this vision from a scientific ideal to an all-embracing philosophy, and that was only possible by extruding all recalcitrant elements from the world which it was thus made to 'explain'. The point that the success of the explanation thus offered was due to this artificial and forcible limitation has become classic since the publication of Mr. Whitehead's *Science and the Modern World*, but it was apparent to nearer observers as well:

'J'ai souvent ouï dire à Despréaux', wrote J.-B. Rousseau[1] to Brossette in 1715, 'que la philosophie de Descartes avait coupé la gorge à la poésie, et il est certain que ce qu'elle emprunte des mathématiques dessèche l'esprit et l'accoutume à une justesse matérielle qui n'a aucune rapport avec la justesse métaphysique, si cela se peut dire, des poètes et des orateurs.'

IV

THE NATURE OF THE METHOD

§ 1

THE episodes touched on in the preceding chapter provide the background for the statement of the *Discourse* that the method did not spring fully developed from Descartes' mind in the year 1636. 1636 is the year not of its birth but, as it were, of its

[1] *ap.* Willey, *The Seventeenth Century Background* (London, 1934), p. 89. One may compare Blake's series of comments on Reynold's *Discourses* (ed. Keynes, Nonesuch Press, London, 1927, p. 970 ff.)

coming of age and presentation to the world, and it appears then as the fully prepared and finished elaboration of the thinking and practice of many years of concentrated labour. If the first germs of the new outlook, revealed in the dreams, are apparent already in the correspondence with Beeckman, its essential character is marked clearly in the confrontation with Chandoux. It is the typical method of philosophical rationalism from the days of Plato to our own, and its basis is the sharp distinction between knowledge and probability.[1]

Chandoux's exposition of his 'philosophy', Descartes is reported to have said, was not 'true' but 'plausible' (*vraysemblable*), and so long as people were content with the plausible it was not difficult to make error pass for truth and appearance for reality. Descartes challenged any member of the audience to produce an unassailable 'truth', and then proceeded, 'by a dozen arguments each more plausible than the other', to prove it false. He then reversed the procedure and, taking a proposition generally believed to be clearly false, produced a dozen plausible arguments to recommend it as true. The audience, we are told, convinced how easily we can become the dupe of plausibility, begged him to show

[1] Cf. below, p. 116, on Locke, and the striking passage in § 5 of Kant's *Prolegomena* (immediately after the announcement of the 'solemn suspension' of all metaphysicians from their occupations) beginning: 'Wollten sie dagegen ihre Geschäfte nicht als *Wissenschaft* sondern als eine *Kunst*. . . .'

them an infallible means to avoid sophisms. Descartes replied:

'He knew no means more infallible than that which he was used to employ himself, a means he had drawn from the basis of mathematics and by the help of which he thought that there was no truth he could not demonstrate clearly. . . . This means was his "universal rule" which he called otherwise his "natural method", . . . the first fruit of which was to make us see at once whether a proposition advanced was possible or not.'

For these remarks of Descartes Baillet seems to be dependent on Borel,[1] whose story is indeed shorter but the same in its main points. The basis of Chandoux's sophisms (like those of any one else) was the confusion between truth and probability (*veritas* and *veri simile*). Any true philosophy must set out from their distinction.[2]

In order to throw this point into greater relief we may turn to another attempt to reach the truth in the sciences, the *Novum Organum* of Bacon (1620). The *Novum Organum* is usually regarded as anterior to Descartes and much ingenuity has been spent in estimating the degree of Descartes' dependence on it. But if the argument of the preceding be acceptable, Descartes' method is contemporary with (it is indeed slightly prior to) the method of Bacon, and the controversy as to the 'paternity' of modern

[1] Quoted by Adam, *Corresp.* i. 217.

