless, if such talk is to have any content or explanatory value, it must be backed by some further details about what is meant: we need to have some psychological (or physiological) account of 'concept formation' or 'concept possession' before we have even a candidate for an explanatory theory. For Descartes, a physiological account of 'idea possession' is for obvious reasons out, since he regards mental activity - at least of the sort which is in question here - as independent of the body. He does, however, struggle to provide some psychological detail about what it is to have an idea: the talk of representation and quasi-images is meant to fill the gap. But, quite apart from the cumbrous ontology which they appear to generate, these notions suffer from an impossible imprecision. Since, on Descartes' own insistence, we are barred from regarding an idea as literally a representative image, we are left with an obscure metaphor which is so vague as to lack any explanatory bite. The result, it seems to me, is that so far as his theory of ideas is concerned Descartes bequeathed nothing of value to philosophical psychology or

CB 15 (cont.)

the theory of meaning: his only legacy was a terminology of irreparable vagueness.

Error concerning Ideas (CB 15)

If ideas are concepts, or something like concepts, how can they provide any 'subject matter for error' (*materia errandi*)? One possible answer is suggested by Wittgenstein's thesis about the impossibility of a private language: since the identification of ideas must, if it is to play a role in language, be governed by certain rules, is it not always possible that I may misapply some rule, and so misidentify an idea? The sort of error Descartes has in mind, however, is not of this linguistic variety. It has to do not so much with the criteria for identifying ideas, but with our attitudes towards our ideas - the ways in which we think about them.

The chief and most common error, says Descartes, is to suppose that an idea resembles or fits some external thing. Error of this sort, which essentially involves a mistaken judgement (*judicium*) is called falsity proper or formal falsity (*falsitas proprie dicta seu falsitas materialis*; Third Meditation - AT VII 37 and 43). But suppose I do not relate the idea to anything extramental? In this case, Descartes goes on to explain, there can still occur another sort of falsity - 'falsity concerning subject matter' or material falsity (*falsitas materialis*). This occurs when one of my ideas 'represents a non-thing as a thing' (*non rem tamquam rem repraesentat*); the idea is then a 'false idea' (*idea falsa*) (AT VII 43/4).

This, however, is rather obscure. We have seen that Descartes does allow that one can speak loosely of having ideas of common notions like 'ex nihilo nihil fit'; but these are called 'ideas in the loose sense' not false ideas, and in any case they do not seem to represent non-things as things. What then is an example of material falsity? The example Descartes gives in the Third Meditation (loc.cit.) concerns the idea of cold. My idea of cold may represent cold to me as 'something real and positive' (*reale*

CB 15 (cont.)

quid & positivum); whereas cold in reality is nothing more than a negation - the absence of heat (privatio caloris). Arnauld balked at this example in the Fourth Objections, arguing that, if cold is a negation, there cannot 'be a positive idea' of it in the mind - and hence there can be no room for 'material falsity' (AT VII 206). Descartes, in his reply, argued that when I consider the idea of heat (something positive) and cold (a negation), I am 'unable to perceive that more reality is revealed to me by the one than the other' (AT VII 232/3).

We do not, however, need to delve further into this involved and rather inconclusive exchange; for the comment to Burman at CB 15 shows that the analysis of ideas of negations is, in a sense, a red herring. Material falsity (error concerning ideas alone) does not, it turns out, arise only in the case of ideas of negations: it can happen with regard to a non-negative idea like that of whiteness. The example chosen in the Third Meditation was thus needlessly complicated. Nevertheless, even with the new example we are still left very much in the dark. How is it that the idea of whiteness 'represents a non-thing as a thing'? The remarks to Burman do not clarify things a great deal. What exactly is the error in supposing colour to be a 'thing or a quality' (line 8)? Or again, what on earth is wrong with supposing whiteness to be a colour (line 10/11)?

A clue to the answer here can be found in a letter to Chanut of 26 February 1649:

...although I do not regard anything as being in bodies except for their sizes, their shapes, and the movements of their particles, nevertheless I claim to explain there [sc. in the Principles] the nature of light and heat and all other sensible qualities. For I presuppose that these qualities are merely in our senses, like a tickle or a pain, and not at all in the objects which we perceive; in the latter there are merely certain shapes and movements which cause the sensations we call light, heat etc.

[AT V 291/2; K 246]

We can see from this why Descartes might regard the way in which we think

CB 15 (cont.)

about whiteness (or indeed any other quality apart from shape and movement) as somehow suspect. For Descartes regards colours, etc. as somehow 'subjective' - 'in our senses' rather than in the objects themselves. He is committed to a theory unmistakably close to that later developed by Locke in terms of the famous distinction between 'primary' and 'secondary' qualities (Essay on Human Understanding, Bk. II, Ch. 8). This comes out clearly in Part IV of the Principles:

This then must be our conclusion: we fail to realise that with regard to external objects, what we call light, colour, odour, flavour, sound, heat, cold and other tactile qualities and even substantial forms are nothing else but the various dispositions of the objects which enable them to set our nerves in motion in various ways.

[AT VIII 322/3]

In the light of these passages it is clear that the sort of error Descartes is describing to Burman involves supposing whiteness to be a 'real' quality, when in fact, according to Descartes, it is nothing more than a 'secondary' or 'subjective' effect of certain movements and shapes in the external world.

I owe the above references to the Principles and the Chanut letter to Adam, who selects this particular piece from the Conversation (CB 15) for one of the rare philosophical comments in his edition. He writes:

C'est la grande erreur, au sentiment de Descartes, de toute la physique...scolastique de se tromper sur la nature des données sensibles en nous, et d'y voir des qualités réelles dans les choses mêmes. Et il ne crut pouvoir mieux ruiner cette physique qu'en supprimant radicalement toutes qualités réelles et formes substantielles dans les corps, n'y laissant subsister comme seule réalité qu'entendue, figure et mouvement.

(ADAM, ad.loc.)

To explain fully what is said to Burman, however, this comment needs to be supplemented by our analysis of the distinction between formal and material falsity. If I judge that there is an extra-mental entity which my idea of whiteness 'fits' (i.e. I judge that whiteness is instantiated) then I am indeed making a mistake; but the mistake involves a judgement about something extra-mental - it is a piece of 'formal falsity'. Material falsity,

CB 15 (cont.)

on the other hand, can occur even when I exercise the utmost caution and refrain from making any extra-mental judgement -- "even when I do not say or suppose there exists any white thing" (CB 15, line 12). According to Descartes, the mere fact of mentally classifying whiteness as a 'quality' makes me guilty of error; apparently, just by thinking that 'white' ('sweet', 'loud') belong in the same bag with 'extended' ('square', 'moving') I am committing myself to what Descartes regards as a thoroughly unscientific prejudice about the structure of the external world.

To discuss whether Descartes was right in regarding whiteness and other similar attributes as 'non-qualities' or as being 'not really in' objects would involve us in the lengthy and well-worn arguments which have continued via Locke and Berkeley down to the present day. I shall merely conclude with two brief criticisms of Descartes' own approach. (1) Descartes was highly impressed by the instability and fleetingness of many of the supposed qualities of the famous piece of wax (when I put it near the fire the taste and smell disappear, the colour changes, it no longer makes a sound when struck...etc. AT VII 30); and this was clearly important for his view that such qualities do not really belong in objects.* But to argue that, because X may cease to be F, Fness cannot really be in X, is to stipulate that F can only count as a real quality of X if X is

* 'non pertinent ad ceram' (AT VII 31); 'les qualités ne sont point dans les objets' (AT V 292); they are not in rebus (AT VIII 322). Of course, 'pertinere ad' ("to be proper to", AG) is not exactly synonymous with 'esse in'. The argument in the Second Meditation is designed to show merely that sensible qualities are not essential to the wax, and this in itself does not prove that they are not really in the wax. Nevertheless, Descartes does seem to make the move from 'F is not part of the essence of X' to 'F is not really in X': in the Sixth Meditation, reviewing his results about the external world, he says that 'not all corporeal things are such as I apprehend them by the senses', but that 'whatever I clearly and distinctly perceive is in the objects (in iis sunt), that is, whatever generally speaking is included in the object of pure mathematics' (in purae Matheseos objecto). (AT VII 80). The clearly and distinctly perceived properties, as the gloss about mathematics makes clear, are the immutable and eternal properties that can be demonstrated logically - i.e. the essential properties. It is only these that Descartes is happy to allow as 'being in' corporeal things.

CB 15 (cont.)

eternally and unalterably F. And this, despite its long philosophical ancestry, just seems an arbitrary and absurdly stringent requirement.

(2) Descartes was also impressed by the fact that our attribution of properties to things depends on a long causal chain involving the stimulation of our nerve fibres; and this was clearly important for his view that certain properties are 'merely in the senses' (AT VIIIb 359). But whenever we say that something in the world (X) is F, the truth of our statement must ultimately rest on some empirical test for Fness which X has to pass. And no empirical test can be specified which will not have some reference to the 'subjective' sensations of an observer. So if Descartes is saying that to qualify as an 'inherent' or 'real' quality of X, F must somehow be a raw property specified without reference to sensations, then again he is proposing an impossibly stringent requirement.

Error concerning ideas - footnote

There is one further reference to 'material falsity' at CB 26, q.v., but the passage is extremely obscure. The opening quotation is from Descartes' reply to the Second Objections. Mersenne and company had objected that Descartes had failed to prove that we have an innate idea of God. The idea, they argued, may just be acquired from one's cultural environment (passed on by books, friends, etc.); and they cited the fact that the 'Canadians, Hurons and other sylvestres homines' do not possess any such idea (AT VII 124). The quotation from the Second Replies seems to be directed against this point. People who fashion idols may not verbally acknowledge they have an idea of God, but the very fact that they fashion idols shows that they have it. This at any rate is what seems to be meant by the cryptic sentence 'nomen negant & rem concedunt' (AT VII 139).

If the quotation from the Replies is obscure, the explanatory comment to Burman completely escapes me. Why is the idol 'equivalent to our idea'?

CB 15 (cont.)

Perhaps because, however imperfectly, it 'represents' God (see above on CB 18). The next sentence is even more difficult, but the sense seems to be that those who fashion idols must in so doing form a real idea, and this idea is materially false. (MS: "qua realem formant ideam dum idolum formant, formant ideam materialiter falsam." In fact the "qua" in the MS is little more than the letter 'q' followed by a squiggle; but no convincing alternative reading suggests itself.) If the idea is materially false, this implies that the idea represents a non-thing as a thing (see above on CB 15). But God is emphatically not a non-thing. Nor can Descartes mean that the bogus god whom the savages worship is a non-thing: for, as we have seen, even an imaginary entity like a chimera qualifies as a thing (res), which I can have a true idea of. But in any case, if the idea which the idol-makers have is materially false, is not Descartes in effect conceding the point originally urged by Mersenne and company - that not all people have a genuine innate idea of God?

CB 16

line 4: ...at this point...

The demonstrative adverb 'hic' occurs frequently in the Conversation (cf. CB 1, line 10; CB 11, line 2; CB 17, line 3). When challenged about some assertion in the Meditations which appears to conflict with some earlier or later remark, Descartes invariably insists on focusing on the exact context - the precise stage which has been reached in the inquiry. There is an important insight to be had here about the nature of the Meditations. We cannot treat them as if they were meant as a piece of straightforward exegesis of Descartes' philosophy in the manner of, say, the Principles: we cannot, for example, lift some assertion out of the Meditations and assume it represents Descartes' final and considered view. For the work is essentially a journey of discovery - something the reader

CB 16 (cont.)

must 'make his own' (see below on CB 17) by involving himself in each stage of the rapidly shifting dialectic. Of course, by the end of the Meditations, we should have a clear idea of Descartes' philosophical position. But at any given point before the end, Descartes may be dramatically projecting himself into a certain temporary stage in the development of the inquiry. (Compare also the sentence at line 3 of this passage: "this is only an objection and a doubt that can be raised".)

CB 17

line 14 : ...method and order of discovery...of exposition...

The 'order of discovery' (ordo inveniendi) apparently characterises the individual voyage of discovery as it is dramatically outlined in the Meditations (see above on CB 16); the order of exposition (ordo docendi) is represented by the more impersonal and formal approach of the Principles. Now, in the following sentence (line 15), Descartes remarks that in the Principles his procedure is 'synthetic' (*synthetice agit*); and this suggests that the distinction between the order of discovery and the order of exposition corresponds to a distinction made in the Second Replies between two 'methods of demonstration' - the analytic method, and the synthetic method. The method which works through analysis, we are told, "shows the way by which the thing was discovered methodically and as it were a priori" (*viam ostendit per quam res methodice & tanquam a priori inventa est*). It enables the reader, if he is ready and willing to follow it, "to make the thing his own (*suam reddere*) just as much as if he had discovered it himself" (AT VII 155). It is the only method used in the Meditations (*ibid.* 156). The synthetic method, on the other hand, works through a "way which is opposite and sought as it were a posteriori" (*viam oppositam & tanquam a posteriori quaesitam*). It "demonstrates the conclusion clearly by a long series of definitions, postulates, axioms,

CB 17 (cont.)

theorems and problems". The good will of the reader is not required: the conclusion just follows logically and if the reader is taken through the proof, he will see this whether he likes it or not (ibid.).

What is the philosophical importance of this distinction between analysis and synthesis, and the corresponding distinction between the order of exposition and the order of discovery here at CB 17? The simplest way of seeing what Descartes is getting at is to look at the paradigm case of the synthetic method which he himself provides at the end of the Second Replies. There the proofs of God's existence are drawn up formally, complete with definitions, axioms and postulates. The order followed is the order of strict logical priority; or, as Descartes sometimes puts it, the order corresponds to the priorities which obtain 'in reality' (in re ipsa: references below). This is our 'order of exposition'. But, as we are told at the end of CB 17, the order of discovery may be quite different from this. What this must mean is that the strict logical priority followed in the formal proof need not at all correspond to the order in which the individual arrives at knowledge of God's existence when he follows the voyage of discovery described in the Meditations.

A vivid example of how this can occur is given by Descartes at CB 19. We are able to recognise our own imperfection before we recognise the perfection of God (sc. when following the order of discovery in the Meditations); however, in terms of strict logical priority the perfection of God comes first: "for in reality (in re ipsa) the infinite perfection of God is prior to our imperfections" (line 17). And at CB 4, in closely similar language, Descartes says that the major premiss 'whatever thinks is' is in reality (in re ipsa) prior to the inference 'I think therefore I am'. The distinction between formal logical order and order of actual discovery thus turns out to be crucial for Descartes' treatment of the Cogito. See further Appendix B, Section II.

CB 17 (cont.)

Leaving aside the Cogito, there are a number of further points about 'analysis', 'synthesis' and our passage here at CB 17, which deserve further comment. (1) Firstly, though the analytic method is less formal, it is still methodical - it shows the "viam per quam res methodice inventa est" (AT VII 155). The order of discovery is thus far from haphazard or unsystematic. There are very precise rules of epistemological priority to follow; after all, the aim in the Meditations is to build up a systematic corpus of knowledge step by step, starting with only that which we can be sure of knowing. This point is made clear in the Second Replies: "the order consists merely in the fact that what is put forward first must be known without the help of anything that follows; and the remainder is arranged in such a way that it is demonstrated merely from what comes first. I certainly tried to follow this order as carefully as possible in my Meditations." (AT VII 155). (For the importance of this epistemological rule, see Appendix C on the Circle.)

(2) Nothing Descartes says implies that the two methods are mutually exclusive. To arrive at some conclusion via analysis, using the order of discovery, does not at all rule out our being able to demonstrate it synthetically, in a formal proof from axioms. (See further p.265/6 below).

(3) The fact that the order corresponding to the synthetic method is called the ordo docendi does not mean it is especially suited to teaching. It does have the advantage of compelling assent (AT VII 156); but, given a willing pupil, it is the method of analysis that is the "best and truest method for teaching" (ibid.). Descartes doubtless means by this that, in following the dramatic voyage of the Meditations, there is a creative excitement that is lacking in a more formal treatment. (In view of this point, it may seem surprising that Descartes uses the verb doceo when talking to Burman about the synthetic method of the Principles; but what he means, I think, is not that the method is good for inspiring pupils, but

CB 17 (cont.)

that it is the method for 'exposition' -- setting the arguments out formally on a blackboard, as it were; this is why I have translated ordo docendi as 'order of exposition'.)

(4) We have to be careful of Descartes' remark that the analytic method "shows the way by which the thing was discovered...as it were a priori" (tanquam a priori); while the synthetic method employs a "way which is opposite and sought as it were a posteriori" (*viam oppositam & tanquam a posteriori quaesitam*). The medieval use of a priori and a posteriori derives ultimately from Aristotle's account of the demonstrative syllogism, where the premisses are described as *πρότερα καὶ ἄνω τοῦ συνεκτιμῆσθαι* (An.Post. 71 b 23). Thus Aquinas equates a demonstration per priora with a demonstration per causam (Summa Theol. I, 2, 2; cited in GILSON (1), p.70). This is the tradition Descartes follows, so that it is quite appropriate for Haldane and Ross to translate Descartes' 'a priori' and 'a posteriori' as 'from cause to effect' and 'from effect to cause' respectively.* But a problem arises in our passage from the Second Replies where Descartes, after saying the synthetic method proceeds 'tanquam a posteriori', adds the

* The traditional use of the terms a posteriori and a priori contrasts with the standard modern one in which a posteriori knowledge is equated with empirical knowledge, while a priori truths are, roughly, those which do not depend on empirical facts (see further QUINTON, p.110). This use of the terms is widely attributed to Kant, but in fact it goes as far back as Leibniz who opposes "les vérités a posteriori, ou de fait" to "les vérités a priori, ou de raison" (Nouveaux Essais sur l'Entendement Humain, Bk. IV, Ch. 10, §2). Descartes' use never, so far as I know, anticipates that of Leibniz, but it is easy to see how it paves the way for it. Here at CB 17, for example, Descartes describes the ontological proof in the Fifth Meditation as 'proceeding a priori and not from some effect' (line 9). The implied antithesis is: '...but the other proof, from the idea of God, proceeds a posteriori, i.e. from effect to cause'. But of course it is also true that the proof from the idea of God starts from an empirical premiss (concerning the existence of an idea in the mind), while the ontological proof proceeds a priori in the modern (post-Leibnizian) sense.

CB 17 (cont.)

comment that "the proof itself is often more a priori in this method than in the other" (*saepe ipsa probatio sit in hac magis a priori quam in illa*) (loc. cit.). Haldane and Ross offer the following rendering of this, which seems hard to make much sense of:

Synthesis...employs...a...procedure...in which the search goes as it were from effect to cause (though often here the proof itself is from cause to effect to a greater extent than in the former case).

[HR II 49]

If this difficult passage is to work, it seems to me that there must be two senses in which Descartes uses the phrases 'a priori' and 'a posteriori' - firstly the normal traditional sense (this is the one used in CB 17 line 9) and secondly a special sense which he signalled in the Second Replies by using the warning qualifying particle 'tanquam'. What Descartes has in mind when he talks of the analytic method proceeding tanquam a priori is, I suggest, epistemological priority; this would fit in well with the notion of an 'order of discovery' as found in the Conversation. Now the order followed in the Meditations "consists in the fact that what is put forward first must be known without the help of anything which follows" (AT VII 155). It is in this sense that the analytic method proceeds 'tanquam a priori': it starts from what is epistemologically most basic - i.e. from what is 'prior' as far as our knowledge is concerned: prior in the 'order of discovery'.

What about the synthetic method proceeding 'tanquam a posteriori'? Again, I suggest, Descartes has epistemological order in mind. Unlike the method of analysis which proceeds step by step from an epistemologically basic minimum, the method of synthesis takes a lot for granted. It starts from a lot of 'givens' - definitions, axioms, postulates and the rest. This is why Descartes says in the Second Replies that the synthetic method is more suitable for Geometry than Metaphysics; in Geometry, as he goes on to

CB 17 (cont.)

point out, one is generally prepared to argue from 'givens' which everyone takes for granted ('facile a quibuslibet admittantur'); in *Metaphysics*, where we are sweeping the board clean, we need to be much more careful to go back to the very beginning: we must 'work hard to make our primary notions clear and distinct' (AT VII 157). The synthetic method, then, although 'its proofs are generally a priori' (sc. in the traditional sense), starts from premisses which are 'posterior' as far as our knowledge is concerned - posterior in the order of discovery.

All this may seem rather a lot to read into the highly compressed and cryptic remark in the Second Replies, even with the aid of the comments to Burman about the order of discovery. But in fact the distinction involved here - viz. that between epistemological and logical priority, and the corresponding two senses of 'prior', has quite a long philosophical ancestry. Aquinas distinguishes between truths which are causally and logically prior (priora simpliciter) and those which are 'prior as far as we are concerned' (priora quoad nos). By 'prior as far as we are concerned' Aquinas means prior with respect to our knowledge (cognitio). (loc.cit.). If my interpretation is correct, when Descartes talks of analysis proceeding tanquam a priori, he means that analysis starts from items which are in Aquinas' terminology priora quoad nos.

CB 18

For this piece see above, pp. 108ff.

CB 19

line 1 : ...in the Discourse, p.31...

The reference is to the Latin version of 1644 (see Introduction, p. x); the relevant sentence is: "evidentissime intellegebam, dubitationem non esse argumentum tantae perfectionis quam cognitionem" (AT VI, 559; French: AT VI 33).

CB 19 (cont.)

line 6 : In that part of the Discourse...

i.e. part IV. Descartes makes it quite clear to Burman that the Meditations are to be regarded as the definitive statement of his metaphysics. Compare the Preface to the Reader published in the first edition of the Meditations, where Descartes says that he 'slightly touched on' (paucis attigi) questions concerning God and the human mind in the Discourse "not indeed to deal with them in careful detail, but only in passing and so as to learn from the views of readers how they should be dealt with at some later date" (AT VII 7). Descartes in fact carefully chose the word Discourse to emphasize the introductory character of the work, as he explains in a letter to Mersenne a few months before publication:

I do not put Treatise on the Method but Discourse on the Method which is the same as Preface or Introductory Note on the Method to show that it is not my plan to teach it, but merely to talk about it.

[AT I 347; K 30]

[Incidentally, although I have in my translation used the normal English title 'the Discourse', at CB 19 lines 1 and 6, in the original Latin both Descartes and Burman refer to the work simply as 'Methodus' ("the Method").]

lines 10 - 15 : ...explicitly...implicitly...

See Appendix B, Section III.

lines 19/20 : ...every defect and negation presupposes that which it falls short of and negates.

Descartes' proof of God's existence in the Third Meditation depends on the crucial premise that my concept of a perfect God is (implicitly) prior to my concept of my imperfect self. The alleged priority, as we see from the remarks here, is a function of the alleged fact that imperfection is a defect or negation, while perfection is something positive.

This argument presupposes that there is some neat way of determining

CB 19 (cont.)

which is the positive and which the negative member of a pair of opposite predicates. But in fact it is extremely difficult to find a satisfactory criterion for classifying predicates as positive or negative.* One could, of course, rely on a purely syntactical test, and class any predicate with a grammatically negative prefix ("in-", "non-", etc.) as negative. But whatever the merits of such a procedure (and it is hard to see what interesting purpose it would serve) a syntactical criterion of this sort would not suit Descartes: for while 'perfect' would come out conveniently as positive, 'infinite', which according to Descartes is positive and prior to 'finite', would come out negative.

A hint of a more plausible criterion is given here at line 19: the test for a 'negation' is apparently that it 'presupposes' its positive counterpart. What is meant by this relation of presupposition? A possible answer is that X presupposes Y if in order to have the concept of X one must have the concept of Y, but not vice versa. This would make sense of the remark at line 23/4: in *Metaphysics* nothingness presupposes being, says Descartes, because 'our understanding of nothingness derives from that of being' (*nihil intellegitur per ens*): the claim here is, apparently, that in order to understand nothingness one must have the concept of being, but not vice versa.

A similar criterion for distinguishing positive from negative predicates has been advanced in our own day by J.L.Austin, in connection with his notion of the 'trouser-word'. Austin writes:

It is usually thought, and I dare say usually rightly thought, that what one might call the affirmative use of a term is basic - that, to understand 'x' we need to know what it is to be x, or to be an x, and that knowing this apprises us of what it is not to be x, not to be an x.

(AUSTIN, p.70)

* cf. FREGE, p.125: "Consider the sentences 'Christ is immortal', 'Christ lives for ever', 'Christ is not immortal', 'Christ is mortal', 'Christ does not live for ever'. Now which of the thoughts we have here is affirmative, which negative?"

CB 19 (cont.)

Austin here seems to agree with Descartes that certain terms, or uses of terms, can be classed as 'affirmative' on the grounds that they are 'basic' to the understanding of their opposites (in Cartesian terms, our understanding of them is presupposed by our understanding of their opposites).

Unfortunately for Descartes, however, this alleged priority or 'basicness-for-understanding' evaporates under scrutiny of particular cases. It is true that some cases can be cited which make the claim look intuitively plausible, particularly when some sort of defect or privation is involved.* If we take the pair 'sighted' and 'blind', it might seem plausible to call 'sighted' the 'positive' or 'affirmative' partner; and this may seem to be confirmed by the application of Descartes' test: the concept 'blind' seems to presuppose the concept 'sighted' (in order to understand what 'blind' means, we have to have some concept of what it is to be sighted, while the converse does not seem to hold). But as soon as we depart from such intuitively helpful cases, difficulties multiply. Take the pair 'perfect' and 'imperfect'. Which is the 'trouser-word' here? To understand what an imperfect apple is, it seems I must have the concept of a perfect apple; but the converse seems equally to hold: I could not know what was meant by a perfect apple unless I had the concept of an imperfect apple. There does not seem to be any priority at all here: in order to understand either of the two terms one must understand what is meant by the other. The two terms rank *pari passu*.

Austin's position is slightly more subtle than that of Descartes,

* It is significant that Descartes' most frequent examples of negations are 'defects' (e.g. error - AT VII 54) and 'privations' (e.g. cold - AT VII 233).

CB 19 (cont.)

for he recognises that the 'prior' or 'trouser'* word need not necessarily be what looks at first like the 'affirmative' member of a pair: in the case of 'real' for example, it is the negative term (whatever is opposed to 'real') that wears the trousers. But Austin's alleged priority of the trouser word is subject to identical strictures to those which apply to Descartes' alleged priority of the 'positive' term. In the case of 'real' and 'illusory' for example, it is true that one could not have the concept of an illusory perception unless one had the concept of a real or genuine perception, but the converse seems equally to hold. Similarly, how could someone fully understand what was meant by a toy soldier or a decoy duck, unless he knew what a real soldier or real duck were?

Austin does suggest a further criterion for distinguishing the 'prior' or 'trouser' word, viz. that when a predicate wears the trousers, then the items of which the predicate is true all have something definite in common. Hence 'real' cannot be the trouser word, according to Austin, since

the attempt to find a characteristic common to all things that are or could be 'real' is doomed to failure; the function of 'real' is not to contribute positively to the characterization of anything, but to exclude possible ways of being not real.

(ibid.)

Unfortunately, the notion of 'contributing positively to the characterization of something' is left unclear; and without further clarification the implied criterion for separating out the prior or basic member of a pair of opposites hardly escapes circularity. Moreover, as Professor Ayer

* I have taken 'trouser-word' as synonymous with 'word which wears the trousers' throughout. This is I think faithful to Austin's general meaning in the passage referred to. However, in the lecture notes published by G.J. Warnock 'trouser-word' is used rather more vaguely than this: 'real' is at one point itself described as 'a trouser-word'. Here it seems that Austin is compressing his meaning: what he intends to convey is that "the use of 'real' is one of the examples where the trouser-word phenomenon operates". The subsequent remarks make it clear that the terms which in fact wear the trousers are the terms which negate 'real'.

CB 19 (cont.)

has shown, the question of what is regarded as a 'positive' feature which things have in common may be in large part subjective. Thus, a tribe in which it was for some reason useful to have a predicate 'eulb' to describe non-blue objects, might well regard 'blue' as a 'negative' property signifying the absence of eulbness. Against the objection that eulb objects would have nothing in common except their failure to be blue, one may quite properly reply that what the objects have in common is precisely that they are eulb; for what is it for objects to have something in common unless it be for a certain predicate to be true of them? (AYER, p.50).

In view of all this, Descartes' reliance on the alleged 'priority of the positive' is fraught with problems; and although some of these problems were glimpsed by contemporary critics, he was never, so far as I know, prepared to give them the attention they deserved. Compare, for example, CB 39, where Descartes abruptly dismisses Burman's very apt question about the alleged priority of the concept of a perfect triangle over that of an imperfect one; Descartes just baldly repeats his stock argument: "I could not conceive of an imperfect triangle unless there were in me an idea of a perfect triangle, since the former is the negation of the latter" (lines 8 - 10).

lines 23/4: In Metaphysics...being.

MS: "In Metaph. nihil intellegitur per ens." For an unexplained reason the copyist has crossed this line out after writing it (there is a diagonal slash through each word); so the text may possibly be suspect - although it makes perfectly adequate sense in the context. Adam prints "V." at the beginning of the sentence ("Voir cela en Métaphysique: le néant ne s'entend sut par l'être"). But what he has read as 'V' is, I think simply a badly formed 'R' (signifying, as usual, a reply of Descartes).

CB 20

line 3 : ...by knowledge...

For the importance of the point about knowledge in the context of the Third Meditation, see the following piece, CB 21, lines 10 - 25.

CB 21Quotation.

The key words from the Third Meditation on which Burman wishes to focus are "nulla difficiliora mihi factu videntur". In our MS, the second word is misquoted as "differentia"! Similar startling inaccuracies in the quotations which head each piece are found in at least three other places in the Conversation: CB 18, 22 and 62 qqv. We can hardly attribute these errors to Burman himself: mistakes like that here at CB 21 are too gross to have been made by the man who selected the texts for discussion, and who, as his questioning shows, had made a detailed and careful study of the passages involved. It seems most likely that our 'unknown scribe' (see Introduction, p. vii) is to blame.

It might be thought these misquotations bode ill for the accuracy of our MS as a whole. Certainly they should put us on our guard; but they do not necessarily entail that we are dealing with an incurably slipshod copyist. We should remember that Burman's quotations were not whole sentences, but simply a few words lifted out of context: it is always easier to misread an arbitrary string of words than a whole sentence or paragraph where the necessity that what is written should make sense tends to have a corrective effect. Secondly, the copyist may reasonably have taken less trouble when dealing with texts quoted from Descartes - already available elsewhere - than he did when copying down the new material of the Conversation proper. In any case, the extreme brevity of the quotations given in the MS presupposes that the reader is being relied upon to look up the relevant texts for himself with the aid of the page references supplied; and it is worth noting here that these page references, at least, are accurate throughout.

CB 21 (cont.)

ibid. : (i.e. many forms of knowledge...)

This gloss is not in the original Latin version of the Meditations; I have supplied it from the French version (AT IX 38).

lines 1/2 : ...understanding conception and imagination...

The important distinction made here between intellegere concipere and imaginare casts considerable light on Descartes' views on the nature and workings of the mind. The passage should be read in conjunction with CB 42, in which Descartes explains his theory of imagination and also that of perception (sentire). The critical remarks below cover both passages, starting with CB 42.

Descartes' theory of imagination and perception

We are nowadays in the habit of thinking of Descartes as a 'dualist' - as maintaining a rigid division between the 'mental' and the 'physical'. There is of course truth in this view. But we should be careful not to take it to imply that Descartes believes in two completely distinct sets of operations, bodily operations (e.g. breathing) and mental operations (e.g. doubting), with no logical links between them. For imagination and perception provide cases of concepts which, according to Descartes, cannot be explicated without reference to both the physical and the mental.

Perception (sentire) involves, according to Descartes at CB 42, a relation between mind and body. It is a matter of the mind's attending to (animadvertere) images imprinted on a part of the brain - the "gland" (line 10). This gland, as Descartes explains frequently elsewhere, is the pineal gland (conarion) which he regards as the 'principal seat of the soul' (le principal siège de l'âme; letter to Meyssonnier - AT III 19; K 69). Exactly what is involved in perception is made a little clearer in the Passions of the Soul (Part I, art.35): when, for example, we see an animal, the light reflected from it 'paints two images on our eyes' (peint deux images, une en chacun de nos yeux); these two images form others (via

CB 21 (cont.)

the optic nerves) in the 'interior surface of the brain'; these then radiate (rayonnent) towards the pineal gland, where they eventually merge into a single image; it is this single image which 'acts immediately on the soul and causes it to see the shape of the animal' (agissant immédiatement contre l'âme, lui fait voir la figure de cet animal) (AT XI 355/6).

How is one to assess this theory? At first sight it certainly looks like the 'ghost-in-the-machine' theory in its most extreme and vulnerable form. But we must be careful not to beg any questions against Descartes. First of all, his theory is not just 'philosophical' in the modern academic sense: it involves a number of physiological claims about the workings of the brain. In this respect, some of Descartes' views have, it is true, been superseded. For modern physiologists, the pineal gland - though its role is still obscure - is certainly not the place where the 'images from each eye merge' (though it is in fact remarkably close to the conjunction of the optic nerves). Nor can the talk of the 'depicting of images' be taken as anything more than a vague and (as we shall shortly see) misleading metaphor for what actually goes on inside the brain. But in spite of this, if the view which Descartes is propounding is stripped down to its bare bones, it remains one which modern physiologists as well as informed laymen are substantially committed to: viz., that the light reflected on to the eyes from external objects acts on the optic nerves so as to produce some sort of activity in the brain; and it is this which causes us to 'see' external objects.

The suspicion however remains that, philosophically speaking at least, there is a lurking error in all this. To see whether this is in fact so, it will help to move on to Descartes' theory of the imagination, which is closely tied to his theory of perception. Descartes had talked about imagination at the beginning of the Sixth Meditation, but his remarks there were, to say the least, cryptic. Imagination, it was suggested, is 'some

CB 21 (cont.)

sort of application of the cognitive faculty to a body intimately present to it' (*applicatio quaedam facultatis cognoscitivae ad corpus ipsi intime praesens* - AT VII 72); further it involves a kind of 'inspection of' (*inspicere*) or 'looking at' (*intueri*) some portion of the body resembling an idea (AT VII 73). The nature of this strange operation of 'inspecting' is left unexplained (the French version of de Luynes offers the vague gloss 'considerer' for *inspicere*); so we have Burman to thank for demanding clarification on just this point, and thus eliciting the much fuller explanation to be found at CB 42.

'*Inspicere*', Descartes explains here, is a 'special mode of thinking' (*specialis modus cogitandi* - line 7); and he refers us back another passage in the Sixth Meditation ("page 81" - i.e. AT VII 78), where both imagination and perception were called 'faculties for special modes of thought' (*facultates specialibus quibusdam modis cogitandi*). The nature of imagination is thus closely related to that of perception; and this, it turns out, is because both involve a special sort of causal transaction between mind and brain (pineal gland). As in the case of perception, imagination involves the painting or imprinting of images on the gland; but the difference is that the "windows are shut, as it were" (line 18): the images are painted on the 'gland' not by external objects, but by the mind itself. The mind then inspects or contemplates (*inspicere*) the images it has painted.

Now this begins to look extremely bizarre. The theory of perception told us, plausibly enough perhaps, that when we see objects, the objects (via a complex causal chain) act on our brains and, thence, our minds. The theory of imagination now tells us that, when we imagine objects, it is our minds which act on our brains. To see why this cannot be right - and it certainly seems strange on an intuitive level - we have to remember that Descartes uses 'the mind' or 'soul' (*mens, anima*) to refer to my

CB 21 (cont.)

conscious self - the *res cogitans* that is "me". So Descartes is saying that when I imagine something, I (*ego*, *res cogitans*) paint an image of it on my brain. Now, anything I do qua thinking being is a cogitatio; which entails that it is something which I am directly aware of (see on CB 7). (Descartes himself specifically admits that imagination is a mode of thinking - *modus cogitandi* - albeit a special one; CB 42 line 7). So on Descartes' own terms, we ought to be aware of performing the act which he alleges we, as thinking beings, perform when we imagine something. Yet most of us are quite unaware of the interior parts of our brains, let alone being aware of using them as little blackboards which we draw upon and then contemplate.

Can Descartes' account be defended against this criticism? One can think of possible modifications to the theory, but I suspect that any version would ultimately lead to the sort of incoherence described above. This is because, at the core of Descartes' theory of imagination (and the same goes for the account of perception) is the notion of some sort of interaction between brain and mind. Yet the strange psycho-physical transaction envisaged not only does not, but could not possibly, occur. It is not just that Descartes has gone wrong in locating it in the pineal gland, rather than, say, the cerebral cortex or the nervous system as a whole; there is nowhere it could belong. This is not to say that Descartes was wrong to be interested in optic nerves, pineal glands and happenings in the brain: anyone who claims that to give an account of imagination or perception is purely a conceptual or linguistic business is re-erecting the scholastic barriers that Descartes - rightly - wanted down. The point is not that there are not important facts of neuro-physiology which relate to imagination, but that these facts are on a different level from the psychological or phenomenological facts. If I imagine a chimera, there

CB 21 (cont.)

are two ways in which this may be described. The first is to talk about it from the subjective or phenomenological viewpoint - to attempt to describe it in terms of what 'goes on in my mind'; at this level I can perhaps be said to have a mental image or picture of a chimera. The second way is to describe my imagining as a set of neuro-physiological events. But now, the second story cannot possibly locate "me" and my mental images as items in a causal chain along with the firing of synapses and the production of electrical impulses in the brain. This would be like trying to locate a computer's solving-of-a-problem somewhere in a causal train alongside the switching of circuits and the humming of transistors.

As we have seen, the above strictures apply to Descartes' account of perception as well as that of imagination, since both theories posit the bizarre and impossible transaction between "me" and my brain. But it is worth our while to enquire why the account of perception at first sight seemed less bizarre: why did the notion of nervous stimulation or cerebral disturbance acting upon our minds seem not entirely inappropriate (or at least not as inappropriate as the notion that we act on our brains)? The answer, I think, is that part of the Cartesian way of thinking still retains a subconscious hold on us. We are still vaguely inclined to think that the 'scientific' view is that we receive messages brought to us from the outside world by our nervous system. Of course the truth is that we do not receive messages at all. We perceive; and our perceiving involves, on the neuro-physiological level, impulses entering the brain. We can now see why to think of these impulses as 'images' or 'messages' is at best misleading. And at worst, it can lead to the sort of conceptual confusion which Descartes' theories embody.

After all this has been said, however, Descartes' search for a 'seat' where the mind interacts with the brain cannot be dismissed as just a philosophical confusion or a 'category mistake'. To say, as we said above,

CB 21 (cont.)

that when I have told the neuro-physiological story, I have told the psychological story 'on another level', glosses over something rather crucial. And that is consciousness. Imagination and perception are, to put it in Cartesian terms, cogitationes; this means that when I indulge in these activities I am aware (conscius) of what I do. Now the problem of consciousness, or self-awareness, presents a formidable philosophical-cum-scientific problem here, one that cannot be solved either by pure linguistic analysis or by mere investigation of brain-states. For though we may believe that the events described by the neurophysiologist somehow are the conscious experiences of an individual, the neurophysiologist cannot tell us what it is about a certain brain-event (or set of events) that makes it a conscious mental event. We know that the human nervous system is greatly more complex than that of an amoeba, but, to put it crudely, we do not yet know what it is for the raw neurophysiological events somehow to amount to conscious experience. Descartes' talk of my mentally 'inspecting' portions of my brain may nowadays seem naive or confused. But until we are able to say how the events that go on in the brain somehow constitute conscious experience, it seems probable that the Cartesian picture of mind interacting with nervous system will not entirely lose its subtle hold over us.

Materialist philosophers today sometimes attempt to evade this difficulty by talking of a 'self-scanning mechanism' in the brain (see ARMSTRONG p. 94/5); but this seems to me to restate the problem rather than solve it. The materialist has failed to introduce into his account anything which explains the qualitative 'feel' of consciousness. The only reason 'scanning' looks attractive is that it borrows plausibility from the literal use of 'scan': in normal life it is we ('res cogitantes') who do activities like scanning and contemplating; these are conscious activities which we know the 'feel' of; so when the materialist talks of

CB 21 (cont.)

'self-scanning' we are tricked into thinking he has accounted for the phenomenon of consciousness. But of course precisely the same problem arises for the materialist's 'scanning mechanism' as arises for Descartes' 'soul' 'inspecting' the brain. What is 'scanned' on the materialist theory must ex hypothesi be a portion of the brain; yet consciousness patently is not awareness of parts of one's brain.*

Footnote on perception

In contrasting Descartes' account of imagination with his account of perception, I attributed to Descartes the view that imagination is something active (the mind acting on the brain), while in perception the mind is passive - acted upon by the brain. This indeed is how Descartes sometimes expresses it: in perception the brain 'agitates against the mind' (Passions, loc.cit.). But strictly speaking, Descartes believes that there is an active mental element in even the simplest sense-perception: compare the remarks against Regius, discussed in the commentary on CB 9; see also line 9 here at CB 42 (already referred to above) where Descartes says that in perception the mind has to attend to (animadvertere) the images on the gland.

