THE FUNCTION OF INTUITION IN DESCARTES' PHILOSOPHY OF SCIENCE.

The purpose of the following paper is to deal with an aspect of the thought of Descartes to which the traditional treatment of his work by historians of philosophy has given quite inadequate consideration. It is usually supposed that his central interest was the building up of the well known metaphysical system. But for several reasons this does not seem to have been the case. In the first place, the doctrine of the nature and function of God, which is the basis of that system, arose at a relatively late stage of his intellectual development. In his earliest work, the *Regulae*, we find no more than traces of it. Secondly, this doctrine has little connection with the field of positive science in which he made his most important contribution to human knowledge, and we might well suppose that a man whose main preoccupations were scientific, and indeed who came upon general problems in the course of his scientific work, would be more interested in a philosophy of science than in a constructive metaphysic. And thirdly, while it will not be possible to take the matter up in any detail or very systematically, enough will be said to show that his treatment of the fundamentals of his metaphysical scheme exhibits such marked and radical contradictions that while it would perhaps be hardly fair to say that it was a mere sop to the Cerberus of the Church, it is very difficult to believe that Descartes took it as seriously as later comment would have us think.

While the Cartesian system as ordinarily understood, ostensibly takes its rise from the notion of intuition, or *lumen naturale*, as he prefers to call it in his later work, in the sense that we might call it a metaphysic of intuition, it will be maintained that this is in effect a *tour de force*, and that the true meaning and valid development of the theory of intuition is to be sought elsewhere. It is evident from his numerous autobiographical references, that Descartes was a working scientist who was interested in problems
of method, and it is along this line that we must look for his genuine approach to the questions of philosophy. Further, the doctrine of intuition was the vital nerve of his conception of an adequate scientific method, and if we understand it, we shall understand his general position. But that doctrine inevitably brought him into touch with the problems proper to epistemology, and thus we shall find that our exposition naturally falls into two main divisions. First we must see in what sense Descartes regarded intuitive knowledge as the proper and valid organ of science, and take up the doctrine of intuition from the purely methodological point of view. But second we shall see that this theory of method brings into unavoidable prominence the philosophic problem of objectivity or externality, and this will bring us face to face with the Cartesian epistemology.

I. INTUITION AND METHODOLOGY.

The purpose of the Regulae, as Boyce Gibson points out,¹ is to work out the general questions of method which find their application in the Geometria, which is closely connected with it. And in the opening passages of the former work we find that Descartes' primary concern is to arrive at what he calls "scientia," which he defines as certain and evident knowledge. This search for certain and evident knowledge arose from a twofold discontent with science as he found it. On the one hand, he complained that it was cumbrous, in that it arrived at its results, which were often correct enough, by chance rather than by analysis; and on the other hand, it failed to establish the validity of its results by building up from a basis whose validity was assured. Now the method, which he says is "necessary for investigating the truth of things"² is designed to obviate these difficulties, in that it builds up a logically coherent system and bases it upon an assured foundation. This notion of certainty is of the greatest importance in the thought of Descartes. Indeed it is more important than the notion of truth. In the Regulae we find that the identity of truth and certainty is assumed. Later he tries to demonstrate their

¹ Revue de Métaphysique et de Morale, 1896.
identity by means of his metaphysical notion of a good, and therefore trustworthy God, who is the giver of clear and distinct ideas. But in the fifth Meditation, speaking of this demonstration, he says: "... and although I had not demonstrated this, the nature of my mind is such that I could not prevent myself from holding them (i.e., clear and distinct ideas) to be true, so long as I clearly and distinctly conceive them." Thus at the outset we encounter the antinomy between the Cartesian methodology and the Cartesian metaphysic, for this amounts to an almost explicit admission that the philosophy of science has no need of the metaphysico-theological constructions which are designed to show the necessary truth of certain and evident knowledge.