[2] So *Reg.* 2; *Disc.* 5 (vi. 50, ll. 6–10), 6 (ibid. 71, ll. 14–18).

philosophy loses what it had of chronological justification. In any case, we now know, with the publication of the correspondence of Mersenne, how great a stir Bacon's work made in the circle of Descartes' friends in Paris, and the very correspondent, Cornier of Rouen, who wrote for further information about the method of Descartes, spoke in much the same terms of the method of Bacon.[1] It would seem worth while then to inquire how the two methods stand to one another. We may thus see, by a comparative examination of the two, what it is in Descartes which is unique.

§ 2

The achievement of Bacon which justifies his claim to have dethroned Aristotle is his substitution of quantity for quality. By this is not implied that in the last analysis Bacon was right and Aristotle wrong. It may well be that a quantitative physics is a chimaera, and that something like the Aristotelian quality is needed in order to explain the facts even of the physical universe. But it is clear that physics had to be swept clean of the 'qualities' actually adduced by the Aristotelians before a sane insight

[1] Tannery–de Waard, *Correspondance du P. Marin Mersenne*, p. 429, ll. 59–61 (March 1626, of Descartes [above, p. 46]); p. 611, l. 40 f. (Dec. 1627, of Bacon). In the same way the author of the letter prefaced to the *Passions* (above, p. 11) can speak of Bacon as being 'de tous ceux qui ont escrit avant vous, celuy qui a eu les meilleures pensées touchant la Methode qu'on doit tenir pour conduire la Physique à sa perfection' (xi. 320, l. 20 f.).

into its problems was possible. A glance into the neighbouring science of physiology will explain the issue.

'With reference to the third point, that of the "spirits",' —it is Harvey who is speaking[1]—'it may be said that it is still a question what they are, how extant in the body, of what consistency, whether separate and distinct from the blood and solids or mingled with these,—upon each and all of these points there are so many and such conflicting opinions that it is not wonderful that the "spirits" whose nature is thus left so wholly ambiguous, should serve as the common subterfuge of ignorance. Persons of limited information, when they are at a loss to assign a cause for anything, very commonly reply that it is done by the "spirits", and so they bring the "spirits" into play upon all occasions, even as indifferent poets are always thrusting the gods upon the stage as a means of unravelling the plot and bringing about the catastrophe. . . .'

Now the 'spirits' condemned and rejected by Harvey (one can but regret they were retained by Descartes) are only one instance of the 'qualities', 'substantial forms', or 'essences' admitted by contemporary Aristotelians, and Harvey's mechanical explanation of the effects supposed by them to be due to the 'spirits' is the type of explanation envisaged, though not exemplified, by Bacon.

The mechanical theory of nature was made possible for Bacon by a rigid exclusion from physical

[1] Second reply to Riolan (trans. Willis, Everyman edition, p. 141).

theory of considerations drawn from theology. It is true that he is respectful to theology and gives the impression of having been, as Rawley says, genuinely religious; but his religion was such as to encourage him to think that 'the ideas of the divine' are 'the true signatures and marks set upon the works of creation as they are found in nature'.[1] As a consequence, the science of nature is for him the veritable 'mother' of the sciences, and it is from it, and it alone, that they draw their essential nourishment (i. 80).

It is the magnificence of the optimism of Bacon which leads him to his next step. If natural philosophy, the supreme inquiry, is to progress (and science for him, as so strikingly for Descartes, means progress), it must be within the reach of all. Not but what there are different types of mind. But each and every type should be enabled, when provided with simple rules, to help on the work the fruits of which all are to share. Hence what may be called Bacon's democratization of method. Not only are the facts which are to be discovered envisaged quantitatively. The very powers of discovery, so far as may be, are to be levelled (i. 61, 122). Bacon's ideal of 'method' would seem then to be of the nature of a calculating machine, and this ideal is only objectified in his plans for the founding of vast academies of organized research. He would seem to have thought (and the idea is regrettably found even now in some universities) that, granted facts were accumulated,

[1] *Nov. Org.* (Spedding and Ellis) i. 23; cf. i. 124.

the results would look after themselves. The whole procedure of science, in so far as it is founded on individual initiative, must be changed. The triumphs of the new civilization are due, he says,[1] to the substitution of instruments for the 'naked hands' and 'individual wit' of our ancestors, and if knowledge is to progress (and if it does not progress it is not knowledge) it, too, must employ a similar device. 'The entire work of the understanding must be commenced afresh, and the mind itself be, from the very outset, not left to take its own course but guided at every step, and the business be done *as if by machinery*.'