'Understanding' (intellectio; intellegere)

We have seen that, on Descartes' view, perception and imagination are what may be called "hybrid concepts": their analysis necessarily involves reference to both mind and body. (Thus, disembodied spirits cannot (logically) imagine -- see CB 41). By contrast, understanding (intellegere) seems to be a purely mental operation. In the Sixth Meditation (AT VII 73)

* The difficulty here can be brought out by quoting two phrases of Armstrong's: "in perception", we are told, the "brain scans the environment"; when there is consciousness, on the other hand, "one part of the brain scans another part of the brain" (loc.cit.). Despite the apparent neatness, there is a crucial logical difference between these two cases. For when my brain 'scans the environment' I am aware of the environment, yet when my brain 'scans part of my brain', I am not aware of part of my brain.

CB21 (cont.)

Descartes distinguishes imagination from pura intellectio. In imagination, the mind 'turns to the body' (se convertat ad corpus) and contemplates the images there; in 'pure understanding' the mind 'in some manner turns towards itself and contemplates one of the ideas which are inside it' (mens, dum intellegit, se ad seipsum quodammodo convertat, respiciatque aliquam ex ideis quae illi ipsi insunt).*

But the difference between the two operations is not just the alleged fact (dubious to the modern ear) that one process involves a brain process and the other not. There is also a psychological or 'subjective' difference. If I imagine a triangle, Descartes says, I actually "see" a three-sided figure in my mind's eye (istas tres lineas tanquam praesentes acie mentis intueor - AT VII 72). To understand X, by contrast, seems to be simply to be aware of what is meant by the word 'X' - to have the concept of X, without 'seeing' an image. Thus, I can understand (intellegere) what a chiliagon is, even though I cannot picture a chiliagon (ibid.). This distinction is brought out well in a letter to Mersenne of July 1641 (AT III 395; K 107): whatever we conceive of sans image is an idea of pure mind (idée du pur esprit); whatever we conceive of avec image is an idea of the imagination. (Compare also the letter of Elizabeth of 6 October 1645: "lorsqu'elle (sc. l'âme) use de sa volonté pour se déterminer à quelque pensée qui n'est pas seulement intelligible mais imaginable, cette pensée fait une nouvelle impression dans le cerveau" (AT IV 304; K 178).

Another important psychological difference noted by Descartes in the Meditations is that imagination requires mental effort (peculiari quadam animi contentione opus esse ad imaginandum - AT VII 72/3). In the Conversation, Descartes explains that he has in mind especially mathematical

* For intellegere in this 'purely mental' sense, compare Aquinas' definition: "intellegere est veritatem simplici mentis intuitu considerare" (De potentiis animae, Cap.6; cited in GILSON (1) p.259, no. 402).

CB 21 (cont.)

concepts: it is impossible to imagine a chiliagon except in a very vague way; and even a heptagon or octagon cannot be pictured except with considerable effort and practice (CB 42 lines 20-26). Descartes is surely wrong, however, if he means to suggest that mental effort is necessarily - or even generally - a feature of imagination. Normally, one is no sooner asked to picture something ("Picture an old man with a grey beard!") than one has done so. And in general, being imaginative is not being good at something difficult and taxing like mental arithmetic: the images just 'come' without any conscious effort. Nor is it the case that mental effort, when it does occur, is peculiar to imagination: frequently, to come to understand some new concept (e.g. the concept of a cosine) may involve considerable mental effort, even though there is no picturing involved. Despite these criticisms, however, it remains true that there is an important conceptual difference between the sort of cognition which involves the having of an image and the sort which does not. And it is to Descartes' credit that he is clear (as Locke, for example, does not always seem clear) that one may have an idea of X (e.g. God, the infinite) in a 'purely intellectual' sense - i.e. a sense that does not involve the framing of an image. (Though, when this is said, there remain serious difficulties in unpacking the notion of idea-without-image: see on CB 18 above.)

concipere/conceptio

If Descartes' use of the terms intellectio and imaginatio is reasonably clear, what are we to say of the third notion introduced at CB 21, viz. conceptio? The cognates 'conceive of' and 'conception' in English suggest something closer to purely intellectual than to imaginative cognition: one may be said, for example, to have a 'conception' of God, or of an infinite number, if one understands what is meant by the words in question, even though one cannot frame any corresponding images. Descartes, however, seems

CB 21 (cont.)

to mean just the opposite of this. We can understand (*intellegere*) the nature of God, but we cannot conceive of or imagine it, he says at CB 21. This suggests that 'conceptio' is more like imagination than pure understanding, and this seems to be confirmed when Descartes remarks that conception requires some sort of internal representation: in order to conceive of X, we need to 'represent it to ourselves, so to speak' (*nobis ut ita loquar repraesentare* - *ibid.* line 7).

The qualifying phrase 'so to speak', however, should warn us off too close an identification between imagination and 'conception'. Imagination involves, quite literally, the framing of an image in the brain, and this, according to Descartes, is a comparatively rare process: he says explicitly to Mersenne that "there are few things, even physical things, which we are capable of imagining, even though we are capable of conceiving of them (*concevoir*)" (AT III 395; K 107). It seems to follow that when Descartes talking of some sort of 'representation' involved in 'conceptio' he is speaking in a loose or perhaps metaphorical way, rather than referring literally to the cerebral images that occur in imagination.

Yet this still does not get us very far. All that has emerged so far is that conceptio is some form of cognition which is neither pure understanding nor imagination, but, presumably, somewhere in between the two. What could this be? It seems to me likely that what Descartes had in mind is something like our notion of 'grasping' an idea or concept. Take the idea of a million pigs. This is a notion which I can clearly understand - I am perfectly aware of what is meant. On the other hand, I cannot imagine or picture such a vast number of pigs except in a very vague and confused way; such are the limitations of the human brain. What I can do, however, is to try to grasp, or 'get my mind round' the bafflingly large number, so that my conception of what is involved is rather more vivid than the pure and simple understanding of what is meant. One way of going about this

CB 21 (cont.)

might be to think of ten groups of one hundred pigs; then think of this number put together in a field; then think of a thousand such fields. This seems to be the sort of process which Descartes has in mind when he says at CB 21 that in order to conceive of the infinite perfections of God we have to conceive of them as indefinite (lines 9-10); thus, to grasp what is involved in the concept of infinite knowledge, one has to think of possessing a little more knowledge than one has at present, and then a little more again than this new amount, and so on. To conceive of X, then, is to have what may be called a dynamic working knowledge of what X involves.

A modern example of this might be the way in which models are used by scientists to render an advanced theoretical concept more readily comprehensible. An atom, for example, is something whose nature one can understand (*intellegere*) but not picture (*imaginare*); but with the aid of certain models, and perhaps graphs and diagrams, one can manage to 'conceive of' it (*concipere*) - get a better working grasp of what is involved. From the subjective point of view, this sort of procedure does not involve framing an image in the strict sense, though it does involve what might be called a mental representation of the idea in question.

That Descartes' conceptio should be interpreted along the lines suggested above is confirmed by an interesting passage in a letter to Mersenne of 1630, where Descartes contrasts knowledge pure and simple (*savoir*) with 'conceiving' or 'comprehending' (*concevoir, comprendre*); what is more, he actually uses the metaphor of 'embracing' or 'grasping' (*embrasser*) to explain the latter notion:

one can know (*savoir*) that God is omnipotent and infinite even though our mind, being finite, cannot comprehend (*comprendre*) or conceive of (*concevoir*) him, just as we can touch a mountain with our hands but not grasp it (*embrasser*); for...comprehending is grasping with one's thought (*embrasser de la pensée*), whilst in order to know something, one merely has to touch it with one's thought (*toucher de la pensée*).

[AT I 152; K 15. Italics mine]

CB 21 (cont.)lines 16/17 : indefinites...infinite

For this distinction, see below on CB 51.

CB 22

The quotation is from Axiom IX in the geometrical demonstration at the end of the Second Replies.* The original passage has "majus est conservare substantiam" etc., which is misquoted in our MS as "majus est conservare subjectum". For the inaccuracy, see on CB 21, p.132.

The mistake is in fact an interesting one, because Descartes' own use of these two terms is not particularly clear. 'Substantia' was generally used by medieval philosophers to mean that which can exist on its own (an ens per se existens), while 'subjectum' carried the connotation of that to which an attribute belongs or in which it 'inheres' (see GILSON (1), p.277 ff., nos. 427 ff.). Descartes follows this traditional use of 'substantia' in Principles I, 51, where he defines 'substantia' as a thing which needs no other thing in order to exist. Elsewhere, however, he departs from this and defines 'substantia' in a way which brings it very close to a synonym of 'subjectum': in Definition V in the Second Replies (quoted at CB 25), 'substantia' is defined primarily as "that in which anything we perceive is immediately located, as in a subject (ut in subjecto)". See further the discussion below. Incidentally, Descartes' comment to Burman shows that the passage in the Second Replies should be translated "it is a greater thing to create a substance...etc.", rather than "it is a greater thing to create substance...etc." (as Haldane and Ross).

lines 8 - 10 :

My translation is a rather free version of the original Latin which is

* Burman has not yet exhausted his quotations from the Third Meditation proper; so the placing of CB 22 before CB 23 and CB 24 represents a departure from the normal procedure followed in the section CB 1 - 48. See beginning of Commentary.

CB 22 (cont.)

somewhat chaotic here: "sic magis est producere substantiam qu^(am) attributa s^(cilicet) ulla ex attributis, vel nunc unum nunc aliud et sic omnia & singula". The general sense, however, seems clear enough.

Descartes' doctrine of substance. (See also CB 12, CB 13 and CB 25).

In discussing Descartes' theory of mind (see above on CB 9) I asked whether Descartes in fact distinguished between the mind and its acts of thinking. This question can be put more technically, as follows. Does Descartes believe, with the scholastics, that the mind consists of thought (its defining attribute) plus an underlying substance; or does he want to say, in more Humean style, that the mind is nothing else by thought (i.e. a series of acts of thinking)?

The second, more modern, approach is suggested by the following passage from the Principles (Book I, art.63):

cogitatio & extensio spectari possunt ut constituentes naturas substantiae intellegentis & corporeae; tuncque non aliter concipi debent quam ipsa substantia cogitans & substantia extensa, hoc est, quam mens & corpus.

thought and extension can be regarded as constituting the natures of understanding substance and bodily substance; and then they must not be considered in any other way than as thinking substance itself and extended substance itself, that is, as mind and body.

Here we seem to be offered the equations:

cogitatio = substantia cogitans = mens
extensio = substantia extensa = corpus

In other words, cogitatio (thought) is presented not as an attribute of the mind, but as identical with the mind itself.

Against this, however, one may set the frequent passages where Descartes follows the traditional doctrine of substance as something underlying attributes - the 'substrate' immortalised by Locke as 'something we know not what'. Elsewhere in the Principles, for example, Descartes talks of the 'common notion' "nihili nulla sunt attributa", in virtue of which we conclude, on perceiving an attribute, that there is necessarily some substance

CB 22 (cont.)

present, to which it may be attributed (Book I, art.52). Again, the definition in the Second Replies (quoted at CB 25) seems clearly to imply that what we are immediately aware of (thought) must be located in something, viz. a substance. And the comment which Descartes adds at CB 25 makes his commitment to the traditional doctrine absolutely explicit. As well as the "attribute which specifies the subject", he tells Burman, one must think of the "substance itself which is the substrate of that attribute" (*praeter attributum quod substantiam specificat, debet adhuc concipi ipsa substantia, quae illi attributo subternitur*). Compare also CB 43 lines 3 - 5: since thought is an attribute, says Descartes, you may ask the question 'What substance does it belong to?' (*cui substantiae conveniet?*)*

How then are we to reconcile these passages with the apparent identification of cogitatio and mens at Principles I, 63? A first step is to focus on a phrase from the remark to Burman quoted above, viz. 'attribute which specifies the subject'. What Descartes seems to be saying

* My talk throughout of the 'traditional' theory of substance (involving the notion of a substrate underlying qualities) runs afoul of a claim by G.E.M. Anscombe that the doctrine of the 'propertyless subject', though not precisely a straw man ("real humans have gone in for it") is nothing like what philosophers who employ the term 'substance' have generally meant by it (ANScombe, p.71). She may well be right in the case of Aristotle (who seems to have at least six different uses of the term - see O'CONNOR). In the case of Descartes and the famous piece of wax, Anscombe offers an analysis of the argument which "does not lead to the characterless substrate which people supposed was meant by 'substance' ". The conception of substance implied by the wax passage, according to Anscombe, includes the essential properties of the wax: "Descartes' argument was that the wax must be something grasped by the intelligence because all the sensible properties changed but it was the same wax. Now this argument does not require a propertyless subject, but a subject with some permanent properties..." (*ibid.*). Now, as I am in process of arguing, Descartes' notion of substance vacillates considerably, and does indeed come near, at times, to including - in fact almost being identified with - essential properties. Nevertheless, the passages from the Conversation quoted above make it clear that Descartes was aware of - and prepared at times to subscribe to - a traditional doctrine of substance as the substrate or subject over and above (or rather under and beneath) essential properties.

CB 22 (cont.)

is that, although one must acknowledge that the mind is a substance plus accidents, the attribute of thought does in a real sense pick out or define the substance. This is confirmed by another passage from the Principles: "there is always one chief property of any substance which constitutes its nature and essence, and on which all the others depend." (Book I, art.53; italics mine). In the light of this, it seems that Descartes' true position is represented by a modified equation:

$$\begin{array}{ccc}
 \text{cogitatio} &) & \text{specifies} \\
 \text{extensio} &) & \text{constitutes nature of} \\
 & & \text{defines}
 \end{array}
 \left. \vphantom{\begin{array}{c} \text{cogitatio} \\ \text{extensio} \end{array}} \right\}
 \begin{array}{l}
 \text{mens} = \text{substantia cogitans} \\
 \text{corpus} = \text{substantia} \\
 \text{extensa}
 \end{array}$$

This to a large extent accounts for our original difficult passage from Principles I 63, where we indeed find that thought (extension) is said to constitute the nature of thinking (extended) substance. But following immediately after this we have the sentence "and then they must not be considered in any other way than as thinking substance itself and as extended substance itself", which still remains a problem. For, on the face of it at least, being the attribute which constitutes the nature and essence of X is not precisely the same as being identical with X. The curious way in which Descartes has expressed himself here does seem to make it very hard for us to decide whether mental substance is, or is not, to be regarded as distinct from thought.

The answer to this is, I think, that the imprecision is in a certain sense deliberate. In order to explain this, we have to realise that, for Descartes, the distinction between a substance and its attributes - or more precisely a substance and its defining or essential attributes - was a conceptual rather than a 'real' one. At Principles I, 62, the distinction between a substance and its defining attribute is called a distinctio rationis: by this phrase Descartes means a theoretical distinction (French version: 'une distinction qui se fait par la pensée'), which is to be contrasted with a real distinction - a distinctio realis (for these terms

CB 22 (cont.)

see further on CB 36, below). The matter is made even clearer in a vital passage from the Conversation. At CB 22, Descartes (subject to a minor caveat) baldly accepts Burman's suggestion that the attributes of something and the substance are identical (line 4; MS: *attributa sunt idem cum substantia*). Descartes' view, as the subsequent remarks show, is that when you have created all the attributes of a thing you have eo ipso created the substance. The only caveat is that 'creating all the attributes' must be understood to mean 'creating them all together', as opposed to separately and individually (lines 9/10). The substance, in real terms, is identical with the attributes provided they are 'taken together' (collective sumpta - line 7).

This goes a long way towards explaining Descartes' irritation with Gassendi in the Fifth Replies (in the passage quoted at CB 13). Gassendi had objected to Descartes' claim to have discovered the true nature of the wax, in the Second Meditation. We may know that something underlies the changing shapes etc., Gassendi had argued, but we do not know what that something is; we may be able to explain to others what we mean by the term 'wax', but we have not real conception of the 'nuda et occulta substantia' (AT VII 273). In his reply (AT VII 359) and the explanatory comment offered to Burman at CB 13, Descartes reacts strongly to the suggestion that, in investigating the nature of the wax, he 'abstracted' the concept of the wax from that of its attributes. The investigation revealed that the wax was never without accidents: particular accidents may have disappeared but others always took their places. Complete abstraction never occurs. This comment, coupled with the remarks at CB 22, strongly suggests that Descartes did not subscribe to the real existence, behind observable properties, of a 'naked and hidden substance'. Complete abstraction is impossible because, though the wax may take on various shapes and forms, these are all modifications of the defining attribute of extension; and

CB 22 (cont.)

extension cannot be separated from the substance, because there is in reality no distinction between the substance and its defining attribute. Thus, in discovering the various 'modes of extension' of the wax, we have, according to Descartes, discovered all there is to discover about the wax. There is not extension plus some hidden substance; we may of course make a theoretical distinction between extension and substance, saying that the extension 'constitutes the nature of the substance'; but in reality the two are identical: the extension is 'the very substance'. And the same, *mutatis mutandis*, is true of the mind.

If this is right, then Descartes' conception of substance diverges importantly from the traditional scholastic theory later attacked by Hume.* Descartes did often use the conventional language of substance and accidents; he accepted the 'common notion' nihili nulla sunt attributa. But on balance (though Descartes himself would hardly have put it this way) his use of the terminology represents a commitment to a necessary logical or linguistic framework for the expression of propositions, rather than an ontological commitment. The distinction between substance and attributes is preserved on a theoretical level, as a distinctio rationis, rather than as a belief about the way in which objective reality is in fact chopped up.

CB 23

In this piece Burman delves into the theologically vexed question of whether the world had a beginning in time. For a review of some of the traditional arguments (Bonaventure, Aquinas) see COPLESTON Vol.II, Part I, p.293 ff.

* Treatise, Part I, Section 6. See also footnote on p.146.

CB 23 (cont.)line 9 : ...prior to its effects...

This is the first of two objections which Burman offers to the idea of creation from eternity (for the second, see below on line 17). It runs as follows: if A is the cause of B, A must be temporally prior to B; hence, for any X created by God, X cannot be eternal, else God could not be prior to X. Descartes, in his reply, apparently rejects the thesis that temporal priority is a necessary feature of the causal relation. He cites, as a counter example, the decrees (*consilia*) of God. The point, presumably, is that these are caused by God (they are just as much acts as the creation - lines 12/13) yet God is not prior to them: they are eternal, like God himself.

Yet the counter-example seems a very odd one. For God's decrees are surely not effects of (causal productions of) God, but rather part of him. Indeed, Descartes himself says at CB 21 that they are identical with God (line 5; MS: *ejus decreta sunt idem cum ipso*; cf. CB 50, lines 14 ff.); and if X is not logically distinct from Y, then surely Y cannot be the cause (in any normal sense) of X. In fact Descartes admits (in the Fourth Replies - AT VII 240) that it is a necessary condition of something's counting as an efficient cause that it be distinct from its effect; but he goes on to say that the positiva essentia of something may be regarded as its cause in an extended sense which is analogous to that of an efficient cause (*quae per analogiam ad efficientem referri possit; ibid.*). It is in this extended sense (more or less equivalent to an Aristotelian 'formal cause' - ibid. p.242) that God is the cause of himself (causa sui), and also presumably of the decrees which are 'identical with him'.

But to show that there are causes in an extended or analogous sense (= formal causes) that need not be prior to their effects is hardly to refute Burman's original objection. For God, qua creator of the universe, is surely its efficient cause in the strict sense (Descartes himself often

CB 23 (cont.)

uses the phrase when talking of God's relation to the universe; e.g. AT V 54): and an efficient cause proper must surely precede its effects.

In fact, however (though this is a point that is not made explicit in the Conversation) Descartes rejects temporal priority as a requirement even for efficient causation proper:

the light of nature does not require with regard to an efficient cause that it be prior to its effect; on the contrary, a thing is not strictly entitled to be called an efficient cause except during the time that it is producing its effect, and hence is not prior to it.

[First Replies: AT VII 108]

The point seems well taken, and forms a striking 'anticipatory criticism', as it were, of the requirement later to be insisted on by Hume in his analysis of causation. There are, of course, cases of a time lag between cause and effect (eating arsenic/subsequent death), but such a gap is by no means always present. The action of aqua regia causes gold to dissolve, but its action on the gold is not prior to, but simultaneous with the dissolving. And even in cases like that of the poisoning, it is arguable that there is always a more precise specification of the cause (e.g. 'the action of arsenic in the blood stream') which eliminates the priority.

line 16 : ...something new happening to God.

Descartes reinforces his argument for the possibility of creation from eternity by emphasising the logical consequences of the immutability of God: since God, by definition, cannot undergo change, the creation of the universe cannot be, as it were, something which it 'occurs' to God to do: the decision to create must be an act of will which, like his decrees, is part of God from eternity. (This does not, of course, necessarily imply that the decision is actualised from eternity; Descartes is not maintaining the thesis that the created universe is in fact infinitely old - he denies as much at CB 6. The argument merely shows that there is no logical

CB 23 (cont.)

impossibility in the supposition*: cf. the letter to Chanut of June 1647: AT V 52/3; K 221/2.)

line 17 : ...infinite number.

Burman's second objection to creation from eternity is that this would entail that there was an 'infinite number' (sc. of elapsed moments prior to the present). The argument he has in mind appears to be something like that later developed by Kant in the First Antinomy (thesis):

If we assume that the world has no beginning in time, then up to every given moment an eternity has elapsed, and there has passed away in the world an infinite series of successive states of things. Now the infinity of a series consists in the fact that it can never be completed through successive synthesis....

[A 426; B 454; trans.SMITH]

An eternal universe, then, would involve the completion of an infinite series, which is absurd. The argument, at least as it stands, seems very weak indeed, and Descartes' reply to Burman neatly exposes the weakness. Descartes simply observes (line 18) that there is nothing wrong with an infinite series here; we should understand past eternity (eternitas a parte ante) just as we do future eternity (eternitas a parte post) viz. as an infinite series stretching back into the past, just as future eternity is regarded as an infinite series stretching forward into the future. In neither case is the series complete.

At line 23, Burman comes back: surely past eternity, unlike the future, is actualized - the divisions are 'actual and all at once'. The point seems to be that an infinite series is objectionable in the case of the past, because the fact that the past is actualized (has already actually occurred) means that, if the universe is eternal, an infinite series of events has already occurred; and this does seem to 'complete the infinite'. Compare the following defence of Kant's argument by A.C.Ewing:

* This follows the Thomist view that the world's non-eternity cannot be demonstrated philosophically (as opposed to by revelation): Cont.Gent.II.38.

CB 23 (cont.)

The events prior to, say, midday yesterday by Greenwich time are undoubtedly completed by now. They are all over, they are past. But if the world has no beginning, those events are infinite in number. Therefore an infinite number of events have been completed, and we still have a case of the completed infinite.

[EWING, p.212]

In his reply to Burman, Descartes points out that the divisions of past eternity are not 'actualized all at once' (actu simul - line 26). By this rather cryptic remark he means, I think, that even though all moments in the past have already actually occurred, it does not follow that we have to regard them all together as constituting a completed set; that is, although every event in the series is completed, the series itself is not completed or closed. Ewing's defence of Kant is in fact open to a similar reply. Granted that an infinite number of events has elapsed prior to midday yesterday, and all past events are 'completed' ("all over"), it does not at all follow that the set of past events has been completed. Descartes' comparison with future eternity (repeated at line 29) is again helpful here. In the case of future eternity, we may think of tomorrow as day number one, the day after as day two, and so on ad infinitum. Similarly, if we call yesterday day minus one, the day before day minus two, and so on, we will, just as with the future, have a series which is indeed infinite, but which there is no reason to call 'complete'.

Some further problems with the notion of past eternity are discussed at CB 6 (see commentary on CB 6 line 42).

line 31 : ...parts...would be separated...

So that, even if I exist from eternity, a God is still logically required as the conserver of my existence. See Third Meditation, AT VII 48; and Axiom II in the Second Replies: "no less a cause is required to conserve a thing than was required to produce it in the first place" (AT VII 165).

CB 23 (cont.)

line 35 : ...offence to the Schoolmen... (pedagogi; "les pédants" - Adam)

For Descartes' extreme caution in avoiding disputes on theological issues see on CB 78. There is a further reference to the 'Schoolmen' at CB 80, q.v.

CB 24

line 2 : ...in his image?

The proposition from the Third Meditation which Burman quotes here had been criticised by Gassendi in the Fifth Set of Objections. In general, Gassendi had argued, a product no more resembles its maker than the walls of a house resemble their builder. The only exception is the case of 'generatio per communicationem naturae' (i.e. ordinary parenthood); but this is not how God created us: we are not his offspring; he made us secundum ideam, like the builder (AT VII 306). In his reply (also cited here by Burman) Descartes had remarked, somewhat vaguely, that divine creation is closer to natural than to artificial creation (i.e. God's relation to us is, pace Gassendi, more like that of a begetter than a builder); exactly in what sense this is so is, however, left unexplained. Descartes had also added, rather feebly, that a product does sometimes resemble its maker, as in the case of a self-portrait by a sculptor. All this proves, of course, is that such resemblance is possible, not that it is necessarily or even probably involved in the relation between maker and product.

In re-defending his position here in the Conversation Descartes does not really fare much better than he had done earlier, in the Replies. The common axiom 'effectus similis est causae' (cited at line 3) just seems straightforwardly false: the fist that causes a black eye is not itself black; and Burman is quick to resurrect the old counter-example of the house and the builder. In reply, Descartes explains that in this context he is taking cause in a very special sense: he is talking of the 'total cause', the 'causa totalis' (line 11).

CB 24 (cont.)

This phrase occurs in the more precise statement of the 'axiom of causation' to be found in the Third Meditation:

iam vero lumine naturali manifestum est tantundem ad minimum esse debere in causa efficiente & totali quantum in ejusdem causae effectu

[AT VII 40; my italics]

In a letter to Mersenne (AT III 284; K 91) Descartes explains that he added the word totalis to exclude obvious counter-examples: the rain and sun are not the total causes of the living things they are said to generate, and that is why there is no resemblance.

There is a philosophically important point here. When we say that A causes B (depressing a switch causes the light to go on) we normally mean not that A on its own is causally sufficient for the occurrence of B, but only that it is sufficient given a set of assumed 'background conditions' (power supply, wiring, light-bulb, etc.). To give the total cause of X, in Descartes' sense, is thus to specify fully and completely the set of conditions which taken together are causally sufficient for X.

Even with this emendation, the thesis 'the effect is like the (total) cause' is obscure. It cannot mean that effects must resemble their (total) causes in every respect, or that every feature of the cause must be present in the effect: for in that case, created things would have to possess all the features of God (omniscience etc.). What the formulation in the Third Meditation suggests is that every feature found in an effect must be found in the total cause; and this is confirmed by the formulation of the axiom which occurs elsewhere in Descartes: "nihil est in effectu quod non prae-extiterit in causa" (AT VII 366).

Unfortunately, the axiom in its most precise and carefully worded form still seems straightforwardly false. A mixture of sodium and chloride, when compounded in a certain way, is the total cause of salt; yet the salt does not resemble the constituent elements. Descartes' main argument in

CB 24 (cont.)

support of the axiom is that 'nothing comes from nothing': how can we explain the fact that an effect X has some property F unless X gets its Fness from its cause? And how could the cause bestow the property F unless it possessed it itself? (cf. AT VII 40: 'quomodo illam (sc. realitatem) ei causa dare posset nisi etiam haberet'). It is the last step in this strangely a-prioristic piece of reasoning that is the faulty one. The assumption (which the example of the chemical reaction disproves) is that the only way in which some property may be generated or acquired is by being passed on from a previous owner, like an heirloom.

It is worth noticing, however, that there are cases in which causation is seen in terms of the 'passing on' of a feature. One such is the case of Aristotle's 'material causation': 'the sturdiness of the oak tree is responsible for the sturdiness of the table top'; 'the bridge gets its strength from the metal rivets'. Yet Descartes was adamant that the axiom did not refer to this sort of causation (AT VII 366). Another, more interesting case where we seem to apply Descartes' axiom is in connexion with genetic inheritance. We say, e.g. 'he must have got his red hair from somewhere': red hair, we assume, must be caused by a parent or a grandparent who is himself red-headed. (Perhaps this is the sort of model Descartes means us to take seriously when he says that natural production is closer to divine than artificial.) But of course there is in fact nothing to prevent cross-breeding (or mutation) producing in a child a completely new feature, not present in any ancestor. If the reply to this is that the new feature must have been present 'potentially', or in some other way, in the ancestors, then this preserves the resemblance thesis at the cost of making it trivial and unfalsifiable: an effect will be allowed to be 'like' its cause, even though there is no feature in common. It may be that Descartes has some such (unsatisfactory) reply in mind when he says that the cause of a stone may contain the features of a stone vel formaliter

CB 24 (cont.)

vel eminenter ("either literally or in some higher form") (AT VII 41); according to one commentator, however, this is merely a lapse into empty scholastic jargon (AG p.81); and Descartes certainly does not make anything of the distinction when defending himself against Gassendi (loc.cit.).

line 16 : ...being and substance.

In spite of all the fuss Descartes makes of his axiom of causation, its actual cash value turns out, surprisingly enough, to be extremely meagre. The talk of creation being in God's image, we are told, must not be taken too seriously: Descartes only used the phrase out of deference to the scriptures (line 27). All that the axiom requires is some sort of resemblance. Yet, in the case of the stone, the resemblance is so 'remote minute and indistinct' (line 21: 'remota exigua & confusa') that one begins to wonder whether there is any similarity at all, in the ordinary sense of the word.

Defending his thesis at lines 13-17, Descartes argues that since in creating things out of nothing God brings them into being, a created thing will at least resemble God in that it will 'be being and substance' (esse ens et substantia). There are countless difficulties here. Take 'being' (ens) first. If this simply means existence, then all Descartes is saying is that things brought into existence by God will at least resemble him in that they exist - the ultimate trivialization of his causal principle! If to 'have being' or 'be an ens' means something more than just to exist (perhaps connected with having a 'true essence' - see on CB 34), there is still a problem: for Descartes implies elsewhere that created things do not have 'being' in common with God in any straightforward way: on the contrary, while God is 'being', we are a mixture of 'being and non being'

CB 24 (cont.)

(see on CB 5, p. 68 ff.)*. With regard to 'substance', matters are just as difficult. Resemblance, one would have thought, must be a matter of two substances having an attribute or attributes in common; the mere fact that they are both substances will hardly introduce any similarity. Descartes cannot reply here that there are general features which all substances have in common qua substances. For he himself asserts at Principles I, 51, that the word 'substance' does not apply univocally to God and his creatures (this is because if substance is taken in the strict sense of that which needs nothing in order to exist, this will not apply to created things which require God for their existence). Finally, as if all this were not enough, there is the problem that substances are 'constituted', for Descartes, by their defining characteristics (extension, or thought - see p. 147). But in this case, how can there be any resemblance whatsoever between a physical object (part of the extended, divisible, material world) and a God who is pure mind, and whose nature must therefore be utterly incompatible with that of matter? (cf. CB 43).

CB 25 and 26

For these two pieces, see on CB 22 and CB 15 (esp. p. 119) respectively.

CB 27

line 1 : ...could not have any force for an atheist...

It is not at all clear why Descartes says that the argument could not

* The element of 'non-being' (error, imperfection etc.) in created things raises a further problem for the maxim 'nothing in the effect which was not in the cause'. At CB 5 I argued that Descartes needs his causal maxim to show that non-being cannot be an effect of God who is 'pure being'. But if not the creator, when who or what is responsible for the element of non-being in created things? A curious contradiction looms here, for given that (1) God is the total cause of creation and (2) God is pure being, the causal maxim seems to entail both that God must be, and that he cannot be, the cause of non-being. Descartes might reply here that the elements of non-being are merely 'negations' or the absence of features, rather than positive effects. But the distinction implied in this defence is highly problematic: see on CB 19.

CB 27 (cont.)

'valere apud atheum'; especially since, in the original passage in the Second Replies, the conclusion was said to follow necessarily ('necessario concludi') simply from the premise that one cannot arrive at a greatest number ('ex eo solo quod advertam inter numerandum me non posse ad maximum omnium numerorum devenire' - AT VII 139). Now this premiss is clearly one everyone must accept (it does not depend on theistic or any other special assumptions); and if Descartes believes that the conclusion follows as a matter of logical necessity, then surely the argument must have force for anyone, atheist or no. (Compare Descartes' own view that valid reasoning 'compels assent'; see Appendix D, pp. 298ff.). Of course it is true that the argument at best proves that there is a being more perfect than myself; not that this being is God (see line 14). So it is not enough to convert the atheist, if that is what Descartes means by 'have force' (valere). But this does not alter the fact that the argument, in its own right, is either valid or invalid; and Descartes' talk here of its 'supplementary' character should not be allowed to gloss over the need to defend it as a piece of reasoning.

For defence the argument certainly needs. What Descartes purports to show is that (1) when I consider the set of natural numbers I find something which is 'beyond my powers' (aliquid quod vires meas excedit - Second Replies, loc.cit.); (2) if I can conceive of something beyond my powers, I cannot be the cause of this conception (since 'the effect is like the cause'); ergo (3) this conception, or at least the power of conceiving it (vis concipiendi) must have been put in me by something more perfect than myself. Although the summary of the argument offered here at CB 27, lines 9-15, is lucid enough, some important questions remain unanswered. Even if we grant Descartes the strange causal principle involved in (2) (see on CB 24), the first premiss (1) is still rather dubious. What exactly is it that is supposed to be beyond me? Arriving at the greatest number

CB 27 (cont.)

(line 10)? This will not do, for to be unable to do something logically impossible is hardly a limitation. Thinking of a number greater than any given number? But this I can do. Perhaps all Descartes' argument needs is the proposition (which the observations about the numbers support) that, however hard I try, there are always going to be more things which are thinkable than I can ever think of.

CB 28

I have punctuated this piece differently from Adam (see Introduction p. xii). Adam gives the whole first section to Burman; but it seems better to give the authoritative opening remarks to Descartes, with Burman breaking in to raise a difficulty at line 5. (MS: "Sed sic angelus et mens nostra erunt idem". For 'sed sic' introducing an objection, cf. CB 24, line 18, where the MS reads: "sed sic et lapis etc. habebunt imaginem Dei".)

line 1 : ...idea of an angel...

Descartes had explained in the Third Meditation (AT VII 43) that my ability to form ideas of angels, other men, and animals does not require us to posit the extramental existence of such things as causes of the ideas, since I can construct them out of my ideas of myself and of God. For Descartes, an angel, qua angel, is simply a disembodied mind; hence my idea of myself qua res cogitans provides all I need in order to form the idea of an angel.

line 5 : ...identical with our mind...

Burman here acutely raises what is really a general difficulty for Cartesian dualism, viz. the problem of how mental substances are to be numerically differentiated. The principle we use for individuating physical objects is straightforward enough (spatio-temporal continuity provides the ultimate criterion), but what is it that makes two minds distinct? This particular problem is examined by D.M. Armstrong in his recent book (A

CB 28 (cont.)

Materialist Theory of the Mind), and, interestingly enough, he illustrates the point at issue by referring to Aquinas' treatment of angels:

Angels are disembodied intelligences, and therefore raise the question what makes them numerically different from each other. Aquinas' solution was to say that each angel was of a separate species, a different sort of object from any other angel (Summa I 50 4). Among angels, difference of number is simply a difference of kind. But Aquinas' resolution of the difficulty is clearly a makeshift. Why should not God create two identical angels? It is surely an intelligible possibility. And what would differentiate the two then?

[ARMSTRONG, p.28]

In his comments to Burman, Descartes seems to want to follow Aquinas' solution (line 9/10). But when he goes on to dismiss the problem, remarking scathingly that nothing Aquinas tackled was more pointless than his treatment of angels, he shows that he has failed to grasp the logical importance of what is at stake. The problem is not just an abstruse theological puzzle; as we have seen, it demands attention, if Descartes is to be able to provide an adequate principle of individuation that will differentiate any two mental substances, human as well as angelic.

In fact Descartes never, so far as I know, gave any systematic attention to the problem of providing a logical criterion of personal identity within his system. In so far as he does consider the problem, it is from the subjective or epistemological view point. Each of us knows he is an individual because he has an idea of himself from which he can 'exclude' the idea of any other substance, mental as well as physical:

from the mere fact that each of us understands he is a thinking thing, and can in his thought exclude from himself every other substance, whether thinking or extended, it is certain that each of us, when regarded in this way, is in reality distinct from every other thinking substance and every other bodily substance.*

[Principles, Bk. I, Art. 60]

* ex hoc solo quod unusquisque intelligat se esse rem cogitantem et possit cogitatione excludere a se ipso omnem aliam substantiam tam cogitantem quam extensam, certum est unumquemque, sic spectatum, ab omni alia substantia cogitante, atque ab omni substantia corporea realiter distingui.

CB 28 (cont.)

But a serious difficulty is concealed here. It may be that I can exclude from myself the idea of another extended substance, since I can know body does not belong to my essence (above on CB 14). But how can I exclude the idea of another thinking substance? Not, clearly, by excluding thinking from my essence; only, it would seem, by excluding your (or anyone else's) thinking from my essence. But how can I do this unless I have some independent way of individuating mental substances?

CB 29

line 1 : ...never argue from ends... (argumentari a fine)

Descartes here puts forward two objections to teleological explanation in the physical sciences. One objection is that it is rash and insulting to God to attempt to delve into his purposes (lines 5/6). Descartes explains to Gassendi (in the passage from the Fifth Replies which Burman here refers to) that in ethics, where conjecture is allowed, we may perhaps be able to speculate about God's plan for the universe; but in the exact physical sciences it is futile to try and discover how each particular phenomenon fits into the divine plan (AT VII 375).

But, as the criticisms of Aristotle show (lines 4/5) Descartes' strictures are not confined to explanations based on divine purposes. There is another, more general objection to teleological explanation which Descartes puts to Burman: even if we can discover the purpose or end of X, we are no nearer to knowing the nature of X itself (line 2, MS: "cognitio finis non inducit nos in cognitionem ipsius rei"). This comment is extremely revealing. For Descartes, to fully understand X is necessarily to have a full account of its workings in terms of mechanical or efficient causality. (At Principles I, 28, Descartes makes it explicit that his programme is the replacement of final by efficient causes.) Knowledge of the purpose and function of, say, the liver just does not qualify as cognitio ipsius rei -

CB 29 (cont.)

knowledge of the thing itself: only a full mechanical explanation of the workings will do.

This view, and the corresponding rule 'never argue from ends' may seem very harsh and extreme. Are there not occasions when a teleological explanation can be both valid and useful? Two points may be made here in Descartes' favour. The first is the historical point that Descartes was concerned to combat the exclusive reliance on final causes that, even in the seventeenth century, was still a block to the progress of serious science. Secondly, and more important, even though there are occasions when teleological explanations may seem acceptable enough, it is arguable that their usefulness is only, as it were, temporary: ultimately they must be eliminable in favour of a full mechanical ('efficient causality') explanation. Thus, though a teleological explanation of the phenomenon of a plant's turning toward the sun may initially be of some help to the scientist, the need for it ultimately disappears when we have a full mechanical explanation (in terms of efficient causes) of the action of the sunlight on photoreceptors and so forth.* (For

* As a recent writer has observed (taking the example of a thermostat): "our teleological laws are not the most basic laws of the system, for underlying our account of the behaviour as a whole there is an account of the mechanical causal connections"; the limited value of the teleological explanation comes out in the case of a breakdown: "for the repairman the connections which matter are the mechanical, step by step connections from thermostat to pump to burner" (KYAN, p.187). This sort of comment shows how deeply embedded in modern thinking is the Cartesian view that teleological explanations cannot be full explanations of 'the thing itself'. Descartes' thesis is, of course meant to apply only to the physical (non-mental) universe, and it is not at all clear what view he would have taken on the vexed issue of teleological explanation in the human sciences. Vast problems arise in this area which we cannot do justice to here. But one complication worth noting is that if it could be shown that teleological explanations were non-eliminable in the case of the human sciences, then this very fact would be taken by many as showing that the label 'science' is inappropriate for such disciplines. Again, this shows that Descartes' attack on 'ends' embodies a methodological assumption which is still widely regarded as definitive of what is to count as a genuine 'scientific' explanation.

CB 29 (cont.)

further discussion of the notion of mechanical explanation involved here see on CB 73).

line 8 : ...as a philosopher...