The quest for certainty is carried on, and the requirements of certain knowledge are brought to light, by means of his familiar method of doubt. In the Regulae this appears as nothing more than the tentative and critical hesitancy of the scientist in accepting results and drawing conclusions. Thus he finds various practical difficulties in a number of sciences and pseudo-sciences, and comes to the conclusion that only in arithmetic and geometry do we find the certainty which is the mark of genuine scientia. Later this method of doubt develops into something much more sophisticated and metaphysical, which Huxley has called a "scepticism before knowledge," and he refuses to accept even arithmetic and geometry as necessarily true, partly on the ground that mistakes have occurred even here, but mainly because an omnipotent God might deceive us even where there seems to be most certainty.¹ Thus we find once more that he rejects in metaphysics what he accepts in methodology. Now science will regard geometry and arithmetic as certain because they deal with a special type of objects, simple essences, which, as he puts it, involve nothing that experience has rendered uncertain. That is to say, we have here genuine scientia, genuine intuition, free from all confusing elements. For Descartes, mathematics is something more than an illustration of the working of intuition. It is the characteristic field of undiluted intuitive knowledge, and

thus the mathematical method will be the ideal method of all research, and the Mathesis Universalis will be the final philosophy.

He describes intuition as follows: "By intuition I understand not the shifting testimony of the senses, or the misleading judgment of the ill regulated imagination; but a concept (conceptum) of an untroubled and well directed intelligence (mentis purae et attentae), which is so facile and distinct that absolutely no doubt is left about that which we understand." There are two interpretations of this notion which seem to give an incorrect idea of its intent, and which we now take up. One regards intuition as being what a later school has called "Common Sense" or "Reason," the other identifies it with the conceptual as distinct from the perceptual side of experience. Both lead to an erroneous view of Descartes' theory of method, and in criticizing them we shall hope to reach a true comprehension of his aim and thought.

(a) Many considerations show that intuition is not to be identified with "Common Sense" or "Reason." First, Descartes tends to describe intuition rather by means of images than in a systematic manner. Thus we may infer that for him the notion was not very clear cut or sharply defined, while this certainly is the case with "Common Sense." While this does not of course preclude our finding something in common between the two notions, it emphatically does show that to assert their identity is to read much into Descartes. Again, in the third Rule, he tells us that he uses the term intuition, not in its technical scholastic sense, but in its derived sense of looking into something. He goes on to point out that there are more things open to intuitive knowledge than might at first be imagined. For we can directly know that we exist, that we think, that a triangle is bounded by three straight lines, and many other such facts. It is this insistence upon the direct perception of elementary facts which constitutes the main methodological innovation of Descartes, and which conditions his whole point of view. And all this strongly suggests that by intuition he has in mind something far less systematic and sophisticated than "Common Sense" or

"Reason." This conclusion is confirmed when we find him speaking of intuition and deduction as the only valid methods of discovering truth, and condemning all other modes of procedure as being open to error. For intuition is now seen to be one among many ways in which it is possible to deal with facts, though it is the best of all of them, and hence it cannot be regarded as a special faculty for discovering truth. Thus we may conclude that when Descartes speaks of intuition, he is dealing with the actual practice and procedure of the expert investigator. The expert will develop and possess a power of immediately perceiving the essential factors of a complex situation. And no doubt Descartes found this to be the case in his own mathematical studies.

The interpretation of intuition as being in essence what a later school called 'Common Sense' is suggested by much that we find in the later writings of Descartes. All the methodological ideas with which he begins undergo a radical transformation as soon as the metaphysical interest becomes prominent, and among these the notion of intuition suffers a change. Even between the notion of the lumen naturale given by God, and the notion of 'Common Sense' there are obvious differences. But in any case it is absolutely necessary to interpret the later writings of Descartes in their historical and logical setting. And to do this is to see that it is gratuitous to ascribe to him a rudimentary belief in 'Common Sense,' which he called intuition. It is noteworthy that he uses the term intuition very little except in the Regulae. Elsewhere he deals with the same topic by means of a set of concepts and terms which are more or less misleading. And when we find him resolving his scepticism before knowledge by means of the activity of a good God, who illuminates the mind by the light of reason, we have something that is superimposed upon the essentially methodological, and so non-metaphysical notion of intuition. And once more we are reminded of the practical meaning of the Cartesian philosophy, whose purpose seems to have been the description of the procedure of the ideal expert.

(b) It has been suggested by many commentators, among whom we may mention Boutroux (L'Imagination et les Mathématiques
selon Descartes) and Heimsoeth (Descartes Methode der klaren und deutlichen Erkenntnis), that intuition must be confined to what Descartes himself would speak of as mens pura, or what we may call the conceptual or rational side of experience. This is a point of very great importance for our understanding of the doctrine of intuition, and much that will be said later will center round it. For the moment we may make two observations, first that the passages which seem definitely to commit Descartes to this limitation are very far from being conclusive on the matter, and second that this limitation would seem to stultify the essential purpose of the method.