This conception of a logical calculus is not the product of a cynical contempt for the human intellect. It is due rather to the profound sense which Bacon had of its unreasoning 'ambition' (i. 65).

'The human understanding is prone to suppose the existence of more order and regularity in the world than it finds, and although there be many things in nature which are singular and unmatched yet it devises for them parallels and conjugates and relatives which do not exist. . . . The human understanding, when it has once adopted an opinion, draws all things else to support and agree with it. It is more moved and excited by affirmatives than by negatives . . . and by things which strike and enter the mind simultaneously and suddenly and so fill the imagination. . . . The human understanding is unquiet; it cannot stop or rest. . . . The human understanding is no dry light but receives an infusion from the will and

[1] *Nov. Org.*, Preface.

affections; whence proceed sciences which may be called "sciences as one would", for what a man had rather were true he more readily believes. . . .'

And so the series of admirable propositions (i. 45 ff.) rolls on, each of them an admonition of our intellectual presumption. The end of Bacon's philosophy is to *discipline* the mind, not to 'supply it with wings' but to 'hang it with weights' (i. 104).

It is a commonplace that Bacon envisaged a method which would embrace all the sciences alike, the science of man as well as the science of nature, not only physics but also ethics, politics, and psychology.[1] In all subject-matters alike there are certain 'simple natures' from the combinations of which all things arise, and the discovery of their 'forms' (or 'law') which is the aim of science is independent of the peculiarities of the individual subject-matter. There is then one method variously applicable. The new 'organon' is to be indeed an instrument, a piece of machinery indifferent to the use made of it.

And yet, since it is a root idea of Bacon that mind must not impose itself upon things, it is clear that there must be some accommodation of the instrument to the material. He therefore 'delivers many and diverse precepts in the doctrine of Interpretation which in some measure modify the method of invention according to the quality and conditions of the subject of the inquiry' (i. 127, end). It is significant that this sentence concludes the aphorism in which

[1] i. 127; cf. i. 80.

the method is claimed for all the sciences alike ('but nevertheless, since my method of interpretation . . . regards not the working and discourse of the mind only . . . but the nature of things also, I supply the mind with such rules and guidance that it may in every case apply itself aptly to the nature of things'). The method is 'one' in the sense that it propounds a way in which all subject-matters can be approached; but the nature of the approach is to be 'apt'.

Nor is this all. The method is not only flexible. It is by the very nature of the case progressive. As Bacon approaches the actual detail of the art of interpreting nature he becomes strangely and admirably humble. The 'precepts' he has given are 'true and most useful', and yet he will not engage that the art they serve is either 'absolutely necessary (as if nothing could be done without it)' or 'perfect'. His suggestions will help to prepare the ground so that 'everything will be in more readiness and much more sure'; but they are by no means final, since new vistas will suggest new ideas. 'Nor again do I mean to say that no improvement can be made upon these. On the contrary, I that regard the mind not only in its own faculties but in its connection with things, must needs hold that the art of discovery may advance as discoveries advance' (i. 130).

From this noble sentence, which may well serve as the motto of modern science, it would seem to follow that Bacon's own method is not necessarily new, and indeed, with all his insistence on its impor-

tance he well knows that it is far from revolutionary. Nor is it something extraneous to the human mind, a rule imposed on it by external authority. It is rather the mind's innermost working, its natural way when 'freed from impediments' (i. 130). Bacon is, therefore, only bringing to the light a method used unconsciously wherever there is discovery. The 'impediments' are the prejudices of mankind summed up in the series of aphorisms on the 'idols', and so Bacon can sum up the preparatory portion of his method in the two 'rules': 'the first to lay aside received opinions and notions; and the second, to refrain the mind for a time from the highest generalizations and those next to them.'