I have throughout translated philosophus and philosophia by their English cognates, although there are many places in the Conversation, and elsewhere in Descartes, where our terms 'scientist' and 'science' are really closer to what is intended (cf. CB 73, CB 82). Of course, up until comparatively recently, 'Philosophy' was universally understood to include the natural sciences, as well as subjects like metaphysics and ethics.

CB 30

The argument depends on the (dubious) causal maxim 'nothing in the effect which was not previously in the cause': for this, see above on CB 24. Cf. also Third Meditation: "if we suppose something to be found in an idea that was not in its cause, it will have it from nothing" (AT VII 41).

CB 31

This and the following piece are important passages for Descartes' views on freedom and the will: see Appendix D, which includes discussion of both passages.

line 1 : ...considered in this abstract way...

Burman questions the thesis put forward in the Fourth Meditation that the will of man is quite perfect. God's will may be stronger and more efficacious, Descartes had argued, but my will qua will ("formaliter & precise in se spectata") is perfect (AT VII 57, line 20). Burman, quite reasonably, picks up this rather obscure notion of 'will regarded formally and precisely in itself'. The ensuing exchange is largely self-explanatory, and shows Burman arguing with typical acuteness. At lines 10-12, he offers two objections to the alleged perfection of the will, viz. that the will is inconstant, and that it varies in strength.

CB 31 (cont.)

The first point is answered by Descartes at line 19: the inconstancy of the will is due to ignorance (for the implied relation between the will and the intellect, see below on CB 32 line 18).

The second point is not properly answered by Descartes. Yet Burman is surely right when he says that our will may vary in force: sometimes we have a volition proper; sometimes a mere inclination, or 'velleity' (line 12). It is not easy to explain this variation in degree by reference to ignorance; for presumably, as goods vary in their importance, so (even for a man with complete knowledge) will one's inclination to pursue them. Descartes, however, when he talks of perfection of the will, is not referring to the degree of strength of our inclination, but simply to the power to do or abstain (i.e. affirm or deny, pursue or shun) in any given case (AT VII 57). This alleged ability or power to act independently clearly does not admit of degree; it is something we either do or do not possess. (See further Appendix D, p. 303, for the will as a 'power' (vis).)

line 18 : ...operation of the will.

Burman's objection is remarkably shrewd, and shows expert knowledge of the Fourth Meditation. The judgements I make when I err are called acts of the will (*actus voluntatis*) at AT VII 60; the errors which I make are not due to a fault in the intellect, which simply 'perceives ideas which are subjects for judgement' ("*per solum intellectum percipio tantum ideas de quibus iudicium ferre possim, nec ullus error proprie dicitur...in eo reperitur*" - AT VII 56).

Descartes thus seems to have got himself into a terrible muddle: his desire to defend the complete perfection of the will leads him to say that any alleged imperfection depends on faulty judgement; but now, on his own account in the Fourth Meditation, judgement itself turns out to be an operation of the will. The resolution offered to Burman at lines 19ff. which makes intellectual ignorance ultimately responsible for error seems to

CB 31 (cont.)

contradict the passage just quoted from the Fourth Meditation where the intellect, qua simple perceiver of ideas, was said to be free from error.

Descartes can be rescued, however, as follows: the intellect, though it is free from error in that whatever it clearly and distinctly perceives is true, none the less is imperfect in that there are many things which it does not clearly and distinctly perceive; error arises when the judgement, which should withhold assent in such unclear cases, jumps in and gives assent. This is what Descartes means when he says that error is due to the fact that the will 'extends further than the intellect' ("latius patet voluntas quam intellectus" - AT VII 58).

According to Anthony Kenny, Descartes' theory of judgement was a radical departure from the orthodox Thomist view which considered judgements as belonging to the cognitive rather than the appetitive faculty (KENNY (2), p.2 ff.). Certainly, Aquinas roundly states that "judicare est actus cognitivae virtutis" (Summa Theol. Ia IIae 84, 3; cited in GILSON (1) p.153 no.245). One wonders, however, whether either Aquinas' or Descartes' remarks can properly be said to constitute a 'theory' of judgement: is there anything philosophically illuminating in assigning the judgement to one or other of 'faculties of the mind' - themselves somewhat artificial and arbitrary philosophical inventions?

Perhaps we can arrive at a more acceptable way of construing this sort of enquiry about judgement if we take it as an investigation of the logical grammar of the concept of judging. By judging, Descartes meant simply 'asserting - i.e. affirming or denying' (ipsum actum judicandi nonnisi in assensu, hoc est in affirmatione vel negatione consistit - AT VIIIb 363); affirming and denying, together with desire and aversion, he called 'modes of willing' (modi volendi), while sensory perception (sentire), imagination and pure understanding were called 'modes of perception' (modi percipiendi)

CB 31 (cont.)

(Principles I, 32: AT VIII 17). To assess Descartes' 'theory of judgement', we may thus ask whether the logical grammar of 'affirm' has more in common with 'desire' than 'imagine' or 'understand'.

Before we go on, there is a preliminary problem about the English word 'desire'. Desire, in what is perhaps the standard modern use, is not even something voluntary (under conscious control), let alone an act of the will: desire is something that just 'happens' to one - people are 'smitten by desire'. But when Descartes talks of 'desire' ('cupere') in the passage just quoted from Principles I, 32, he must mean something different from this - something more active. In the Passions of the Soul, I, 17, where a similar division of the soul's activities into appetitive and cognitive seems to be involved, Descartes distinguishes between on the one hand 'perceptions', which are passive, and on the other 'volontés' ('desires', HR) which are active (AT XI 342). This suggests that when 'cupere' and 'aversari' are used in the Principles passage, Descartes has in mind active volitional notions like pursuing and shunning, rather than 'desire' and 'aversion' in the modern English sense. This view is supported by a passage in the Fourth Meditation, where the will is analysed as a power to 'affirm or deny, pursue or avoid' (affirmare vel negare, prosequi vel fugere) (AT VII 57). There is a strong inclination to correlate this quartet of activities one for one with the four modes of willing mentioned in the Principles (affirmare, negare, cupere, aversari).

If we accept this analysis of the terms 'cupere' and 'aversari', then we have to look for a logical feature shared by the concepts 'pursue/avoid' and 'affirm/deny', which is not shared by 'understand', 'imagine' and 'perceive'. I suggest that one obvious feature appears if we ask which of these verbs express acts of decision or choice. To say of someone that he pursues (avoids) X is to ascribe a decision or chosen policy to him; on the other hand, to say of someone that he understands, imagines or perceives X

CB 31 (cont.)

(although these acts are no doubt in some sense chosen or under the control of the will) is not in itself to ascribe to him any decision or choice. If we now look at affirm/deny, then they clearly belong with the first set of verbs: to affirm or deny a proposition P, to assent to P or its contradictory, is an act of choice. To see this, compare merely contemplating the proposition that the earth is flat, and affirming it: in the second case I am choosing to adopt the proposition into my system of beliefs*. Descartes' theory of judgement can thus, it seems to me, be regarded as embodying an insight into an important feature of the concept of assenting, viz. that unlike understanding, perceiving etc. it is a 'choice word'**. That this consideration was in fact behind his theory is confirmed by the fact that in the Fourth Meditation the will is described as the faculty of election or choice (*facultas eligendi* AT VII 56).

An alternative basis for Descartes' theory of judgement is suggested by Kenny, viz. that there is a striking similarity in the "neustics" involved in responding to commands and statements: "it is a striking fact that we can give an affirmative response not only to propositions and questions, but also to commands and projects, by the same word 'yes'. Our attitudes to both assertions and proposals may be described in terms of affirmation and negation..." (KENNY (2), p.14/15). Although Kenny attacks Descartes' theory, he holds that it is this feature which "provides the main justification for Descartes' treatment of judgement as an act of the will". However, the notion of assent to a project as an 'affirmative response' only seems

* Or at least choosing to let others believe that I so adopt it. But Descartes is of course considering the internal mental act, not the speech act.

** The contrast is perhaps clearest in the case of sense perception. If I perceive a red vase on my table, I cannot sensibly be asked "Why did you decide to do that?" But I can always be asked such a question if I pursue some end (e.g. slimming) or assent to some proposition (e.g. that Darwinism is true).

CB 31 (cont.)

plausible in an interpersonal situation: I may respond to someone else's proposal by saying 'yes', but my own pursuit or avoidance of some policy can surely not - or at least not obviously - be characterised in this way. Kenny's own position on judgement seems to incline to the Thomist or cognitive view: "a speculative judgement, a decision that such and such is the case, an assent to a proposition...seems...to belong to a cognitive rather than an appetitive faculty" (ibid. p.2). However, as Kenny's own choice of words suggests, even a speculative judgement seems to involve a decision; this, however, will not simply be a decision 'that such and such is the case', but a decision to assent in virtue of, e.g. adequacy of evidence, or clarity and distinctness of intuition; and it seems to me that here is an act of will which cannot ultimately be eliminated, and indeed is crucial to the concept of assenting.

One final point: Descartes' account of judgement as a choice-word may seem to be inconsistent with his thesis that clearly and distinctly perceived truths compel assent. This is part of a general difficulty in Descartes' doctrine of freedom, and is discussed in Appendix D, pp.298 ff.

line 23 : ...go down deep into himself... (descendat unusquisque in semetipsum)

The ultimate Cartesian appeal to 'inner awareness' as proof of freedom: cf. CB 32, line 10. It is interesting to see Descartes explicitly claiming here that the facts of experience make any philosophical discussion of the issue redundant and pointless (line 22/23). For this approach see Appendix D, pp. 305 ff.

CB 32

The main burden of the Fourth Meditation is to reconcile the fact that human beings are liable to error with the benevolence of God and the possibility of attaining true knowledge. Descartes' solution to the problem

CB 32 (cont.)

(summed up in the passage from the end of the Meditation quoted here by Burman) is that we are always free to withhold assent from any proposition whose truth we do not clearly and distinctly perceive; and that such careful withholding of assent ensures avoidance of error.

Burman's objection to this crucial proposition seems to be that it is inconsistent with the theological doctrine of original sin (the subsequent discussion shows that this must be what is behind his rather cryptic question at lines 1-4). For, if original sin is taken seriously, then there is no way (save through grace) in which we can avoid error, at least with regard to moral and supernatural matters. Thus, in lines 1-4, Burman is saying in effect: 'If the will is free and "autonomous" ("sui-juris") in the way you suggest, we ought always to be able to avoid error by your method - even in moral and supernatural matters: yet this, the Church teaches, is impossible.'

With regard to the moral sphere, the objection seems to be that if we are in doubt whether to obey some rule or precept, the Cartesian rule 'withhold assent' will not help us to avoid error; for indifference in the moral (as opposed to the theoretical sphere) is itself a fault (line 13). (A saintly man, for example, pursues the good without any indifference: letter to Mesland, AT IV 117; K 150. For 'indifference' see Appendix D, pp. 296 ff.). The same holds good in the case of 'supernatural matters' (line 3: presumably, these are the theological truths we need to acknowledge in order to be saved). Again, withholding assent cannot ensure immunity from error, since the withholding of assent to the relevant truths is itself a sin.

Descartes is characteristically chary in dealing with the theological issue (see below on line 8): he acknowledges his commitment to the doctrine of original sin and redemption through grace (lines 15-17), but he does not really make any attempt to discuss the alleged clash between these doctrines and his own thesis in Meditation IV about avoidance of error through

CB 32 (cont.)

suspension of judgement.

In fact it seems to me that his thesis can survive perfectly intact, since the supposed difficulty depends on an illegitimate shift between two senses of the verb 'errare' - 'to err' or 'go astray' - which is used throughout the Fourth Meditation. By withholding assent from some moral precept or article of faith we may indeed 'go astray' in the moral sense of 'do wrong'; but the Cartesian thesis under discussion was about going astray in the factual sense of assenting to a false proposition. The thesis that we can always avoid this sort of 'propositional error' by withholding assent whenever the truth is not clearly and distinctly perceived, is thus quite compatible with the theological doctrine of the need for grace to avoid moral error or sin.

line 6/7 : ...as he is now in his natural condition.

My translation follows the MS, which reads: "sufficit Philosophus
hominem consideret prout in naturalibus/^{suis} iam est" [sic]. Adam suggests an emendation: 'prout in naturalibus sui juris est', and translates "dans son état naturel, en tant qu'il ne relève que de lui". This makes Descartes pick up Burman's phrase 'sui juris' ('autonomous') at line 4. But the original text, though somewhat cryptic, makes perfectly good sense. Moreover, the exact phrase "prout iam est" ('as he is now') recurs in a closely similar passage at CB 82: "philosophus naturam ut et hominem solum considerat prout iam est" ('the philosopher studies nature, as he does man, simply as it is now' - lines 8/9). See the Commentary there for the point made about the philosopher in both passages.

line 8 : ...even among the Turks...

The proofs of God's existence are vital to Descartes' philosophy, but they do not depend on any specifically Christian assumptions: they rest on simple logical 'axioms' and principles of argument which, according to Descartes, can be known by any rational man (heathen, atheist, or whatever)

CB 32 (cont.)

who is prepared to concentrate on them (Appendix C, p. 289). Moreover, once God's existence has been established, his role in the system is essentially an epistemological one (it relates to questions concerning error, deception, the existence of the external world, the nature of the 'eternal truths' etc.). All the rest - all the aspects of God not directly related to Logic, Theory of Knowledge and Science - can be 'left to the theologians to explain'. See further on CB 78.

lines 18/19 : ...no one can pursue evil qua evil.

An echo of the Socratic thesis "οὐδὲς ποιεῖται τὰ κακὰ " (Meno, 78 b1). Compare the Discourse, Part III, where Descartes says that the will does not tend to pursue or shun anything except in proportion as our intellect represents that thing to the will as good or bad (AT VI 28: "...notre volonté ne se portant à suivre ni à fuir aucune chose que selon que notre entendement (la) lui représente bonne ou mauvaise[s]...").

One might have expected that this doctrine would have led Descartes, as it did Plato, to deny the phenomenon of 'akrasia' or 'weakness of will': that is, to assert that the intellect is sovereign, and that any wrongdoing must be due to ignorance and therefore in some sense unintentional*. There are in fact definite signs of Descartes' moving in this direction. In the passage from the Discourse already referred to, he remarks that 'to act well it is sufficient to judge well' ("il suffit de bien juger pour bien faire"); defending this claim later to Mersenne, he quotes with apparent approval the maxim 'whoever sins does so in ignorance' (omnis peccans est ignorans); moreover, those to whom Ovid's 'video meliora proboque, deteriora sequor' applies, he calls 'weak minded' (faibles esprits), implying that their fault is intellectual rather than moral (AT I 366; K 32). Here at CB 32, however,

* "οὐδὲς ἑμὶν ἀμαρτάνει " (Protagoras 345e1).

CB 32 (cont.)

although Descartes repeats the claim that 'sins have their source in ignorance' (*peccata fluunt ex ignorantia*), he adds the qualifying particle 'fere' - 'generally' or 'almost always' (line 18). And at line 22, at the end of the piece, he baldly comes out with the proposition that the will can be said to be corrupted by the feelings or emotions (*per affectus*)* which seems to be precisely an assertion of the possibility of weakness of will. The truth of the matter, it seems to me, is that Descartes' philosophical psychology does allow for weakness of will, in the sense of a wilful disregarding of the manifest perceptions of the intellect: one may perversely refuse to assent even to a clear and distinct perception of the intellect. However, the only way in which one may do this, it emerges, is by refusing to attend to or concentrate on the relevant proposition (see Appendix D, p. 299). So it does turn out that the only sense in which one can be acrotic, in Descartes' system, is by failing to 'exercise' or 'activate' one's knowledge - a result which is remarkably similar to that which Aristotle arrived at.**

CB 33

This discussion is an important illustration of what may be called Descartes' 'metaphysical voluntarism' - the doctrine that (a) all moral propositions and (b) all truths of logic and mathematics depend in some special sense on the will of God.

(a) The old question 'is X right because God wills it, or does God will it because it is right?' was much debated in the middle ages, and can be traced back as far as Plato (cf. *Euthyphro* 10d6). Descartes is quite explicit about his position: God did not create a temporal world because he saw it

* For Descartes' use of the term 'affectus' cf. AT VII 74 line 27.

** The acrotas, for Aristotle, possesses (ἐχει) knowledge, but fails to use (ἐννοεῖ) or exercise (ἐνεργεῖ) it. *Nicomachean Ethics* 1146a 31-1147b 24.

CB 33 (cont.)

would be better than an eternal world; rather a temporal world is better than an eternal world because God preferred it (AT VII 432). One objection to making D's goodness consequential on X's being willed by God is suggested by G.E.Moore's famous 'open question' argument (MOORE, Ch.I, § 10 ff.). Given that we know that X is willed by God, is it not still possible to ask "But is it good?" Burman's objection (line 7/8) is really a variation on this theme: could God really make something absurd or repugnant (e.g. hating him) good, just by commanding it? Descartes replies that God could not now issue such a command (presumably because God is 'immutable' - see CB 50), but who is to say that he could not have done so? But this seems to ignore the sting in Burman's objection. The interesting question is not whether God has the power to issue the command to hate him, but whether, if he did issue it, that would eo ipso make hating him right.

It seems, however, that there is nothing to stop a defender of Descartes' position replying at this point that, if God did issue such a command then, yes, it would be right to hate him. And in general, against the Moorian argument, he can reply that it is just not an open question whether X is good, given that X is willed by God. If this line is taken, then the bald assertion that the question is still open is not an argument but a piece of question begging.

A more plausible objection to Descartes' position (and perhaps one that is closer to what Moore intended) is that if it even makes sense to ask 'is this thing which God wills good?', then the connection between being willed by God and being good cannot be analytic; so goodness cannot be defined in terms to God's will. In fact however, it is doubtful whether Descartes would want to maintain such an analytic connection. He seems to regard the connection between God's act of approving X and X's moral goodness as more like a causal connection. God is the efficient cause of moral (and logical)

CB 33 (cont.)

truths as a king is the cause of a law (eadem ratione qua rex est legis effector; AT VII 436). This conception however leaves the way open for a final objection to which it seems Descartes is vulnerable. If the moral law is as it were the arbitrary creation of God, then the terms 'moral' and 'good' risk losing their normative flavour. For from the fact that something is 'good' in the sense that it is in accord with a rule laid down by God, or is on the list of things approved by God, it will not necessarily follow that there is any reason for us to choose or approve of X. Goodness is something one cannot create by fiat even if one is God.

(b) With regard to the dependence of logical truths on God's will Descartes is rather more articulate than he is in the case of moral truths. He makes it clear to Burman (lines 3-6) that God is the cause not only of the actual but also of the possible (and hence of the necessary*), and of the simple natures (i.e. basic unanalysable qualities like extension, shape, motion etc.; Regulae, XII: AT X 418). Moreover, just as X is good because God wills it, and not vice versa, so 'God did not make the angles of a triangle equal to two right angles because it was necessary; rather it is necessary because he made it so' (AT VII 432). Descartes' motive for arriving at this extreme position was that he was unwilling to accept any limitation on the infinite power of God. His conception of God's power is quite opposed to that of Leibniz, who sees God as creating the best possible world and as being subject to certain logical constraints as to what combinations of monads can exist together (are compossible) (Nouveaux Essais, Bk.III, Ch.6 §12). For Descartes, to allow such constraints would detract from the absolute freedom and indifference of God which manifest his

* Since ' $\Box P \equiv -\Diamond -P$ ' is a basic theorem of modal logic. See Hughes G.E. and Cresswell, M.J., An Introduction to Modal Logic, London: Methuen, 1968), pp.35 and 347.

CB 33 (cont.)

omnipotence (*summa indifferentia in Deo summum omnipotentiae ejus est argumentum*: AT VII 432); God made all the radii of a circle equal, but he could have done otherwise (see letter to Mersenne, 27 May 1630; AT I 152; K 15).

The obvious objection to this conception of logical truths is that it does not explain the 'eternal' and 'necessary' character of such propositions. On the question of eternity, Descartes is perfectly able to reply that the decrees are present with God from all eternity (see on CB 23). As to 'necessity', Descartes observed to Arnauld that we must not suppose just because we cannot conceive of a mountain without a valley, or of one and two not making three, that God could not have brought these things about (AT V 224; K 236). The problem about necessity is perhaps likely to seem less perplexing to the modern reader, since we are by now accustomed to the suggestion that truths of logic and mathematics are 'true by convention' (i.e. that their truth depends on arbitrarily postulated axioms) and further, that no analytic proposition is so absolutely necessary that it could never be abandoned. But whether it makes sense to regard even a fundamental logical principle like the law of contradiction in this way (as a theoretically revisable principle in the centre of a Quinean 'field of force')* is surely more doubtful. For a principle of consistency seems to be a prerequisite for any viable system of truths at all (or for God to be able to will any set of decrees at all).

In fact, Descartes does at one point appear to slip into regarding God as bound by the constraints of consistency, if nothing else. In the beginning of the Sixth Meditation he says that 'I have never judged God to be unable to do anything, unless my perceiving of such a thing distinctly would involve a contradiction' (*nihilque unquam ab illo fieri non posse*

* See QUINE, p.44.

CB 33 (cont.)

judicavi nisi propter hoc quod illud a me distincte percipi repugnaret; AT VII 71). Here, however, Descartes may simply be referring to a particular stage reached in the Meditations (see on CB 16, line 4). Elsewhere, he is quite prepared to go as far as saying that God could have made two contradictories true together; but in practical terms this thesis turns out to be pretty well beyond our comprehension: "our mind is created so as not to be able to conceive as possible things which God could have made possible, but which he nevertheless wished to be impossible" (AT IV 118; K 151). (Perhaps Descartes would reply that truths about God may be 'knowable' even though they are impossible to 'conceive of' - see on CB 21, p.139 ff.).

CB 34

line 4 : ...true and immutable essence...

Reading immutabilem for the MS intellectivam, as Adam suggests. The phrase 'vera et immutabilis essentia' is one of Descartes' standard expressions (see the passage from the Fifth Meditation quoted here by Burman, and the discussion below).

ibid. : ...true entity... (ens verum).

This term (cf. the fuller verum et reale ens, line 10) is of vital importance for an understanding of Descartes' theory of essences in general, and his version of the ontological argument in particular.

X is a verum et reale ens when it has a true and real nature (vera et realis natura (line 11). In the Fifth Meditation (just before the passage quoted by Burman) Descartes had explained that "I have innumerable ideas of things (rerum) which, even if they perhaps exist nowhere outside me, cannot be said to be nothing (non tamen dici possunt nihil esse)", since they "have their own true and immutable natures (suas habent veras & immutabiles naturas)" (AT VII 64). Later on, in place of the word 'nature', we have the fuller phrase "determinate nature, essence, or form which is immutable and

CB 34 (cont.)

eternal" (*determinata quaedam natura sive essentia sive forma, immutabilis & eterna*)* (*ibid.*). One example of such a thing-with-immutable-essence which I have an idea of is a triangle; another, of course, is God.

Here at CB 34, Descartes makes it quite clear that to be a verum et reale ens it is not necessary to 'exist' in the sense of being around in the world. The objects of mathematics qualify as vera entia even though they only have possible existence, as opposed to the actual specific existence in space which the objects of physics enjoy (line 13). Thus, to speak of God, or a triangle, as a verum et reale ens is not at all to commit oneself to the actual existence of either of these things (though, in the special case of God, it does of course turn out that existence is deducible from his essence); some of Descartes' critics misunderstood him on this point (e.g. Gassendi - AS VII 323).

This is all very well, but what, in the first place, are the criteria for being a verum ens (or having a true essence)? The remarks which Burman here quotes from the Fifth Meditation suggest that the relevant test is the possession of demonstrable qualities. But even if 'demonstrable' is taken (as it should be) in the strict sense of 'logically demonstrable', this criterion is unsatisfactory. First of all, there is the trivial counter-example of the round square, of which properties (indeed every property whatsoever) can be demonstrated. To rule this out we have to stipulate - as Descartes implicitly does here at CB 34 - that a verum ens must not be self-contradictory; i.e. it must be logically capable of existing (see lines 14/16: the objects of mathematics are all capable of existing). But even if we build in this requirement, there remains a second and more disturbing objection. For it can be logically demonstrated of an existing-lion that it

* As Gilson points out, 'nature' and 'essence' are practically synonymous in Descartes (GILSON (2) p.305).

CB 34 (cont.)

exists; yet an existing-lion is given as an example of something whose nature is 'fictitia & ab intellectu composita' (First Replies; AT VII 117).

The phrase 'ab intellectu composita' suggests that we are not allowed to 'lump together' any two ideas, and assume that there will be a corresponding ens verum, with a true essence. Other examples given of 'composite and fictitious' natures are those of a winged-horse, and of a triangle-inscribed-in-a-square (First Replies, ibid.). Here in the Conversation, however, we are told that anything that can be clearly and distinctly conceived in a chimera is an ens verum (lines 3/4); yet one would have thought that a chimera provided a paradigm case of a 'composite and fictitious' entity. Worse still, in the passage from the First Replies where a triangle inscribed in a square was put forward as having a composite and fictitious nature, we are later told that the combination of the triangle and the square has just as true and immutable a nature as the triangle alone or the square alone (non minus vera & immutabilis erit ejus [sc. conjunctionis] natura quam solius quadrati vel trianguli - AT VII 118).

What are we to make of this apparently hopeless contradiction? I do not think Descartes can ultimately be acquitted of confusion on this issue; but the remarks here in the Conversation do at least do something to pinpoint the problem. The crucial point about a verum ens, it appears, is that its component parts must be in some way linked. Even though we may vividly imagine the head of a lion joined to the body of a goat, we do not clearly perceive the link between the two (line 20). By a 'link' (nexus) it seems Descartes must mean an analytic link; for 'Peter standing' does not qualify as a verum ens because "I do not clearly see that standing is contained in and conjoined with Peter" (non video clare stare contineri et connexum esse cum Petro) (line 22). The requirement of 'containedness' (so reminiscent of the Kantian test for analyticity), must surely be there to rule out purely contingent links.

CB 34 (cont.)

The notion of an analytic link fits well with the remark in the First Replies that when two ideas cannot be separated by a 'clear and distinct operation of the intellect' we can be sure that we have a true nature and not a composite (loc.cit.). But it is just here that Descartes' confusion seems to arise. For of course it is quite possible that there may be an analytic link between a composite idea AB and some feature F, even though the elements of the composite, A and B, are not themselves analytically linked. This seems to explain Descartes' strange contortions over the triangle inscribed in a square. For there are demonstrable properties (properties which are analytically true) of the composite figure (e.g. that the area of the square is twice that of the triangle - Descartes' own example) even though there is no analytic connexion between the triangle per se and the square per se. Thus Descartes is led to say that the triangle-in-a-square both does and does not have a true nature. (Similarly, though the components of a chimera are not themselves analytically linked, there are certain properties which are analytically true of the whole composite - e.g. the possession of a lion's head).

Descartes seems to face an impossible dilemma here. On the one hand, a composite like a triangle-inscribed-in-a-square seems to be a genuine object of mathematics, with demonstrable properties; so both on the test in the Fifth Meditation (the 'demonstrable property' test) and on the strength of the comments about mathematics here in the Conversation (line 8; MS: omnes demonstrationes Mathematicorum versantur circa vera entia & objecta), it seems that it cannot be excluded from the class of vera entia. On the other hand, to allow composites whose elements are not themselves analytically linked as vera entia paves the way for the introduction of composites like Petrus-standing, or a winged-horse (since, as we have seen, there will be at least some properties that are demonstrably true of these items); and in that case we must also include the existing-lion: but this will sabotage the

CB 34 (cont.)

structure of the ontological argument, by eliminating the supposed special status of the idea of God, and making it possible to 'prove' the existence of any arbitrary composite which we choose to invent (e.g. the existing-unicorn).

The only way I can suggest of salvaging Descartes' position is to place a special restriction on the 'demonstrable property test', as follows: the demonstrable properties which constitute X's essence (which qualify X as a *verum ens*) must not simply be those which have been explicitly mentioned in the specification of X. This restriction rules out allowing a composite AB* as a verum ens in the case where the only properties demonstrable of (analytically true of) AB are the trivially true properties A and B. Thus, the existent-unicorn would not qualify as a verum ens in virtue of possessing the demonstrable property of existing, since this is simply a trivial property already mentioned in its specification; while the triangle-in-a-square will be allowed in, because non-trivial properties can be demonstrated of it.

It may be that Descartes has some such restriction vaguely in mind when he says in the Fifth Meditation that the properties demonstrable of the triangle are ones "which I must acknowledge willy nilly, even though I may in no way have thought of them when I first imagined the triangle" (AT VII 64). However, even this requirement is not strong enough to rule out our existing-unicorn, since there are still going to be non-trivial properties true of this object (e.g. the property of being a quadruped). To cope with this difficulty we need the further stipulation that to qualify a composite AB as a verum ens, the non-trivial demonstrable properties which are true

* i.e. an object whose definition makes reference to at least two properties, A, B, which are not analytically connected.

CB 34 (cont.)

of AB must not be exhausted by the sum of the properties which are derivable from A alone and from B alone.

line 7 : ...when it is merely our supposition that it exists.

MS: "cum nos illud existere supponimus"; "lorsque son existence n'est qu'une supposition de notre esprit" - Adam. A difficult clause: the stress is on the emphatic nos rather than on existere; moreover, existere in this context is used to mean not 'exist extramentally' but 'exist as an ens' (have an essence). Descartes does not mean that a triangle becomes an ens fictum if we suppose it to exist extramentally; or that a 'fictitious entity' like a winged horse is only fictitious when we suppose it exists extramentally. The point is rather (see the discussion above) that in the case of an ens fictum (e.g. a winged horse) its nature is artificial - it depends on our lumping together certain ideas; while in the case of an ens verum (triangle, God) there is a true and immutable essence independent of our minds. The use of existere in this sense (= to be an ens, to have an essence) may seem strange; indeed, according to Kenny, Descartes always reserves existere for actual, extramental existence, while dari is the term for mere 'being' in the sense of being a subject for predication (KENNY (1), p.151). It seems to me, however, that the word 'exist' was for Descartes, as indeed it is for us, ambiguous between these two. When Descartes wants to make it clear that he is talking of actual, extramental existence he often uses the phrase 'extra me existere' (AT VII 64 line 8) or actu existere (here, line 13).

Note that existere is used again in the sense of existing as an ens later in this same piece (line 20): what Descartes must mean is not that 'it does not follow from our imagining a goat with a lion's head that one actually exists' - for no one could have supposed that this followed - but that 'it does not follow from our imagining a lion-goat that such a thing exists as a verum ens, or has a true essence'.

CB 34 (cont.)

line 12 : The only difference...

For the difference between mathematics and physics, see on CB 52, line 6.

line 25 : ...our own inner awareness. (ex propria conscientia)

Descartes' comment here may seem to support the common criticism of the Cartesian method that clarity and distinctness cannot be satisfactory criteria of truth, since the standards they invoke are purely subjective or psychological. Notice however, that Descartes' remark refers simply to clarity. A clear perception is one which is 'present and open to the attending mind' (menti attendenti praesens & aperta: Principles I, 45). Here it is true, there is an irreducibly psychological component; but even this is not a matter of a vague inner 'feeling': what is involved is a mental act - that of attention (a concept which figures prominently in the Conversation), plus 'presentness' and 'openness', which depend on the direct access of the mind to its own ideas and sensations (thus, I have a clear perception of being in pain - Principles I, 68). But when we come to the test for distinctness, this, as I argue in Appendix C, brings in a crucial reference to the objective content of ideas; so the supposed guarantee of truth is not wholly a matter of subjective 'awareness' (see pp. 292 ff.).

line 26 : ...explanations...

I follow Adam's suggestion ('dilucidationes') for filling the lacuna in the MS. For the relevant passages in Principles, Book I, see especially paras. 1-10, 43-46, and 66-75.

CB 35

line 2 : ...they would certainly not be Gods...

MS: "Imo Dei non essent". Adam reads 'erunt' to conform with the indicative in line 1; but the word in the MS is quite clearly "essent" and the change to the subjunctive makes perfectly good sense.

CB 35 (cont.)

lines 4/5 : ...as a kind of thing...as an individual... (specificative .. individualiter)

The term 'God' implies perfection, and perfection, argues Descartes, implies uniqueness. No, says Burman; for in saying 'God is perfect' we are not using God 'individualiter' - to refer to a unique individual (or else the question of uniqueness would be begged); rather we are saying that perfection belongs to the nature of Godhead - to God qua kind of thing (specificative) - and this leaves open the question of how many individuals are so endowed.

Descartes replies that when we say God is perfect we mean that he has absolutely every perfection (omnino omnes perfectiones), and this implies supremacy; and supremacy implies uniqueness, since there cannot be more than one supreme being on pain of contradiction (lines 10 ff.). We may accept the second part of this argument (since 'x is supreme' entails ' $\neg(\exists y) y \supseteq x$ '); but why should the possession of 'absolutely every perfection' imply supremacy? This is not made clear. If Descartes means that, if X has all the perfections there are, then necessarily X has more perfections than anyone else, his reasoning seems faulty, at any rate as it stands. (It is of course true that omnipotence implies supremacy and therefore uniqueness, and omnipotence is of course one of God's perfections; but if Descartes' argument turns on this particular perfection, why does he not say so explicitly?)

line 11 : ...they would not be God...

Reading "non essent Deus..." Adam deciphers the abbreviated verb in the MS as 'esset'; but the plural seems to make better sense.

CB 36

In the MS this piece comes near the end of the pieces dealing with the Meditations (just before my no. CB 48). But a prefixed note "Ad Medit. V"

CB 36 (cont.)

(as well as the context) indicates that it belongs with the pieces relating to the Fifth Meditation, and I have transposed it accordingly.

lines 4-6 : ...in our thought...in reality... (cogitatione nostra .. reipsa)

Descartes elsewhere distinguishes between a real distinction (distinctio realis) and a theoretical distinction (distinctio rationis, 'distinction qui se fait par la pensée', or distinctio formalis). In the former case, two things may be clearly and distinctly perceived apart from one another (e.g. body and mind); in the latter case not (e.g. mind and its defining attribute, thought; cf. on CB 22). (AT VIII 28-30; IXb 51-53; VII 120).

Here at CB 36, then, Descartes would appear at first sight to be saying that the distinction between existence and essence is merely a distinctio rationis. But this would surely be very strange. We can clearly and distinctly perceive the essence of a triangle without supposing that it actually exists; indeed, this is the central feature of Descartes' account of mathematics: the 'verum et reale objectum' of mathematics is considered merely as capable of existing (CB 34, line 14 ff. MS: "solum qua possibile et quod in spatio actu quidem non existit, at existere tamen potest"). Compare also the letter to 'Hyperaspistes' where Descartes says that 'the whole essence of a triangle can be correctly understood even if it be supposed that there is in reality no such thing' (AT III 433; K 119).

What the remark to Burman may mean, however, is that in the case of an actually existing object there is no real distinction between essence and existence. Some support for this view comes in a letter to an unknown recipient where Descartes says that in the case of a triangle existing outside our thought essence and existence are in no way distinct (AT IV 350; K 187/8). The question of priority, which Burman raises (lines 1/2), is relevant here. Since God, in Descartes' system, is responsible not only for what is actual but also for what is possible (i.e. for essences as well as actual existence - see on CB 33), he does not create by conferring

CB 36 (cont.)

existence on prior essences: he does not choose this world from among alternatives which are antecedently possible, prior to his will. Rather, his will creates an 'existing-essence': cf. line 8 'existence is merely existing essence (*essentia existens*)'. See also letter to Mersenne of 27 May 1630: "il est certain qu'il [sc. Dieu] est aussi bien l'Autheur de l'essence comme de l'existence des creatures" (AT I 152).

This is all very well, but Descartes still seems guilty of an inconsistency. For even in the case of an actually existing thing we can consider it clearly 'sub specie possibilitatis': we can clearly and distinctly perceive all the properties that belong to its 'true and immutable essence', and separate these from the contingent fact of its actual existence. Indeed, this must be so if the ontological argument is to work: for it is only in the case of God that existence belongs to his immutable and true essence.

The only way out of this, I suggest, is to take very seriously a passage in the Principles (I, 60-3), where in addition to the distinctio realis, and the distinctio rationis, we have a third type - the distinctio modalis (Descartes himself was not always careful to separate out this third category, as he admits at Principles I, 63, with reference to the First Replies - AT VII, 120). The classification, as I understand it, can be represented as follows. Where X can be clearly and distinctly perceived apart from Y, and vice versa, then there is a real distinction between X and Y (e.g. body and mind); where X can be clearly and distinctly perceived apart from Y, but not vice versa, there is a modal distinction between X and Y (e.g. a substance and its shape: the substance can be considered without the shape, but not the shape without the substance); finally, where X cannot be clearly and distinctly perceived apart from Y, nor Y apart from X, then there is only a theoretical distinction (distinctio rationis) between X and Y (e.g. a substance and its defining attribute).

CB 36 (cont.)

If we apply this pattern to the essence/existence problem, we get the following results. There is a real distinction between an object qua considered simply as an object of the understanding (as a mere possible), and the same object considered as something which actually exists. If I think of an equilateral triangle as simply a mental object (call this 'alpha'), and an identical triangle existing extramentally (call this 'beta'), I can clearly and distinctly perceive alpha without beta and vice-versa.* On the other hand, in the case of beta itself (the actually existing object) there is no real distinction between the triangle and its existence; the only distinction I can make is a modal one: I can clearly and distinctly conceive of the various essential properties of the triangle apart from its existence, but I cannot think of its existence apart from the triangle to which it belongs. Finally, in the case of God, the distinction between essence and existence is neither real, nor even modal: for neither can I conceive of God's existence apart from his essence, nor can I clearly and distinctly conceive of the essential properties of God without conceiving of his existence. The distinction between essence and existence is purely theoretical.

This interpretation** perhaps does something to explain the strange remark that God's existence belongs to his essence to a greater degree (potius) than in the case of other things (AT VII 116; quoted at CB 36). One would have thought that this was a 'yes or no' question which could not admit of degree. But it might make sense if the distinction between

* Cf. AT IV 350: "cum per essentiam intelligimus rem prout est objective in intellectu, per existentiam vero rem eandem, prout est extra intellectum, manifestum est illa duo realiter distingui."

** This reconstruction does not explain all that is said in the curiously muddled letter at AT IV 348-50. Descartes himself was evidently dissatisfied with the letter, as the remarks at the end show; and I think it must be admitted that he never fully sorted out his views on the essence/existence problem.

CB 36 (cont.)

essence and existence is analysable in terms of a threefold scale, as outlined above, with God occupying a special position. The remarks to Burman here at CB 36 would also fit in with this interpretation (provided, as suggested above, we take Descartes to be talking about actually existing things when he says that there is not a real distinction between existence and essence).

CB 37

This piece should be read in conjunction with CB 38. According to the passage quoted from the Second Replies, contradictoriness arises only in our thought which joins together inconsistent ideas (*in solo nostro conceptu, ideas sibi mutuo adversantes male conjungendi*). The French version of the Objections and Replies (which Haldane and Ross follow here) completely alters the meaning: "toute impossibilité...consiste seulement en notre...pensée qui ne peut conjoindre les idées qui se contrarient" (AT IX 119; my italics). But the original makes much better sense, as the discussion here with Burman shows: the mind can join together inconsistent ideas; although, as is made clear in CB 38, one cannot have a clear and distinct idea of the resulting composite. (This last point no doubt explains the overzealous French emendation: for it is true that the mind cannot clearly and distinctly join inconsistent ideas).

line 4 : ...depend on things...represent them.

For the relation between ideas and 'things' see above on CB 18, p.108 ff.

line 7/8 : ...things are not inconsistent with each other... (non repugnant sibi res)

Descartes' reason for this assertion, viz. 'omnes existere possunt' ('all of them can exist' - line 8) is inadequate. The Ptolemaic solar system and the Copernican solar system are both capable of existing, but they are not, to use the Leibnizian term, 'compossible'. To prove that no

CB 37 (cont.)

two things are mutually inconsistent Descartes would need the stronger premiss 'omnes coexistere possunt'.

Of course, if X can exist, it does indeed follow that X is not internally inconsistent; and it may be that there is a muddle here at CB 37 between the questions 'can any two things be mutually inconsistent?' and 'can anything be internally inconsistent?' (The Latin phrase 'non repugnant sibi res' is ambiguous in this respect, which could perhaps have confused Burman when he was writing up his notes.) Certainly it is internal consistency which is in point in the original argument in the Second Replies; and at lines 9-11 here, we find Descartes saying that in a contradiction we join together separate things which are not inconsistent taken on their own (seorsim). Cf. CB 38 lines 5/6.