(i) Let us take his famous illustration of the wax, which occurs in the Meditations. Here he points out that when we perceive a sweetness or an odor or a color, we do not have knowledge of the wax itself. For he says the wax does not consist of these perceptual properties, but rather it is a body which is made apparent under various modes. And he concludes that it is necessary that we perceive the nature of the wax by means of the mind alone.¹ This would seem at first sight to mean that for Descartes intuition must be confined to reason or mens pura. But it is to be carefully observed that what he denies is that knowledge of the various properties is knowledge of the wax. He did not and could not deny that knowledge of them was knowledge, and thus that perceptual knowledge might also be intuitive. In fact in the twelfth Rule we have a passage which issues in a precisely contrary assertion, for there we are told that in perception and sense we have the understanding at work under certain conditions. Thus sense knowledge is genuine knowledge, but knowledge obtained under certain conditions, and determined by the action of a physical mechanism.

(ii) The limitation of intuition to reason would in effect stultify the entire method. We have seen that the Regulae is to be regarded as a sort of methodological introduction to the Geometria. And the main notion of the latter work is the introduction and elaboration of the use of coördinates. In epistemological terms then, we may say that the Geometria is concerned with the prob-

lem of how to use perceptual knowledge in order to deal with general and abstract problems. And this would seem necessarily to involve the admission that it is possible to arrive at some sort of genuine knowledge in perception. For these reasons then it would seem that the attempt to limit intuition to the rational or conceptual side of experience is mistaken. It is merely the name for the type of knowledge or procedure which marks the work of the expert, and it cuts across the distinction of perceptual and conceptual knowledge.

A further misunderstanding of the doctrine of intuition is involved in the question as to whether Descartes ought not to have sought for deductive rather than intuitive certainty in dealing with mathematics. But while Descartes is very far from ignoring the importance of deduction, he deals with it in terms of intuition, which he regards as the more fundamental notion. He would insist that the mathematician must proceed by means of intuition if he is to arrive at valid results. By this he must not be understood to mean that mathematical intuition consists first and foremost in the ability to envisage a complex problem at a single glance. It would be wrong to suppose that he has in mind what Schopenhauer speaks of when he tells us that for him The World as Will and as Idea was a unified, though enormously complex judgment, or what Bosanquet means when he says that the distinction between inference and judgment is merely the number of elements involved. For Descartes the distinction between intuition and deduction is precisely that between a static and a dynamic element of experience. Deduction is a serial intuition, and is based wholly upon the power of the expert to make clear and distinct every step of his procedure. Intuition, we are told on the one hand, is easy, and on the other, it is the main secret of procedure (principium artis secretum). That is to say, the expert is one who is able to analyze a problem in such a way as to arrive immediately at its simple elements, which are then quite obvious, though without his guidance they might always remain obscure. Expertness, in mathematics as elsewhere, is essentially a matter of arriving at the constituents of a problem. And the power by which we make a synthesis of these
clearly defined elements is *deductio* or *inductio*, which latter might well be translated inference. It is notable that in practice this consists in what Descartes calls enumeration, that is to say, the running over one by one of the relevant elements, and that its certainty arises from memory. Once more, then, we see that the true meaning of intuition is always a description of the manner in which the expert will deal with a problem in breaking it up into its constituents, each one of which becomes so clear cut as to make possible a final and convincing synthesis.

Such being in general the nature of intuition, let us now raise another question, and ask what is the characteristic object of intuitive knowledge. We find that intuition will always be directed to what Descartes calls simple natures or simple essences. These are objects which are clear and distinct, that is to say, ultimate in the sense that they cannot be further divided by the distinction or reason. And here we find important confirmation for our claim that we must admit the legitimacy of perceptual intuition. For we find simple natures classified as being corporeal, spiritual, or both.\(^1\) This is the same as the distinction between things and truths, which is made explicitly in his later work. And it is evident that he must admit that corporeal natures call for perceptual knowledge, so that we have intuition in the sphere of perception.