§ 3

Bacon is thus not only, at least in idea, more truly mechanistic than Descartes. He is not only, at least in idea, less subject to theological nervousness and less prone to exaggerate the capacity of the mind. There emerges here a profound rift between their conceptions of the very nature of method.

Bacon's 'art', although universal, does not offer itself, as does that of Descartes, as a final method of approach to nature. It feels its way; it modifies itself; it varies its path in the stages of its own self-development. But since its interest is not really in its own self-development but in the development of our knowledge of nature, it is bound, in its approach to nature, to accommodate itself and its

methods to nature. Its function, in brief, is not creation but interpretation, and interpretation of the existent.

As with Descartes, this work of interpretation is not undertaken for a theoretical end; it is no product of an intellectual curiosity. 'The true and lawful goal of the sciences is none other than this, that human life be endowed with new discoveries and powers.' The 'empire of man over things depends wholly upon the arts and sciences' (i. 129), and it is for that reason (there is no other) that the arts and sciences are to be cultivated. The pursuit of knowledge is strictly subordinate to considerations of utility. We seek to understand the external world in order to overcome it.

The general lines of the strategy of man in his war against nature are divided by Bacon into two large parts, the destructive and the constructive, corresponding broadly to the first and second books of the *Novum Organum*. Each part is crystallized in rules. The negative rules we have seen already. They are 'to lay aside received opinions', and to 'refrain for a time from the highest generalizations'. The positive rules are contained in Book 2, section 10, and are illustrated in the sections following. Since the 'second' division mentioned here by Bacon ('how to deduce and derive new experiments from axioms') fails to appear later, we are left with the 'three ministrations', those to the 'sense', the 'memory', and the 'mind or reason'.

'For first of all we must prepare a *Natural and Experimental History*, sufficient and good, and this is the foundation of all. For we are not to imagine or suppose, but to discover, what nature does or may be made to do.

'But natural and experimental history is so various and diffuse that it confounds and distracts the understanding unless it be arranged and presented to view in a *suitable order*. We must therefore form *Tables and Arrangements of Instances in such a method and order* that the understanding may be able to deal with them.

'And even when this is done, still the understanding, if left to itself and its own spontaneous movements, is incompetent and unfit to form axioms unless it be directed and guarded. Therefore in the third place we must use *Induction*, true and legitimate induction which is the very key of interpretation. . . .'

Of this 'true and legitimate Induction' he speaks at once (ii. 11 ff.) in connexion with the 'investigation of Forms' by the help of the three Tables. He then proceeds (ii. 15):

'The work and office of these three tables I call Presentation of Instances to the Understanding [i.e. the second of the requirements of section 10]. Which presentation having been made, Induction itself [i.e. the third of those requirements] must be set to work. For the problem is, *upon a review of the instances all and each* (*super comparentiam omnium et singularium*), to find such a nature as is always present or absent with the given nature and always increases and decreases with it and which is, as I have said, a particular case of a more general nature. Now if the mind attempt this affirmatively from the first, as when left

to itself it is always wont to do, the result will be fancies and guesses and notions ill-defined, and axioms that must be mended every day. . . . To God truly, the giver and architect of Forms . . . it belongs to have an affirmative knowledge of Forms immediately and from the first contemplation. But this assuredly is more than man can do, to whom it is granted only to proceed at first by negatives, and at last to end in affirmatives, after exclusion has been exhausted.'

The rules of the 'art' of Bacon would seem then to be five, two negative and three positive. They are as follows:

1. To lay aside received opinions;
2. to refrain the mind for a time from the highest generalizations;
3. to prepare a natural and experimental history (= to muster instances before the understanding);
4. to arrange the instances in a suitable order (or 'tables');
5. to use 'induction', that is, to 'review the instances all and each'.

§ 4

If we turn to the 'method' of Descartes, beginning with the narrative of *Discourse* 2, we find ourselves in a more precise, although a more confined, world.