However, if this is what Descartes means he is still confused, since internal consistency of the conjuncts which generate a contradiction obtains in the case of ideas as well as things. So it seems to me that Burman's original objection (lines 1-3) stands. On no interpretation of Descartes' theory of ideas and 'things' will it be possible for ideas, and impossible for things, to be inconsistent, whether mutually or internally.

CB 38

In the Second Replies, Descartes argues that the fact that I have a clear and distinct idea of God's nature entails that his nature is not self-contradictory; here at CB 38 lines 5-8, Descartes in effect defends a corollary of this thesis, viz. that if X is self-contradictory, I cannot have a clear and distinct idea of X. To assess Descartes' defence, consider the case of a round square. Though we have the concept of a circle and that of a square, we have no corresponding concept of a 'round square'; this is just a phrase we mouth without any clear notion of what is meant. However, if 'ideas' are taken to include propositions as well as concepts (as

CB 38 (cont.)

Descartes sometimes allows - above p.110) there seems no comparable difficulty. If we combine the proposition 'p' and the proposition '-p', the resulting compound 'p & -p' is not meaningless, it is necessarily false. (Indeed, it is hard to see how one can clearly and distinctly perceive the truth of an analytic proposition without clearly and distinctly perceiving the falsity of its contradictory.)

CB 39

line 3 : ...the imperfect triangle...

As is clear from the passage quoted from the Fifth Replies, Descartes believes, as does Plato, that the imperfections of the empirical world rule out the possibility that we acquired mathematical ideas via the senses. (cf. Phaedo 74 b 4 ff.: no two lines in the empirical world are perfectly equal. For Descartes' innatism in general see on CB 9.) In defending his position against Burman's pertinent criticism, Descartes relies on the (dubious) distinction between positive and negative concepts (lines 8-10); for this see above on CB 19.

CB 40. 41. 42

The fact that angels (i.e. disembodied spirits) do not imagine (CB 41) is a logical consequence of the essential role of the body imagining (CB 40). This role is made clear in CB 42, where Descartes gives an extremely clear and full account of his theory of the 'special modes of thinking' - perception and imagination. The passage is discussed in full in the commentary on CB 21, above.

CB 43

In this and the following piece Burman tackles Descartes on the thorny problem of the relation between mind and body in his system.

CB 43 (cont.)

line 1 : You cannot ask whether the mind is a substance...

Why is the question inappropriate? The remarks to Burman suggest that Descartes thinks there are two possible levels at which one can talk about the mind. Either one can speak of 'mind' (*mens*) as in ordinary speech; or one can use the more technical apparatus of the scholastics, and talk of the attribute, 'thought' (*attributum: cogitatio/cogitare*), and the 'spiritual substance' (*substantia spiritualis*) to which it 'belongs' (*convenire*) (lines 4-6). For these notions see on CB 9, p. 94 ff. (for Descartes' use of 'thought' and 'mind'), and on CB 22 (for his doctrine of substance).

lines 8/9 : ...distinct from, and incompatible with, corporeal substance...

If two substances can be clearly and distinctly perceived apart from one another, they are 'in reality' distinct: cf. on CB 36. It does not seem to follow from the fact that X and Y are distinct that they are also incompatible (cf. AT IV 350 - quoted p.187); but Descartes is here quite explicit that in the case of mind and body "not only does one not entail the other, but the two are actually incompatible" (lines 13/14); MS "una non solum non involvit alteram sed etiam negat"). The reason for the incompatibility (which is not explicitly stated here) is that mind and body are defined in terms of mutually exclusive predicates: material substance is divisible, mind indivisible. "We cannot conceive of half a mind, as we can do of even the smallest body, so that their natures can be recognised as not only different but in some way contrary" ("neque enim possumus ullius mentis mediam partem concipere, ut possumus cujuslibet quantavis exigui corporis; adeo ut eorum naturae non modo diversae, sed etiam quodammodo contrariae agnoscantur": Synopsis, AT VII 13; cf. AT VII 163). However, there are problems about the 'indivisibility' of the mind: see on CB 6, line 24.

CB 44

Burman's question puts in a nutshell the most serious difficulty of Cartesian dualism - a difficulty which Descartes was never satisfactorily to resolve. The problem, as it arises in the Sixth Meditation (passage quoted here by Burman) is that one does not just notice that one's mind is damaged as a pilot sees damage in his ship; rather one feels pain. And this suggests that there must be some joining (conjunctio) mingling (permixtio) or union (unio) between mind and body. But how two substances which are not only logically distinct but actually incompatible (CB 43) can be joined in this way is a mystery. The appeal to experience (line 4), of which Descartes is so fond (cf. his treatment of freedom CB 31 line 23, CB 32 line 10), of course proves nothing. The fact that we feel pain, etc. when our bodies are hurt is the problem for Descartes, not its solution. Perhaps when he says experience 'cannot be gainsaid' (line 5) Descartes is sadly admitting the existence of a brute fact that just cannot be accommodated within his philosophical system. As far as I know, the remark is his last recorded pronouncement on the mind-body problem.*

CB 45

line 4 : God made our body like a machine...

For this famous Cartesian doctrine, see Discourse, Part V (AT VI 56). The comparison can, however, does not dispose of Burman's objection: see below. For the place of 'machines' and 'mechanisms' in Cartesian science, see on CB 73.

* The Passions of the Soul, though published in 1649, were composed two years earlier than the Conversation. In spite of the fact that they were designed in part to meet Elizabeth's difficulties over this very issue of the relation between mind and body (see AT III 664/5), the Passions leave the central problems as pressing as ever (cf. especially the bizarre theory of causal interaction between mind and brain (pineal gland), which is discussed above at pp. 133 ff.).

CB 45 (cont.)

line 10 : ...soul will be deceived.

Descartes was frequently exercised by the problem of reconciling the fact that the senses sometimes deceive us with the existence of an omnipotent, benevolent God (see above on CB 5). In the Sixth Meditation, Descartes lays great stress on the fact that the body is governed by the laws of physiology, in order to show that "in spite of the immense goodness of God, it is of the nature of man compounded of mind and body that he cannot but be deceived on occasion" (AT VII 88). Burman, however, here raises a very interesting objection to this defence; could God not have given the body some built-in 'warning mechanism' so as to put us on our guard when we were being fed misleading information?

In his reply, Descartes points out that the body is a 'universal instrument' (line 5) which works in accordance with laws which are universal, and constant or uniform ('aequales') (line 14). It is still not clear from this, however, why some kind of warning mechanism is ruled out. And even if this is somehow ruled out by the requirement of 'uniform mechanical laws', why should not God benevolently intervene and implant in our minds some premonition of error when the senses provide misleading information? Nowhere, so far as I know, does Descartes provide a satisfactory answer to these problems.

CB 46 and 47

The problem about surfaces arose out of a theological objection by Arnauld in the Fourth Replies. Descartes denied the existence of secondary or sensible qualities (cf. on CB 15 p. 116 ff.); further, he held that the distinction between substance and attributes was not a 'real' one (cf. on CB 36, and 22). Both these views, Arnauld objected, were inconsistent with the doctrine of the trans-substantiation (according to which the communion bread becomes the substance of Christ's body, while the accidents of the

CB 46 and 47 (cont.)

bread remain) (AT VII 217). Descartes replied, rather evasively, that his view of perception was that the surface (superficies) of an object acts on our senses; now the Council of Trent decreed that in the Mass the appearance of the bread remains unchanged, and what was the appearance if not the surface? (AT VII 251). Descartes defined 'surface' as the 'limit (terminus) which is conceived to lie between the single particles of a body and the bodies which surround it' (ibid.). But the authors of the Sixth Objections were unhappy about this, and raised the issue again.

By resurrecting the issue yet again, Burman (himself a Protestant) was perhaps trying to sound out the extent of Descartes' allegiance to Roman orthodoxy. But, true to form, Descartes steers clear of trouble. All he does is to slap the boards of the table at which they are sitting, thus giving an ostensive definition of a 'flat surface' (CB 46 line 2).

At CB 47, Burman focuses on the notion of an extremity: in the Sixth Replies (loc.cit.) Descartes had said that although the surface was only a 'mode' and hence not 'pars corporis' or 'pars substantiae', it could legitimately be called the extremum corporis. Picking up Descartes' remark that two bodies are contiguous when their extremities touch, Burman deploys an elaborate objection based on the scholastic distinction between continuum and contiguum. (As Adam notes at AT V 164, the distinction is derived from Aristotle: *ἡ συνεχὴς καὶ ἐν τῇ ἐκτετακτῇ ἐστὶν ἀντίκτυνα δὲ ἐν ἑαυτῇ, ἡπερὶν δὲ ἐν πρὸς αὐτῇ.* Phys. I, 6). Can one properly talk of contiguity, Burman asks, when there are not really two extremities, but one? Compare Descartes' own remarks at Principles II, 15: "per superficiem non hic intellegi ullam corporis...partem sed solum terminum...; vel certe intellegi superficiem in communi, quae non sit pars unius corporis magis quam alterius". Once again, Descartes refuses to be drawn. His brusque remark at line 12 shows a characteristic contempt for the jargon of the schools.

CB 47 (cont.)

line 15 : ...which do not behave like this...

For a more precise account of 'contiguity' (in connexion with Descartes' denial of the possibility of a vacuum) see Principles II, 18 (AT VIII 50).

CB 48

This piece is unique in the Conversation that it does not relate to a specific text. The opening word 'Observandum' introduces a general piece of advice on how to study Metaphysics, which Descartes apparently launched into off his own bat. If one may speculate on the setting, perhaps one should imagine a pause in the interview at this point; Burman then says something like 'I wonder if we might now leave the Meditations and move on'; Descartes replies: 'Yes; but before we go on, I should like to make a general point...etc.'.

The point Descartes makes is highly important for its bearing on the old and vexed question of whether the chief driving force in Descartes' philosophy is metaphysical or scientific. (For a general discussion of this issue, see GIBSON Ch.II.) On the face of it, our passage would seem to support the view of Adam, amongst others, that Cartesian metaphysics is merely a prologue to the science. ("[Descartes] ne demande à la métaphysique qu'une chose, de fournir un appui solide à la vérité scientifique": AT XII 143). Certainly, the comment about physical science and its practical importance for life (line 10) represents a serious and ongoing strand in Descartes' motivation: compare the Discourse, Part VI: "au lieu de cete Philosophie spéculative, qu'on enseigne dans les escholes, on en peut trouver une pratique, par laquelle...nous...pourrions...nous rendre comme maistres & possesseurs de la Nature" (AT VI 61/2). Compare also, letter to ? (AT I 370) where Descartes claims that the whole object of publishing the Discourse is to prepare the way for the treatise on Physics.

CB 48 (cont.)

Is Descartes then baldly telling Burman here that he regards metaphysical questions as only of secondary importance? I think this would be the wrong conclusion, for several reasons. First of all, what he offers as advice to the young Burman* may not necessarily reflect his own priorities. After all, one has to remember that Descartes himself spent an enormous amount of time and energy on just those metaphysical issues which he here tells Burman not to labour over. Moreover, Descartes' advice is complicated by the fact that, rather smugly perhaps, he regards the theoretical questions of Metaphysics as having been finally settled in the Meditations: all one needs to do is to remember the conclusions (line 6), and get on with science. The point then is not that Descartes regards metaphysical progress as of minor significance, but that he regards it as already achieved through his own work. This is quite compatible with his having attached a crucial importance to Metaphysics: were he to have suspected, for example, that part of his system was not after all 'secure against the sceptics', would he not have given top priority to re-establishing its certainty? It is worth noting too, that Descartes does tell Burman that he needs to know Book I of the Principles, which will give him a sufficient - but necessary - grounding for science; and this is a book which after all contains a vast amount of detailed philosophical argument. The point, surely, is that Descartes' work is a unified system, in which the 'metaphysical' (epistemological and other theoretical) foundations are just as important as the scientific superstructure.

When all this is said, I think it cannot be denied that our passage at CB 48 does reflect something of a personal bias in Descartes towards the physical sciences. This, it seems to me, is a matter of emotional preference based on experience rather than an intellectual judgement about the

* He gave similar advice to Queen Christina of Sweden via Chanut (AT V 291).

CB 48 (cont.)

relationship of science and metaphysics. Compare a revealing passage later in the Conversation (CB 61 lines 30 ff.) where Descartes describes the development of his theories concerning the physical world as the high point of his work, and says that nothing gives him more pleasure to look back on.

One final point about this interesting passage is worth noting. And that is that Descartes is anxious to avoid a new scholasticism developing over his work. (lines 1-3; MS: "Non incumbendum esse meditationibus...nec eas commentariis...elaborandas"). He is anxious to avoid a return to the exclusive study of theoretical matters which 'draw the mind away from physical things and make it unfit to study them' (line 7). Above all, he does not want Cartesianism to become a closed system within which 'dialecticians' indulge in worthless debates (see CB 77). The whole difference between his new philosophy, as Descartes conceives it, and that of the schools, is that it is not merely 'spéculative' but 'pratique'. Having built, as he thinks, the secure foundations, he wants to see the physical superstructure grow and flourish among the young men of Burman's generation.

line 2 : ...the Meditations...

The small 'm' in the MS should probably be emended to a capital; even if the small 'm' is correct, Descartes obviously has his own definitive statement of Metaphysics principally in mind (see line 11).

CB 49

This single piece deals with a passage from the Notes against a Programme. In the MS, the piece begins with the hieroglyph "In R. ad Rog." Rog. (unemended in AT V, but corrected in Adam's special edition of the Entretien) should of course be Prog.. Burman is referring to the reply ('R.' = Responsione) to the anonymously circulated broadsheet of Regius, which had attacked certain of Descartes' doctrines on the nature of the mind.

CB 49 (cont.)

The dispute with Regius was very much a hot issue at the time of the Conversation (April 1648). Regius' 'programme', entitled 'The human mind or rational soul - an explanation of what it is and what it can be', had appeared only a few months previously ('sub. finem Anni 1647'; AT VIIIfb, ad init.). Descartes had written his reply at the end of December 1647, and it was published immediately - with rather precipitate haste, Descartes complains ("il a esté plutot imprimé que je ne l'ay sceu"; Letter to Elizabeth of January 1648; AT V 114) - under the title Notae in programma quoddam. Burman's reference ("p.42") is to this very recently published first edition. For more about Regius and his relations with Descartes see below on CB 61.

For a detailed discussion of this piece, and its philosophical importance, see above on CB 9.

CB 50 - 75

The following twenty-six pieces take as their starting points passages from the Principles of Philosophy; see Conspectus, pp. 316-18.

CB 50

In the first part of CB 50 (one of the longer pieces in the Conversation) several interesting themes which have been discussed earlier reappear. For the important distinction between conception and understanding (line 1) see above on CB 21. For the dangers of thinking of God anthropomorphically (lines 1-4) see on CB 29.

line 8/9 : ...not having been enacted and as alterable.

The complete unity and indivisibility of God has been touched on earlier at CB 21; it follows from this unity, according to Descartes, that God must be thought of as 'accomplishing all things by means of a single act' (per unam actionem; line 6); against this, Burman raises the objection that some of God's decrees (e.g. that concerning the creation of the world) can

CB 50 (cont.)

theoretically be separated from him, and hence are not unalterably part of the 'single act'.

Burman's argument for the 'separability' of this decree is that God did not have to create the world, since it was completely in his power to do so or not - he was quite 'indifferent' (line 13); thus the decree might not have been enacted - we can consider it as 'not having been enacted and as alterable' (*tamquam non factum et mutabile*; line 7/8); and what God might not have done is not necessarily part of him, and so is theoretically separable from him.

The issue of the 'immutability' of God, which Burman's question leads on to, was a key topic in the theological debates of the sixteenth and seventeenth centuries, which centred around attempts to reconcile the existence of human freedom with the thesis that all is predetermined by the sovereign and unalterable will of God. See Appendix D, pp. 299 ff.

line 10 : ...single act which is identical with God...

The MS is in need of slight restoration at this point. My translation follows this reconstruction: ...'quae ergo unica Dei actione quae est Deus non fia[n]t, cum ab eo separari [non] possunt aut saltem potuerint'. This simply involves reading quae est where the original is indecipherable; the result is quite good sense, provided fiat is altered to fiant. This reconstruction seems to me preferable to Adam's, which involves rather more radical departures from the MS; however, the general meaning is much the same in either version. In any version the non in front of possunt, which was surely inserted by a slip of the copyist, should be deleted.

line 17/18 : ...from the metaphysical point of view...

Interestingly, Descartes deals with Burman's objection (see above) on two fronts - the metaphysical, and the ethical-cum-religious. The pattern of his reply clearly reflects Descartes' philosophical priorities (cf. CB 80)

CB 50 (cont.)

First, he answers on the metaphysical front: God is certainly immutable with respect to the decrees already made (lines 14 ff.). Then, the ethical difficulty which arises out of this is fairly briskly swept aside in what is evidently a stock line of argument reconciling the immutability of God with the Christian practice of petitionary prayer (lines 22 ff.). Descartes then reverts at once to the metaphysical field dealing with the objection that the decrees 'could have been separated' from God; and this occupies the remainder of the discussion (lines 35 ff.).

line 33 : ...Gomarists...

In view of Descartes' reluctance to deal with the ethical and theological (as opposed to metaphysical) aspects of Burman's question, it is remarkable that he should venture as far as he does into this theological controversy. Indeed, one almost feels a shock of surprise that he should be so incautious as to plump by name for one set of theologians against another. That he does so is a testimony to the relaxed and informal atmosphere between Descartes and Burman, which gives the Conversation its unique appeal. For details of the controversy referred to here, see the discussion in Appendix D, pp. 299 ff.

line 46 : ...deliberate logical construct...

This is a very free rendering of the difficult technical phrase signum et momentum rationis. But Descartes makes the meaning perfectly clear in the following sentence, where he deploys a standard Cartesian distinction between a distinctio realis and a distinctio mentalis. For this see above on CB 36.

CB 51line 8 : ...indefinite...infinite...

The distinction between these two terms is Descartes' own (line 1) and he clearly regards it of some importance. It is referred to earlier in the

CB 51 (cont.)

Conversation (CB 21 q.v.) and occurs frequently in the letters (some of the references are given below) as well as in the passage quoted here from the Principles.

In the Principles (I, 27), Descartes tries to explain the distinction by saying that the infinite is a positive idea while the indefinite is a negative one: when we call something infinite, we 'positively understand that there are no limits' (positive nullos limites esse intellegimus); whereas when we call things indefinite, we merely negatively admit that their limits, if there are any, cannot be found by us (negative tantum... limites, si quos habeant, inveniri a nobis non posse confitemur). This account is far from satisfactory: the cash value of the adverbs positive and negative is by no means clear (see further on CB 19).

A rather more promising account occurs in a letter to Chanut of June 1647:

...je ne dis pas que le monde soit infini, mais indefini seulement. En quoi il y a une difference assez remarquable: car, pour dire qu'une chose est infinie, on doit avoir quelque raison qui la fasse connaitre telle, ce qu'on ne peut avoir que de Dieu seul; mais pour dire qu'elle est indefinie, il suffit de n'avoir point de raison par laquelle on puisse prouver qu'elle ait des bornes.

[AT V 51]

'X is infinite', Descartes explains, can only be asserted on the strength of a conclusive reason ('quelque raison qui la fasse connaitre telle'). By this, it seems that Descartes must mean some logically compelling reason: since he remarks that only in the case of God is a reason of the appropriate sort available, it would seem that he will only allow X to be called infinite if it can be logically demonstrated that X has no bounds. For the claim that X is indefinite, on the other hand, it is sufficient that we cannot prove that X has bounds - i.e. that it be logically possible that X is boundless.

The above account explains why Descartes in general talks of the physical universe as indefinite, rather than infinite. For it does not seem

CB 51 (cont.)

to be a necessary truth about the cosmos that it is limitless: we cannot in fact discern any limits, but there may be some. This is the implicit reasoning in lines 6-8 of CB 51. But in spite of this Descartes seems to be in some doubt, whether the label indefinite or infinite is more appropriate: (see the curious last line of this piece). The reason for this is, I think, that Descartes does acknowledge that one can construct an argument to demonstrate the logical impossibility of a finite universe. This argument is sketched in the letter to Chanut already referred to. Descartes argues that:

...in supposing the world to be finite, one imagines beyond its boundaries some spaces which are three-dimensional... [Yet since anything three-dimensional belongs in the universe]...this means that the universe must extend beyond the boundaries we tried to assign to it.

[AT V 52]

Thus, for any circumference C assigned to the universe, it will always be possible to conceive of an area outside this circumference, which must then be included as part of the universe. And for the new circumference C_1 constructed to accommodate this additional area, an identical process of reasoning will apply. And so on. This argument is of course closely parallel to the proof that there is no largest natural number (for any allegedly largest number n , it will always be possible to conceive of a larger number $n+1$, and so on); the type of self-repeating operation involved in this sort of reasoning was called by Descartes the 'multiplication of indefinites' (cf. CB 21, line 13 ff.). Now the point about these arguments is that they do seem to show that it is (logically) impossible to talk of a largest number or (given that the universe is Euclidian) a bounded universe: so they would seem to license the use of the stricter term infinite for the series of numbers/ the size of the universe. This seems to be what Descartes means when he says at CB 51 that "when the indefinite is multiplied again and again it is identical with the infinite; so we can perhaps say

CB 51 (cont.)

that the world is infinite, and the same for number" (lines 8-11).

In spite of these remarks in the Conversation, however, Descartes is elsewhere very reluctant to apply the word infinite to anything except God (cf. Principles I, 27). This reluctance irritated the Cambridge Platonist Henry More: 'if you maintain the extension of the universe is infinite', he complained, 'why conceal your view in excessively cautious and modest language?' (AT V 242). More's criticism seems well taken; for on the ordinary, standard meaning of 'infinite', Descartes clearly believed in an infinite universe. But the word infinite seems to have had a specially emotive aspect in the sixteenth and seventeenth centuries which it has since lost. As Boyce Gibson notes, "the theory of an infinite world had played no small part in the burning of Giordano Bruno, and was generally suspected as limiting the power of God" (GIBSON, p.248). So it was almost an impiety, in some circles, to use the term infinite outside a context referring to God and his perfections. Compare Descartes' letter to Clerselier of April 1649, where the author defines infinite substance as "a substance which has actually infinite and immense true and real perfections" and is "bounded by no defects" (AT V 355; K 254). See also the letter to Mersenne of January 1641, where Descartes anxiously stresses that he has never been so presumptuous as to attempt to discuss the infinite: "I have never dealt with the infinite except to submit myself to it (par me soumettre a lui) and certainly never to determine what it is or is not" (AT III 292; K 93).

line 15 : As for us (Nos quod attinet).

This follows Adam's suggestion that the near-illegible first word of the sentence in the MS (apparently 'Ibi') should be amended to Noa. I have also adopted Adam's conjecture quia for qua later on in the same sentence 'quia finiti sumus').

CB 52

An important little piece. The basic distinction made in the passage quoted from the Principles is between knowledge which involves extra-mental existence, and that which does not. Compare the more explicit French version:

Je distingue tout ce qui tombe sous notre connaissance en deux genres: le premier contient toutes les choses qui ont quelque existence, et l'autre toutes les vérités qui ne sont rien hors de notre pensée.

[AT IXb 45]

Descartes now makes it clear to Burman that by 'eternal truths' he here has in mind none other than the common notions. 'Common notion' is used in Descartes more or less interchangeably with 'axiom' or 'common principle'; and Descartes has already pointed out earlier in the Conversation that these axioms have no relation to anything existing extramentally (see on CB 1 line 24).

But is this all too neat and tidy? Referring to our passage at CB 52, A.Kenny makes the following observation:

The expression "eternal truth" in the Principles is not a synonym of "axiom" as Descartes told Burman it was. If it were, he could not consistently have divided all possible objects of knowledge into things and eternal truths without denying that we could know any non-axiomatic a priori truths.

[KENNY (1) p.178]

This comment is important for an assessment of the value of the Conversation since it suggests that Descartes may have been inaccurate or careless when talking to Burman. But in fact it is Kenny's remark which is inaccurate. First, Descartes does not use the word axiom at all in this passage (though he does use 'common notion', which is virtually interchangeable - see AT VII 164 line 25). Second, Kenny fails to notice that what Descartes says to Burman squares exactly with what he says later on in the Principles when explaining his second category of objects of knowledge (I, 49): a proposition in this category "is to be considered...as an eternal truth which has its seat in our mind, and is called a common notion or axiom"

CB 52 (cont.)

("consideretur...ut veritas quaedam eterna quae in mente nostra sedem habet, vocaturque communis notio, sive axioma" (AT VIII 23)). Third, and most important, Descartes does not in any case say anything about synonymy, either to Burman or in the Principles. At most, it seems to me, identity of reference is implied, here in CB 52. (What is more, Descartes' remark to Burman is explicitly confined to the particular passage under discussion: "hic intelligit auctor" (line 3) - 'the author has in mind in this passage' - not 'semper et ubique'.)

It is of course true (not that Descartes denies it here) that the connotation of 'eternal verity' is different from that of 'axiom or common notion'. Eternal truths, as their name suggests, are unchangeable - true for all time ("éternelles et immuables" AT I 146). The main fact about them stated in the Principles is that they do not involve extra-mental existence. And now all Descartes need be taken to be pointing out to Burman is that what he had in mind as meeting these criteria of unchanging truth and lack of existential import, were the axioms or common notions.

But are the axioms the only propositions to meet the criteria? Here it seems to me that Kenny is quite right to point out that there must be the possibility of non-axiomatic eternal verities in Descartes' system (e.g. mathematical theorems). But the distinction between axiom and theorem (important though it is from the point of view of immediate self-evidence) is one which Descartes is inclined to blur. Some of the 'axioms' listed in the Second Replies are quite complex to state, and as Descartes himself admits, they might better have been demonstrated as theorems (AT VII 164).
line 6/7 : Contingent truths involve existence and vice versa.

If the distinction between eternal and contingent corresponds with that between propositions carrying no existential import and those which do, is not Descartes moving remarkably close to a Humean position on scientific truth? Will not physical science, since it deals with existing things,

CB 52 (cont.)

have to be of a contingent character? And if this is so, what becomes of the 'deductivist' or 'a prioristic' view of natural science with which Descartes is so often credited?

I think part of the answer to this is that in so far as the laws of science are, for Descartes, external verities (either axiomatic or deducible from axioms), they deal with relations between essences; the propositions involved are thus not of an existential character. In this respect they are closely parallel to (indeed often are) mathematical propositions; and these, as Descartes tells us, do not require actual existence for their truth. The difference between mathematics and physics is not in the character of the laws studied, but merely that the physicist introduces the (contingent) assertion that the objects which he is studying are to be regarded as actually existing. This is explained very clearly in the interesting passage in CB 34 q.v. When this has been said, however, one can, I think, greatly exaggerate the extent to which Cartesian science is simply a matter of the a priori deduction of eternal verities: see Appendix E.

CB 53 - 75

These pieces deal with Books II-IV of the Principles. Although, as will be seen, there is a great deal of philosophically interesting material in this section, some of the pieces are concerned with purely technical points arising out of Descartes' theory of the physical universe. I have kept the Commentary on these predominantly scientific pieces briefer than elsewhere. However, the inclusion in the text of relatively full translation of the source-passages from the Principles quoted by Burman should make the context in each case relatively clear. (Many of these passages are not to be found in any of the available English translations of Descartes.) See also Introduction, p. x/xi.

CB 53

lines 5/6 : ...what we 'see' must ultimately reduce to what 'appears' to us.

It is merely ideas that are, for Descartes, the proper objects of immediate perception (Sixth Meditation - AT VII 75 line 7; cf. VII 436-437); hence 'anyone is capable of denying' that these originate in extended physical objects. ('Anyone' of course includes Descartes himself in the mood of the First Meditation.) In saying that these appearances in fact 'require' or 'demand' (exigere) the existence of material objects as their source (line 7), Descartes is assuming the already proved existence of a non-deceiving God; a point made explicitly both in the paragraph of the Principles referred to here and in the corresponding part of the Sixth Meditation (AT VII 78/80). Without such a guarantee there can be no sure move from the 'appearances' to the material world.

CB 54

The example of the ship was introduced in the Principles (II, 26) to illustrate an important aspect of Descartes' theory of motion. To think that more activity is needed for motion than for rest is a mere prejudice, Descartes argues, derived from our human experience: it is an 'effort' to move our bodies when we are tired, and we take this as the model for our view of the causality of motion. The illustration of the ship, which needs as great a force to stop it as to set it going (except for the qualification explained here to Burman), is given by Descartes as an aid for ridding ourselves of this prejudice.

The prejudice that Descartes condemns is, in a sense, presupposed by the impetus theory of motion so popular in the fourteenth century (see COPLESTON Vol.III, Part 1, p.170 ff.). By contrast, Descartes' theory of motion has as its first law the principle that each thing, in so far as it depends on itself, continues always in the same state of rest or motion,

CB 54 (cont.)

and never changes except through the agency of some thing (Principles II, 37)*.

line 5 : ...'viscosity'...

Adam suggests (AT IXb 77) that this must be what is meant by the rather vague Latin word lentor. (The French version of the Principles simply renders this as 'lenteur'.)

CB 55

An even more 'contorted' motion is involved in another example given by Descartes: the path described by a point on the moving cog of a watch carried by a man walking about on a ship travelling in a rough sea which is part of the rotating earth (Principles II, 31).

The point made 'at the end of the section' (line 5) is that even though 'absolutely speaking' one should speak only of a single motion in a given body, it may often be useful to distinguish various components (e.g. the rectilinear and circular motion of the carriage wheel).

CB 56

These few lines are extremely valuable evidence on the question of Descartes' contribution to the French version of the Principles. This version ("Les Principes de la Philosophie, escrits en Latin par Rene Des Cartes et Traduits en François par un de ses Amis") was published in Paris by Henri le Gras in 1647. The 'friend' referred to is known to be the Abbé Picot. Now, one notices at once that this edition contains a

* If we combine this with the Second Law, that all motion is of itself rectilinear (a principle derived from the immutability and simplicity of the operation by which God conserves motion - Principles II, 39), then Descartes' theory can be regarded as the first accurate statement of the principle of inertia, later enshrined in Newton's First Law. (viz. 'every body continues in a state of rest or uniform rectilinear motion unless compelled to change its state by the action of forces.') In fact Galileo also conceived of the solar system in terms of uniform inertial motion; but he regarded this motion as essentially circular (see HALL, p.50 ff.).

CB 56 (cont.)

considerable number of substantial additions and modifications to Descartes' original Latin version*, which it is hard to believe that Picot would have ventured to supply on his own initiative. The possibility that the additions are Descartes' own work is suggested by the inventory of his papers which was made at Stockholm just after he died; this contains the item: "soixante & neuf feuillets dont la suite est interrompue en plusieurs endroits, contenant la doctrine de ses Principes en françois & non entiere-ment conformes a l'imprimé latin". Handwritten notes in two extant copies of the first French edition give further support for Descartes' own authorship of certain passages. (This evidence is cited in detail in AT IXb: Avertissement.) But here in the Conversation, we have direct proof 'straight from the author' that Descartes did make additions of his own. And although the comment to Burman refers only to the rules on movement in Book II, the strong inference must be that the other substantial additions, or at least the bulk of them, are Descartes' own work.

The reason for Descartes' additions was not that he was dissatisfied with Picot's version (he speaks of it in flattering terms when writing to Picot in February 1645: AT IV 181); rather, as is made clear here in the Conversation, Descartes took the opportunity of a second edition to enlarge upon and clarify certain passages which had caused trouble to readers of the original Latin edition. Presumably he simply inserted these when reading Picot's version prior to publication. The comment that 'many were complaining' of the obscurity of the 'laws' (the seven rules for determining the subsequent motions of colliding bodies - articles 46-52) is confirmed in a letter to Clerselier (17 February 1645), where Descartes promises "je tascherois de les [sc. ces regles] eclaircir d'avantage..." (AT IV 187).

* Compare, for example, the French version of Bk. II, articles 49, 50 and 51, with the original Latin.

CB 57

A fascinating and remarkably modern-sounding piece which illustrates the extent to which the new Copernican cosmology had been absorbed into Descartes' thinking. The specific impetus for the views offered here, however, no doubt comes from Descartes' own scientific methodology: the notion that everything is here 'for our benefit' is associated with the search for final causes which Descartes utterly rejects as useless for physics (and insulting to God). Compare CB 29, and also CB 65: we mistakenly think of the earth as the 'end of all things' (*finis omnium*); but it is really just an ordinary planet like Mars and Saturn (lines 6 ff.).

In the Principles, Descartes concedes that the anthropocentric view, though absurd for science, may be acceptable in the ethical sphere (it may be pious to say that all things were made by God for our sake, so that we may be impelled to give thanks and burn with love for him; AT VIII 81). But here in the Conversation, even this let-out seems closed. For if there may be an infinite number of creatures 'far superior to us' (line 17), then the privileged place of man in God's plan seems threatened; and this has obvious implications from the ethical and religious standpoint.* Descartes is seldom as frank about the implications of the new cosmology as he is here (and in the following piece on Genesis); and though God stays very much in the picture (line 9 ff.), his purposes remain firmly hidden in a way which foreshadows the deistic movements of the following century. See also CB 65. [For a discussion of the ethical implications of a cosmos of innumerable 'worlds', see Leibniz, Theodicy Part I, §.19, where much of the language about possible creatures of other worlds is strikingly similar to that used here by Descartes. Leibniz, however, actually tries to turn

* Elsewhere Descartes is careful to observe that we cannot prove the existence of beings on other worlds - letter to Chanut of June 1647 (AT V 55) - though he does seem to think the indefinite extension of the universe makes this highly probable (ibid. p.56).

CB 57 (cont.)

the tables and use the insignificance of our planet in a grotesque attempt to explain away the problem of evil: an apparent preponderance of suffering in our own little corner of the universe may be counterbalanced by a preponderance of good elsewhere!]

CB 58

Descartes had long hoped to provide a detailed reconciliation between his own theory of the origin of the world and the account in Genesis. In 1641 he had told Mersenne that he intended to send the Sorbonne an explanation, based on his own scientific principles, of the first book of Genesis, along with the trans-substantiation (AT III 295). Moreover, as Gilson has pointed out, the cosmogeny in Le Monde is carefully presented in such a way as to correspond, if only in general outline, with the order of the Genesis account (order out of chaos; sun and stars; plants; animals; man; cf. the résumé in Part V of the Discourse, and GILSON (2), p.380/1). Despite this, however, there is the obvious stumbling block that Descartes' whole project is, in effect, to describe the gradual evolution of the cosmos from prime elements in accordance with scientific laws, rather than accepting a creation of the ready-made variety. Thus, even though God plays a crucial role in Descartes' system, both as initiator and perpetual conserver, the divergence from the Genesis story means that there is always the background fear of an open clash with the theologians. This can be seen in the Discourse, where Descartes is careful to insert an escape clause: his account is only a suggestion - the biblical account is 'much more probable':

Toutefois je ne voulois pas inférer de toutes ces choses, que ce monde ait esté crée en la façon que je proposois; car il est bien plus vraysemblable que, dès le commencement Dieu l'a rendu tel qu'il devoit estre.

[AT VI 45]

CB 58 (cont.)

There had been no such escape clause in the suppressed treatise Le Monde.* By the time we reach the more formal treatment of the Principles, Descartes is even more careful to stress the purely hypothetical character of his theory: 'me tamen eas, quas hic exponam, pro hypothesibus tantum haberi velle' (Bk. III art. 44); Galileo's refusal to make such a concession had of course been a key factor in his condemnation. And in the following section (from which Burman quotes here at CB 58) Descartes completely resigns any claim to truth: his account is a complete fiction, though nonetheless useful in investigating the nature of the world. "Although we know perfectly well that the stars never originated from certain seminal elements, we can still give a better explanation of their nature than if we described them as they now are" (AT VIII 100).

Though this sounds like a grotesque contortion act, it is not of course beyond the bounds of possibility that Descartes(or any scientist) should regard his theory as having as it were a 'synchronic' rather than a 'diachronic' function - as illuminating the structure of a phenomenon rather than giving an account of its causal genesis. But in actual fact there is little doubt that Descartes privately regarded his 'hypotheses' as the literal truth. The whole thrust of his 'mechanistic' philosophy

* According to a recent monograph (COLLINS, p.7) Descartes "calls his account of the genesis and structure of the world [sc. in Le Monde] a tale or fable". But the passage from Le Monde which Collins is thinking of here (AT XI 48) does not bear this out. What Descartes says is "I will content myself with continuing the description as I started as if my only plan was to tell you a tale" (comme n'ayant autre dessein que de vous raconter une Fable) (my italics). Further attention to the context shows that Descartes is not saying that Le Monde has a "fabular status" (Collins), but is simply making a point about the manner in which he is setting out his theory, viz., in general outline rather than in full meticulous detail. "Je ne vous promets pas de mettre ici des demonstrations exactes de toutes les choses que je dirai; ce sera assez que je vous ouvre le chemin par lequel vous les pourrez trouver de vous meme." (ibid.). Descartes goes on to say that in his picture of the universe he will have to use 'de l'ombre' as well as 'des couleurs claires': that is, he will merely give a general adumbration of his views; others will have to colour in the details.

CB 58 (cont.)

is to search for the origins of complex phenomena in terms of their emergence from the interaction of primitive particles which operate on simple 'mechanical' laws (cf. on CB 73). This means that understanding an object as it now is is intimately tied up with understanding its causal development - a point which Descartes explicitly makes later on in the Conversation: one cannot explain the functions of an animal without having to explain its formation right back ab ovo (CB 61, line 23/24).

In the fascinating passage here at CB 58, Descartes makes some remarkably frank comments on the progress of his old aim of reconciling his own cosmogeny with the biblical story. At first (lines 1/2) it seems as if he is merely going piously to reassert the compatibility of his system with the Scriptural account. But then, almost like an 'off-the-record' aside, comes the exasperated cry: 'if anyone can explain Genesis to me, "magnus mihi erit Apollo"! ' Descartes then baldly asserts that he has abandoned the task of reconciliation: the only way to deal with Genesis seems to be to construe it allegorically, and this makes the book ideally suitable to be left to the theologians to explain.

lines 13/14: ...Augustine...thoughts of the angels.

Augustine, arguing that the six 'days' of Genesis Book I cannot be taken literally (since the sun was not created till the fourth 'day') had given a completely mystical and metaphorical interpretation of the six-day creation. His thesis was that the 'morning and evening' composing each day (Gen. I, 5 etc.) are to be interpreted as referring to two phases in the thoughts of the angels - their 'morning' and 'evening' thoughts (*cognitio matutina & vespertina*; see De Gen. ad Litt., Book IV, esp. Ch.41 (XXIV) ff.). For Augustine's general approach to the creation, and his theory of the rationes seminales, see COPLESTON, Vol.II, Part 2, p.91/2. See also Boyer, Charles, Essais sur la doctrine de Saint Augustin; Paris, Beauchesne et fils, 1932, Ch.IV.

CB 58 (cont.)

lines 16/17 : ...waters of the flood (aquae diluvii)...cataracts of the deep (cataractae abyssi)...

A reference to the story of Noah and the flood: 'ego adducam aquas diluvii super terram' (Gen. VI 17); 'et clausi sunt fontes abyssi et cataractae caeli' (Gen. VIII 2).

Descartes' own view of the story is summed up by the words 'supernatural', 'miraculous' and 'metaphorical' (lines 16/17). But at lines 18 ff., we have a brief glimpse into his earlier (abandoned) attempt to provide a thoroughgoing rational account of Genesis consistent with his own philosophy. It is interesting to see that Descartes took this project seriously enough to tackle the original Hebrew (lines 20 and 24); but, if what is offered to Burman is any guide, his studies were not too successful (see below).

line 20 : ...placed the waters above ha shamayim...

In Genesis I, 1-6, God creates the 'firmament of heaven' which divides the waters above from those below. Descartes' suggestion seems to be that we should demystify the phrase 'waters above the heaven', and realize that it means merely 'waters above the air', or clouds. But the alleged ambiguity in the Hebrew on which his argument turns is just not there: as Adam points out (AT V 169) ha shamayim only means 'the heavens', never 'the air'. But perhaps what Descartes is trying to get at is that the Hebrew word has a distinctly concrete flavour, more like the English 'sky' than 'heaven'; or, in Latin, more like 'aer' - what the birds fly through - than 'caelum'; so that the biblical passage could just as well be referring simply to the natural clouds above the sky as to waters in a mysterious 'heaven'. (This is the only way I can see to make any sense of the remark at line 22, that "it is out of prejudice that we think of the air (aer) as heaven (caelum)".)

line 24 : ...another word...

This just seems to be a straight mistake: ha aretz can only mean 'the

CB 58 (cont.)

earth'. Adam suggests that the Hebrew word in the MS should perhaps be amended to read 'ha aver' (the air); although this is a borrowed Greek word which does not occur in biblical Hebrew.