Descartes' treatment of simplicity exhibits a certain inconsistency which is symptomatic of a far reaching weakness in his methodology, and which is of interest here in that it throws light upon the general bearing of his notion of intuition. First and foremost he treats simplicity from what we might call the epistemological point of view, in that he defines a simple nature as the object of a particular type of knowledge, namely intuition. But in addition to this he deals with it from the point of view of logic, regarding a simple nature as being essentially an entity which possesses logical priority. That is to say, in the solution of any problem there will be some entities which will come first, as being inferentially prior, or indefinable. And we are told that other elements are determined as regards their degree of sim-

---

plicity or absoluteness by the number of steps which separate them from the original postulates of the system in question. He defines the absolute (absolutum) as "whatever contains in itself the pure and simple nature which is in question." And correspondingly we are told that the relative (respectivum) is such that it must be referred to the absolute, and deduced from it by an inferential series.¹ This is a quite notably close approach to the modern point of view of postulate theory. But Descartes failed in this essential regard, that he did not cut loose sufficiently from the particular mode of dealing with a problem which appealed to him, and did not generalize his own practice enough. Systematically, this failure manifests itself in the absence of any sharp distinction between the two quite disparate notions of simplicity, and in a confusion of the logical absolutes with the unavoidable data of experience; whereas the logical absolute is a matter of arbitrary choice, so long as it gives good results and satisfactory solutions, and may be very far removed from anything that it is possible to know by any sort of immediate intuition. It is necessary to see that intuitive and logical simplicity are distinct notions, though there may be a certain relation between them in many cases. Practically, this failure manifests itself in the assumption which Descartes tacitly makes, that the only fruitful way of dealing with a problem is that which he himself finds successful, whereas a problem will in a sense have as many solutions as transformations.

In connection with this study of the nature of the objects of intuition, we may remark in addition that the simple natures will always be universals. They are arrived at by means of the distinction of reason. We are aware of them at the point where it becomes impossible, by the distinction of reason, to divide the object of knowledge any further. And this process of abstraction is one of generalization. "It is impossible to make any abstraction save from something that is less general."² And this would certainly seem to involve the admission that the results of this process must be universals, a conclusion which

is confirmed when we consider the various lists of simple natures which we find in the Regulae, and elsewhere. Thus he admits in effect that when our mental content is free from confusions, it must consist of universals. Indeed he gives it as his opinion that while from the naïve point of view each individual thing with all its properties is a simple, the scientist must regard it as a complex of universals. This is brought out in his example of the magnet, where he tells us that in order to deal with the phenomena of magnetism on a scientific basis, we must grasp the various simple natures whose compounding goes to make up what we call a magnet. This is practically the view of scientific method which is advocated by the modern logico-analytic school of philosophy, and it is to this that the Cartesian doctrine of intuition leads.

II. INTUITION AND THE EXTERNAL WORLD.

It is clear that a methodological discussion which moves along the lines which we have indicated must quickly culminate in a raising of the epistemological problem proper. As soon as we begin to be concerned with the object of intuitive knowledge, the question as to the reality and externality of the world with which intuition brings us into contact becomes pressing. Especially is this the case when we are dealing with a perceptual intuition which consists in clear and distinct knowledge of things. And it is this question which we must now consider. There are, however, two points on the borderline between methodology and epistemology, which must be taken up in order more clearly to define the issue before us, before passing on to the problem of externality itself. First we must consider the relation of perceptual intuition to knowledge in general, as it is seen in the analysis of experience, and second we must take the structure of perceptual intuition itself.

(a) In the comment on the fourteenth Rule we find a most interesting analysis of experience designed to show that imagination, by which is meant perceptual intuition as we find it employed typically in geometry, must be a useful, if not an indispensable agent in the solution of general problems. Descartes begins
with a reference to his doctrine of recollection, saying that the learning of a new fact is not unlike calling to mind something previously known, but since forgotten. In general, progress in knowledge will consist in making explicit what was previously implicit. In detail this process must be carried on by means of comparison, which is the rationale of all thought. Thus, when we have a syllogism in *Barbara*, we compare a *quæsitum* with a *datum*, with respect to a middle term. So it is that all science must proceed by means of comparison, and a large part of its task will be to prepare the way by an elimination of the "relations and ratios" which complicate our "common nature" (the middle term), so that comparison may go on, and uniformity (*æqualitas*) be established between the *quæsitum* and the *datum*. But this uniformity can only be established by means of the concepts of greater and less. So we must be able to express our problems in terms of continuous magnitude in general; and since nothing can be affirmed of magnitude in general which is not true of magnitude in particular, we must reduce the matter to terms of particular magnitudes, for the sake of facility and certainty. And this analysis of experience issues in a demonstration of the importance of imagination, when Descartes tells us that he hopes to gain a great advantage by reducing questions concerning magnitude in general to terms of that sort of magnitude which is most easily represented in imagination. The conclusion then is that experience is by nature such that imagination or perceptual intuition can be used effectively in dealing with general problems.