After the meditation in the *poêle* where there occurred to him the consideration that work carried out by many hands was very often less perfect than

that which had been executed by one man alone, Descartes, so he informs us, undertook to rebuild from its foundations his whole intellectual world. To effect this he felt the need of a method which would combine the good points of the three sciences which he thought would be of assistance to him, logic, geometrical analysis, and algebra, and with their help he drew up the four famous rules. About the origin or nature of the method he makes no secret.

'Those long chains of reasoning, simple and easy as they are, of which geometricians make use in order to arrive at the most difficult demonstrations, had caused me to imagine that all those things which fall under the cognizance of man might very well be mutually related in the same fashion, and that, provided only we abstain from receiving anything as true which is not so and always retain the order which is necessary in order to deduce the one conclusion from the other, there can be nothing so remote that we cannot reach to it nor so recondite that we cannot discover it.'

Considerable discussion has taken place about the relationship between the unfinished *Regulae* and the *Discourse*, and the issue has been obscured by the fact that the *Discourse* was published some ten years later than the period during which the *Regulae* is usually held to have been composed.[1] The truth

[1] The latest opinion, that of M. Gouhier in his preface to Vrin's reprint (1930), dates it at 1628 but allows for the possibility of earlier elements being incorporated in it.

would seem to be that it is the second chapter of the *Discourse* which represents the earlier draft of the method, as, indeed, the narrative of the *Discourse* itself asserts. Descartes is recounting the events of his *earlier* years, setting out in this chapter from his wanderings in 1619, and when, after detailing his rules, he speaks of the 'two or three months' he spent in examining various problems by their light, the reference is obviously to 1619, not to 1637.[1] It is thus clear that the rules of the *Discourse*, according to Descartes' own account, go back to the time of his intellectual awakening, and it is not without significance that Baillet attributes them to his schooldays.[2]

This consideration is confirmed both by a comparison with the correspondence with Beeckman and by an examination of the *Regulae* itself. If we turn to it we see that Descartes singles out Rules 5 to 7 as embodying his central doctrine (the rest of the treatise being only their detailed working out),[3] and a moment's comparison will show that these are identical with the rules 2, 3, and 4 of the *Discourse*. Since the first rule of the *Discourse* is implied in rules 2 and 3 of the *Regulae*, we may take it that the fundamental doctrine of the *Regulae* and the *Discourse* is the same. We should not speak then of two stages of Descartes' doctrine of method, and still less of two different doctrines. His primary

[1] Cf. above, p. 24.

[2] *Vie*, i. 24, 30; *Abrégé*, 14. The *Discourse* itself is all but explicit (*dès ma ieunesse*, p. 3, l. 4).

[3] *Reg.* 7 end.

conception remained unaltered from the earliest times of which we have record, and the rules of the *Discourse* are its classic, as they are its earliest, expression.

§ 5

If one compares Descartes' method as a whole with that of Bacon, one may remark first that the former draws some details of its character from dialectic, the living dialectic of the scholastic tradition. This emerges clearly from M. Sirven's illuminating study (below, p. 96 n.), and light is thrown on it by an anecdote relating to Descartes' school-days. While still at La Flèche, we are told, Descartes fashioned 'a peculiar method of disputation in philosophy'. When a point came up for argument, 'he would first ask many questions about the definition of the terms, and, after that, the meaning of certain principles received in the schools. He would then ask whether they would not agree on certain known principles which he pretended to accept . . . and, on the basis of the whole would fashion one single argument which it was very difficult to evade. . . .' The anecdote, taken by Baillet from a manuscript note of Poisson, came to the latter from a fellow pupil of Descartes in philosophy at La Flèche. Its significance is lost in the large *Vie* where it appears at the end of the second volume (pp. 483–4), but Baillet himself in his *Abrégé* puts it in its proper place (pp. 14–15), in the account of Descartes' school-days. While still at school, then, and as a result of

the system of disputation then in vogue, Descartes was already thinking out his method. It is true that it was then primarily a method of disputation (one cannot help thinking of the other anecdote relating to the discussion with Chandoux in 1628), but it is notorious that the method of Plato, too, had its origin in the disputations of Zeno and Socrates. It is no disparagement of the search for clear ideas to recognize that they are arrived at through discussion, and it is worthy of remark that though Descartes as a rule speaks of dialectic in uncomplimentary terms,[1] he yet specifically recognized good in it.[2]