CB 59

Descartes' second law of motion is that 'any given piece of matter considered in itself tends to go on moving in a straight line' (cf. above on CB 54). But Descartes also maintains that the net result of the collision of innumerable particles must always be a circular motion. The details of the (rather curious) argument from Principles Book II referred to here may be found at AT VIII 58/9.

CB 60

line 1 : ...first element...

Descartes' 'three elements' are described in article 52 of Principles Book III. In effect these are not 'elements' in the modern chemical sense but merely classifications of the single basic material of the universe with respect to shape and magnitude. The first element, out of which the sun and 'fixed stars' are formed, comprises high speed particles which divide into indefinitely small fragments. The 'thicker' particles of the third element are those from which the earth and planets (and the comets) are formed. The particles of the second element, whose size Descartes here describes, are those which compose the heavens. Elsewhere they are described more vaguely as '*valde quidem minutae si cum iis corporibus quae oculis cernere possumus comparentur*' (AT VIII 105).

CB 61

line 1 : ...complicated...

I follow Adam's suggested reconstruction of the corrupt MS at this point (see AT V 170).

CB 61 (cont.)

lines 2 and 8 ff. : ...Regius...

Regius, or Henri le Roy (1598-1679), a native of Utrecht and Professor of Theoretical Medicine and Botany at the University there, was for some years a great champion of the Cartesian philosophy. His Fundamenta Physica (which Burman has in mind at line 2) was published in 1646. Descartes complained to Mersenne (5th October 1646) that much of the book was a repetition of things he himself had said in the Principles.

Dioptrics and Meteors:

Also, he lumps together everything he has managed to get from me privately and also material he could only have got by indirect routes, which I did not want passed on to him. He pours all this out in such a muddled way, and supplies so little argument to back it up, that his book can only make the views expressed there look absurd...

[AT IV 510; K 204]

But what evidently irritated Descartes even more than the plagiarism and confusion in matters of physics was that Regius had put forward metaphysical views diametrically opposed to his own (lines 11 ff.; a similar point is made to Mersenne loc.cit.). These metaphysical differences had led Descartes to insert a sharp disavowal of Regius' views in the Preface to the French edition of the Principles (AT IXb 19). Regius had, for example, put forward two thoroughly uncartesian theses regarding the nature of the mind, and human knowledge: 'mens est principium corporeum'; and 'nihil scimus nisi secundum apparentiam' (AT IV 566). At a later date (in fact a few months before the Conversation) Regius had openly attacked many aspects of Descartes' theory of the mind, in the 'Programme' (see above on CB 49).

line 15 : ...confirms the hypothesis.

This is an important passage for Descartes' views on the nature of scientific reasoning. See Appendix E.

line 20 : ...Treatise on the Animal...

It was a long-standing project of Descartes to write a treatise on animal anatomy and physiology. In a letter to Elizabeth of 6th October 1645,

CB 61 (cont.)

Descartes refers to 'a treatise I once drafted on the nature of animals'; Elizabeth had apparently seen a copy of this (AT IV 310; K 177). It might appear that the information provided by this letter is inconsistent with the date of writing given here in the Conversation (line 21: i.e. Winter 1647/8); but in fact Descartes had decided to rewrite the treatise, as we know from another letter to Elizabeth written less than three months before the Conversation:

j'ai maintenant un autre ecrit entre les mains....: c'est la description des fonctions de l'animal et de l'homme. Car ce que j'en avais brouillé, il y a douze ou treize ans, qui a été vu par Votre Altesse, étant venu entre les main de plusieurs qui l'ont mal transcrit, j'ai crû être obligé de le mettre plus au net, c'est à dire de le refaire.

[AT V 122]

As we see from lines 29 ff., however, Descartes had abandoned this project by the following April. Evidently, the plan of 'tidying up' the work turned out to require a more lengthy treatment than Descartes felt prepared to give at this time; and the book was never in fact completed.

line 24 : ...from the beginning.

See above on CB 58, p. 212/13.

line 32 : ...greatest pleasure...

A spontaneous personal revelation typical of the Conversation. For its philosophical importance, see on CB 48.

CB 62, 63 and 64

These all relate to the same passage, though in the original MS the piece which I number CB 63 is placed after CB 71, at the end of the pieces relating to Book III of the Principles; presumably it was inadvertently omitted by the copyist, and then simply inserted later on, when he paused to check the pieces relating to Book III. A similar mispositioning occurs at CB 36.

CB 62/4 (cont.)

CB 62* : The mathematical point here is perhaps easiest to see in the case of two cubes. A cube of side 2 cm will have a volume of 6 cm^3 (we may take this as a measure of mass, since we are dealing with a uniform material throughout), and a surface area of 24 cm^2 ; this gives a ratio of mass to surface area of $1/4$. But a cube of side 1 cm will have a mass of 1, and a surface area of 6, which gives a ratio of $1/6$. As Descartes points out, this ratio will only work with bodies of the same shape, since the ratio of surface area to mass will vary widely depending on the shape in question; a sphere, for example, (as Descartes notes on "page 160" - i.e. Principles III, 123) has the smallest possible surface area in relation to its mass (AT VIII 173).

CB 63 : The conclusion of the argument at Principles, III 50 (made explicit in the French version) is that the smaller particle encounters relatively more bodies in virtue of its comparatively greater surface area, but has less power to resist them in virtue of its smaller mass. The comments here at CB 63 do not seem strictly relevant to this, since they introduce the notion of number of surfaces, rather than surface area. Presumably the point is that a cube split into four parts is more vulnerable to further fragmentation because of its increased number of surfaces (a simple calculation shows this will mean a greater surface area in proportion to the total mass).

CB 63, line 3 : ...and many more still...

Here, as quite often, the original Latin is unpunctuated. I follow the text in ADAM: "habebimus superficies multo plures; multo plures si longe plus multiplicatur ab omni parte".

* In the MS there is an error in the words quoted here from the Principles: quo minima appears in place of quo minora. For this sort of inaccuracy see on CB 21.

CB 62/4 (cont.)

CB 64 : Here Descartes makes the point that in distinguishing mass from surface he is not implying that they are in reality distinct. The distinction is purely a theoretical one (for the difference between a real [realis] and a theoretical [formalis] distinction, see on CB 36). For the phrase 'theoretical notion' (ratio formalis - line 3) cf AT VII 113, where Descartes distinguishes between two ways of talking about the infinite: one may talk in terms of a purely theoretical notion or definition (ratio formalis infiniti, sive infinitas); or one may talk of a real thing which is infinite (res quae est infinita).

CB 65

Descartes' 'first heaven' is the vortex which makes up the local solar system, with our own sun at the centre 'S' (the - not particularly helpful - diagram referred to in the quotation from the Principles may be found at AT VIII 106). The 'second heaven' consists of the vast number of vortices centred around the other fixed stars. (As Descartes explains at AT VII 107, it is purely for convenience that all these vortices are grouped together under the name 'second heaven': in fact, each vortex has a similar status to the one which makes up our own solar system.) Stretching yet further beyond the visible stars is the 'third heaven'. By using the term 'empyrean' to Burman (line 1) Descartes merely means that his tertium caelum may be thought of as corresponding to the 'highest heaven' of medieval cosmology (whose ancestor was the outermost 'fiery' sphere of the Greeks). In the traditional version of the medieval system, the empyrean heaven was the dwelling place of God and the angels.* Descartes is not of course reverting to this conception (as lines 7 ff. make clear); though he does say piously

* cf. Milton's 'the pure Empyrean where God sits' (Paradise Lost, III 57).

CB 65 (cont.)

in the Principles that it is impossible for us to view the third heaven 'in this life' (AT VIII 107). The main content of the acknowledgment of a third heaven, from the scientific point of view, is that it affirms the existence of a vast uncharted area extending beyond the visible stars (Descartes in fact regards the universe as infinitely extended; see on CB 51).

line 5 : ...end of all things...(finis omnium)

Another outspoken attack on the anthropocentric and 'finalistic' conception of the world. See above on CB 57 and 29.

line 8 : ...neither space...

Matter and extension are identical for Descartes, since there can be no extension which is not extension of something: hence Descartes regards the notion of empty space or vacuum as incoherent; see Principles II, 18 (AT VIII 50).

line 11 : ...could not but be present...

But exactly how an unextended indivisible God can be 'present' in extended divisible matter is not clear. cf. on CB 43.

CB 66

line 9 : ...nature of light...

In a very general sense, Descartes' boast has turned out to be justified, since physicists have been unable to dispense with a corpuscular model in explaining some aspects of the nature of light. More specifically, the thesis that light exerts a pressure has actually been verified:

Although nothing could appear more imponderable than a sunbeam, even light has a weight, and can exert a definite pressure when it falls upon a surface. That pressure is almost unimaginably small; yet it has been measured, and comes to about one-ten-millionth of a pound on every square foot of surface directly facing the sun.*

* A Clarke, The Promise of Space (London: Penguin Books, 1970) p.270.

CB 66 (cont.)

This is not to say that many of the details of Descartes' theory are not completely wide of the mark (e.g. that the pressure is 'without movement' - line 8; see also Principles III 64).

CB 67

line 1 : ...this figure...

Descartes' complicated description of the movement of his vortices is not easy to follow even with the aid of the 'figure' (reproduced in AT VIII page 118; see note ad loc.). For Descartes' note of pride in the way he has trained his powers of imagination cf. CB 42, lines 26 ff.

line 6 : ...visual demonstration...

An important point about Descartes' conception of mathematics emerges here, viz. that the mathematician needs great powers of visualization (or, failing that, an actual visual demonstration using a model). The point is developed further at CB 79, where mathematics is contrasted in this respect with physics (see commentary, ad loc.). For the linking of 'mathematics' and 'mechanics' see on CB 73 line 3.

CB 68 - 71

Four technical pieces dealing with Descartes' theories of motion. CB 68 and 69 deal with the stellar vortices; CB 70 with planetary motion; and CB 71 with the rotation of the earth.

CB 68 : Burman's question seems a reasonable one; but Descartes acknowledges no interstellar 'space' (see above on CB 65). It follows that where one vortex ends, another begins.

CB 69 : The figure on 'p. 78' may be found at AT VIII 88. The point about constriction is illustrated by a neat mechanical model which is reproduced at AT VIII 138.

CB 70 : Analogy of the top (turbo). A child's spinning top is clearly meant

CB 68/71 (cont.)

- 'une toupie', Adam; though the French version of Principles III 144 has 'une pirouette'.

line 4/5 : ...stars would always continue in their motion...

The original passage in the Principles refers to planetary motion; but see on CB 71. In any case, the law in question is presumably regarded by Descartes as holding for any massive object.

In one way, the top analogy suggests a universe which is slowly running down. The top suffers a gradual loss of momentum, owing (as Descartes explains to Burman) to factors like friction and air resistance; and analogous factors must operate on the stellar and planetary scale (since celestial bodies do not, for Descartes, move in a vacuum: the vortex is a mass of particles, and every vortex is adjacent to another vortex - CB 68).

However, the effects of friction etc. are -- especially in the case of a massive body (lines 8 ff.) - very marginal; so that the universe, once set in motion, has more than enough momentum to keep it going to the present day without any additional forces. So the point which Descartes is really making here is that the universe is - very nearly - in a state of equilibrium (cf. CB 73). Its natural tendency, as it were, would be to run on ad infinitum. Compare Descartes' principle of inertia; CB 54. There is something in all this which suggests a deistic conception of the universe, with the role of God in the system limited to that of creator and prime mover; indeed Pascal, in a famous criticism, attacked Descartes for making God merely give the initial shove to set the universe in motion, and then having nothing further to do with him (Pensées (ed.) Krailsheimer (Penguin 1966) p.355). From the mechanical point of view, this seems an accurate appraisal of Descartes' system; the 'top' model suggests that, given an initial 'spin', we have all we need in order to explain and predict all future movements of the heavenly bodies. Elsewhere, however (perhaps out of caution), Descartes does seem to want to assert that the continuous agency of God is necessary

CB 68/70 (cont.)

in order to conserve motion; see Letter to More, AT V 404; K 258.

CB 71

line 3 : ...bladder... (vessica)

Descartes is apparently thinking of the sort of thing that happens when one blows up a balloon; the point of the comparison is simply to illustrate how an object can be acted upon by forces from within. The explanation of the rotation of the earth accords with Descartes' theory of the origin of the planets; according to this, the planets were originally quasi-stellar objects, each at the centre of its own vortex: see Principles III, art. 146 (and art. 119, for the change from star to planet).

CB 72 - 75

The section of the Conversation dealing with the Principles concludes with four pieces relating to Part IV (De Terra).

CB 72

line 5 : The very principle...

In the original Latin, Descartes simply says "retorqueo"; there is no neat English equivalent for this useful word. Burman's point about centrifugal force is 'turned against him', since the fact is, according to Descartes, that the celestial globules are more solid (or no less solid) than the terrestrial matter.

line 14 : ...make them heavy...

Descartes' theory of gravity may nowadays seem to be nothing more than a curiosity in the history of science; but at least it has the merit (which previous theories lacked) of attempting to provide an intelligible explanation of the phenomenon, instead of being content with the non-solution of attributing to bodies a mysterious 'real quality' of 'gravitas'. The attempt to eliminate real qualities in favour of mechanical laws of particle interaction is one of the hallmarks of Cartesian science (for the philosophical

CB 72 (cont.)

background to this, see on CB 15). The reduction is perhaps least successful in the case of gravity, but often - e.g. in the case of the 'quality' of heat, which Descartes reduces to a function of the speed of molecules (AT VI 236) - the Cartesian approach has turned out to be substantially on the right lines.

In the case of gravity, Descartes' approach is a casualty to the perspective of history. We cannot today read about the vortices, or about terrestrial particles being displaced and pushed down by celestial globules (line 13) without remembering that all this was to be swept away forty years later in Newton's Principia. But perhaps it is worth remembering too that the actual nature of gravitation is regarded by many as still something of a mystery.* Though post-Newtonian science has been able to develop and exploit precise laws of enormous predictive power, these laws are purely descriptive in character; it can plausibly be argued that the explanation of the phenomenon of gravitation still eludes us. Thus, R.Harré writes: "I think it is fair to say that although we know the Law of Mutual Gravitation extremely well, we have very little idea of the mechanism of gravitational attraction." (HARRÉ, p.119).**

CB 73

line 3 : ...mathematical and mechanical... (mathematicum et mechanicum est)

The two terms are to be taken closely together; the same coupling occurs

* Newton himself observed: "the cause of gravity is what I do not pretend to know" (letter to Bentley of January 1693; cited in HALL p.314).

** See further on CB 73 for the notion of 'explanation' implied here. Harré's view is a controversial one: though it does, I think, reflect the concept of 'explanation' which prevails in ordinary usage, many scientists today would maintain that beyond the mathematical principles of pure physics there is no further understanding. Thus, Bertrand Russell, expounding Einstein's theory of gravity, seems to imply that any 'qualitative' explanation in terms of models and mechanisms is merely a pis aller for the true and complete quantitative explanation of mathematics. (The ABC of Relativity, London: Allen & Unwin, 1958, Ch. 8).

CB 73 (cont.)

at CB 67, line 5/6 (MS: "haec a mathesi et mechanica pendent"). But what exactly does Descartes mean by 'mechanical'?

Although commentators often speak of Descartes' "mechanism", this word is never used by Descartes, and even 'mechanics' and 'mechanical' only seldom occur. One area where Descartes talks of mechanics is that of physiology: the nature of the body can be explained by the 'laws of mechanics' (les lois exactes de mechaniques) which have been 'imposed by God' (AT II 525; K 64); compare also CB 45: 'God made our body like a machine, and he wanted it to function like a universal instrument which would always operate in the same manner in accordance with its own laws' (lines 4-6). The most precise statement of what Descartes means by 'mechanics' occurs in a letter to Plempius (3 October 1637), where Descartes says that his philosophy "like mechanics, considers shapes, sizes and motions" (AT I 420; K.38). Exactly what this involves can be seen in the case of gravity, referred to above (on CB 72). The phenomenon is explained simply in terms of the interaction of particles of a certain shape, size and velocity; no reference is made to 'real qualities'. The tie up between mathematics and mechanics would thus seem to be this. Cartesian science deals only with the shape, size/^{and} motion of particles; since these are exactly quantifiable, the laws interaction of the particles will be suitable for description by means of precise mathematical formulae. As Descartes himself says in a famous passage from the Principles:

I recognise no other matter in corporeal objects than that susceptible of what the Geometers call quantitative analysis of divisions, shapes and motions.... (Bk. II, art. 64)

This Cartesian programme - elimination of real qualities and reduction to mathematical laws - is, I think, reasonably clear. Descartes is a sort of corpuscularian quantum-physicist, in the sense that he regards all phenomena as ultimately derivable from mathematical formulae containing a few simple variables (in this case, shape, size and direction and speed of motion).

CB 73 (cont.)

But if we look at how the programme works out in practice, the 'mechanical' element becomes more important, and the mathematical element less important, than this general account suggests.

In the Conversation - here at CB 73, and at CB 67 - Descartes lays great stress on what we should nowadays call mechanical models. At CB 67, Descartes points out that the movements involved in the vortices can only be understood with reference to the model of the 'little balls' (without this, says Descartes, it is not really possible to understand even the diagram in the Principles). And at CB 73, the equilibrium of the particles of celestial matter is explained by reference to the model of the bladder, or balloon. Now one could argue that these models are purely illustrative; this is certainly part of their function, since the model in CB 67 is described as an aid to imagination. But there seems to be more to it than this, for at CB 73, after saying that the point about equilibrium is 'mathematical and mechanical', Descartes goes on to make the following very striking observation (I quote the original):

nos autem machinas non satis asseuti sumus considerare et hinc
omnis fere error in philosophia exorsus est.

We are not sufficiently accustomed to thinking of machines, and this has been the source of nearly all error in philosophy (i.e. science) (lines 3-5). This suggests that the mechanical model has a very central role in Cartesian science; what this role is emerges, I believe, out of Descartes' conception of scientific explanation. Descartes' scientific explanations are not simply mathematical laws; indeed, it is striking that there are almost no equations, or arithmetical or algebraic formulae in the Principles.* Descartes himself observes at CB 79 that 'one does not need Mathematics to understand the author's philosophical (i.e. scientific) writings, with the

* an exception are the rules for determining the motions of bodies on impact, Principles II 46-52.

CB 73 (cont.)

possible exception of a few mathematical points in the Dioptrics' (line 18). What we do find, over and over again in the Principles, are little diagrams, generally representing models - arrangements of little balls in boxes and the like. This strongly suggests that Descartes regards the scientist's role as not just that of reducing phenomena to quantifiables; more important, he makes the phenomena intelligible, by providing a model which explains the mechanism by which the basic laws operate. For the conception of 'explanation' involved here, compare the following quotation:

The proper use of models is the basis of scientific thinking. A theory is often nothing but the description and exploitation of some model.... Our lack of knowledge of the real mechanisms at work in nature is supplemented by our imagining something analogous to mechanisms which we know, which could perhaps exist in nature and be responsible for the phenomena we observe. Such imagined mechanisms are models, modelled on the things and processes we know, and being models of the unknown processes and things which are responsible for the phenomena which we are studying.

(HARRÉ, p.174/5)

This quotation is not from a seventeenth century corpuscularian, but from a twentieth century philosopher of science; and it would of course be an exaggeration to say that Descartes' views of the role of the model in scientific explanation are as developed or detailed as this. But it is undoubtedly true that the model of the little balls in the box, used to explain the motions of celestial globules, is a model in just the sense meant by Harré - a model based on what we know, which is used to explain the mechanism of an unknown process.

Accounts of Descartes' 'mechanism' which confine themselves to the elimination of real qualities in favour of quantifiables and fail to notice the specific importance of mechanical models thus seem crucially deficient.*

* P.H.J.Hoenen, for example, regards the elimination of qualitative changes in favour of quantifiable motions of particles as the essence of Cartesian mechanism. (Descartes Mechanism, printed in DONEY (1), pp.353-368; a similar line is taken in KENNY (1) pp.203 ff.)

CB 73 (cont.)

One might say that such accounts concentrate too much on what Descartes claimed he was offering and too little on what he in fact offers, thereby ignoring both the attractions and the disadvantages of Descartes' system. The disadvantage of Descartes' mechanistic system, when compared with the Newtonian system, is precisely its lack of expressibility in terms of precise mathematical formulae. Its attractiveness lies in a conception of science (revealed implicitly throughout the Principles and explicitly here at CB 73) which recognises the vital explanatory role that can be played by clear and readily intelligible mechanical models.

CB 74

line 2 : ...reasoning...experience...

For this important comment, see Appendix E.

line 4 : ...shapes in question...

The three kinds of particles referred to are (1) 'branching'; (2) solid and angular, like pebbles of various shapes; (3) oblong, like a stick. There is a discussion of some of the alleged observational evidence for Descartes' classification in the letter to Plépius for Fromondus of 3rd October 1637 (AT I 422/3; K 39/40).

CB 75

Descartes' explanation of the formation of glass. Nine articles in the Principles (Part IV, 124-32) are devoted to this; and we know from the Discourse that a (now missing) section of Le Monde had also dealt with the topic:

I showed [sc. in Le Monde] how fire can produce different colours and various other qualities in various bodies...and how it can consume nearly all of them into ashes and smoke, and finally how it forms glass from these ashes purely by means of the intensity of its action. Since this transformation of ashes into glass seemed to me as remarkable as any other process which occurs in nature, I took particular pleasure in describing it.

[AT VI 44/5]

Descartes' fascination with this subject is surely due to the fact that it

CB 75 (cont.)

provides a paradigm case for his 'reductionist' scientific approach: the many striking qualitative changes which we observe in the manufacture of glass can all, he believes, be explained simply by reference to the interaction of particles at various different speeds and angles.

line 22 : ...Book Two

See Article 63: 'Why some bodies are so hard that despite their small size they cannot easily be divided by our hands' (AT VIII 77).

CB 76-82

This concluding section of the Conversation consists of seven pieces dealing with points from the Discourse. Burman's quotations are not from the first edition of the Discourse, but from the 1644 Latin translation; accordingly, my translation of the quotations is based on this Latin version (to be found at the end of AT Vol. VI). The page references which I have supplied after each quotation are to AT's Latin text; but for convenience I have added, in brackets, a reference to the corresponding page of the AT French text. Thus, the quotation at CB 76 may be found in AT Vol. VI, page 540 (Latin) or pages 1 and 2 (French).

CB 76line 8 : ...'good sense'...

In the Discourse, le bon sens (translated in the Latin version as 'bona mens') is defined as follows: "la puissance de bien juger et de distinguer le vrai d'avec le faux...est proprement ce qu'on nomme le bons sens, ou la raison" (AT VI 2). It is this 'power of distinguishing the true from the false' which Descartes claims in the opening sentence of the Discourse is the 'most equally distributed thing in the world' (la chose du monde la mieux partagée; the Latin Version says, rather more precisely, "nulla res aequabilius est distributa"); it is 'naturally equal in all men' (naturellement égale en tous les hommes).

CB 76 (cont.)

Burman objects to this surprisingly egalitarian thesis, citing as a counter-example the existence of many 'obtusi homines' (line 1). In fact Descartes himself admits in the Discourse that he has often wished he was as well endowed with powers of thought (*la pensée*), imagination or memory as some of his acquaintances, adding that these three faculties are the only ones he knows of that contribute to perfection of mind (AT VI 2 lines 20-26). This admission certainly makes the egalitarian thesis rather obscure; so Burman's question is a most apposite one.

In his reply to Burman, Descartes glosses good sense as 'judgement' (*judicium*), or 'being qualified to give an opinion' (*aptitudo sententiam ferendi*); when it comes to this, says Descartes, everyone thinks he is 'second to none' (*omnibus aliis aequalis*; lines 5/6). But the logic of this comment - and the original remark which opens the Discourse - is bizarre: the fact that everyone thinks his judgement is good does not of course entail that it is good. More puzzling still is the comment at lines 6/7: everyone is happy with his own views, says Descartes; and he goes on to quote the proverb 'no two think alike' ('*quot capita tot sensus*'; a variant of the Terentian tag '*quot homines tot sententia*'). The proverb may be true enough: everyone has his own 'point of view' which he is proud of. But it seems just tendentious for Descartes to go on to say that this is what he meant by good sense (line 8). "No you did not!", one feels tempted to reply on Burman's behalf; "in the Discourse you talked of a 'power to judge well and distinguish the true from the false', which is something completely different."*

* Gilson, noting a close parallel between the first sentence of the Discourse and a passage in Montaigne's Essay on Presumption, suggests that the opening of the Discourse may contain "une nuance d'ironie" (GILSON (2), p.83). The tone of the remarks here to Burman certainly support this view. But Descartes' irony should presumably illustrate, or at least not contradict, the serious thesis which he wishes to advance concerning the equal distribution of good sense. So we still have to explain the relation between everyman's proverbial satisfaction in his powers of judgement, and the serious thesis.

CB 76 (cont.)

One might try to defend Descartes along the following lines. His claim is (1) that there is a universal faculty of 'judging well', which we all equally possess; as evidence of this, he cites (2) the proverbial fact that everyone feels he is good at judging. These two points are compressed; so that when Descartes says to Burman that by the phenomenon of good sense he means (2), what he should say is that by the phenomenon of good sense he means (1), but that (2) is introduced as good evidence for the truth of (1).

But this reconstructed argument is still a bad one, for why should (2) be evidence for (1)? Imagine a population in which everyone held his own special view of what was 'tasteful' in architecture; where, moreover, everyone was perfectly confident in and satisfied with his own judgement. Would this fact be the slightest evidence for the existence of a universal faculty of 'good architectural taste'? Clearly not: the various different views are evidence of a faculty of judging, but not of judging well; there is evidence of various tastes, but not of an equally shared 'good taste'.

I do not think that Descartes can ultimately be acquitted of blurring things here; but some sense can still be made of the doctrine of a universal equal endowment of 'le bon sens', along the following lines. When Descartes talks of 'la puissance de distinguer le vrai d'avec le faux', he really has in mind a potentiality, rather than an ability which is actualized in all of us. The Latin version of the Discourse makes this clearer by talking of an innate power - a power which is 'naturally equal and inborn in all of us' (*vim natura aequalem omnibus nobis innatam*; AT VI 540, line 8). This innate faculty will not automatically produce correct opinions (indeed, Descartes' whole method supposes the existence of 'prejudices' which need critical scrutiny); it needs, if truth is to be attained, to be applied correctly - i.e. methodically and with concentration. As Descartes says in the Discourse: 'the diversity of our opinions does not arise because some men have more

CB 76 (cont.)

reason than others, but merely from the fact that we direct our thoughts along different paths, and do not attend to (considerer; Latin: attendere) the same things' (AT VI 2 and 540). Elsewhere, instead of 'sense' or 'reason' (le sens; la raison; ratio), Descartes uses the more familiar metaphor of the 'light of reason' or the 'natural light' (la lumière naturelle); and he observes to Mersenne:

Since all men have the same natural light, it seems that they should all have the same notions; this is far from the case, because there is hardly anyone who makes good use of this light, so that many people - e.g. everyone of our acquaintance - may agree in making the same mistake.

(16 October 1639; AT II 598; K 66)

Thus, good sense is universal only in that we all have an equal potentiality for arriving at correct judgements; the endowment is universal, but the successful use of the endowment far from universal.

Leaving aside the droll move in the opening of the Discourse, does Descartes have any serious arguments to prove the existence of his universal power? One argument for the thesis that we are all equally endowed with it is referred to in the second paragraph of the Discourse: 'good sense' or 'reason' is the defining characteristic which separates men from the other animals; and essential characteristics do not admit of degree:

As for reason or sense, in so far as it is the only thing which makes us men and distinguishes us from the beasts, I should like to believe that it is quite complete in each of us, following here the common view of the Philosophers, who say that 'more or less' apply only among accidents and not among forms or natures of individuals of the same species'.

[AT VI 2/3]

However, the battery of technical terms would warn us that Descartes is merely quoting this as a stock piece of scholastic reasoning; though he is pleased enough that the conclusion accords with his own thesis that reason is 'toute entière en un chacun', he clearly does not want to have to rest his case on the scholastic apparatus of 'accidents' and 'forms'.

Elsewhere, Descartes does at one point mention a sort of experimental

CB 76 (cont.)

confirmation of the egalitarian thesis taken from his own experience. In the introduction to the French edition of the Principles, he says:

I have noticed, in examining the nature of many minds, that there are virtually none so dull or slow that they were incapable of... acquiring the highest branches of science, provided they were correctly led.

[AT IXb 12]

This implies that the egalitarian thesis is not an arbitrary piece of dogma, but is open to empirical testing. In fact, at least two ways suggest themselves in which the anti-Cartesian might try to falsify the thesis: Locke's "idiots and children" might provide one line of attack*; another counter-example, more serious from Descartes' point of view, would be the case of a normal, sane adult who failed to 'see' or assent to one of Descartes' 'principles of natural light'. If any two properly trained and 'attentive' minds can disagree about any one of the basic Cartesian principles, then Descartes' optimism about a universal 'power of distinguishing the true from the false' cannot be justified. The question of the universality of the natural light is thus connected with the issue of its reliability and the problem of the Cartesian circle: see further Appendix C, pp. 292 ff.

CB 77

lines 1/2 : ...Logic...Dialectic...

In the section of the Discourse referred to here**, Descartes makes his famous attack on the traditional Aristotelian logic of the schools. The chief point, to which Descartes frequently returns elsewhere, is that syllogistic reasoning is useless for discovering the truth. This is because it deals with form rather than content: it will tell us whether B validly follows from A, but not whether A or B is true. In the Regulae, the

* Essay on Human Understanding, Bk. I, Ch. 2, § 5.

** For the reference to 'the art of Lully' in the passage quoted, see AG p.20 and GILSON (2) p.185/6.

CB 77 (cont.)

standard forms of inference are likened by Descartes to 'bonds' (vincula);

They [sc. the dialecticians] prescribe certain formulae of argument which lead to a conclusion with such necessity that if the reason commits itself to their trust, even though it slackens its interest and no longer pays close attention to the proposition inferred, it can nevertheless at the same time come to a sure conclusion by virtue of the form of the argument alone.... Often the truth escapes away out of these imprisoning bonds....

[AT X 405/6; trans: HR I 32]

Earlier, in Rule II, Descartes notes that error is very seldom due to faulty deductive inference; it is the hasty acceptance of premisses which causes error (AT X 365). It is just this hasty acceptance which, on Descartes' view, traditional logic encourages.

Interestingly, a closely similar attack on formal logic was developed two centuries later by J.S.Mill. (See System of Logic Book II, Ch. III.) Like Descartes, Mill is concerned to develop a 'Logic of Truth' which would pay attention to content as well as form, and be a genuine tool for the advancement of science. But the Descartes-Mill objections to traditional logic are, when one reflects on them, extremely odd. It is not as if the requirements of objective truth and formal validity were in conflict. What one wants of a deductive system is a consistent and clear set of rules which preserve validity when we move from premisses to conclusion; it just seems beside the point to object that these rules do not guarantee the objective truth of the premisses and conclusions themselves. Moreover, though the nub of Descartes' philosophy is the method of discovery (which involves orderly and attentive focusing on the content of propositions themselves), he also acknowledges the usefulness of a method of exposition for setting out what is already known (see on CB 17); this latter method evidently uses just those formal rules of deductive logic which Descartes appears to attack.

In view of this, it is important, as well as reassuring, to notice how Descartes in the Conversation qualifies the critical remarks he had earlier made in the Discourse. There is, he explains to Burman, a use for

CB 77 (cont.)

logic - namely to provide 'demonstrationes' (expository logical proofs) on all subjects; the earlier strictures are to be taken as directed not against formal logic per se, but against Dialectic (lines 1/3). By 'Dialectic', Descartes seems to mean a certain way of teaching logic which prevailed in the schools and universities of the day, and was coupled with a certain implicit belief about its status and importance. What Descartes would like to see, it appears, is a combination of his own method of discovery and search after truth with a sufficient training in formal logic to allow the student to set out the implications and interconnections of the truths, once discovered. What happens instead, Descartes complains, is that formal logic becomes the be-all and end-all; what should be a tool for the development of knowledge becomes instead the sum of knowledge.* The student can never get beyond the 'stock arguments and headings' (line 5); he is imprisoned within the deductive system, and can never get out and examine the 'nature of the thing itself' (line 6/7).

Descartes' criticism is thus an ad hoc educational one, rather than a general attack on scholastic logic. His position can be seen in a nutshell from line 3/4: what he would like to see is logic building on (adstruere) the natural light of 'good sense'; what happens at the hands of the professional dialecticians is that 'good sense' is given no scope to get started, and is therefore 'undermined'.

line 7 : ...Professor Voetius...

The original Latin has "Dn. [i.e. 'Dominus'] Voetius". 'Professor', as used in modern English, seems the nearest equivalent to this respectful prefix with its academic flavour. The respect, in Descartes' case, is of course heavily ironical.

* Compare Mill: "Logic, as I conceive it, is the entire theory of the ascertainment of reasoned or inferred truth. Formal Logic therefore, which... [has been] represented as the whole of Logic properly so called, is really a very subordinate part of it..." (System of Logic Bk. II, Ch. III, § 9).

CB 77 (cont.)

Gisbertus Voetius (1589-1676), one of Descartes' most implacable opponents, was Professor of Theology at the University of Utrecht, and was elected Rector there in 1641. In that year he, and his son Paul, also a professor at Utrecht, mounted a bitter attack on the Cartesian philosophy, then being expounded at Utrecht by Regius (see on CB 61). The brunt of the attack was theological - Cartesian 'scepticism' was held up as antireligious and a danger to faith. Eventually, Voetius succeeded in getting the university senate to ban all teaching of Descartes' philosophy. Taking up the challenge, Descartes had attacked Voetius, first covertly in the Epître au Père Dinet (1642), and then more openly and bitterly in the Epistula ad Voetium (May 1643). In the ensuing storm, Descartes was actually summoned before the magistrates of Utrecht to substantiate his comments on Voetius. This led to the writing of the 'Lettre Apologétique' - 'A letter in self defence written to the Magistrates of Utrecht against the two Voetii, father and son' (July 1643). (For an account of the "Utrecht Controversy" see VROOMAN pp. 156-165.)

The wounds of this long battle are clearly not yet healed in 1648, to judge from Descartes' cutting comments here at CB 77. Presumably, Voetius is introduced as a paradigm case of the 'dialectician'; but Descartes gets rather carried away by his animosity, for the traits attributed to Voetius - e.g. arbitrarily laying down the law, line 9 - do not specifically clarify the particular point at issue about 'Dialectic'. It is however true that the reliance on 'authorities' (testimonia; line 10) is one of the characteristics of the 'closed' scholastic mentality which Descartes associates with the study of Dialectic. But above all Voetius symbolizes for Descartes the nightmarish polemicism of contemporary academic theology: see below on CB 78.

CB 76/82 (cont.)CB 78

line 1 : ...is it not the case...

The original MS has Burman asking a simple open question; but the context (see below) makes Adam's emendation of 'an' to 'annon' probable.

ibid. : ...Theology...

The Conversation is a valuable source for Descartes' attitude to theology and theologians. In the correspondence, notably in the letters to Mersenne, Descartes comes across as anxious to steer clear of difficult theological issues (e.g. the trinity - AT III 374; eternal damnation - AT I 158). In the Conversation, when Burman raises a theological question, Descartes frequently distinguishes between the job of the 'philosopher' and that of the 'theologian'. Thus, in discussing man's freedom, Descartes says that its connexion with grace and salvation must be 'left to the theologians to explain'; for the 'philosopher', it is enough to consider man 'as he is now in his natural condition' (CB 32). Similarly, the question of the original immortality of man is 'not a question for the philosopher but must be left to the theologians' (CB 82); again, the interpretation of the creation story in Genesis 'ought to be left to the theologians' (CB 58).

Here at CB 78, Burman wants to know how Descartes can justify this syphoning off of religious questions to the sphere of theology in view of the famous Cartesian doctrine of the interconnectedness of all knowledge (stated in the passage quoted from the Discourse). In reply, Descartes makes explicit the rationale for his distinction between theology and philosophy. It is true, he asserts, that the truths of theology are mutually interconnected like all the objects of knowledge (line 3); they thus theoretically belong in the 'longues chaines de raisons' of Descartes' universal mathesis. So, despite the distinction made elsewhere, theology and philosophy are not for Descartes, concerned with radically different

CB 78 (cont.)

types of subject matter. The point about theological truths is that their derivation is greatly more complex; we cannot follow or understand (intellegere) the various connexions in the same way (line 4); this means that theology is something we cannot 'grasp' ('capere' - line 7). A second, closely related point emerges here: by 'Theology' as distinct from 'Philosophy', Descartes means the investigation of the revealed truths of religion (truths which 'depend on revelation' line 3). Thus Descartes is not saying that all propositions concerning the attributes and existence of God are outside the proper sphere of philosophy; on the contrary, many such propositions are central to Descartes' system. The point is, rather, that while some theological truths are accessible to the unaided light of reason - these are truths which can be followed by, and should be acceptable to, even the 'Turks' (CB 32 line 8) - there are more detailed tenets of Christian doctrine whose connexion with the principles of natural light is so complex that we cannot arrive at them without the aid of revelation (i.e. through Scripture, and the teachings of the Church). It is the propositions of this latter category, then, which, Descartes insists to Burman, are to be 'left to the theologians' (the questions about grace and salvation, scriptural interpretation and prelapsarian immortality are all good examples). Questions about the existence of God and the immortality of the soul, on the other hand, are described by Descartes as "praecipuae ex iis quae Philosophiae potius quam Theologiae ope sunt demonstrandae" (Meditations: Dedicatory Letter; AT VII 1).

One further important point emerges from our passage. Although the truths of revealed theology are not to be critically examined, the philosopher must at least be sure that they are not inconsistent with his results (lines 11/12). This remark explains certain departures from Descartes' stated policy of 'leaving it to the theologians' which would otherwise be puzzling - e.g. the lengthy arguments about the transsubstantiation (Fourth and Sixth

CB 78 (cont.)

Replies) and the project for dealing with the creation story (CB 58).

The above remarks, I think, summarize Descartes' standard policy on the relation between theology and philosophy. But in the second half of CB 78 we see a much more personal and passionate motive for his reluctance to become embroiled in theological issues. Throughout his life, Descartes was plagued by theological critics who tended to seize on aspects of his writing, particularly the method of doubt, which appeared to threaten religious orthodoxy; people like the 'pedagogi' who were ready to claim that Descartes' aim was to 'subvert religion and faith' (CB 80). The overwhelming impression in CB 78 is of a man who is sick to death with the polemical habits of contemporary theologians, and their 'abuse' of his philosophy (line 9). The principal target is the 'monks' and their 'scholastic theology' (i.e. the Thomist tradition in which Descartes had been well grounded at La Flèche); bluntly and bitterly Descartes lashes out: the scholastic theology should be 'stamped out above all else' (line 15). In place of this scholasticism, Descartes proposes a simple theology like that of the ignorant 'country folk' (rustici - line 17), which, he notes, is quite sufficient for salvation. This picks up a phrase in the Discourse: "le chemin [sc. au ciel] n'en est pas moins ouvert aux plus ignorans qu'aux plus doctes" (AT VI 8).*

Descartes' preference for a 'reformed' theology perhaps explains in part his decision to settle in Holland for most of his life. The question of a religious motive for emigration is considered by Professor Vroeman in his recent biography of Descartes, but summarily rejected: "what need was there

* Gilson, in his commentary on the Discourse, notes that this approach to theology echoes the views of the sixteenth century humanists, and in particular Erasmus; referring to our passage at CB 78, he observes that its tone bears marked similarity to Erasmus' 'In praise of Folly' (1509), although the central idea goes back as far as Augustine ("surgunt indocti et caelum rapiunt" (Confessions, VIII 8, 19)), and ultimately to the New Testament [GILSON (2) p.132 ff.].

CB 78 (cont.)

for a Catholic in France to fear persecution?" (VROOMAN p.75). But there are many forms of persecution, and Descartes' complaints against the 'abuse' of his philosophy, and the loathing for scholastic theologians evidenced in our passage, show that Vrooman's argument is a great deal too swift. But whatever the truth about Descartes' motives, he certainly did not find the Protestant professors of theology any closer to his ideal. And when he talks at the end of CB 78 of theologians who are adept at 'foisting views on their opponents and denigrating them' (lines 22 ff.), it seems that he has broadened his attack and has in mind the professors of Utrecht as much as anyone (cf. on CB 77 line 7).

CB 79

Here Descartes gives a fluent and beautifully lucid account of the importance of mathematics for his philosophy and science. The piece largely speaks for itself, but the following points are especially worth noting.