(b) Such being the relation of perceptual intuition to scientific knowledge in general, the next question is that of the structure of perceptual intuition itself. This we find discussed in a passage in the twelfth Rule, where Descartes is considering the distinction between perceptual and conceptual knowledge. He explicitly warns us not to regard the scheme which he there proposes as an attempt at serious scientific accuracy, but only as a sort of illustration or working hypothesis, designed to make matters clearer. The account begins by explaining that the stimulus from the sense organ passes through the nervous system to the
sensorium commune and the phantasia, which themselves are parts of the neural structure. In its passage it modifies the whole system to some extent. And in this notion of perception as essentially conditioned by a physical mechanism we have the logical basis of conscious automatism. It is evident that Descartes comes near to holding all perceptual knowledge as being merely the adaptation of a physical organism. But he insists that the mind, which is the organ of knowledge, is not to be thought of as situated at the end of a chain of special sense, common sense, imagination and memory, but says rather that it is parallel with the entire physical process. So while perceptual knowledge is physical as regards its conditions, a fact which marks it off from conceptual knowledge, it is nevertheless genuine knowledge in that here we have the mind functioning, though under the conditions imposed by the constitution of the organism. It is important to be clear on these two points, that perceptual knowledge is knowledge properly so called, and that it is essentially conditioned by a physical organism.

It is this psycho-physical account of the nature of perceptual knowledge, and its distinction from conceptual knowledge that brings us to the heart of Descartes' treatment of the problem of externality. For it is in terms of this discussion that he decides what sort of object is typical of and necessary for perceptual intuition. We already know that this object will be a simple nature, because it is to be the object of an intuition, and also we know that it will be a corporeal nature. But now we are in a position to go a step further in its characterization. In the same passage from the twelfth Rule Descartes goes on to say that the external sense perceives by means of passivity, and by passivity he has in mind a very definite physical notion. The wax is passive with reference to the seal. And this is no mere metaphor, but an actual account of the way in which the external sense functions. "We must hold that the external form of the sentient body is really modified by the object in the same way as a change is produced in the superficies of the wax by the seal." And this, he says, is not the case with touch alone, where it seems most evident, but also with all the ex-
ternal senses. Thus Descartes arrives at the conclusion that the physical conditions of perception are such as to make it necessary that the typical object of all perceptual intuition shall be figure. And the significance of the schematic connection of special sense, common sense, imagination and memory is to show that figure is, as he puts it "carried off" from the organ of external sense to various parts of the neural mechanism, thus making figure essential to all sense knowledge. We may remark that while Descartes regarded figure as essential to perceptual knowledge, it is not correct to say that he regarded it as essential to mathematics. The passage which we have just been considering is written with the object of showing that if geometers employ figure in their work, they are using something that is exceedingly congruous with perceptual knowledge, and thus likely to help them. But he was well aware that it is quite possible for mathematics to proceed without figures, and, as has been pointed out, the aim of analytic geometry is not so much to extend the use of intuitive aids, as to limit and make it more discriminating.

The precise point of view from which Descartes, as a philosopher of science, will be led to deal with the problem of the external world is now evident. He must raise the question as to the objective reality of figure. But as soon as this point comes up, we are aware of a most serious ambiguity in his use of the term figura. For sometimes it would seem to refer to what he specifically calls nudae figurae, which may be taken to mean geometrical figure, and sometimes it refers rather to the superficies of bodies. Thus our question is divided into two parts, and we consider first the objectivity of geometrical figures, and second the objectivity of superficies.