Descartes, like Plato, found the type of clear idea in Geometry. There are for both of them no grades in 'knowledge'. The 'probable' interests neither the one nor the other; they accept only clear-cut truth. We have here the *est et non* of Descartes' dream of 1619, the 'either-or' of traditional logic. It is doubtful, however, whether the facts of nature are amenable to these definite disjunctions, and it may well be that those who take the strict, mathematical view of knowledge should refuse the science of nature (as Locke did) the name of science. On this point Bacon, for all his interest in mathematical explanation ('enquiries into nature have the best result when they begin with physics and end with mathematics'

[1] e.g. *Reg.* 4 (x. 372, l. 23); *Disc.* 2 (vi. 17, l. 11 f.) with M. Gilson's notes.

[2] *Reg.* 2 (x. 365, l. 7 f.); *Reg.* 10 end (x. 406, 23 f.); *Reg.* 13 *ad init.* (x. 430, l. 11 f.).

[ii. 8]), is definitely on the other side. In contrast with the traditional logic he proposes to 'establish *progressive stages* of certainty'. Subject to 'guidance and a certain correction' he will not reject but '*retain* the evidence of the senses'. It is here we have a definite clash with the rationalist school. It is the '*mental operation* which follows the act of sense' which he will, 'for the most part, reject'. In these few sentences,[1] which could be paralleled indefinitely, a whole world of difference, as Baillet already remarked,[2] is disclosed. The 'methodic' doubt could not have been adopted by Bacon. The prejudices he would rid us of are not those of the senses but of the intellect, and between the true and the false he would recognize the probable and its degrees.

But Descartes was fascinated in Geometry not only by the clearness of its fundamental conceptions, its '*est et non*'. His thought is dominated by the idea of its 'order'. The 'chains' of propositions of the geometers are to be imitated in all the sciences. 'Method', he says baldly (*Reg.* 5), 'consists entirely in order.'

The demand for order, as we have seen, is an integral part of the method of Bacon as well: for him, too, 'the only way of delivery' is to 'lead men to the particulars themselves and to their series and order' (i. 36). Both thinkers aim at the discovery

[1] *Nov. Org.*, preface, 2nd paragraph.

[2] 'il [Bacon] ne pouvoit espérer ces bons effets ny des forces particulières de l'entendement humain, ny des secours de la Dialectique, *parce que les premières notions que nôtre esprit reçoit des choses luy paroissoient vicieuses et confuses . . .*' (i. 148).

of the 'alphabet' of nature, the simple elements of which the complexities of our experience are, as it were, the words.[1] But Bacon's rules for their discovery are based not only on the collection but on the sifting of the facts of experience, and the value of the method lies precisely in its insistence not only on the accumulation but on the sifting. Descartes himself wrote to Mersenne on the necessity of drawing up a 'Baconian history'.[2] But the drawing up of the 'history' is for Bacon only the beginning of the method, only the setting of the board, as it were, for the game. The method itself demands the comparison of instances, and the drawing up of tables of similarity and dissimilarity and of what Mill was to call concomitant variation. If any point in Bacon's logic of induction is to be commended specially it is his insistence on the negative, but, so far as I have observed, the very idea of the value of the negative instance is not remarked on in the writings of Descartes. The instances he himself gives of the collection of data, in the case of the phenomena of magnetism,[3] for example, are in this respect strikingly deficient.

[1] *Nov. Org.* ii. 8. Descartes makes much use of the word *compositio* (e.g. *Reg.* 12, x. 422, l. 9, 427, l. 5). Cf. the early letter on the 'universal language of ideas' referred to above, p. 41 n.