(1) His approach to mathematics reveals Descartes' characteristic individualism: he wants to get away from the standard curriculum of school mathematics; actual practice is the key (lines 4-7); each individual must develop his own skill--something 'not to be gleaned from books'. This is a recurrent theme in Descartes' thinking: the 'natural light' will take us further than all the traditional wisdom of the past. Interestingly, however, Descartes does qualify somewhat his 'egalitarian thesis' about human endowment with the natural light (see on CB 76). Although Descartes himself is proud of having 'gone it alone', he attributes his success to a particularly 'mathematical mind' (line 10); the more average individual, especially when it comes to Algebra, will need the assistance of a teacher (lines 12 ff.).

(2) Despite the common assumption of commentators, Descartes does not propose the 'mathematization' of science. As we noted above (on CB 73) there are few equations, symbols or calculations in Descartes' scientific writings; and the author stresses here that knowledge of mathematics is, for the most

CB 79 (cont.)

part, not a prerequisite for understanding them (lines 18-20). The role of mathematics, for Descartes, is that of a propaedeutic in the training of the philosopher. In this respect, Descartes' approach to the subject coincides - though for different reasons - with that of Plato (see Republic 523 ff.). In Descartes' case, the great virtue of mathematics is that it accustoms the mind to recognising the truth (line 24). Expanding on this, Descartes says that mathematics provides a paradigm case (indeed the only available example) of 'correct reasoning' (recta ratiocinia - line 25). 'Correct reasoning' for Descartes always involves a 'demonstrative proof' (demonstratio - lines 41 and ff.). The most emphatically stressed characteristic required for an argument to qualify as such a 'proof' is not, as we might expect, that of validity, but that of the certainty of the premisses (lines 41-43: a demonstrative proof proceeds...only from premisses which are certain; "demonstrationem procedere...ex solum certis"). Reliance on merely probable premisses is fatal (lines 39 ff.). (See also on CB 77 line 1).

(3) Descartes is often called a 'rationalist' - a label which is in some ways misleading (see Appendix E). But the term can, I think, be used legitimately to characterise a distinctive and controversial thesis which Descartes does hold, and which the Humean tradition is adamant in rejecting. This is the thesis that at least some 'matters of fact' - truths about existing things in the real world - can be logically demonstrated a priori: there is a "place for demonstrative proofs in the sciences which deal with reality" (see lines 46 ff.). It is a fundamental belief of Descartes that, starting from the axiomatic intuitions of the natural light, and proceeding step by step along a logical 'chain of reasoning' we can arrive at substantive truths about the world. Without this belief, the metaphysical foundations of his philosophy cannot be erected.

line 8 : ...no books with him...

The period referred to is that described in Part II of the Discourse -

CB 79 (cont.)

i.e. the Winter of 1619 which Descartes spent in Bavaria, closeted in his famous 'stove-heated room' (AT VI 11).

line 12 : ...Algebra...

Descartes is thinking in particular of a system for correlating numerical and spatial relations, which had been one of his earliest preoccupations. (cf. correspondence with Beeckman - AT X 156-7). In Part II of the Discourse, Descartes explains how, for the purpose of dealing with several simultaneous (geometrical) relations, he decided that he had best use 'certain symbols as compact as possible' ('quelques chiffres (Lat. characteribus sive notis) les plus courts qu'il serait possible' - AT VI 20 & 551). Descartes himself was a pioneer in the development of modern algebraic notation. For his reforms of the existing system, designed to make the function of the symbols clearer and more self-evident, see AT XII 52/4.

line 16 : ...a certain Frenchman...

Adam suggests, plausibly, that the reference must be to the French mathematician Debeaune. Florimond Debeaune (1601-1652) had worked through Descartes' Geometry and written an introduction and explanatory notes. Descartes had corresponded with Debeaune and seen his work; when van Schooten published his Latin version of the Geometry, Descartes asked him to include Debeaune's material. This impending publication was uppermost in Descartes' mind at the time of the Conversation. A few days before meeting Burman, he wrote to Mersenne, saying that he had decided not to look at Schooten's version (because he wanted to avoid getting caught up in corrections and clarifications), but that he expected it to be obscurely written owing to Schooten's lack of fluency in Latin (AT V 143). Schooten (Frans von Schooten the younger) was Professor of Mathematics at Leyden University from 1646; so it is likely that Burman (himself from Leyden - see Introduction) would know about his forthcoming version of the Geometry, and would pick up the reference to Debeaune.

CB 79 (cont.)line 34/35 : ...no place for imagination...

By 'imagination' Descartes means, quite literally, the act of forming an image, or 'visualizing', as opposed to 'pure understanding' (see on CB 21). Yet this makes the comment about physics, and the contrast with mathematics, rather odd; one might have expected just the opposite, since it is mathematics which seems, par excellence, a subject for 'pura intellectio'. In a letter to Elizabeth, however, Descartes repeats the point about mathematics: the mathematician exercises his imagination in considering 'extension shape and movement'; these things, Descartes adds, 'can be known by understanding alone, but much better when aided by imagination' (AT III 691/2; K 141)*. But if it is a matter of the imagination aiding the intellect, why cannot this happen in physics? To add to the puzzle, Descartes remarks elsewhere, this time to Mersenne, that imagination is equally inappropriate when it comes to metaphysics:

la partie de l'esprit qui aide le plus aux Mathematiques, à savoir,
l'imagination, nuit plus qu'elle ne sert pour les Speculations
Metaphysiques [AT II 622]

The explanation of these comments is, I think, this. Imagination, as Descartes explains at CB 42, is closely allied to perception. Both involve the depiction of images in the brain - the only difference is that in imagination the job is done 'with the windows shut' (line 17/18). Now the sensory images of perception are closely tied up with the false beliefs and prejudices which the metaphysician needs to disregard in his search after truth (cf. Meditation I); similarly, the physicist needs to avoid attributing to matter the 'real qualities' which his senses have led him to believe in (cf. CB 15). Thus, the imaginative formation of images which we may be tempted to foist on the world of reality can be, for Descartes, a source of

* cf. the more detailed recommendations in Regulae XIV, AT X 438 ff., where Descartes assigns an important heuristic role to the imagination. See BECK, pp.215-225.

CB 79 (cont.)

the most disastrous error in metaphysics and physics. In mathematics, on the other hand, there is no question of the objects of study 'really existing'; mathematical entities are considered merely as possibles (CB 34). Thus imagination, for the mathematician, can only be an aid to the intellect; the brain on which (according to Descartes' theory of imagination) we trace out the images is performing a function rather like that of a blackboard; the image is a help to the student in marshalling his thoughts, rather than a tempting picture of reality.

If this account is correct, two points of criticism seem appropriate. First, Descartes is a trifle optimistic in regarding imagination as the natural ally of the mathematical intellect. If imagination can mislead in physics, etc., is there not an equal need for caution in assuming that the properties which 'look' as if they hold when we visualize a triangle are genuine demonstrable properties? Second, in view of the fact that mathematical theorems can be applied to physics, Descartes' categorical assertion that physics has 'no place' for imagination seems too strong; indeed, it is inconsistent with his own comment at CB 67 that the actual visible model (as a substitute for imagination) can be vital for grasping a 'mathematical and mechanical' point in physics. To rescue Descartes here, we should perhaps make a distinction between the heuristic and expository roles of the physicist: perhaps Descartes means that it is in discovering new truths that the imagination may be treacherous; in explaining a theory once arrived at, visualization and the use of models is a valuable bonus.

line 51 : ...more solid proof...

Why are the proofs of metaphysics more solid than those of mathematics? Apparently because they can be established in the teeth of the radical doubts of the Meditations, while mathematical proofs cannot (lines 52-54). This is odd, because in the Meditations ' $2 + 3 = 5$ ' seems to rank *pari passu* with 'cogito ergo sum' as indubitably true despite the most extreme doubts

CB 79 (cont.)

(AT VII 36). Similarly, Descartes admits that the atheist (i.e. one who lacks any metaphysical guarantee of a non-deceiving God) can know that the angles of a triangle equal two right angles (AT VII 141).

The way out of this, I think, is that the truths just mentioned are of an extremely simple nature (' $2 + 3 = 5$ ' is "aliquid valde simplex & facile" - AT VII 36); they can therefore be known for certain, since everything relevant to their truth can be simultaneously present and open to the attentive mind. When Descartes says at CB 79 that in the face of extreme metaphysical doubts 'absolutely no mathematical proof could be given with certainty', he must be thinking of more complex pieces of reasoning which are too elaborate to be grasped by the mind in their entirety. In the case of the elaborate proofs - the "longues chaines de raisons" characteristic of mathematics, we are dealing with a whole system of interconnected logical relations, and here a finite mind can make no progress without first establishing the metaphysical premiss of a non-deceiving God. This can be established 'in spite of the doubt' because we are able to grasp the proof of God's existence in its entirety (CB 6, line 46)*. For a full discussion of the problems here see Appendix C, pp. 288 ff.

CB 80

These few lines provide a fascinating insight into both the writing of the Discourse and Descartes' general attitude to ethics. But the one commentator who has noticed the importance of the lines - Gilson - seems anxious to qualify their impact. In his Commentary on the Discourse Gilson observes that (1) the lines from the Conversation may not strictly reflect

* This point shows that Descartes' remark about the uncertainty of all mathematical proofs is, strictly, an exaggeration; for it seems to me that he must in consistency allow that if there are any mathematical proofs at least as simple and short as the proof of God's existence, then these can be known with as much certainty. The contrast between mathematics and metaphysics should not be taken as referring to an intrinsic difference in the knowability of the subject matter, for the reasons stated above.

CB 80 (cont.)

Descartes' attitude when writing the Discourse (over ten years earlier); Descartes might be 'projecting back' the caution he had learnt as a result of the bitter attacks he had suffered during the forties; (2) the lines need only refer to Descartes' attitude to publishing his moral views; they do not alter the necessity outlined in the Discourse, for the individual to devise a 'provisional code' of morals (GILSON (2) p.234).

Both these points seem mistaken. (1) Descartes does specifically say that his motive for including the rules was to avoid the calumny of the Schoolmen; he is thus quite clearly referring to the time of writing. Is it really plausible to suppose that he had forgotten his own state of mind when preparing this most carefully planned introduction to his work - the first book he agreed to publish? Further, though Descartes had suffered a lot from calumny in the forties, he was just as conscious of the need for caution in the previous decade; the suppression of Le Monde, after all, was in 1634. (2) Gilson's second point also seems to be a distortion. Descartes specifically says here at CB 80 that he does not like writing ethics (MS: "non libenter scribit ethica"), which suggests that a definite personal preference is involved, not just a publishing policy.

But can we really suppose that a whole section of the Discourse, which purports to describe Descartes' own philosophical progress, was disingenuously inserted out of caution? This, I think, is putting it too strongly. One of the points stated right at the beginning of Part III is that one cannot pull down the entire structure of knowledge just like that. If you want to rebuild your house, you must have a temporary place to stay (AT VI 22). This point seems to represent an attitude which is genuine enough: life must go on; the metaphysician must be able to cope with day to day matters in between his meditations. To this extent then, Descartes is here recording his own decisions; when embarking on speculative philosophy he saw the need for some temporary plan of 'carrying on' to avoid the complete disruption of life.

CB 80 (cont.)

But when we come to the specific content of the code itself - in particular the first rule - it seems clear that Descartes is being deliberately cautious. 'Obeying the laws and customs of my country' is perhaps reasonable enough as a piece of common sense; but 'faithfully keeping to the religion in which by God's grace I was brought up' must surely have been added from just the motives described to Burman. For there is no getting away from the fact that this rule is inconsistent with the whole thrust of the method of doubt. One can hardly push scepticism to its ultimate limits - to the extent of doubting the external world and the existence of a benevolent God - while strictly remaining one of the faithful. (Descartes' elaborate attempts to get out of this, e.g. in the Second Replies - AT VII 148/9, do not hold water.) Moreover, despite the attempt to sell the morale provisoire the overwhelming impression one gets from Part III of the Discourse is that of a man who is anxious above all to disengage himself from social commitments rather than be an active participant on the ethical scene: "My aim was to be a spectator rather than an actor in the comedies of life" (AT VI 28).

As regards Descartes' general attitude to ethics, I can see no reason for not taking the remark reported by Burman ('the author does not like writing on ethics') as authentic. It is true that in Descartes' famous metaphor 'morals' takes its place alongside mechanics and medicine in the tree of knowledge of which metaphysics are the roots and physics the trunk; morality is even described as the 'dernier degré de la sagesse', which presupposes all the other sciences (AT IXb 14). But there is no evidence that Descartes himself felt able, or especially keen, to embark on the theory that would provide the crowning branch of science.* It is true that there is

* Geneviève Rodis-Lewis, in her monograph La Morale de Descartes wonders whether Descartes might not but for his early death have produced "le traité de morale qui aurait couronné l'oeuvre" (RODIS-LEWIS, p.4). Though Lewis admits that not enough material has come down to us to enable us even to speculate on the contents of this unwritten work, she attempts to provide a coherent sketch of a Cartesian moral theory consistent with what has survived. However, almost everything discussed in the book falls into the category of 'moral psychology' (Descartes' views on freedom, the passions, the relation between soul and body, etc.); Lewis is able to produce little evidence of any systematic interest in questions of normative ethics.

CB 80 (cont.)

a certain amount of discussion of morality in the famous correspondence with Elizabeth over Seneca's De Vita Beata; but the chief concern throughout these letters is with intellectual rather than moral virtue (we have already noted an intellectualist bias in Descartes' conception of virtue in connexion with his views on weakness of will; CB 32). In so far as the letters to Elizabeth contain 'ethical' precepts, these are generally concerned with the development of powers of reason: although virtue alone can make us happy, 'the greatest happiness of man depends on the right use of reason' (4th August 1645; AT IV 267). An apparent exception to this bias is a section in the letter of 15th September 1645 where Descartes talks of social relations in a tone which recalls Donne's 'No man is an Island' passage*. But even here, the interdependence of human beings is presented as a truth which it is useful to know after arriving at other truths - for example the 'immortality of the soul' and 'the immensity of the universe' (AT IV 292/3; K 172).

line 2 : ...Schoolmen...

For Descartes' difficulties at the hands of academic theologians, see above on CB 77 and 78. In a letter to Chanut of 20th November 1647 Descartes also mentions the dangers of calumny in connexion with his reluctance to write on morals; he adds the comment that attempts to regulate the morality of others should, in any case, be left to sovereigns or their agents (AT V 87). This remark confirms the reliability of Burman's reporting here at CB 80, and supports further our argument above about Descartes' attitude to moral philosophy.

CB 81

By introducing this text from the Discourse, Burman brings Descartes back to the thorny problem of the Circle, which has already been discussed at CB 6. For Descartes' important additional comments here, see Appendix C, p. 284/5.

* Devotions XVII (published 1624).

CB 76/82 (cont.)CB 82

line 2 : ...left to the theologians.

See on CB 78. For Descartes' attitude to Genesis cf. CB 58; for his use of the terms 'philosopher' and 'philosophy' see on CB 29, line 8.

line 9 : ...simply as it is now...

Descartes does not mean that the philosopher should ignore the past history and evolution of phenomena - on the contrary: see above p.211 ff. The point, rather, is that the scientist cannot deal with supernatural matters (e.g. the situation of mankind before the flood - lines 3 ff.); his subject is the natural world - the world 'as it is now'. There is a closely similar passage at CB 32, line 6 ff., where Descartes says that it is enough for the philosopher to study man 'as he is now in his natural condition'. Again, the contrast is with supernatural matters: in considering the question of man's freedom, the philosopher cannot concern himself with man's condition before the fall and the problems of original sin, etc.

line 11/12 : ...human life could be prolonged...

In the Discourse, the value of science is closely linked to its potentiality for benefitting mankind; the aim is to make ourselves 'masters and possessors of nature'; the preservation of health, in particular (both physical and mental) is described as the 'chief blessing and foundation of all other blessings in life' (AT VI 62). In a letter to Newcastle (October 1645), Descartes goes so far as to say that 'the preservation of health has always been the principle end of my studies' (AT IV 329; K 184).

In his own case, Descartes admitted that he looked after himself 'as carefully as a rich man with gout' (to Mersenne; AT II 480). His careful diet is referred to by the Abbé Picot, who stayed with him at his Egmond retreat for three months in 1647; according to Picot, Descartes was convinced that he was on the way to discovering the secret which would enable men to live to an age of three or four hundred (reported in Baillet's Vie de Mr.

CB 82 (cont.)

Des Cartes: see AT XI 671).

line 21 : ...nature still remains the same.

Because it is a 'machine' which works in accordance with universal mathematical laws; cf CB 45. But Descartes is skating over some difficulties here, since he himself admits at CB 45 that the messages which the body sends to the mind in illness (e.g. in the case of a dropsical man with a raging thirst) may be highly misleading.

line 29 : ...with her perfect internal awareness... (sui optima conscia)

There is a strong parallel here with Descartes' attitude to our mental endowments. Just as, on the mental plane, the lux naturalis will get us further than all the inherited 'wisdom' of the past, so the body can look after itself better than 'les plus savants docteurs' (cf AT IV 330). It is remarkable, however, to find Descartes using the term 'aware' (conscia) of nature - i.e. the machine of the body, which is of course pure extension - even though he is talking loosely and metaphorically.

line 38 : ...Tiberius Caesar said [or Cato. I think]...

Tiberius is the right answer: the source for his success in doing without a physician is the biography of Suetonius: "valetudine prosperior usus est, tempore quidem principatus paene toto illaesa, quamvis a trigesimo aetatis anno arbitratus eam suo rexit sine adiumento consiliove medicorum" (Vita Tiberii, 68). I am inclined to think that the bracketed alternative attribution (to Cato) was subsequently added by Burman or the copyist; Descartes makes a similar remark about health in the letter to Newcastle of October 1645, and there it is Tiberius who is referred to, without any doubt or hesitation (AT IV 329).

line 41 : ...be his own doctor.

On this relaxed and optimistic note the Conversation closes. Descartes' cheery confidence in do-it-yourself medicine assumes, in retrospect, a

CB 82 (cont.)

poignant touch of irony. Though just turned fifty-two, he has less than two years to live.

Amsterdam. April 20th, 1648.

For the place and date, which differ from those given at the beginning of the MS, see Introduction, page v ff.

APPENDIX A: The Role of the Malignant Demon

The most important question arising out of the remarks to Burman at CB 2 is in what sense Descartes regarded his supposition of a malignus genius as going beyond the ordinary sceptical objections. When the demon is introduced, at the end of the First Meditation, he does not seem to add anything to what has gone before: the supposition that 'the sky, the air, the earth, colours, ... and all external things' are no more than the delusions of dreams, and that 'I have no eyes, flesh, blood or senses' (AT VII 22) seems to have been catered for already by the dreaming argument.

One popular view today is that the role of the malignant demon is to cast doubt on our knowledge of the basic truths of logic and mathematics. Thus Professor Popkin writes: "In...creating the possibility of the malin génie, Descartes overthrew the mathematical intuitionism of the Regulae as the foundation of all certainty. The crise pyrrhonienne had been pressed to its farthest limit" (POPKIN, p.184; cf. GIBSON p.307 ff.; BECK, p.40). This is an odd view on the face of it, since - though this is seldom noticed - Descartes never explicitly attributes such a role to the demon. We can, however, construct a case for saying that he does so implicitly, by following the line of argument in the First Meditation. At the end of the dreaming argument, Descartes says that whether I am awake or asleep two and three make five, and a square has four sides. But he then says that God might make me go wrong when I add two and three, or count the sides of a square. Yet this assumption, it turns out, runs into theological difficulties. The assumption that God is willing to deceive me is inconsistent with his goodness (AT VII 21, line 11). Two paragraphs later the malignant demon is introduced ("I will suppose therefore, etc."). The inference on this view would be, then, that the malignant demon hypothesis is a theologically purified version of the earlier suggestion that God may deceive me when I count the sides of a square. So the purpose behind the introduction of the demon, though not

explicitly stated to be such, is to cast doubt on our knowledge of the basic truths of logic and mathematics.

This interpretation indeed supplies a special additional role to the demon, viz. that of impugning an area of our knowledge which had hitherto been left untouched by the earlier doubts about illusions and dreams. What is more, there is strong textual support for the interpretation in the wording of the sentence which introduces the demon: "I will suppose therefore that not God, who is supremely good and the source of truth, but rather some malignant demon... etc.". The reference to God seems to refer back to the discussion of the possibility of God's deceiving me when I count the sides of a square.

I do not, however, think that this interpretation is acceptable. For, despite the extremely suggestive echo in the passage just quoted, a closer scrutiny of the text shows that the connexion between the demon's introduction and the earlier discussion of God's deceiving me is in fact rather remote. (1) First, the reference back to a deceiving God does not force us to conclude that it is our knowledge of logic and mathematics that is especially under scrutiny. For the deceiving God was also - indeed principally - introduced to reinforce doubts about the external world: "How can I be sure that he [sc. God] has not brought it about that there is no earth, no sky, no extended bodies..." (AT VII 21 line 3 ff.).

(2) Second, the alleged theological rationale for, as it were, replacing God by the demon cannot really be inferred from what Descartes says in the First Meditation. Descartes' own considered view, it is true, is that it is logically (and theologically) repugnant to suppose that God might deceive (indeed, even referring to the demon as 'supremely powerful' was felt to be theologically risky: see on CB 10). But from the point of view of the stage reached in the First Meditation, the argument against God's deception cannot, Descartes insists, be sustained. After mentioning the argument, Descartes goes on to say that he is not, at this stage, prepared to accept it as at

all conclusive: if it goes against God's goodness to have so created me that I am always deceived, then presumably it ought to be foreign to his nature to allow me to be deceived sometimes; yet he does allow this (*ibid.* lines 12-16).

(3) Third, the discussion of God's deceiving me does not lead directly on to the introduction of the demon. On the contrary, the discussion tails off into a sort of Socratic aporia. Descartes seems to imply that questions about the nature of God are not worth considering at this stage of the *Meditations*; for at this point we are not even sure whether God exists at all (*ibid.* lines 19-26). We might owe our existence to chance evolution, in which case the reliability of our mental powers could be even more dubious (*ibid.*). The whole issue of the existence of God, deception, and the reliability of the mind, is in fact postponed until after the existence of God has been proved in the Third Meditation (see Commentary on CB 5). The upshot is that we are left in the air, with the suggestion that we may go wrong when counting the sides of a square, and no theological arguments to counter this doubt.

(4) Fourth, and most important, the most natural way of taking the "therefore" in the sentence "I will suppose, therefore, etc." is as referring to what has immediately gone before - the preceding paragraph, in fact. Yet this paragraph does not anywhere mention either the possibility of God's deceiving me, or the propositions of logic and mathematics. It deals, instead, with the practical difficulties of being a thorough-going sceptic. And here, I think, is the clue to the real purpose of the demon.

What Descartes stresses in the crucial paragraph leading up to the introduction of the demon is the persistence of our ordinary habitual beliefs (consuetae opiniones, AT VII 22, line 4). Try as we may to suspend our assent, they keep coming back and taking possession of our belief (occupant credulitatem). Such is the force of habit, the ius familiaritatis (*ibid.*, line 6). Now we know from CB 1 that these 'consuetae opiniones' cannot be the 'notions' or axioms of logic: for the axioms are propositions we are not ordinarily aware of at all, except in a confused way (CB 1, line 19). The

'habitual opinions' must be the standard beliefs or 'prejudices' that we never normally think of questioning until we begin to philosophize - the beliefs that the earth, sky and "all external things" exist, and that we have bodies of flesh and blood. Now, as we began by noting, it is just these beliefs that Descartes specifically mentions when he introduces the demon. The conclusion seems clear. The demon is introduced as a device to help the faltering doubter - a sort of aid to scepticism. It provides a "counter-weight" to prejudice. (Descartes himself used this metaphor just before the introduction of the demon - AT VII 22, line 16). The supposition of the demon will help us to persevere in our doubts even when they outrage our common sense. This is crucial to Descartes' purpose (referred to at CB 2) of ultimately overturning scepticism. Only by sticking to the doubt, by remaining 'obstinate defixus' (AT VII 23, line 4) will we succeed eventually in distinguishing mere prejudice from what is truly indubitable.

At first sight all this may seem a little lame: is the famous demon argument nothing more than an auxiliary device - a mere technical aid to scepticism? But nowadays we have become so familiar with Descartes' arguments that we tend to miss their radical and startling nature; we tend to overlook the intense difficulties of maintaining serious and thorough-going scepticism. Hume was very much alive to these difficulties. Indeed, he attacked the Cartesians for proposing impossibly far-fetched and unrealistic doubts; his remarks make the need for a powerful 'aid to scepticism' seem far from trivial:

The great subverter of Pyrrhonism or the excessive principles of scepticism is action, and employment, and the occupations of common life. These principles may flourish and triumph in the schools; where it is, indeed, difficult, if not impossible, to refute them. But as soon as they leave the shade, and by the presence of the real objects, which actuate our passions and sentiments, are put in opposition to the more powerful principles of our nature, they vanish like smoke.... Nature is always too strong for principle. And though a Pyrrhonian may throw himself or others into a momentary amazement and confusion by his profound reasonings; the first and most trivial event in life will put to flight all his doubts and scruples, and leave him the same, in every point of action and speculation, with ... those who never concerned themselves in any philosophical researches.

[Enquiry; Sect. XII, Part II]

It is precisely these difficulties which, I believe, Descartes has in mind when he proposes the demon as a counterweight to the ius familiaritatis - the influence of our habitual beliefs.

I can think of three possible objections to this reading of Descartes.

(1) The first is that the fantastic hypothesis of the demon bent on deceiving me is hardly easier to entertain than the hypothesis that I am dreaming: so it can hardly be an aid to scepticism. But the imaginative appeal of the demon hypothesis is a subjective question, and depends on our emotional and intellectual background. Most philosophers nowadays do not think much about God, let alone about evil spirits. Descartes and his contemporaries presumably thought a lot about both.*

(2) Secondly, and more seriously, what about Descartes' remark to Burman about going beyond the customary difficulties of the Sceptics? (CB 2, line 3). Surely, on the account suggested, the demon adds nothing substantial to the dreaming argument: it impugns no additional beliefs. Well, I do not think Descartes' remark to Burman has to be taken to be a claim that the demon hypothesis casts doubt on types of propositions not normally questioned by the sceptics. In claiming that he raises 'every possible difficulty', Descartes need only be claiming that he has introduced a new intensity of doubt: a new method which enables one not only to doubt but resolutely to keep doubting. And this would make good sense of the ensuing remark that the introduction of the demon is, despite what a critic might suppose, not, after all, a 'superfluous addition' (lines 4/5). The way Descartes phrases this remark is, it seems to me, highly revealing; although he insists that the demon has a special role, he seems to imply that it would be quite natural for a critic to miss this. I think this is another argument against those who take the introduction of the demon as designed to pose a new and distinct epistemological threat.

* The famous 'devils of Loudun' case, for example, occurred less than a decade before the publication of the Meditations; see Huxley, A., The Devils of Loudun (London: Chatto & Windus, 1952), and cf. POPKIN, p.185.

(3) Someone may still be worried about the propositions of logic and mathematics. Have these not been rather left in the air, if the demon hypothesis is not designed to impugn them? I think that we must admit that they are, in a sense, left hanging; or rather, that the two paragraphs where they are discussed constitute what is strictly a digression from the main theme of the First Meditation. It is true that the scepticism of the First Meditation is radical and thoroughgoing (as Descartes proudly observes to Burman at CB 2); in his enthusiasm for casting off prejudices, the Descartes of the First Meditation will even throw out the suggestion that one may go wrong counting the sides of a square (later on this suggestion is severely qualified: see Appendix C). But the whole thrust of the Meditation is against existential propositions: its whole target is to establish what, if anything, exists. We must remember Descartes' earlier remark to Burman, 'hic praecipue de re existente agitur, an ea sit' (CB 1, line 24/5; see Commentary ad loc.). The point is made quite explicitly in the resumé at the beginning of the Second Meditation: 'I have convinced myself that nothing in the world exists - no sky, no earth, no minds, no bodies. Then surely I too do not exist? No, for ... etc.'

An alternative view

A rather different view of the role of the demon has been put forward by Professor Harry Frankfurt in his recent book on the Meditations. This view must now be discussed, since if it is correct, the interpretation offered above cannot stand. According to Frankfurt, the omnipotent deceiver, or *malin génie* ... "however designated, certainly does serve a metaphysical function ... to provide a basis for doubts that had not previously been entertained at all" (FRANKFURT, p.87). This metaphysical role, it turns out, is a dual one. One of the demon's functions, Frankfurt argues, is to raise the possibility that we may make mistakes whenever we make a mathematical judgement. (This view has already been criticised above.) But the demon has a special additional role, according to Frankfurt, which has to do with

questions of real existence. Already, this looks much more promising, since it harmonises with what we have argued is the main drift of the First Meditation.

What this role is emerges in the light of an alleged limitation in the dreaming argument. "The dream argument", Frankfurt argues, "does not cast doubt on the existence of material objects" (p. 70, author's italics). According to Frankfurt, the dreaming argument merely questions our ability to distinguish between those sensations which correspond to particular physical objects and those which do not: "the import of the dream argument is essentially epistemological: it bears on our ability to distinguish two sorts of existents - images and material objects" (p. 72; Frankfurt contrasts this 'epistemological' question with the deeper 'metaphysical' question of the existence of matter itself - a question which, he claims, the dreaming argument leaves untouched).

In support of this, Descartes does say that, if I am asleep, certain particulars (*particularia ista*) - e.g. that I have my eyes open, I move my head, I put out my hand - may be false; indeed, I may not even have hands of this sort at all; but, Descartes goes on, "*saltem generalia haec, oculos, caput, manus, totumque corpus, res quasdam non imaginarias, sed veras existere*" (AT VII 19). This seems clearly to suggest that, while the dreaming argument casts doubt on the veracity of propositions about particular objects and events in the physical world, it does not impugn the existence of generalia - general types of physical object, like heads, eyes etc.

But Descartes goes on to make an important comparison between dreaming and painting, which reveals that the dreaming argument is a great deal more powerful than this. Painters, says Descartes, may paint weird imaginary beings like satyrs, but these are always composed of general sorts of things which exist (they only mix up the limbs of different animals; AT VII 20, line 3). So far so good. But Descartes goes on to say that it may be possible to paint something "*adeo novum ut nihil omnino ei simile fuerit*

visum, atque ita plane fictitium sit & falsum": one may paint something utterly fictitious and false, unlike anything seen before. This implies that in our dreams (as in painting) we may produce imaginative creations which not only fail to represent a particular physical object, but do not even correspond with any general type of object which exists.

But we are still not out of the wood; for Descartes' complex and subtle argument now takes yet another twist. Even when a painter produces a completely new creation, he will still, says Descartes, use real colours in the composition (*ibid.* line 7/8). Similarly, although we may dream up something "plane falsum", this will still involve "quaedam magis simplicia & universalia", which are real or 'true' (vera, line 11). However, these very simple universals turn out to be shape, extension, quantity, location etc. (line 15); that is to say, they are not existing objects at all, in any normal sense, but the basic logical categories whose relations and properties are the study of Arithmetic and Geometry - subjects "quae nonnisi de simplicissimis & maxime generalibus rebus tractant, atque utrum ea sint in rerum natura necne, parum curant" (line 25).

Even here, however, Frankfurt finds an existential element for the demon to get to work on:

From the statement that mathematics has nothing to do with any particular object, or complex sort of object, it does not follow that it has nothing whatever to do with existing things.... In the First Meditation, Descartes does in fact regard the truth of mathematical judgements as depending upon the existence of things that exhibit the simple characteristics with which he presumes mathematics to deal.

(op.cit. p.75)

Thus, Frankfurt regards the demon argument as impugning mathematical knowledge by casting doubt on the existence of the objects of mathematics (or, what the Descartes of the First Meditation supposes to be its objects).

In support of this, Frankfurt cites the passage just quoted above, where Descartes says that mathematics deals with very simple and general things, and 'scarcely cares' whether these exist in nature or not. "If no questions

of existence are relevant to mathematics", asks Frankfurt, "why should mathematics care about existence even scarcely?" (*ibid.*). But this, it seems to me, treads on very thin ice. 'Parum curant' can hardly mean 'care to a small, but nonetheless important extent'. The natural way of interpreting the idiomatic 'parum curant' is as saying that mathematics 'could not care less' about the real existence of its objects. And this is certainly Descartes' normal view: compare CB 34, where Descartes says that mathematics considers its object not as actually existing, but merely as 'possible' - capable of existing.

However, we should not necessarily expect Descartes' considered view on mathematics to correspond with the remarks made at any particular stage of the First Meditation: for here, of course, Descartes is not setting out his conclusions, but following a dramatic voyage of discovery from pre-philosophical prejudice to philosophical truth. But Frankfurt can hardly argue (as he seems to want to in the chapter under discussion) that the remarks about mathematics in the First Meditation represent the beliefs of the pre-philosophical 'man of the senses' whose viewpoint Descartes adopts at the start of the Meditation (the 'homo sensualis' - see CB 1, lines 10-16; and Frankfurt, p.73/4). For the 'man of the senses', as described to Burman in CB 1, is a man who simply does not think about abstract principles: he never even considers the basic truths of logic (the 'common principles and axioms') "apart from material things and particular instances" (CB 1, line 19/20). So the 'pre-philosophical man' will not have considered the philosophical nature of the objects of mathematics at all; if he does have any thoughts relating to mathematics, these will, according to Descartes, only be in terms like "two apples plus three oranges make five pieces of fruit". And this is a far cry indeed from regarding mathematics as dealing with 'simplicissima universalialia' on a plane of abstraction such that the question of their real existence in nature is taken to be irrelevant.

I conclude that these arguments for giving the demon a special

metaphysical role fail; that the remarks on mathematics are essentially a digression from the main theme of the First Meditation; and that the demon's role is to strengthen (in the sense described above) doubts about the external world which have already been raised by the dreaming argument in its fully developed form. A final point in favour of my view. When Descartes formally introduces the demon argument, he specifically refers back to the dreaming argument: "Supponam igitur ... genium aliquem malignum: putabo caelum, aerem, terram, colores, figuras, sonos, cunctaque externa nihil aliud esse quam ludificationes somniorum quibus insidias credulitati meae tetendit" (AT VII 22; my italics). The demon reinforces the supposition that all external objects are merely 'the delusions of dreams'.

APPENDIX B : The Cogito

No one can doubt that the proposition 'I exist' has a special primacy in Descartes' system: it is the first foothold in the Cartesian assault on scepticism. But this still leaves the epistemological status of the proposition very obscure. Do we, according to Descartes, know it immediately and directly, or only mediately, via some process of reasoning? To put it another way, does Descartes mean us to infer or deduce our existence by means of an argument (as the ergo in 'cogito ergo sum' would suggest); or are we supposed to arrive at knowledge of our existence by means of a simple act of intuition?

Unfortunately, what Descartes himself has to say on the subject of the Cogito is, as many commentators and critics have found, not at all clear. But I hope to show that careful attention to the relevant texts yields a reasonably coherent answer to the question posed above. The evidence of the Conversation will turn out to be crucial, both for bringing the difficulties into focus and for providing the basis for their solution.

Rather than tackle our question head on, I propose to approach it by way of the subsidiary, but closely related question raised by Burman at CB 4, viz. that of whether the Cogito involves a syllogism. One might at first suppose that the answer to this question is bound to settle the question we started with. For, if Descartes says that the Cogito involves a syllogism, then surely, one might suppose, he must regard our knowledge of our existence as derivative; if, on the other hand, he denies that the Cogito involves a syllogism, then there might seem to be at least a good case for thinking that he regards the knowledge as non-derivative. In fact, however, it would be mistaken to argue along either of these lines, as will emerge in due course. Nevertheless, what Descartes has to say on the question of whether the Cogito involves a syllogism does, I believe, provide us with the basis for answering our principal question.

II

The two most crucial passages dealing with the issue of whether the Cogito involves a syllogism are from the Second Replies and the Principles. They are both brought up by Burman at CB 4, and are difficult enough to warrant quoting in full. Let us start with the passage from the Second Replies:

When we take note of the fact that we are thinking things, this is a primary notion, which is not derived from any syllogism. For when someone says, 'I think, therefore I am, or I exist', he does not deduce existence from thought by means of a syllogism, but recognises it by a simple intuition of the mind, as if it were a thing known per se. This is clear from the fact that that, if he were deducing it by means of a syllogism, he would have to have known previously the major 'everything which thinks, is, or exists'; yet in fact of course he learns it instead from experiencing in his own case that it is impossible that he should think without existing.*

At first sight this passage seems clear enough. We are told straight out that the man who says 'cogito, ergo sum' does not deduce existence from thought by means of a syllogism. If one were deducing one's existence, Descartes goes on to say, one would have to have known previously the major, 'whatever thinks exists'. The syllogism that Descartes has in mind here must be the following:

(i) (x) x thinks $\rightarrow$ x exists,

(ii) I think,

therefore, (iii) I exist.

What Descartes seems to be saying, then, is that the reasoning (if it is reasoning) behind the Cogito is not of this form, and so is not syllogistic. This, at any rate, is the way most commentators have taken the passage.

* Cum autem advertimus nos esse res cogitantes, prima quaedam notio est, quae ex nullo syllogismo concluditur; neque etiam cum quis dicit, ego cogito, ergo sum, sive existo, existentiam ex cogitatione per syllogismum deducit, sed tanquam rem per se notam simplici mentis intuitu agnoscit, ut patet ex eo quod, si eam per syllogismum deduceret, novisse prius debuisset istam majorem, illud omne quod cogitat est, sive existit; atqui profecto ipsam potius discit ex eo quod apud se experiatur, fieri non posse ut cogitet nisi existat. (AT VII 140).

Thus, Weinburg writes in connexion with this passage: "the scholastic tradition, on which Descartes explicitly depends here, recognised valid inferences (bonae consequentiae) of non-syllogistic varieties" (WEINBERG, p.488). And even those who would disagree with this take Descartes to be saying here that the Cogito involves a step from (ii) to (iii) - or perhaps the direct intuition of (iii) - but without, in any case, the need for (i) (e.g. HINTIKKA (1), § 8).

Notice, however, that Descartes does not say that the man who says 'cogito ergo sum' does not know the major (i). On the contrary, he says that the individual learns this premiss (*ipsam discit*) from something he experiences in his own case. What he experiences in his own case is that "fieri non posset ut cogitet nisi existat", or

(iv) - $\Diamond$ [I think & -(I exist)]*

In what sense one 'learns' (i) by experiencing (iv) is not clear. (i) is certainly not entailed by (iv) - though it is entailed by a generalized form of (iv), viz.

(v) (x) - $\Diamond$ [x thinks & -(x exists)]

We shall return to this point later.

Although Descartes does not deny that the man who formulates the Cogito knows the major premiss (i), he does deny that prior knowledge of (i) is necessary: the supposition that 'one would have to have known the major previously' (*novisse prius debuisset*) is in the counterfactual mode. Further, he does quite clearly deny that deduction from the major premiss is the means whereby one becomes aware of one's existence (*neque...existentiam ex cogitatione per syllogismum deducit*).

To explain what is going on here we have to take note of a crucial Cartesian doctrine, which I call the doctrine of the two aspects of

* I use ' $\Diamond$ ' for the modal operator 'it is logically possible that'.

reasoning. Every piece of reasoning, or train of thought, can, according to Descartes, be considered either under its formal aspect, or under its epistemic aspect. We can either consider the order of formal exposition (the ordo docendi) or the order of actual discovery (the ordo inveniendi). (This distinction is illustrated in CB 17; see Commentary ad loc.)

When Descartes talks of the ordo docendi, he has in mind, I think, the Aristotelian ideal of demonstrative knowledge, or apodeiktike episteme. This type of knowledge was defined by Aristotle as proceeding syllogistically, and drawing conclusions from premisses which are "true and primary and immediate and better-known-than and prior-to the conclusions" (An.Post. 71 b 21). This definition supplies the standard model for a deductive science like Geometry, and, arguably, corresponds to the Rationalist conception of science in general.* Now, it is an important fact - and one which I think is the basis of Descartes' distinction between the ordo docendi and the ordo inveniendi - that when one is working out, say, a theorem in Geometry or Logic, the route by which one arrives at the solution often does not at all correspond to a formal deduction from first principles. Of course, if one's reasoning is valid, it can be set out in the proper, demonstrative pattern; but that pattern will not necessarily bear any relation to the way one arrived at the conclusion.**

Now it is of the essence of the method employed in the Meditations that it follows the order of discovery (CB 17, lines 10 ff.): that is, it does not start from first principles and then deduce conclusions syllogistically in the traditional manner of the Aristotelian apodeiktike episteme; instead,

* See however Appendix E.