The question as to the objectivity of nudae figurae is not one that is very important for this discussion, and could well be passed over, had not J. S. Mill asserted that for Descartes they were independently existing entities. But this certainly needs qualification. In the Discourse, in the sixth Meditation, and in the Replies to Second Objections, we find him insisting that only

\[1 \text{Logic, bk. V, ch. 3, sec. iii.}\]
the idea of an infinite being can guarantee existence, while the idea of a finite being can give us only possible existence. Thus logic does not demand that we regard geometrical figures as real entities on the ground that they can be conceived. And the fact that sense knowledge is in some way involved in their use is very far from deciding the case. In the first place, it is imagination which gives us geometrical figures, and the object of imagination may presumably be non-existent. In the second place, even when some figure is actually drawn, Descartes never tells us whether he regards this as the figure, the triangle or whatever it may be, itself, or an approximation only, or some sort of perceptual representation. While we may agree that sense-knowledge certainly does come into play, the precise sense in which it is used, and its precise relation to the figure as an abstract relational scheme is left quite unconsidered. And in the third place, as we shall see in a moment, sense knowledge in no way guarantees the real existence of its object.

The question as to the objectivity of superficies is much more interesting, for here we are led directly to Descartes' positive view of the external world. When dealing with superficies he finds himself in a dilemma. On the one hand, he expressly denies the reality of superficies. It is neither part of a body nor merely the common limit between one body and another. Thus it is not real but modal. But, on the other hand, the demands of physics, and indeed the demands of all experience are such as to demand a plurality of bodies. To break down the heterogeneity of the universe would be to close the door to all science and to all mental life of any kind. But it would seem that the denial of the reality of superficies must issue in precisely this effacement of all difference. For it is usual to distinguish between bodies in contact in terms of their superficies. This antinomy Descartes resolves by introducing another criterion of individuality, a dynamical criterion. We find this worked out in a most interesting and significant manner in that part of the Principia in which he deals with the fundamentals of physics. He defines an individual thing as "all that which is transferred together." Thus transference, or motion, is the principle of differentiation.
in the physical universe, and his whole account of motion is thoroughly relativistic. In it we find the fundamental physical principle, for the world is conceived as a complex which is differentiated by the mutual motions of its components, and it is by this means that he obtains heterogeneity in the external world, which goes by the name of extensio. If we take this discussion in connection with the comment on the fourteenth Rule we see clearly his point of view in this whole connection. For there we are told that extension actually means the possession of a definite locus, so that the external extended world is essentially a complex of matter which is differentiated and in fact made a world of possible experience by virtue of motion. And it is this world to which we are introduced when the external sense comes into contact with it.

So the narrow question of the reality of superficies at once opens out into the question of the reality of the entire complex which constitutes the datum of sense knowledge, and which we call the external world. In what sense, if any, will Descartes regard this complex as real or objective? It may appear that the answer is not far to seek, and that all we have to do is to refer to his well known scheme of thinking substance, extended substance, and uncreated substance. But there are reasons for supposing that this naive realism did not represent his true position. We have already seen that many doubts may in general be cast upon his metaphysics. And more specifically we find that he was keenly aware of the difficulties of just such a theory of perception as he advanced, the theory which is usually taken as his characteristic and central position. Moreover, his view of intuition as the organ of science called for a very different solution of the problem of externality. We have seen that his notion of perceptual intuition arose in connection with his dualism. Of that dualism we have the first specific trace in the passage in the twelfth Rule to which reference has already been made. There he writes as follows: "For a knowledge of things, two factors are to be considered, we who have the knowledge, and the things themselves which are known." And he

goes on to say that while he would like to give a full account of the first of these factors, and explain what mind is, what body is, and how it is informed by the mind, this is not possible, and he must be content with the schematic outline which we have already noticed. Thus the dualism begins as a dualism of mind and brain rather than of mind and matter, a psycho-physical rather than an epistemological dualism. And from the functional point of view it appears as a dualism of two kinds of knowledge, perceptual and conceptual. It is only when other motives come in later that the true epistemological or metaphysical dualism makes its appearance, and that we find discussion being carried on in terms of knowledge and its object. Thus what is perhaps the most cogent reason for regarding Descartes as finally and unequivocally pledged to a naïve realism is dissipated.