[2] *Corresp.* i. 251, l. 15–252, l. 10; cf. i. 109, l. 22 f., 195, l. 29 f.

[3] *Reg.* 12 and 13 (x. 427, l. 11 ff.; 430, l. 24 ff.). There is a hint of the 'method of difference' in *Discourse* 6 (vi. 65, l. 3 f.), but the whole of this chapter seems to me to represent a return to Bacon (below, pp. 79 f., 90).

§ 6

The curious point in this casting of the balance between Descartes and Bacon is that the advantage would seem to lie, on the face of it, with the latter. And yet there is no doubt that the method of Descartes is, of the two, incomparably the more significant. It we ask wherein the significance lies the answer is ready to hand. Bacon crystallized his method in five rules as Descartes did his in four. How do these sets of rules compare with one another?

We may put them side by side:

A. *Bacon*	B. *Descartes*
1. To lay aside received opinions;	1. (*a*) To accept nothing as true which I did not clearly recognize to be so; (*b*) carefully to avoid precipitation and prejudice in judgements.
2. To refrain the mind for a time from the highest generalizations;	2. To divide up each of the difficulties which I examined into as many parts as possible.
3. To muster instances before the understanding;	3. To carry on my reflections in due order, commencing with objects which were the most simple in order to rise by degrees to knowledge of the most complex.
4. To arrange them in tables;	

5. To review the instances all and each.	4. To make enumerations so complete and review so general that I should be certain of having omitted nothing.

Of these rules the first and second of Bacon correspond to the two parts of the first rule of Descartes; the last rule of both is in intention much the same. Descartes' third rule, the so-called rule of 'order', may fairly be held to be included in the 'arrangement' of instances in 'tables' which constitutes Bacon's fourth rule, though, as we shall see, Descartes' 'order' is of a very peculiar and highly significant kind. The central difference between the two sets of rules lies, therefore, in Descartes' second, the so-called rule of division, as against Bacon's third which is one of addition or accumulation.

Thus we come, through a comparison with Bacon, to a conclusion which is so far from novel as to be that asserted by Descartes himself. Rule 3 of the *Discourse* is Rules 5 and 6 of the *Regulae*. Of the former Descartes writes: 'In this alone lies the sum of all human endeavour, and he who would approach the investigation of truth must hold to this rule as closely as he who enters the labyrinth must follow the thread which guided Theseus'; while of the latter: 'Although this proposition seems to teach nothing very new, it contains, nevertheless, the chief secret of method and none in the whole of this treatise is of greater utility.' As he remarks later (*Reg.* 14): 'The art of our method consists in distinguishing

as many elements as possible, so that, although we attend to only a few simultaneously, we shall yet cover them all in time, taking one after another' (x. 449, ll. 23–5).

This breaking up of a problem into its constituent parts and their arrangement in their 'order' is thus the distinctive conception of the Cartesian logic, and 'order consists merely in putting forward first those things which should be known without the aid of what comes subsequently, and arranging all other matters so that their proof depends solely on what precedes them' (*Med. Resp.* 2, vii, p. 155, ll. 11–14). We have here a doctrine of 'Linear Inference' opposed specifically (*Reg.* 6 *ad init.*, p. 381, l. 10 f.) to the old logic of classification, and unilateralness is of its essence: 'the knowledge of other things depends on the principles, so that the principles can be known without these other things but the other things cannot reciprocally be known without the principles' (*Author's Letter*, ix B, p. 2, l. 23 f.).

The aim of the method is not, however, the establishing of epistemological theory but the discovery of truth in the sciences, and if we only knew the 'natural order' we should 'know the divers forms and essences of terrestial bodies *a priori*' instead of having to 'divine them *a posteriori* and by their effects' (i. 250, l. 21 f.). It thus becomes of especial interest to ask what Descartes' own fuller experience suggested to him with regard to the method in its concrete application.