** For this reason, Aristotle's description of the premisses used in demonstrative knowledge as πρότερα καὶ γνωστότερα (prior and better known) may be misleading: for if P is prior to Q in the formal sense that Q is logically derivable from P, it need not at all follow that knowledge of P is prior to knowledge of Q for any given individual S. In fact Aristotle goes on to distinguish what is πρότερον ἢ ὁρᾶται from what is πρὸ ἡμᾶς πρότερον (An.Post. 72a1 A), cf. above p.126.

it follows an actual individual journey from scepticism to certainty. Rather than a book of formal demonstrations which compel the assent, the Meditations, as the title suggest, are a set of mental exercises which the reader must 'make his own' (cf. AT VII 155).

We are now in a position to see what Descartes meant when he said that he who says 'cogito ergo sum' does not deduce existence from thought by means of a syllogism. To talk of syllogistic deduction would have suggested that the knowledge of one's existence is arrived at via a formal demonstration from first principles; yet this would completely jumble the 'order of discovery' - it would completely misrepresent what goes on in one's mind when one works through the Cartesian meditations. But to say this is not to say that there is no syllogism involved in the Cogito. To say that I do not deduce my existence from my thought by means of a syllogism when I follow the Cartesian meditations is quite compatible with the proposition that my existence is formally derivable from my thinking by means of a syllogism. Although the ordo docendi and the ordo inveniendi represent two distinct aspects of human reasoning, the formal aspect and the epistemic aspect, there is no question of their being incompatible alternatives. To say (1) that a geometer non-syllogistically discovers some property F of a triangle t, is quite compatible with saying (2) that it can be syllogistically inferred that t is F by deduction from a major premiss specifying the properties necessarily possessed by the class of triangles of which t is a member. The first statement has to do with the train of thought actually followed by the geometer in arriving at the knowledge that Ft; the second relates to what he might write on a blackboard if asked to provide a formal proof of his discovery. It is my opinion that Descartes did believe that there was a perfectly valid 'blackboard' syllogism of the form set out in (i), (ii), (iii) above, which represented the formal aspect of the reasoning in the Cogito. What he wished to deny in the Second Replies was that we 'go through' this syllogism when we follow the famous exercise in the Second Meditation and arrive at

knowledge of our own existence.

III

I now turn to our second difficult passage, from the Principles. Once again, the text is worth quoting in full:

When I said that this proposition, 'I think, therefore I am', was of all propositions the first and most certain which anyone who philosophizes in an orderly way comes up against, I did not by saying that deny that one must first know what knowledge is, what existence and thought are, and that it is impossible that that which thinks should not exist and so forth; but because these are very simple notions and ones which on their own do not furnish us with knowledge of any existing thing, I did not think they were worth listing.*

It is easy to see what worried Burman here (see CB 4, line 1). In the passage from the Second Replies, Descartes had denied that the Cogito involved a syllogism. Or rather (if our interpretation above is correct) he had denied that the formulator of the Cogito (let us call him the 'cogitator' for short) actually needs go through a syllogism in his mind in order to arrive at 'sum'. At any rate, and on any interpretation, he had specifically denied the need for prior knowledge of the major premiss

(i) (x) x thinks $\rightarrow$ x exists.

Yet here, in the Principles, Descartes seems to commit himself quite clearly to saying that the cogitator needs prior knowledge of the proposition 'fieri non potest ut id quod cogitet non existat'. This is not a major premiss of the exact form of (i) above, but it does assert a general necessary connexion between thinking and existing. We may represent it as:

(v) (x) - $\diamond$ [x thinks & - (x exists)]

The contradiction now seems glaring. For (v) is actually stronger than (i):

* Atqui ubi dixi hanc propositionem, ego cogito ergo sum, esse omnium primam & certissimam, quae cuilibet ordine philosophanti occurrat, non ideo negavi quin ante ipsam scire oporteat, quid sit cogitatio, quid existentia, quid certitudo; item, quod fieri non possit ut id quod cogitet non existat & talia; sed quia hae sunt simplicissimae notiones, & quae solae nullius rei existentis notitiam praebent, idcirco non censui esse numerandas. (AT VIII 8).

it asserts that (i) is true for all possible worlds. Nor will our earlier distinction between the order of discovery and the order of exposition help us out of the mess. For whatever may be the case about the formal order of exposition, there remains a clash between the Replies and the Principles concerning the actual knowledge required by the individual 'cogitator'.

Here is Descartes saying in one breath (in the Second Replies) that the cogitator does not need prior knowledge of (i), and in the next breath (in the Principles) that he does need prior knowledge of the stronger proposition (v).

We can begin to resolve the discrepancy if we notice a very close parallel in the language of the two apparently contradictory passages. In fact the reader will have already noticed that our proposition (v):

$$(v) \quad (x) - \Diamond [x \text{ thinks} \ \& \ -(x \text{ exists})]$$

which, according to the Principles, the cogitator requires prior knowledge of, is none other than the generalized form of (iv):

$$(iv) \quad - \Diamond [I \text{ think} \ \& \ -(I \text{ exist})]$$

which the cogitator is said to know in the Second Replies (above p. 264).

The close formal similarity here is no artificial creation of our symbolism, but is closely paralleled in the text. The original of (v): "fieri non potest ut id quod cogitet non existat", closely corresponds to the wording of (iv) in the Second Replies: "...fieri non posse ut cogitet nisi existat" (AT VII 140). Unfortunately, most English versions of the passage in the Principles follow Picôt's French version, which has the rather vague "pour penser il faut être" for the sentence in question; and the parallelism has therefore gone unnoticed.

At this point our apparent discrepancy is still with us, but is in sharper focus. It can be resolved, I suggest, if we notice some vital observations Descartes has to make about the way in which we normally possess knowledge of certain general propositions. It is here that the contribution of the Conversation is invaluable. The general proposition 'whatever thinks

exists' is called a 'general notion' (notio generalis) at CB 4, line 11; a similar expression, 'very simple notion' (notio simplicissima) is used in the Principles (AT VIII 8) to describe our proposition (v). Now "notion" seems to be something of a technical term for Descartes. It is invariably used to describe basic logical truths - 'common principles or axioms' as they are called at CB 1, line 12.* Here is what Descartes says about these principles at CB 1:

...since [these principles] are present in us from birth with such clarity, and since we experience them inside ourselves, we neglect them and think about them only in a confused manner, but never in the abstract, or apart from material things and particular instances. (lines 15 ff.; my italics)

Descartes makes the point again at CB 4, this time in connexion with the Cogito:

As I have explained before, we do not separate out these general propositions from the particular instances; rather it is in the particular instances that we think of them'. (lines 11 ff.; my italics)

This is sound enough as a matter of empirical psychology. A child, for example, will be able to reject a particular contradiction as false, without being able expressly to formulate the 'general notion' that every proposition of the form 'P & - P' must be false.** In such a case, we may say with Descartes that the knowledge of the general principle has not been 'separated out' from the particular instance.

It is clear from all this that Descartes is aware of a crucial ambiguity in saying that someone knows e.g. the principle of non-contradiction: does the knowledge have to be explicit (i.e. does the knower have to be able to

* Descartes frequently says that these logical 'notions' have no existential import (see on CB 1 lines 24/25). An acute Aristotelian logician might object "but surely the major premiss 'whatever thinks exists' cannot be included in this class, since universal affirmative propositions carry existential import". For this difficulty, see Commentary on CB 4 line 1.

** cf. Descartes' own comment to Clerselier: "Quand on enseigne à un enfant les éléments de la Géométrie, on ne lui fera point entendre en général que... le tout est plus grandes que ses parties, si on ne lui en montre des exemples en des cas particuliers." (12 January 1646: AT IX 206).

formulate the principle explicitly), or is it sufficient for him to be able to recognise its truth in 'particular instances'? (This is part of a general difficulty in the use of the verb 'to know': compare 'he knows the principles of English grammar'). If we now relate this to the Cogito, the precise content of the claim that prior knowledge of a general principle is necessary for the cogitator will hinge on whether the knowledge is supposed to be explicit or implicit. And Descartes' position on this comes out at CB 4. Prior knowledge of a general principle is, it seems, involved (line 1); "but it does not follow that I am always expressly and explicitly aware of its priority" (line 6). And Descartes goes on to make the point quoted above that one may know a general principle only in a particular instance.

In the light of this, the Principles can be reconciled with the Second Replies. It is true in a sense that I (the cogitator) need prior knowledge of the general principle (v) as the Principles assert. But the Second Replies passage is correct in so far as my knowledge of this principle need not be explicit; I need only know it implicitly by knowing (iv).

IV

Let us summarise the results of the two preceding sections. (1) Formally speaking, the answer to the question 'Is the Cogito a syllogism?' is 'yes'. My existence is logically derivable from the premiss 'I am thinking', given the general logical principle that nothing can think without existing. But from the epistemic point of view, from the point of view of the individual who is 'beginning to philosophize in an orderly fashion', the Cogito is not syllogistic. The cogitator does not actually go through a syllogism in order to arrive at knowledge of his own existence (Second Replies). (2) However, even in the case of the individual discovery of the Cogito, prior knowledge of a general principle asserting the impossibility of thought without existence is essential (Principles). But the knowledge need not be explicit (cf. CB 4). The individual has the general principle implanted in him from birth,

but he is not explicitly aware of it (CB 1). He recognises it only in the singular, particular case, by seeing in his own case that it is impossible that he should think without existing (Second Replies). And it is this recognition, coupled with the indubitable awareness of the fact that he is thinking, that enables him to know the proposition 'sum' with certainty.

Let us now go back to the question we originally started with, viz. that of whether the knowledge of one's existence is, for Descartes, immediate or derived. In the light of what has emerged it is easy to see that the question is really a misleading one, since the alternatives are not mutually exclusive. The knowledge of one's existence is derivative in the sense that it implicitly depends on a general logical principle (or 'notion') asserting the impossibility of thought without existence. But it is immediate in the sense that the cogitator need not be aware of this principle except in its particular application to himself; so that the knowledge of his existence may come upon him not as a syllogistic deduction from a general premiss, but "as if it were a thing known per se."*

V

The status of the Cogito has aroused an enormous amount of discussion in the last decade or so, most of which seems to have arisen out of the apparent inconsistencies in Descartes' own characterization of his famous

* Second Replies (quoted above, p.263). A lot of recent discussion has centred around the phrase 't^{an}quam rem per se notam'. It is not clear, first of all, whether the phrase refers simply to the proposition 'sum', or to the Cogito as a whole. Hintikka, arguing for the first alternative, has suggested that the phrase supports a non-inferential interpretation of the Cogito (HINTIKKA (2), p.492). Against this, Frankfurt, followed by Kenny, has drawn attention to the particle t^{an}quam, arguing that whatever is known in the Cogito is only described as known as if it were self-evident. (See KENNY (1), p.54). But in fact nothing is proved either way by the use of the phrase 'res per se nota': for, according to Descartes, for something to be self-evident is quite compatible with its being deducible from other principles. In the Fourth Replies he says that the proposition 'there is nothing in the mind of which it is not aware' is per se notum; and he then proceeds to demonstrate that it follows logically from two other propositions: (1) everything in the mind must be a cogitatio (2) there cannot be any cogitatio in us of which we are not aware. (AT VII 246).

dictum. If the analysis offered above is correct, then Descartes can at least be cleared of contradicting himself when speaking about the Cogito. Now there is, no doubt, an intrinsic interest in seeing whether a great philosopher is guilty of inconsistency; and from the point of view of interpretation we need to be clear on how Descartes meant his dictum to be taken. But there are deeper questions at stake in this issue which, though obvious enough, often seem to be overlooked. Is the status of the Cogito really crucial for Descartes' philosophy? And if so, why?

The answers lie, of course, in the nature of the enterprise which Descartes sets himself: to establish human knowledge against the sceptics. If the Cogito is supposed to be the firm and immovable rock on which scepticism is to founder, then it seems crucial that should possess a special kind of certainty. If there is, after all, a sense in which the Cogito can be regarded as the conclusion of an argument with a general premiss rather than a simple intuition, then at least one other, potentially doubtful, proposition is involved in the truth of the Cogito, and the structure of Cartesian metaphysics looks less secure.

To canvass this difficulty further, it will help to return to the point made earlier about Descartes' 'two aspects of reasoning'. The 'order of exposition' (used in mathematics, science etc.) works as we have seen from previously conceded premisses. But in metaphysics we can take nothing for granted - in metaphysics 'it is the primary notions themselves which we have to work hard to render clear and distinct': this is why, according to Descartes, the 'way of discovery' is especially suited to metaphysics, and was the way followed in the Meditations (AT VII 157; cf. above p.121 ff.). All this is very well, but raises the following worry. Is not a seductive, but ultimately specious, defence of the Cartesian system being smuggled in here: we are invited to believe that Cartesian mathematics etc. work demonstratively from premisses, while Cartesian metaphysics (with its 'way of discovery') establishes the truth of these basic premisses themselves. We seem to be tricked into thinking that we can start from scratch, arrive at

the Cogito, then the existence of God, and then move on eventually to demonstrative science. To puncture this balloon, it might be argued, we simply have to observe that the Cogito, despite its vaunted 'priority in the order of discovery', does not have any intrinsic logical primacy. Indeed, if we forget about the order of discovery, and ask simply about the 'formal aspect' of the reasoning, the formal validity of the Cogito hinges on its deducibility from a general logical truth.

Part of what is at stake here is the general problem of the Cartesian Circle, and this will be tackled separately in the following appendix. Leaving aside the Circle, however, there is, I think, an appropriate Cartesian response to the line of attack just sketched. The first point one could make emerges from our previous conclusions. The Cogito may indeed depend logically on the truth of a general principle; but if the cogitator can arrive at genuine knowledge of his own existence without needing an express awareness of that principle, the dependence in question hardly impugns the genuineness of his knowledge, or its self-evident character. If a child correctly intuits that it is either raining or not raining, then his knowledge is no less a genuine intuition of a self-evident truth because what he intuits is a particular instance of a general truth which he is not explicitly aware of.

Secondly, it is important not to misconstrue the sense in which the Cogito is 'primary' or 'privileged' in the Cartesian system. Though the Cogito is often described as Descartes' 'Archimedean point', Descartes never implies that it is the only fixed point in his system. The 'punctum firmum et immobile' passage in the Second Meditation (AT VII 24) is in fact only an introductory comment, not directly linked with the Cogito; in the light of what follows, the passage could well be taken as having the force of an a fortiori argument: 'if Archimedes was satisfied with one fixed point, then there is hope that even one certain truth may suffice to establish knowledge (...and in fact how much more secure are the foundations of my system...)'.

In fact, Descartes explicitly denies that the Cogito has a privileged status in any logical sense: in a letter to Clerselier concerning the Cogito he says that there may well be no 'premier principe' in the sense of a principle to which everything is reducible' (June 1646; AT IV 445). Nor would the Cogito appear to have any special epistemological primacy: a glance at the 'geometrical proof' in the Second Replies shows that there are many basic propositions whose truth is presumably as certain as that of the Cogito. The special importance of the Cogito, as Descartes explains in the letter to Clerselier just mentioned, is that unlike the empty principles of logic, which 'do not make us any the wiser', it is an existential proposition which is useful for establishing the existence of God and other creatures*. As I have argued in Appendix A (p.254-7), the basic thrust of the Meditations is toward the question of what, if anything, exists: what the Cogito shows is that there is at least one existential proposition which the total scepticism of the First Meditation cannot subvert.

Does this eliminate the 'primacy' of the Cogito altogether? I think not. Descartes observed to Clerselier that there are three criteria which a proposition must meet if it is to be considered a 'premier principe': (1) it must serve as the basis for discovering other informative principles; (2) it must depend on no other principles; and (3) no principle must be easier to discover.** Whether the Cogito satisfies the first of these requirements hinges on the (highly questionable) validity of Descartes' proof of God's existence from the idea of God. The claim that it satisfies the second test hinges on the thesis that the logical truth on which it depends is one which

* What we learn from the principle 'impossible est idem simul esse & non esse' "...est de bien peu d'importance et ne nous rend de rien plus sçavans". On the other hand, "C'est avec très grande utilité qu'on commence à s'assurer de l'existence de Dieu et ensuite de toutes les creatures, par la consideration de sa propre existence". (AT IV 444/5).

** 'C'est assez qu'il puisse servir à en trouver plusieurs [sc. principes], & qu'il n'y en ait point d'autre dont il dépende, ny qu'on puisse plutost trouver que luy" (AT IV 444).

I need only be aware of in its particular application to my own case. The third claim is plausible enough, provided that existential principles alone are being considered: if we compare the Cogito with other existential propositions (relating to God or physical objects), then the certainty of these is very much harder work to establish. In terms of the degree of mental effort involved, the Cogito is by far the easiest.

APPENDIX C: Knowledge and the Circle

"Lastly, as to the fact that I was not guilty of circularity (circulum non commiserim) when I said that the only reason we have for being sure that what we clearly and distinctly perceive is true is the fact that God exists; but that we are sure God exists only because we perceive this clearly: I have already given an adequate explanation of this point in the reply to the Second Objections, nos. 3 and 4, where I made a distinction between what we in fact perceive clearly and what we remember having perceived clearly."

[Descartes' Reply to Arnauld; AT VII 245]

"It seems there is a circle. For in the Third Meditation the author uses axioms to prove the existence of God, even though he is not yet certain of not being deceived about these."

[CB 6, lines 1-3]

Nature of the Circle

The allegation that Descartes 'committed the circle' has become so commonplace that most people acquainted with the Cartesian system probably have a general idea of what is meant. But it is not easy to explain exactly what the alleged circularity consists in. Perhaps it will help to start by setting out schematically what seem to be the main steps in Descartes' validation of human knowledge in the Meditations. I offer no more than a crude sketch; the purpose is to illustrate roughly the 'order of discovery' (see on CB 17).

- (1) cogito
- (2) sum
- (3) sum res cogitans
- (4) there exists in me an idea of God
- (5), (5a), (5b) ... (various AXIOMS - e.g. 'the effect is like the cause')
- (6) God exists
- (7) God is not a deceiver
- (8) If I go carefully, and assent only to what I clearly and distinctly perceive, I will not go wrong
- (9)

The stages from (9) onwards need not concern us here, though some of them begin to emerge in the latter part of the Meditations. But Descartes appears to suggest that once (8) is established, the whole corpus of mathematics and science can be developed, step by step (AT VII 70/1). The way is open for achieving the ultimate aim of re-establishing the whole of human knowledge against the sceptics.

The first point to notice about the above schema is that there is no *petitio principii* in the ordinary sense. Descartes does not attempt to rig an argument by slipping into the premisses the proposition which he is setting out to prove. What worried Arnauld (AT VII 214) and Burman (CB 6) was what one might call an epistemological circularity. To explain this idea, I shall introduce the notion of 'epistemic entailment'. P is normally said to entail Q when the truth of P depends on the truth of Q (i.e. when, if Q is false, P cannot be true). I shall say that P epistemically entails Q when our knowledge of P depends on our knowledge of Q (i.e. when, if Q is not known, P cannot be known).

Now let us turn to Descartes and look at how the schema outlined above is built up. What happens is a careful step by step build-up of propositions, starting from scratch. It is vital that we do not jump steps; we develop our system piece by piece, starting from what we are absolutely sure of (our own existence) and working carefully on from there. Clearly, there is an implicit methodological rule at work in this procedure: we must not, at any stage, assert any proposition which we are not yet sure of knowing. Descartes himself refers to this implicit rule in the Search after Truth:

The whole secret consists in starting from the first and most simple truths and then advancing slowly, step by step, to those which are most remote and complex.*

* "Totum arcanum in eo tantum consistit ut a primis et simplicissimis incipiamus, & deinde sensim & quasi per gradus usque ad remotissimas & maxime compositas progrediamur." (AT X 526/7).

And in the Second Replies there is a quite explicit formulation. Descartes says that he tried in the Meditations to follow most strictly (acuratissime) a particular order:

The order consists simply in the fact that the propositions put forward first have to be known without any help from those which follow, and then that the remainder should be arranged in such a way that their demonstration depends solely on what has gone before.*

The reason behind this rule is obvious enough. To ignore it would be to allow the possibility that any old prejudice might slip in unchallenged and infect the subsequent steps in the validation of knowledge.

Descartes' methodological rule may be expressed more precisely with reference to our numbered schema, and using the notion of epistemic entailment defined above. We may put it like this:

No proposition in the schema may epistemically entail any proposition which comes further down in the order of discovery.

Epistemological circularity may now simply be defined as any violation of this rule. As the above quotations from the Replies and the Search show, the essence of the careful, systematic quest for truth is that, at each stage, any proposition asserted may epistemically entail only those propositions which have already been established.

The appropriateness of the term 'circle' to a violation of our rule can be seen from the following example. Let P be the proposition that there is order in the world; and suppose that Descartes had started from this proposition and proceeded to show that God exists (Q). To demonstrate a 'circle' here, an objector might try to show that P in fact epistemically entails Q. He might for instance argue as follows: in order to know that there is order in the world, I must know that the external world exists; to know this, I must know that my experience is not a dream or delusion; to know

* "Ordo in eo tantum consistit, quod ea, quae prima proponuntur, absque ulla sequentium ope debeant cognosci, & reliqua deinde omnia ita disponi, ut ex praecedentibus solis demonstrentur." (AT VII 155; my italics).

this, I must know that a nondeceiving God exists. This imaginary line of criticism indeed demonstrates a violation of our basic rule: P was supposed to be prior to Q in the order of discovery; yet it turned out to epistemically entail Q. Now the security of Q as a valid step in the systematic build-up of knowledge depended on its careful, step by step derivation from P. Yet an investigation of the epistemological pedigree of P brought us back round to Q. The circle is complete.

We are now in a position to analyse the charge of 'circularity' made by Arnauld and Burman. Arnauld can be taken to be saying, in effect, that proposition (6) in our schema epistemically entails proposition (8). I need to know (8) - that I can rely on the truth of my clear and distinct perceptions - before I can be in a position to know (6). Yet (6) was supposed to be prior to (8) in the order of discovery. Burman puts the point rather more precisely, by concentrating on the actual steps (5, 5a, 5b, etc.) which we need to know in order to prove the existence of God. How do we know these axioms are true? Only, it seems, in virtue of knowing (8). Yet, if this is so, the fundamental methodological rule is broken: propositions (5), (5a) etc., turn out to epistemically entail a proposition which comes much further down in the order of discovery. The objection of circularity is thus a very grave one for Descartes. He is not merely charged with a logical slip in one of his arguments; the allegation is of a fundamental methodological flaw which threatens to vitiate the entire carefully planned structure of the Meditations.

II

The reply

What reply can be made to such a worrying charge? If our analysis above is correct, then there seems to be only one possible reply: one has to deny that (5) etc., do in fact epistemically entail (8). And this, I believe, is precisely what Descartes does. But, until he spoke to Burman, he had

explained his response in rather obscure language - so much so that many modern commentators have, I believe, completely misunderstood his meaning. Let us now look first of all at the earlier formulations of his defence.

(a) The reply to Arnauld

Here Descartes seems to rest all the weight on a distinction between what is in fact clearly and distinctly perceived, and what we merely remember having clearly and distinctly perceived. Why on earth should Descartes bring in memory at this point? One popular modern view on this is that he is correcting a misapprehension about the role of God in his system: what he is saying, on this view, is that God's role is not that of guarantor of clearly and distinctly perceived truths (despite any impression to the contrary that the Fifth Meditation may have given), but merely the guarantor of the veracity of memory (see DONEY (2), p.326 ff.). According to this view, when I clearly and distinctly perceive P, I can know the truth of P even if I do not yet know that there is a God; after I have proved God's existence, however, I can know the truth of P even if I merely "remember" that I once clearly and distinctly perceived it.* On this interpretation, our schema should be amended as follows: proposition (8) should be replaced by:

- (8a) Whenever I "remember" that I clearly and distinctly perceived X, I did in fact clearly and distinctly perceive X.

Under the new schema, there is no circle, since (8a) is not epistemically entailed by (5) (5a) etc.: the proofs of God's existence do not require knowledge of the veracity of memory. And the original proposition (8) - the general guarantee of the veracity of clear and distinct perception - does not

* By putting the word "remember" in inverted commas, I merely mean to mark the obvious fact that the verb is to be taken in what is sometimes called the 'weak' sense - i.e. the sense which leaves it open whether a memory experience is veridical. This is opposed to the 'strong' sense of the verb, where 'I remember that P' entails P. Of course, it does not need God, or anyone else, to guarantee the veracity of memory in this strong sense. (For a discussion of these ambiguities, see FLEW, Section III. However, the notion that there are two senses of 'remember' seems to me unhappy. I prefer to mark the distinction by talking of 'remembering proper' on the one hand, and 'thinking one remembers' or "remembering", in inverted commas, on the other.)

appear in the schema at all.

I think that there is something right and something wrong in this interpretation. I believe it is correct to assert that we do not, according to Descartes, require a general guarantee of the veracity of clear and distinct perception in order to know (5), (5a) etc. Of course, merely to say this still leaves the status of these axioms very obscure; does Descartes want to claim that we 'just know' that (5) etc. are true - that they are, as it were, epistemically self-guaranteeing? I think he does want to say something like this; but we shall return to this later. Where, however, the interpretation seems to me to go wrong is in the introduction of (8a), and in the role thereby assigned to God.

Notice, first of all, what a very odd claim Descartes would be making, if he meant to assert something like (8a) above. He would be saying, in effect, that once we have proved God's existence, we can rely absolutely on our memory - i.e., that whenever we "remember" (in the 'weak sense') clearly and distinctly perceiving some proposition, we can be sure that the memory is accurate. Yet this would be a monstrous claim to make: it would fly in the face of the universal acknowledgment of the fallibility of memory. This is not a 'philosophical' point - a piece of over-precious scepticism - but a matter of plain common sense. Not just philosophers, but mathematicians, scientists and ordinary 'men in the street' know better than to rely uncritically on their powers of memory. So if Descartes were saying that, once God's existence has been proved, such caution is unnecessary, he would be saying something which is plain silly. (The fact that the remembering involved here relates to a special sort of proposition, viz. 'that I clearly and distinctly perceived P', makes no difference to this point. If I can "remember" having had a cup of coffee this morning, when in fact I did not, there seems no reason why I cannot equally "remember" having clearly and distinctly perceived the truth of Euclid's thirteenth theorem this morning, when in fact I did not.)

But not only would it have been very odd if Descartes has advanced a thesis like that expressed in (8a) above, but there is very strong evidence that he did not in fact do so. The Conversation itself is the source here; and if it reports Descartes' words accurately, then the evidence is incontrovertible. The relevant passage is CB 5, where Descartes and Burman discuss the question of the reliability of the human mind, and whether God can deceive. Burman makes the point that, even after God's existence has been proved and I know that my mind does not deceive me (non fallit ingenium), yet still my memory may deceive me (fallit memoria) since I may think I remember something which I do not in fact remember. This is because memory is weak (imbecillis) (lines 12-17). Descartes, and this is the vital point, implicitly accepts this. He says that he has nothing to say on the subject of memory: "everyone should test himself to see whether he is good at remembering; if he has any doubts he should make use of written notes, and so forth, to help him" (lines 18-21). Here Descartes is clearly taking up a cautious, common sense position vis-à-vis the possibility of my mistakenly thinking I remember having clearly and distinctly perceived Euclid's thirteenth theorem this morning. He sensibly tells us to check our memory by means of the usual aids. This is not the suggestion of a man who regards the veracity of memory as guaranteed, once God's existence has been established.

(b) The reply to the Second Objections

If we reject the memory interpretation, we still have to explain why Descartes made the distinction between actual and remembered perceptions in reply to the charge of circularity. The passage from the Second Replies, which Descartes referred Arnauld back to, may help to supply a more satisfactory explanation. In the Second Replies, Descartes addresses himself directly to the charge of circularity. The authors of the Second Objections had cited as a focus for their accusation an awkward passage in the Fifth Meditation; they complain: "according to your statement, you cannot be certain

of anything, or know anything clearly and distinctly, unless you first know certainly and clearly that God exists" (AT VII 124/5). Descartes did not, in fact, make this statement in exactly these words. But what he does say in the Fifth Meditation apparently comes down to the same thing. He says: "the certainty of everything else depends on this very thing [knowledge of God's existence], so that apart from this nothing can ever be perfectly known" (AT VII 69, lines 13-15). And later on we are told that it is from the knowledge that God exists and is not a deceiver that "I have gathered that whatever I clearly and distinctly perceive is, necessarily, true" (*collegi omnia, quae clare et distincte percipio, necessario esse vera*; AT VII 70)*. Both these quotations ring out like warning bells to those on the look out for a circle. The first passage, in particular, puts Descartes immediately and obviously in trouble. For, if all knowledge depends on knowledge of God's existence, then all the steps in our schema, from (1) to (5)..., epistemically, entail proposition (6). Descartes thus seems to be condemned out of his own mouth.

What happens, however, in the Second Replies, is that Descartes puts a vital qualification on his statement in the Meditations that all knowledge depends on God.** This is what Descartes says:

When I said that we can know nothing for certain until we know that God exists, I expressly declared that I was speaking merely of knowledge of those conclusions which can be recalled when we are no longer attending to the reasoning which led us to their deduction.

[AT VII 140]

The crucial concept introduced here is that of attention. (It is true that 'recalling' is also mentioned, but the reference to memory, though there is, as we shall see, a perfectly good reason for it, is in a sense a red herring.)

* There is a similar passage at Principles I, 30; this however refers us back to the fuller treatment in the Meditations.

** In fact, he claims that he had explicitly supplied this qualification in the Fifth Meditation; this must refer to the paragraph beginning at AT VII 69 line 16 ff.; but the 'explicitness' there is certainly not as great as one would wish.

The distinction Descartes is getting at is the distinction between our knowledge of clearly and distinctly perceived propositions at the time when we are attending to them, and our knowledge of such propositions when we are not attending to them. The former type of knowledge is an exception to the rule that 'all knowledge depends on God'.

(c) The reply to Burman

What I have just said would otherwise be only a tentative interpretation of what is, after all, a rather cryptic sentence, were it not for the valuable evidence of the Conversation. For at CB 6, we have the most explicit and clear statement of Descartes' reply to the charge of circularity. Talking of the axioms used to prove the existence of God (5, 5a..) Descartes says: 'I know that I am not deceived with regard to them, because I am actually paying attention to them; and for as long as I do pay attention to them I am certain that I am not being deceived.'* In this idea of the mind's focusing on, or attending to, a proposition we have the key to Descartes' attempt to break the circle.** At the time when we are actually focusing on a proposition, then, if we clearly and distinctly perceive it to be true, we cannot be mistaken - we know we are not being deceived.

The importance which Descartes attaches to this concept of mental attention emerges elsewhere in the Conversation. Right at the beginning, Descartes says that the common principles and axioms (like 'it is impossible that the same thing should both be and not be') cannot be denied by anyone who carefully focuses his attention on them (*attente ad illa animadvertit*; CB 1,

* Italics mine; the oratio obliqua of the original Latin is reproduced in my translation of CB 6, lines 5-7, q.v.; the Latin says: "scit se in iis non falli quoniam ad ea attendit; quamdiu autem id facit, certus est se non falli."

** The reliability of the Conversation on this issue is confirmed by Descartes' reply to Bourdin, who had asked how the attainment of knowledge was possible in Descartes' system, given the extent of Cartesian doubt. In reply, Descartes points out that when he said 'there was nothing which we may not doubt' this was "in the First Meditation, where I was supposing that I was not attending to anything which I clearly perceived" (in *Prima Meditatione in qua supponebam me non attendere ad quicquam quod clare perciperem*) (Seventh Replies: AT VII 460).

line 23). And at CB 81, Descartes uses the same idea, when summing up his position on the circle. If we did not know that God was the source of truth, then however clear our ideas were we should not know they were true, says Descartes, restating what he had said in the Fifth Meditation. But then he adds:

I mean of course when we were not paying attention to them (*cum ad eas non adverteremus*) and when we merely remembered that we had clearly and distinctly perceived them. For on other occasions, when we do pay attention to the truths themselves (*quando ad ipsas veritates advertimus*), even though we may not know God exists we cannot be in any doubt about them. Otherwise we could not prove God exists.

(lines 3-8; my italics)

These passages leave us in no doubt as to the thesis which Descartes wished to advance, and which he took to provide a defence against the charge of circularity. The thesis is that clearly and distinctly perceived propositions are, while attended to, epistemically self-guaranteeing.

III

Two objections

Before we develop this further, two possible objections to our interpretation must be dealt with. (A) The first arises out of an observation recently made by Professor Frankfurt in his study of the Meditations, that "Descartes repeatedly asserts, without any qualification or limitation whatever, that as long as he is ignorant of God's existence he must fear that a proposition may be false even though he perceives it quite clearly and distinctly" (FRANKFURT, p.166). However, Frankfurt only cites two passages in support of this claim, and neither of these seems conclusive. On the contrary, they can both be seen, on close examination, to confirm our own interpretation. In the first passage (from the section at the end of the Fifth Meditation which we have already drawn attention to - above p.283), Descartes says: "...for I can persuade myself that I was created of such a nature as to be deceived from time to time in matters which I think I perceive most evidently." But the "for" here refers us back to the previous sentence,

where Descartes, having talked about the proposition that the angles of a triangle equal two right-angles, says:

I cannot not believe that this is true so long as I attend to the proof; but as soon as I turn my attention away from the proof (*mentis aciem ab illa deflexi*), even though I still remember that I perceived it very clearly, it can easily happen that I doubt its truth, if I do not know there is a God.

[AT VII 70; lines 1-4; my italics]

The doubt, then, does not relate to the actual moment of mental attention.

The same point emerges in the case of the second passage cited by Frankfurt (Third Meditation, ad init.). Here Descartes raises the doubt that some God may, if he wishes, cause me to go wrong 'even in those matters which I think I intuit with the utmost possible clarity with the eyes of the mind' (*etiam in iis quae me puto mentis oculis quam evidentissime intueri*; AT VII 36, lines 10-12). But a crucial qualification follows in the very next sentence. When, says Descartes, he turns his attention to the objects themselves which he perceives clearly, he has to affirm that no deceiver could bring it about that 'I am nothing when I think I am something', or that 'two and three make more or less than five':

Quoties vero ad ipsas res, quas valde clare percipere arbitror, me converto, tam plane ab iis persuadeor ut sponte erumpam in has voces: fallat me quisquis potest, numquam tamen efficiet ut nihil sim, quandiu me aliquid esse cogitabo; ...vel forte etiam ut duo & tria simul juncta plura vel pauciora sint quam quinque.

[ibid.; my italics]

Now Frankfurt does acknowledge this important qualificatory passage, but he claims that Descartes only says that he is persuaded of the propositions in question while entertaining them - i.e. that he cannot doubt them, not that he knows they are true. However (though it would be a mistake to be dogmatic about this difficult passage) it seems to me that Descartes does clearly commit himself to the assertion that no deceiver could bring it about (*efficere*) that two plus three do not equal five; and this implies a claim about knowledge and truth, not just about psychological conviction. Compare the passage from CB 6 (quoted above, p.284) where Descartes says that when he

is attending to the axioms he knows he is not being deceived (scit se in iis non falli); the explicit use of the word 'know' (scire) makes it clear that Descartes is arguing that clearly and distinctly perceived truths, when attended to, do not just compel subjective assent, but also somehow carry a guarantee of objective truth.

(B) The second objection to our interpretation is that it still leaves unclear the reasons for Descartes' harping on memory in his discussion of the circle. We earlier rejected the thesis that God is intended by Descartes to function as a guarantor of the veracity of memory; but we have to admit that question of memory has an awkward habit of cropping up throughout the relevant parts of the Meditations and Replies. Even in the Conversation, which we have mainly relied on for our own interpretation, Descartes seems to contrast focusing on P with remembering that P (CB 81; quoted above p.285).

I think that the purpose of these references to memory is to highlight exactly what is meant by the crucial notion of attending, or focusing the mind. This point, and its importance for our interpretation, now needs some further development and clarification.

IV

The importance of the time factor

Descartes' defence against circularity involves, as we have seen, the concept of epistemically self-guaranteeing propositions. The plausibility of this notion will be looked at later. The point I wish to stress at this stage is that there is a sense in which the self-guaranteeing nature of such propositions cannot be regarded as a timeless affair. The guarantee is only operative, as it were, under very special conditions: it depends on, and is co-extensive with, the focusing of attention. If I am following the Cartesian programme, then I can indeed know the truth of the basic axioms while I attend to them. But as soon as I let my attention wander, even for a second, the 'guarantee' vanishes. To put the matter more precisely, the statement that a

proposition P is epistemically self-guaranteeing is always analysable into a set of hypothetical statements about the knowledge available to given individuals at given times, if at those times they are mentally attending to P.

Now there is a severe limit to the number of propositions which the human mind can entertain at any one time. As Descartes remarks to Burman at CB 6, we can entertain more than one proposition at a time (line 15 ff.) but the capacity of the mind is not infinite. The need for God in Descartes' theory of knowledge, and the sense in which all knowledge can be said to depend on him, now begins to emerge. For although we can have some knowledge without God (the knowledge of epistemically self-guaranteeing propositions), such knowledge would never, so to speak, get us anywhere. It would last only as long as the relevant proposition, or set of propositions, was actually being attended to. This alarmingly temporary status of our knowledge of basic propositions is brought out in the discussion of the Cogito in the Second Meditation: I must conclude, says Descartes, that the proposition 'I am, I exist' is, necessarily, true as often as it is put forward by me or conceived in the mind (quoties a me profertur vel mente concipitur; AT VII 25; italics mine). This passage has been taken as support for the so-called 'performatory' view of the Cogito*; on the more orthodox inferential view, it might be taken as referring to a sufficient condition for the truth of 'I exist'. But in the light of the passages on mental attention in the Conversation, it seems possible that at least part of what Descartes is introducing here is a necessary condition for guaranteed knowledge. My knowledge of my own existence,

* "The reason why Descartes' insight emerges...as a curiously momentary affair...is a consequence of the performatoriness of his insight. Since the certainty of my existence results from my thinking of it in a sense not unlike that in which light results from the presence of a source of light, it is natural to assume (rightly or wrongly) that I can be really sure of my existence only as long as I actively contemplate it" (HINTIKKA (1), Section 11).

like that of the other basic truths in the Cartesian system, is guaranteed when - and only when - I make the mental effort to attend to the relevant propositions.

Without God, then, our knowledge would be a fragmentary, disconnected affair, like the flames from embers which flicker and then die away. The flickerings would be genuine knowledge, but they would never enable us to see our way to developing any systematic science. Thus, Descartes' constant reference to memory - to wondering whether, a moment ago, one clearly and distinctly perceived that P - is to emphasise the essential disconnectedness that would be a feature of knowledge without God. Suppose, however, that we attend to the axioms which prove God's existence - they are few enough, Descartes claims, for us to keep them all in front of our mind at one time so that we can "grasp the proof in its entirety"*. Once we have arrived at the proposition that God exists and is not a deceiver, then at last the possibility of developing a systematic body of knowledge becomes available. To preserve the metaphor, the flickering embers have enabled us to kindle a torch which lights the whole room. Knowledge of God's existence makes possible the extension of our knowledge beyond the sphere of momentary and fragmented flashes of self-guaranteeing intuition.

This interpretation explains, I think, Descartes' position on the awkward issue of whether, in his system, it is possible for an atheist to know anything. This issue arose in the Second Objections. The impression (which we have now seen to be erroneous) that absolutely all knowledge depends for Descartes on the knowledge of God's existence, had worried Mersenne and company not only à propos the circle, but also because it seemed to have the consequence that an atheist could not even know that the angles of a triangle add up to two right angles. In his reply, Descartes makes it clear that an atheist can, on his view, know this ("quod Atheus possit clare cognoscere

* CB 6, ad fin. See however note on CB 6 line 9.

trianguli tres angulos aequales esse duobus rectis, non nego" [AT VII 141]). This is what we should expect; for the epistemically self-guaranteeing character of basic propositions (when attended to) is in no way conditional on our beliefs about God. But Descartes goes on to make the strange comment that such knowledge (*cognitio*) on the atheist's part cannot amount to true science (*vera scientia*). He adds little to this obscure comment except to say that nothing which can be rendered doubtful (*dubia reddi*) seems fit to be called true science. The point behind this remark becomes clear, however, in the light of our interpretation. The atheist's knowledge (*cognitio*) of P (that the angles of a triangle equal two right angles) is only co-extensive with his concentration on the mathematical proof of P. This means that the atheist cannot develop a secure and systematic corpus of knowledge. He will be in the position described above of flitting from insight to flickering insight. He cannot advance beyond isolated bits of cognitio; these bits of knowledge, though genuine enough, can never amount to true science.*

This still leaves unanswered the question of exactly how knowledge of God's existence enables us to extend our knowledge beyond the flashes of self-guaranteeing intuition. One way to make the transition would be to show that God has given us a mind of infinite capacity for attention, or an infallible memory. But, as Descartes noted to Burman, this is not on - we have to make use of 'written notes and so forth'**. This is an interesting comment, because it shows the extent to which, for finite human beings, the development of knowledge is bound up with the use of aids and 'props' - props which presuppose the existence of a stable external world. Now the method of doubt in the First Meditation revealed how far the belief in such a world is

* For Descartes' use of 'science' in this sense, compare the Search After Truth, where Eudoxus says how many have failed to acquire "une doctrine assez solide et assurée pour mériter le nom de science" (AT X 513). The context concerns the dangers of Pyrrhonism and the need to build our system of knowledge on foundations of rock.