It is of course very easy to attribute to Descartes quite an uncritical belief in the independent reality of the world of perceptual intuition. And we can find in his writings many admissions to this effect. But in the first place, what may be spoken of as his true view, true at least in being consistent with the requirements of his methodology, was never worked out very explicitly and is to be found in suggestions rather than in extended exposition. And secondly his literary method was such that, in using the terminology of ordinary life rather than a technical instrument, he should often suggest theories which he did not hold. And the fact that we find him continually throwing doubt upon the reality of physical objects, and refusing to accept this as a necessary assumption, though admitting that it was a natural one, goes to show that he was by no means so naïve in his approach to the problem of externality as various damaging admissions would suggest. In speaking of his method of doubt he writes, "... We doubt in the first place whether any of the objects of sense or imagination exist. ..." And this cannot be dismissed as a piece of metaphysical supererogation, for the reasons he gives are the eminently cogent and sane ones of the uncertainty of our senses and the possibility of

1 Ibid., Vol. VIII, pp. 5–6.
hallucinations. And in the Meditations we find this critical doubt directed against precisely that naive common sense dualism which is supposed to be the characteristic Cartesian theory of the external world. In the sixth Meditation he points out that the copy theory of knowledge is nothing more than tentative at the best. On the assumption that material things exist, he says, the difference between conception and perception might be that in the former the mind is directed to things within it, while in the latter it is directed to things without it. But clearly this turns upon the assumption of external existence. And Descartes insists that perception, or perceptual intuition, furnishes no ground for such an assumption. Even though certain considerations would seem to support it, it can only be accepted with the greatest caution. For always we are liable to the deception of our senses, and always the phenomena of dreams and hallucinations present a difficulty. And even if we are to allow the external existence of the objects of which we have perceptual knowledge, this would not carry with it a copy theory of knowledge, and the relation between the object and the percept would still remain a problem. In the third Meditation he makes three points against the apparently natural hypothesis that our adventitious ideas are copies of independently existing entities. First we must distinguish between the spontaneous inclination which makes some beliefs seem plausible, and the natural light which gives valid certitude. It is to the former rather than to the latter that our belief in independent existence and the copy theory is to be attributed. We may note in passing that this distinction between assurance and certitude presents a formidable difficulty for his theory of knowledge. Second, the fact that our adventitious ideas are to a great extent beyond our volitional control is no proof that their cause is external to ourselves. For it is quite possible that their arbitrary nature arises from our own constitution which cannot be altered at will. Third, even if we admit that these ideas arise from some external and independent cause, this is no proof that they are copies of that cause. On the contrary, we find the greatest divergence between different presentations of the same object, as when a
tower looks at one time round, and at another square, at one
time large, and at another small. Thus to sum up we may say
that Descartes, in spite of inconsistent remarks, was well aware
that the assumption of independently existing entities and a
copy theory of knowledge constituted a problem rather than a
solution, and that it is impossible to attribute to him a naïve
belief in the external reality of the world of perception.

Finally we may point out that even if we allow the introduction
of a God whose goodness guarantees the validity of perceptual
intuition, what Descartes might actually have claimed to es-
establish by this questionable piece of metaphysics would be only
the reliability of sense knowledge. But for him reliability does
not mean objectivity or truth. He explains the notion in the
sixth Meditation. "For I see that in this as in other similar
things, I have been in the habit of perverting the order of nature,
because those perceptions of sense having been placed within
me by nature solely for the purpose of signifying to my mind
what things are beneficial or hurtful to the composite whole of
which it forms a part, and being up to that point sufficiently
clear and distinct, I yet avail myself of them as if they were
absolute rules by which I might immediately determine the
essence of the bodies which are outside me, as to which in fact
they can teach me nothing but what is most obscure and con-
fused." Thus reliability receives a behavioristic interpretation,
and is seen to have little or nothing to do with objective reference.

Thus we see that Descartes' general approach to the problem
of externality, as conditioned by his methodology, would tend
strongly in the direction of subjectivism of some kind. This
might be expected from his view of the nature of intuition and
of the requirements of science. For he lays far more emphasis
on certitude than on truth. Indeed he goes so far as to tell us
that if an idea is clear and distinct we cannot help regarding it
as valid or true. But while we can say with some assurance that
the theory usually ascribed to him was not one which he could
take very seriously, it is true that he had no other consistently
and explicitly worked out. All that we have is in the form of
suggestions. Perhaps the nearest approach to a constructive
solution which we can find would be to take his notion of the data of intuition as being universals in connection with his view of extension as essentially a relational complex of spatial type. This would at least suggest a theory of externality to be worked out along the lines of treating a real object as a complex of perceptual qualities with a determinate spatio-temporal locus, and it would exhibit the connection between Descartes, himself a mathematical philosopher, and the modern logico-analytic tendency.

James L. Mursell.

Union Theological Seminary.