** CB 5, quoted above p.282.

ultimately a matter of faith. Once God's existence has been established, this basic prerequisite for the development of systematic knowledge can be reinstated, and grounded in reason.

That the importance of God in Descartes' system should lie in this direction may sound very odd to those who suppose that Descartes' undertaking in the *Meditations* is the 'validation of reason'. But Descartes reveals the true nature of his enterprise as soon as he has 'proved' the existence of God, by looking forward to the crucial transitional step from knowledge of God to knowledge of the external world; at the beginning of the Fourth Meditation, Descartes says that after proving God exists, he thinks he can "see a path from the contemplation of God, in whom all the treasures of the sciences and wisdom are hid, to knowledge of other things"*. And in fact the place where the stress on a non-deceiving God occurs again and again in Descartes is in the Sixth Meditation, where the arguments about illusion and dreaming and our knowledge of external objects are re-examined. God is constantly called in to bridge the gap between ideas and external objects, to rule out the possibility of systematic illusion, and so on.

It does not at all follow from this that once God's existence is established we can throw caution to the winds: it does not mean, for example, that we can suddenly start to rely uncritically on our powers of memory. The very last sentence in the *Meditations* stresses the frailty of human nature and its liability to error (AT VII 90). The existence of a non-deceiving God does not mean that all is pellucidly manifest in the most error-free of all possible worlds. But it does mean, for Descartes, that human beings can progress beyond the intuition of self-guaranteeing truths and attempt to construct a coherent system of knowledge with at least some degree of confidence,

* The context shows that by 'things' (*res*) Descartes must here mean external objects. For the train of thought is: '(1) I have hitherto had to doubt my perception of corporeal things (*res corporeales*) and turn inward to contemplation of myself as a thinking thing; (2) but reflexion on myself leads me to acknowledge the existence of God; (3) and now, I can see a path back...etc.' (AT VII 53).

and without being stopped short by the limitations of a finite mind.

V

Is the circle broken?

If the analysis we have offered is correct, then Descartes can be acquitted of epistemological circularity, provided that we are prepared to accept the notion of epistemically self-guaranteeing propositions. But are we? It seems to me that there is no way of giving a general answer to this question; the argument must turn on appeals to particular examples. This, at any rate, is what Descartes' strategy in the Meditations suggests, with its constant focusing, on e.g., ' $2 + 3 = 5$ ' and '*cogito ergo sum*'. Such a reliance on individual examples may seem ominous: does the epistemic guarantee reduce after all to no more than an appeal to subjective conviction? This, however, is only one possibility. The other possibility is that Descartes regards the guarantee as hinging on the nature of what is asserted - the propositional content of the sentences in question.

In general, it is true, Descartes does not attempt to defend the self-guaranteeing status of such propositions; since he is not concerned to validate our basic logical intuitions, he is content, as we have seen, merely to assert that we know these propositions to be true while attending to them. The germ of a defence, however, is perhaps to be found in the passage from the Third Meditation where Descartes says that when he turns to the 'things themselves' he realises that no deceiver could bring it about that I should be nothing at the time of thinking I am something, or that two and three should be more or less than five (AT VII 36; quoted above p.286). What Descartes is perhaps on to here (and I think it is an important insight) is that, though someone might somehow manage to show that ' $2 + 3 = 5$ ' is false, the content of this sentence, the proposition which I am at present attending to when I contemplate the meaning of ' $2 + 3 = 5$ ', is something that could not possibly be rendered false.

That the self-guaranteeing nature of Descartes' axioms depends on their content is borne out by the criteria for clarity and distinctness: to be clearly and distinctly perceived an idea must contain in itself (contingere in se) only what is 'present and open to the attentive mind' (Principles, I, 45). Thus, when I contemplate the meaning of ' $2 + 3 = 5$ ', what is at present before my mind contains all that is necessary for the knowledge of the truth of this proposition.⁽¹⁾

But if this is the key to defending Descartes' notion of the epistemically self-guaranteeing proposition, it is also in a sense the key to Descartes' downfall. For Descartes' validation of human knowledge does not just depend on the existence of epistemically self-guaranteeing propositions; as we have seen, in order to show that any systematic knowledge is possible, Descartes has to show that the existence of a non-deceiving God can be demonstrated from such propositions. Yet the requirement of containing only what is present and open to the mind is an extremely stringent one, which it seems can at best be satisfied only by propositions whose content is both exceedingly simple and exceedingly unambitious - elementary tautologies, in fact, which 'wear on their faces' all that could possibly be relevant to their truth.⁽²⁾ When we turn to

(1) To see this further, contrast ' $2 + 3 = 5$ ' with 'I have a pain in my foot'. The second proposition, though part of what is involved is clear enough, contains an element which is not strictly present to the mind (viz. an idea about the location of the pain in the body; Principles, I, 46). Thus Descartes says we can have clear perceptions concerning our sensations "provided that we take great care that any judgements about them are restricted to that which is contained in our perception and of which we have inner knowledge" (si accurate caveamus ne quid amplius de iis iudicemus quam id praecise quod in perceptione nostra continetur & cujus intime conscii sumus; Principles I, 66). See however note 2.

(2) Should we include, as Descartes does, reports of immediate experience like 'I have a pain'? It seems not, since the truth of these depends not simply on the meaning of what is asserted, but also on the occurrence of the relevant sensation. If we assume (per impossibile, according to Wittgenstein) that it makes sense to imagine a private language for labelling sensations, then the possibility of mislabelling (misidentifying the sensation) must be open. (cf. Investigations, Part I, para.228). If Wittgenstein's strictures are carried to their logical conclusion then even the assertion of a tautology could be cast into doubt, since we may ask how the content or meaning of such an assertion is to be identified. Those who argue against Wittgenstein's attack on private language have to rely on memory-checks in order to provide such languages with any viable (rule-governed) structure of meaning. But such a let-out would not be open to the Cartesian doubter.

the axioms Descartes needs to demonstrate God's existence, for example the proposition 'there is nothing in the effect which was not previously in the cause'; it is evident that much more is claimed here than could possibly be established by attention to the mere meaning of what is asserted (cf. on CB 24). Descartes managed to conceal this from himself by refusing to apply the rigorous attention to this proposition which he applied to ' $2 + 3 = 5$ ' and the Cogito. He never says 'let him who will deceive me, he can never bring it about that whatever is in the effect was not previously in the cause'; instead, he is content to observe that the causal principle is 'manifest to the natural light', and accepts it with little or no further scrutiny.

This last point shows that even if the class of self-guaranteeing propositions is instantiated, the success of the Cartesian method must still hinge on conscientious and rigorous attention to particular propositions. Descartes himself readily admits that there is nothing infallible about this process: it needs hard work (AT VII 157 line 6; AT X 527 lines 6-9). But he perhaps underestimated the dependence of his system on this subjective component.

The upshot is that while there is no intrinsic circularity in Descartes' approach to the validation of human knowledge, it is not the gateway to secure science which he hoped for. The Cartesian method can be used; but instead of the towering edifice of metaphysics and natural philosophy, it seems that it will at best yield a collection of thin and unexciting propositions which are guaranteed objects of knowledge for the limited period while they are actually being entertained. Epistemon's reservations at the outset of the Cartesian journey of discovery are, unfortunately, only too apt: "If you continue in this way, your progress will be slow and short-lived. For how are we always going to find truths of this sort which we can be as sure of as we are of our own existence?"* How indeed?

* "Verum si ea ratione pergas, non longe, nec celeriter progredieris. Quo pacto enim semper istius modi veritates de quibus tantopere persuasi, ac de nostra existentia, esse possimus, reperturi sumus?" (Search after Truth: AT X 526).

APPENDIX D: Descartes' Doctrine of Freedom

Descartes, as is well known, believed in the freedom of the will. The Principles, Meditations and the correspondence all abound in references to 'la liberté de notre volonté', 'liberum arbitrium', etc. But to say this is in fact to say remarkably little. For it leaves all the philosophically interesting questions unanswered. What is the nature and scope of our freedom? What precisely does our freedom consist in? What is the relation between our (alleged) freedom and the (alleged) facts of causality? These are questions on which many philosophers have differed widely, despite an apparent agreement on the existence of human freedom.

In order to bring the details of Descartes' views on freedom into sharper focus, it will be helpful to start with a distinction between two classes of writers on the concept of freedom, viz. extreme libertarians and reconciliationists. On the one hand we have philosophers who wish to affirm the existence of a completely contra-causal power of the will; on the other, those who wish to give an account of freedom which is consistent with a thorough-going determinism. According to Leibniz, writing some sixty years after Descartes' death, Descartes belongs firmly in the former category: 'Monsieur Descartes', writes Leibniz, 'requires a freedom which is not needed at all, when he insists that the actions of the will of man are entirely undetermined; a thing which never happens' (Theodicy: Preliminary Discourse, para.69). Leibniz himself, of course, is a reconciliationist: freedom, he affirms, can exist even though 'all is certain and determined in advance in man

as everywhere else' (Theodicy Bk. I, para. 52); hence the completely contra-causal power of the will which he implies Descartes is committed to is, according to him, 'not needed'.

The phrase 'entirely undetermined' (*entièrement indéterminées*) is in fact taken from the French edition of the Principles: the infinite power of God, says Descartes, has left the actions of man entirely free and undetermined - "*entièrement libres et indéterminées*" (though our intellect is too weak to understand clearly how this is possible) (Bk. I, Art. 41; AT IX b 42). The impression that Descartes is arguing for a full-blooded power of free action, completely (though mysteriously) independent of causes, is reinforced by his reference in the same passage to our being conscious of the 'freedom and indifference which is inside us'. The term 'freedom of indifference' was traditionally used in the Schools to connote a completely independent or contra-causal power of the will ("which means a negation of causes", as Hume put it [Treatise, Bk. II, Part 3, §. 2] as opposed to mere spontaneity. (Cf. Burman's phrase "autonomous and indifferent" - sui juris et indifferens - applied to the will at CB 32.)

But did Descartes really mean to commit himself to a full-blooded doctrine of freedom of indifference, as he seems to have implied in the Principles, and as Leibniz seems to have supposed? There seem to me to be three main difficulties for this view.

(1) The first is that, in the Fourth Meditation, Descartes describes indifference as the 'lowest grade of liberty': "the indifference that I am aware of when there is no reason that urges me one way or the other is the lowest grade of liberty: it argues no perfection of free will." (AG 96; AT VII 58). And later on in the same Meditation there is the suggestion that the degree of true freedom is in inverse

proportion to the degree of indifference ('tanto magis sponte & libere illud credidi quanto minus fui ad istud ipsum indifferens'. [AT VII 59]). However, the difficulty here is only apparent. For, as Descartes himself was later explicitly to admit (Letter to Mesland of 9 February 1645), the sense in which he uses the term 'indifference' in the passages just quoted is a special one: the word is used to refer to the situation where one has no particular reason for taking either of two alternative courses of action; or where, in Descartes' own words, 'the will is not impelled one way rather than another by any perception of truth or goodness'*. This is like the situation of Buridan's ass, equidistant from two equally lush meadows (cf. Leibniz, Theodicy Bk. I, para. 49). The use of the term 'indifference' to characterise such a choice-situation corresponds with the modern English idiom: one might say, 'I am entirely indifferent as to which alternative to select - it makes no difference, as far as I can see.' This sense occurs at one point in the Conversation: in the pursuit of good and evil, says Descartes, indifference is a fault, since "the will ought to seek after the good without any indifference" (CB 32 line 12). The 'fault' here must be not the autonomous power of the will, but a state of neutrality, of 'not caring either way'. Now, the fact that Descartes refers slightly to 'indifference' in the modern ('Buridan's ass') sense does not at all prevent us from taking him to be committed to freedom of indifference in the traditional (contra-causal) sense, and to be affirming such a commitment in the passage already quoted from the Principles. But more of this later.

* Statum illum in quo est voluntas cum a nulla veri vel boni perceptione in unam magis quam in alteram partem impellitur (AT IV 173; K 159).

(2) The second difficulty concerns the relation between the will and the intellect in Descartes' philosophy. It is a bedrock principle of the Cartesian system of knowledge that clearly and distinctly perceived truths are indubitable. We just cannot doubt such truths at the time when we are perceiving them (Fifth Meditation, AT VII 69; Second Replies, AT VII 145; Principles I, 43). In the cases of clear and distinct perception, then, the indifference and autonomy of the will seems to be threatened. Indeed, in the Conversation the very strong language of compulsion is used: 'for as long as he pays attention to them [clearly and distinctly perceived axioms] he is . . . compelled (cogitur) to give assent to them' (CB 6, lines 6-8). But although Descartes steadfastly held to his basic thesis about perception of axioms compelling assent, I do not think he regarded it as a threat to the independent sovereignty of the will. We tend today (so much are we unconscious Lockeans) to think of perception as something passive: we take Descartes to be saying that a truth just 'strikes us' or 'impresses itself on our mind' so that our freedom to dissent is lost. To some extent Descartes himself uses the model of passivity. (cf. Passions of the soul I, 17). But despite this, our perception of clear and distinct truths is for Descartes ultimately under the active control of the will. We have to make a mental effort: we must 'carefully focus our mind' on the relevant axiom (attente animadvertere; CB I, line 23). Only while we keep the axiom in focus is it impossible for us to doubt it. The threat to the independent sovereignty of the will, then, is very much less than appeared at first sight. The situation we are in with respect to clear and distinct perceptions is rather like that of a

man who takes an emetic: having taken the emetic he is not free to vomit or not to vomit as he chooses; but the decision to take the emetic in the first place was up to him. Indeed, the freedom we enjoy is actually far greater than in this analogy. For once a man has taken the emetic he loses all subsequent freedom of control over his stomach. But once a man has focussed his attention on an axiom he does not lose all subsequent control over the giving of his assent: he can at any time relax his attention and so avoid the compulsion to assent. The compulsion to assent lasts only so long as the attention (quandiu attendit, CB 6, line 6).

(3) The third difficulty concerns a remarkable passage in the Conversation itself. At CB 50, where the vexed issue of predestination, divine immutability and grace is raised, Descartes says that 'after weighing the truth of the matter, he finds himself in agreement with the Gomarists rather than the Arminians or even, amongst his brethren, the Jesuits' (lines 31-4). Now, in the fierce controversy following the death of Calvin, which is referred to here, Francis Gomar (1563-1641) had represented rigid adherence to strict predestinarianism, while Jacobus Arminius (1560-1609) took a more moderate position, holding that the sovereignty of God was compatible with a measure of human freedom. In affirming his preference for Gomarism, Descartes is, as he himself notes, putting himself at odds with some of his own Catholic brethren, notably the Jesuits. On the issues of predestination, the Jesuits had favoured the position of Luis de Molina (1535-1600), who had stressed the role played in salvation by free and independent (though divinely foreseen) cooperation with the grace of God; this was in contrast with the Jansenist doctrine of the irresistibility of divine grace.

The upshot of this is that Descartes' view, as stated in the Conversation, seems to involve an outright rejection of Molinism, and a denial of full-blooded human autonomy, or freedom of indifference. Indeed, if strict predestination is true, and divine grace completely irresistible, then it would seem that human freedom must reduce, at best, to mere spontaneity.

Despite this, there is an earlier text where Descartes' position seems much closer to that of Molina and the Jesuits. This is the famous analogy of the king and the duellists: a king orders two subjects who hate each other to be at a certain place at a certain time, knowing that nothing will stop them fighting; but

. . . for all that he does not compel them, and his knowledge and even his will to make them act in this way (les y déterminer) doesn't prevent their fighting when they meet as freely and voluntarily as if they had met on another occasion without his knowledge . . .

(AT IV 353; K 189; letter to Elizabeth of January 1646)

As Etienne Gilson has shown, Descartes' stressing of the real independence of the duellists does seem to favour a position more compatible with the Molinists, as against the stricter 'irresistibility' doctrine of the Jansenists. Now, faced with this apparently flat contradiction between the remarks in the Conversation and the letter to Elizabeth, Gilson concluded that Descartes took no fixed stand on the problem of human freedom, and was apt to speak at random when pressed on the subject*. Similarly, Boyce Gibson thinks that

* "Il [sc. Descartes] défend selon les circonstances n'importe quelle solution, et encore ne se résigne-t-il à en défendre une que contraint et forcé par l'insistance de ses interlocuteurs" (GILSON (3), p. 394).

Descartes' view vacillates because of continual ad hoc concessions to 'contemporary theological controversialists' (GIBSON, p. 339; cf. COPLESTON, Vol. IV, p. 150).

It seems to me, however, that these commentators fail to take account of the special context of the passage in the Conversation. What is essentially at issue at CB 50 is not the freedom of men but the nature of God: in particular, God's complete integrity (his decrees are inseparable from himself - line 45) and his 'immutability' (he can undergo no change or alteration - line 35). Now it is well known that the Omnipotence of God, in the Cartesian system, is utterly absolute and unqualified (compare the divine control over even the eternal verities; CB 33). So we might well expect Descartes to argue that nothing can be allowed to detract from the supremely perfect and immutable divine nature. And this is just what happens at CB 50. We cannot, insists Descartes, think of God as changing his decrees in response to the prayers of men. Instead, we must think of him as having decreed from eternity to grant a given request, on condition that the petitioner is living a worthy life at the time; line 27. It is in this respect and this respect only, then, that Descartes sides with the Gomarists as against the Arminians and Jesuits, viz., in that the Gomarists have the most absolute and exalted view of the eternal sovereignty and immutability of God. Descartes never says, it should be noted, that this affects his conception of human freedom; indeed, human freedom is never mentioned at all at CB 50. And Descartes' constant refusal to compromise his philosophy by a rigid adherence to any one theological sect should surely make us wary of foisting on him acceptance of all the tenets of Gomarism, just because of his agreement with them on a single point.

But surely, it will be objected, in siding with the Gomarists and acknowledging the complete sovereignty and immutability of the divine will, Descartes must, as a corollary of this, accept a downgrading of his conception of human freedom. But this line of reasoning (obviously implicit in Gilson's argument) is mistaken. The logical tension between complete divine pre-ordination and genuine human freedom, acute though it is, is something Descartes consistently refuses to be bothered by. He just regarded the resolution of the problem as a magnum mysterium - something which, like the incarnation, we have to accept on faith*. This comes out explicitly in the Principles (I, 40):

Our knowledge of God leads us to perceive so immense a power in him that we think it impious to suppose anything could be done by us which had not been already pre-ordained by him. Now it is easy to get ourselves into great difficulty if we try to reconcile this divine pre-ordination with our freedom of the will, or grasp both at once.

(AT VIII 20)

A similar mystery surrounds the acts of God himself, as is made clear later on in CB 50. For although the acts of God are completely necessary (since he necessarily wills what is best) they are still completely free and 'indifferent': "non deberet hic sejungi necessitas et indifferentia in Dei decretis, et quamvis maxime indifferenter egerit, simul tamen maxime necessario egit" (lines 40 ff.). Descartes concludes, as well he might, with a warning against trying to unravel this logical tangle: we must never allow ourselves the indulgence of trying to subject the nature and workings of God to our own reasoning (lines 50 ff.).

* Compare a remark in Cogitationes Privatae, written as early as 1619: "tria mirabilia fecit Dominus: res ex nihilo, liberum arbitrium, & Hominem Deum" (AT X 218).

None of these three difficulties, then (the ambiguity over 'indifference'; the problem of compelled assent; and the alleged 'Gommarism' of the Conversation), seem to me to cast real doubt on the accuracy of Leibniz' assessment of Descartes as a full-blooded libertarian. More positively, there are a large number of passages which seem to me to place Descartes quite firmly among the adherents of 'liberty of indifference', in the traditional, full-blooded sense. In the letter to Mesland of May 1644 Descartes makes it quite clear that he accepts the idea of a real and positive power of self-determination (une puissance réelle et positive de se déterminer; AT IV 116; K 149): this looks very like the independent, contra-causal power meant by freedom of indifference^{*}. And, in general, the view Descartes takes of the human will is a very exalted one. He calls it a 'perfection of the highest order' (summa perfectio; Principles, I 37); and in the Fourth Meditation he makes the claim that our will, considered formally and precisely in itself, is as great as that of God (AT VII 57). This claim is elaborated in the Conversation: any apparent imperfection in the will arises from errors in our understanding (which, of course, is far inferior to God's); the will itself is perfect (CB 31). The parallel with God's will is very striking; and it is worth noting that in the same work, God is described as 'indifferent with respect to all things' and as 'acting with maximum indifference' (CB 50, lines 38 and 42). All this seems to confirm that Leibniz, in fastening on the phrase 'entirely free and undetermined', had got to the heart of the Cartesian view of the will.

^{*} The characterization of the will as a power (*puissance*; Lat.: *vis volendi*) also occurs in the Fourth Meditation; AT VII 58, IX 46.

What then are Descartes' arguments for the existence of human freedom of this degree and kind? In view of his thesis that its existence, despite complete predestination, is a mystery which we must just accept, it is not surprising to find that he offers almost none. Indeed, he positively states that no proof is necessary (La liberté de notre volonté se connaît sans preuve; Principes, I, 39).

The freedom of our will is just self-evident (per se nota; ibid.): it is one of the first and most common notions which are innate in us (inter primas et maxime communes notiones quae/sint innatae; ibid.).^{nobis}

The introduction of the 'notion' - an unprovable but indubitably true axiom - is not as harsh as it sounds: it is fundamental to the Cartesian system that there are some truths which cannot be demonstrated, but which can be intuited to be true by the attentive mind (Principles, I, 43 ff.). But while one may be prepared to accept this appeal to intuition in the case of an axiom like 'it is impossible for the same thing to be and not be at the same time' (example given at Principles, I, 49), it seems much harder to swallow in the case of the proposition that our will is free. No doubt most of Descartes' axioms (even the most basic logical notions) have been questioned by philosophers at one time or another. But the proposition asserting the freedom of the will is surely something of a special case. In Descartes' own day, as well as our own, it has been the subject of fierce and bitter controversy among moralists and theologians as well as metaphysicians. So Descartes' inclusion of the proposition in his category of axiomata per se nota is, to put it at its mildest, a bold move. But there is more to complain of than this, as we shall shortly see.

The only thing Descartes offers us by way of supporting his position is an appeal to inner experience. We have to go down deep into ourselves, Descartes tells Burman, and we will just see that our will is as perfect as it can be (CB 31, line 23); we can imagine beings cleverer than us, but not having a more perfect will. We have inner awareness of our freedom (intime conscii sumus nostrae libertatis; CB 32, line 9, cf. Principles I, 41). This straightforward challenge, the bold appeal to experience, has become extremely popular in discussions of free will: "We have a profound conviction of freedom. We know we are free", asserts a recent writer (LUCAS, p. 1). Yet one feels there is something philosophically suspect here. It is not easy to explain just exactly what is wrong, but somehow the appeal seems too brief, too peremptory, too simple. Leibniz, however, seems to me to put his finger exactly on the weakness involved.

The reason M. Descartes has advanced to prove the independence of our free actions by an alleged internal feeling has no force. We cannot properly speaking feel our independence, and we are not always aware of the causes, often imperceptible, on which our decisions depend. It is as though the magnetic needle took pleasure in turning towards the North; for it would think that it was turning independently of any other cause, not being aware of the imperceptible movements of the magnetic matter.

(Theodicy Bk. I, para. 50).

The point is well taken. I may be aware of choosing X without any feeling of being pushed into the choice: I may feel I could equally well have chosen Y. But the fact that I do not feel that there are any factors beyond my control determining my choice does not entail that there are none. If in fact there are, unbeknown to me, psychological pressures which permit me no other choice than X, then my feeling

of freedom is an illusion - as much an illusion as the feeling which the sentient compass needle exults in.

It may be objected that these strictures against the 'inner awareness' appeal prove too much. If the appeal to subjective feelings of conviction is to be disallowed, then does not the entire Cartesian structure of indubitable knowledge (including knowledge of the most basic logical notions) threaten to collapse? We have already noted that it is fundamental to the Cartesian system that there are some truths which cannot be doubted by the attentive mind; and many philosophers would want to agree with Descartes that an appeal to 'psychological' or 'subjective' feelings of indubitability is ultimately inescapable for any viable theory of knowledge.

However, even if we accept this general approach to the foundations of knowledge, it just will not work in the special case of the proposition asserting the existence of human freedom. Whatever view we take of Descartes' other axioms (and there is no space to examine them severally here), the content of the proposition that we are free is just not available for contemplation. As the Leibnizian criticism shows, for this proposition to be true it has to be true that there are no antecedent subconscious factors determining our choices; and this is something that it is not (logically) open to us to examine by introspection. We can no more determine the truth of this proposition by 'attentively focusing' on it, than we can do in the case of the proposition that there are mountains on the moon. Thus, no matter how enthusiastic (or otherwise) one may be about the Cartesian theory of indubitability and axiomatic knowledge, the assertion of the freedom of the will is not even a candidate for inclusion in the relevant list of axioms.

The point at issue here can be stated in Cartesian terms: Leibniz is in effect objecting that the perception I have of my freedom may be clear, but it cannot be distinct. For a proposition P to be distinctly perceived, it must not only be present and apparent to the attentive mind, but also must contain nothing but what is clear (Principles I, 45). But in this case P (that I have a completely free and independent will) contains or entails the proposition that there are no antecedent factors determining my action. And this is something which I do not, and cannot, clearly perceive. All I am conscious of is a feeling of being independent. But whether I am in fact independent is not something I can be aware of (I cannot 'properly speaking feel' it). For the psychological antecedents determining my action - if there are any - are not the sort of things which are normally available for conscious intuition. It follows that I do not distinctly perceive my freedom (in the full-blooded sense of 'freedom' which Descartes requires), and so the appeal to intuition fails.

Descartes does have one argument to back up his 'inner awareness' appeal. This involves reference to his own method of doubt. We have the ability, Descartes points out, to stand back or 'abstain' (abstinere; Principles I, 39) from received opinions and beliefs (e.g., we can suspend our common sense belief in the existence of the external world). Descartes seems to have regarded this type of sceptical exercise as a striking example of our exercising our freedom. But although to go through the Cartesian programme of doubt requires a deliberate decision to suspend our ordinary beliefs, the fact that we are able to make such a decision is clearly insufficient to prove that the decision is entirely free and undetermined. The Leibnizian criticism stands. For although a man may think his decision is free, it may in fact be the result of

psychological causes. In Descartes' own case - to speculate freely - the decisions to suspend his ordinary beliefs may in fact have been the only course open to him (e.g., a pathological desire to beat the sceptics at their own game may have left him no other option). I do not want here to get in to the labyrinthine problems in the theory of action about whether desires are causes, and so forth. The point of the Leibnizian objection is simply that Descartes' appeal entirely fails to take into account the possibility of psychological determinism. It may of course be that psychological determinism is refutable; but the appeal to the experience of exercising the will proves nothing either way.

APPENDIX E: Note on Descartes' Philosophy of Science

Descartes has long been classified as a 'rationalist', and, for most Anglo-Saxon philosophers, this word still conjures up the spectre of 'a priori' or 'armchair' science. This conception dies hard: Boyce Gibson stated that "it is impossible to doubt that the constant drift of Descartes' (scientific) thought was away from the particular and in the direction of a priori argument" (GIBSON, p. 183). More recently, Kenny has observed: "Parts of Descartes' system were later confirmed experimentally, and other parts experimentally confuted, but the system is based mainly on a priori philosophical grounds" (KENNY (1), p. 206)*. As they stand, both these comments are purely descriptive. But an underlying attitude of criticism soon makes itself apparent. Boyce Gibson goes on to remark that Descartes, in contrast to a Bacon or a Darwin, favours the "direct and rigid way of theoretical deduction" (*ibid.*); and Kenny notes that " . . . it is as if (Descartes) realized correctly that the way of progress lay through Mathematics, but thought incorrectly that what physics should imitate in mathematics was . . . its a priori methods of discovery" (*op.cit.* p. 213).

This view of Descartes (which I shall call the orthodox view) seems to me unsatisfactory for two reasons. First, the element of criticism seems somehow out of place. For it appears to subscribe, implicitly, to the old myth of a rigid dichotomy between (good) empiricists who work experimentally from observed effects to causes and (bad) rational-

* Cf. the following comment in a recent paper on Descartes' theory of Gravity: "Descartes' aim in the Principia Philosophiae was to deduce the effects of nature from the 'clear and distinct ideas' or first principles. Experiment had little place in this method." (AITON, p.27).

ists who proceed a priori from causes to effects. Yet recent developments in the philosophy of science (e.g. the work of Popper and of Kuhn) make it very hard to maintain the old conception of 'good' empiricist science. This is (to compress grotesquely) because (a) the path from 'observed facts' to 'scientific law' is beset with thorny logical problems to do with confirmation and strength of evidence; (b) few of these whom we regard as 'good scientists' have in actual fact followed, or even attempted to follow, such a path; and (c) the very notion of the 'empirical facts' and 'simple observation' is distinctly problematic.*

The second objection to the orthodox view is that it completely misrepresents Descartes' own attitude to the nature of science. Even in the Regulae, which lays so much stress on 'deduction', Descartes roundly attacks the scholastics for 'neglecting experiments' and 'expecting truth to germinate from their own heads like Minerva from the head of Jupiter' (AT X 380). And in the Discourse, Descartes is adamant that 'the progress of science makes experiment more and more necessary'; he goes on to say:

the potentialities of nature are so ample and vast, and my principles so simple and general, that, as regards any particular effect that I observe, I begin by knowing only that there are various ways in which it can be deduced from the principles . . . Here I know of no other resource than to look out once more for experiments that would give different results according as one or another explanation is right.

(AT VI 64/5; trans: AG 48)

But in spite of this, one may ask whether Descartes in fact followed his own advice. Do not his actual scientific arguments constantly reflect a 'mathematical' conception of scientific truth? A famous

* See POPPER, § 1 and § 30; KUHN Ch. X p. 126 ff.

passage at the end of Book Two of the Principles comes to mind here, in which Descartes appears to state unambiguously his allegiance to the mathematical method:

I freely admit that I recognize no other matter in corporeal objects than that susceptible of what the Geometers call quantitative analysis of divisions, shapes and motions . . . Concerning these I accept as true only what can be deduced from the indubitably true common notions with such clarity as to qualify as a mathematical proof.

(AT VIII 78/9)

But the phrase 'mathematical method' is ambiguous, since it might refer to either of two quite distinct requirements: the requirement of quantifiability and the requirement of deducibility from axioms. Both these elements appear in the passage quoted. In the first part, Descartes is merely insisting on the basic Galilean thesis that a scientific description must be a description in terms of exact quantities*. There is nothing specially 'rationalistic' about this view: on the contrary, it is now universally accepted by scientists of all persuasions. But Descartes does go on to mention the second requirement of the mathematical method when he says that he will only accept as true what can be deduced from indubitably true 'common notions' (i.e. axioms); and this does seem to favour the orthodox view. Moreover, in the same book of the Principles do we not have a paradigm example of purely a priori science - the deduction of the laws of motion from premisses about the nature of God?

This last point cannot be denied. But it is very important to notice that only a very few quite general principles are put forward as demonstrable a priori in the Principles. For the rest, Descartes

* In fact Descartes' own results often fail to measure up to this requirement; see on CB 73.

says:

We are free to make any assumption consistent with these principles, provided all the consequences which follow from it square with experience (nobis liberum est quidlibet de illis assumere modo omnia quae ex ipso consequentur cum experientia consentiant).

(AT VIII 101)

Now this is patently not pure 'a-priorism'. It looks much more like the standard modern conception of a hypothetico-deductive method. A theory is advanced and its deducible consequences checked against experience. A similar conception of the scientific enterprise is to be found in the Conversation. At CB 74, Burman asks Descartes point blank how he arrives at his three types of terrestrial particle. "Through reasoning", replies Descartes, "and then through experience which confirms the reasoning" (lines 2/3). The reference to experience is no aberration: ten years earlier Descartes insisted that "in my type of science I used no reasoning which was not mathematical and evident and all my conclusions are confirmed by true experiments". (to Plempius, AT I 421; K 38; italics mine in both quotations). Elsewhere in the Conversation, Descartes talks of his theory of the vortices as a hypothesis which has been corroborated by the large number of consequences deduced from it (CB 61, lines 12 ff.). And indeed, the whole tone of this passage suggests a scientific method much more akin to the outlook of many present day scientists than the 'rigid deductivism' which the orthodox view would have us believe in. Two points in particular emerge. First, the notion of explanatory simplicity plays a key role in Descartes' thinking: his object is to subsume as wide a variety as possible of diverse phenomena under a sparse and economical covering principle (lines 13 ff.). Second,

Descartes shows a complete grasp of the importance of the scope of a scientific theory. It is no great achievement to construct, post hoc, some sort of covering law for a finite set of phenomena. What Descartes, in common with scientific thinkers today, takes to be a striking consideration in favour of a theory is that its scope can be extended to cover a wider range of phenomena, and in particular of different kinds of phenomena, than those which it was originally designed to account for (see lines 15-20)."

The conclusion to be drawn from all this is that Descartes' concept of scientific truth is much more complex and sophisticated than the orthodox model suggests. While there is a strong element of pure a priori reasoning (in the deduction from axioms of the basic and most general principles of physics), at a lower level we have something much more like a hypothetico-deductive system. At this level the aim is to devise hypotheses of maximum simplicity consistent with the first principles which will subsume as wide a range of diverse phenomena as possible. If this is 'rationalism', then rationalism is something science cannot do without.

* cf. POPPER § 83.

CONSPECTUS OF THE TEXT

Column 1: CB number (present edition).
 Column 2: page reference to standard Latin text in AT Vol.V.
 Column 3: Latin rubric: key words from Descartes' text quoted by Burman.
 Column 4: brief description of topics covered.

<u>CB</u>	<u>AT V</u>	<u>Rubric</u>	<u>Topics</u>
[Medit.I]			
1	146	vel a sensibus vel per sensibus	sensory and innate knowledge; the 'prephilosophical' mind; axioms and scepticism.
2	147	Supponam igitur	malignant demon
3	147	summe potentem	
4	147	ex nullo syllogismo	the Cogito
5	147/8	in quod non potest ferri summum ens	God and deception; memory
6	148/9	denique quod circulum	Cartesian circle; nature of thought and the mind; eternity
7	149	Quod autem nihil in mente	thought and consciousness
8	149	a cogitatione dependens	
9	149/50	Quamobrem non dubito	the mind never without thought; mental activity of infants; intellectual memory
[Medit.II]			
10	150/1	et si fas est dicere malignum	malignant demon
11	151	is qui me creavit	author of our being - doubt
12	151	tum quid ea sit	substance and accidents (wax)
13	151	neque enim abstraxi	
14	151/2	adaequat infinitam Dei potestatem	adequate knowledge
[Medit.III]			
15	152	vix mihi ullam	material falsity in ideas

<u>CB</u>	<u>AT V</u>	<u>Rubric</u>	<u>Topics</u>
16	152	forte etiam	nature of the mind as gradually discovered in first three Meditations
17	152/3	nullum plane habebo	order of discovery vs. order of exposition
18	153	et quia nullae ideae nisi tantum rei esse possunt	'ideas'
19	153	qua enim ratione intelligerem me dubitare	perfection; 'priority' of positive over negative
20	154	non possim ejus ope	knowledge and power
21	154	nulla difficiliora factu mihi videntur	understanding, conception and imagination; 'indefinite' and 'infinite'
22	154/5	majus est creare vel conservare subjectum quam attributa	substance and attributes
23	155/6	tamquam si inde sequeretur	creation and eternity
24	156	valde credibile est	cause and effect
25	156	omnis res cui inest	substance and attributes; substrate.
26	156	aliquod idolum	idols and material falsity
27	157	sed me istam vim	proof of perfect being
28	157	de idea angeli	angels and 'res cogitans'
[Medit.IV]			
29	158	atque ob hanc unicam rationem	final causes
30	158	ex hoc ipso quod ejus ideam formare possim	idea of perfection
31	158/9	non tamen in se formaliter	understanding and will; perfection of human will
32	159	possum tamen illo altero	freedom and indifference; original sin
33	159/60	cujus idea in intellectu divino prius fuerit	God as source of possibility as well as actuality

<u>CB</u>	<u>AT V</u>	<u>Rubric</u>	<u>Topics</u>
[Medit.V]			
34	160	ut patet ex eo	true and real versus fictitious objects; difference between Mathematics and Physics
35	161	non possum duos aut plures ejusmodi Deos intellegere	uniqueness of God
36	164	quia summus assueti	distinction between essence and existence
37	161	nec in ulla re	'ideas' and 'things' - contradiction can arise in ideas alone
38	161	nec ulla umquam in claris et distinctis esse potest	no contradiction possible in clear and distinct ideas
39	161/2	ac proinde	perfection and priority (triangle)
[Medit.VI]			
40	162	illas existere	} imagination
41	162	quamvis illa a me abesset	
42	162/3	ad illud velut inspiciendum	imagination vs. perception
43	163	Et primo quoniam	mind and body
44	163	actissime esse conjunctum et quasi permixtum	interaction between mind and body
45	163/4	longe melius est	human error; the body a machine
46	164	nulla cum profunditate spectatur	'surface' (superficies)
47	164	quorum extremitates sunt simul	'contiguous' and 'continuous'
48	165	[Observandum]	The Meditations; relation of Metaphysics to Physics.
[Notae in Programma]			
49	165	[In Resp. ad Prog.]	innate ideas
[Principia Philosophiae]			
[Lib.I]			
50	165/6	ita ut per unicam	God identical with his decrees; divine 'immutability'; necessity and indifference; Gomarists and Arminians

<u>CB</u>	<u>AT V</u>	<u>Rubric</u>	<u>Topics</u>
51	167	indefinitum	'infinite' and 'indefinite'
52	167	tamquam etiam aeternas veritates	eternal truths vs. contingent truths
[Lib.II]			
53	167	clare videre nobis videmur	'appearance' and the external world
54	168	aquae ab eo sublevatae gravitas et ejusdem lentor	motion and rest: movement of a ship
55	168	saepe sit valde contorta	complex motion (carriage wheel)
56	168	Prima	French edition of Principles
[Lib.III]			
57	168	propter nos solos	dangers of anthropocentric cosmology
58	168/9	creatus cum omni sua perfectione	the creation: Descartes' view of Genesis
59	170	motusque habent aliquo modo circulares	circular motion of particles
60	170	magnitudine mediocres	the three 'elements'
61	170/1	circa alia quaedam puncta	scientific hypothesis
62	171	quia quo minima	ratio between surface area and mass
63	173	plus habent superficiei	
64	171	dividuntur vero secundum molem	
65	171	pro tertio	the three 'heavens'; our own world not centre of universe but simply a planet
66	172	sed tantummodo in pressione	nature of light
67	172	[Art.66]	'mathematics' and 'mechanics'; utility of models
68	172	non esse inter se aequales	vortices: inter-stellar distances
69	172	angustius e regione centri	vortices
70	173	ut enim videmus turbinem	vortices: comparison of the top

<u>CB</u>	<u>AT V</u>	<u>Rubric</u>	<u>Topics</u>
71	173	ipsamque impellit	rotation of earth: balloon analogy
[Lib.IV]			
72	173/4	talis propensio non sit tanta	Descartes' theory of gravity
73	174	in aequipondio consistere	'mechanics' and machines
74	174	in tria praecipua genera	terrestrial matter - three types of shape
75	174/5	supra aliud oblique ducitur	nature of glass
[ex Dissertatione de Methodo]			
76	175	abundare se putat	'good sense' - universal endowment
77	175	ad logicam	'Logic' vs. 'Dialectic'
78	176	eodem pacto se mutuo sequi	Philosophy and Theology
79	176/7	assuefacerem ingenium meum veritati agnoscendae	importance of Mathematics in Descartes' philosophy; Algebra imagination in Mathematics and Physics; Mathematics and Metaphysics
80	178	non pigebit adscribere	Descartes' attitude to ethics
81	178	sed si nesciremus	Cartesian circle
82	178/9	fortassis a senectutis debilitatione	Philosophy (science) vs. Theology; prolongation of life 'natural' medicine.

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