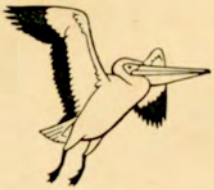
A PELICAN BOOK

W. B. GALLIE

# Peirce and Pragmatism

The theories of the great American philosopher, the inventor of the term Pragmatism and one of the most original thinkers of the nineteenth century, with many extracts from his writings



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# PEIRCE
## AND PRAGMATISM

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reader feel very doubtful about the justice, or at any rate about the depth and the completeness, of these charges. For, by a strange paradox, the personality disclosed in Peirce's writings is an almost wholly attractive one; perhaps it is a slightly eccentric personality, but it is pre-eminently sunny, high-spirited, generous, and robustly self-confident. Throughout his writings Peirce shows himself entirely free from academic jealousy and from personal assertiveness; in controversy he is always the fairest, indeed most chivalrous, of opponents; and although his best writings contain plenty of punch, they show not the slightest trace of swagger. Witty, arch, enthusiastic, magnanimous, occasionally fanatical in pursuit of his own most difficult ideas or in his assaults on the doctrines of others, but in the main sanely and even severely self-critical, Peirce the writer stands in most extraordinary contrast to what is generally reported of Peirce the man in society.

Here is a psychological riddle which, it may be hoped, future biographical researchers will help to unravel. But perhaps one important clue to its solution is to be found in a passage which closes one of Peirce's earliest philosophical essays. He there censures the habit of thought which identifies a man's essential life, his humanity, with either the ebb and flow of his animal vitality or else with his will. As against this view, Peirce himself urges that a man's essential life is made up of his communings – speech and listening, questioning and answering – whether with himself or with other members of the community to which he belongs. Man is essentially a sign-maker and a sign-reader; and his life as a whole is in the nature of a word, a sign, a message. Thus Peirce writes, 'The word or sign which man uses *is* the man himself,' and again, 'my language is the sum total of myself.'* This is no doubt a very one-sided account of the matter, the expression of a quite unusual – excessively intellectual – temperament and outlook; it may even seem like a piece of special pleading on the part of a man who foresees his own incapacity to cope with the pressures and responsibilities of

* 5·314.

*normative* science. It is not the science that, *par excellence*, draws deductive conclusions: that science, he maintains, is pure mathematics. The function of deductive logic is, rather, to display how we ought to proceed in deductive arguments; and it does this by classifying the various types of deductive argument and setting out, in the most lucid and articulate way possible, models of every such type. It is thus the science that *studies*, largely for the purposes of self-criticism and correction, what pure mathematics *does*. Whether in maintaining this view Peirce was altogether justified is a question on which we need not here embark; our concern is simply with the way in which Peirce's long experience as an originator, critic, and interpreter of logical algebras was to affect his thinking in other less highly specialized branches of philosophy.

In the first place this experience finally confirmed in Peirce's mind, if it did not originate, what is perhaps his most characteristic and fundamental philosophical insight: namely, that every symbol – be it a word, a sentence, or a scientific formula – is essentially something *to be developed*, something that requires or calls for development if it is to fulfil its proper function of expressing and communicating intelligent thought. That this is true of the symbols of every algebra – its *a*'s and *b*'s, *x*'s and *y*'s – is fairly obvious: the only point in writing down and manipulating such symbols is to get something further – some further equation or conclusion – out of them. Peirce, however, maintains that the same can be seen to be true, on reflection, of all signs and symbols, or at any rate of all such as are used for the purposes of intelligent thought. Not only does every such sign require to be interpreted if it is to be understood – and therefore to be *interpretable* if it is to be intelligible or meaningful; interpretation of any sign used for the purposes of thought means, Peirce claims, its interpretation in terms of, or by means of, some further sign, which may confirm, amplify, qualify, or correct the original sign but which will, in some way or other, *develop* it. This thesis of Peirce, which will greatly concern us in later chapters, we may here sum up by the cliché: No

God, or of knowledge, or of a substance, or of quality, or of mere being, which various philosophers have asserted to be absolutely simple, ultimate, unitary, self-sufficient conceptions. On the contrary, Peirce maintains, every genuine conception is essentially related to other conceptions, just as every sign requires, if it is to signify, other signs that can express, by developing, its meaning; and one of his ways of expressing this point is by affirming that every genuine conception can be defined. Now it might be objected that, if this were so, then all definition must in the end be circular, and therefore useless: Peirce, however, maintains – and on this score his experience as a symbolic logician simply confirms in the clearest possible way what reflection on other less purely formal sciences would suggest – that, in fact, all definitions are, in a sense, circular. A definition is *viciously* circular only when it involves reference to the very term which it claims to define; for example, the definition of man as 'offspring of man' or 'member of the species *homo sapiens*'. On the other hand, we find an inevitable and quite innocent circularity in the definition of all relational terms: e.g. father and son, above and below, greater and less, etc., no one of which can be defined save in terms of its correlate and conversely. Now Peirce's long experience as a formal logician had shown him that all the allegedly ultimate conceptions and principles of logic (and indeed of mathematics) are in this sense circular, because essentially relational; they can be understood and expressed only in terms of their mutual implications. To give two instances. The notion of a given quality is distinct from the notion of the corresponding class of things (those that have this quality), yet each of these notions requires the other to elucidate it. Again, although it is easy to understand Peirce's contention that the implication relation is fundamental in logic, yet for certain purposes this relation too can be, and needs to be, defined. Peirce himself introduced into symbolic logic the conventions whereby '$p$ implies $q$' can be defined as 'either $p$ or else not $q$' (what is referred to commonly as 'material implications'), or as 'not ($p$ and not $q$)' where the relation of implication is



defined in terms of the notions of negation and double negation. From this lesson – to which, as Peirce was quick to see, the definitions employed in all the most developed sciences clearly conform – he drew the conclusion that, despite the apparent paradox, there are no genuine conceptions, no matter how scientific or how elevated they may appear to be, that are in fact ultimate, self-sufficient, essentially indefinable.

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We may usefully consider two further ways in which Peirce's work as a symbolic logician has left its mark on the rest of his philosophy. In the first place it helped to make him an unusually powerful critic. We may recall, in this connection, that whenever a symbolic logician manipulates his symbols he must have clearly in mind (until they become habitual to him) all the translation rules to which his symbols are subject: indeed, if he neglects these rules, he will not be using his symbols in any definite way, since, apart from the rules that govern their combinations, separations, etc., his symbols have no distinctive meanings. When therefore a thinker, trained in the procedures of symbolic logic, comes to analyse and criticize an argument from everyday discussion or from general philosophy, we should naturally expect him to demand two things: first that all the premisses of the argument in question shall be explicitly stated, and second that the rule or model (corresponding to transformation rules in symbolic logic) to which his argument and *any other similar argument* conforms shall also admit of explicit statement. To concentrate on this last point: a critic who has been trained in symbolic logic will tend to consider any given argument as, in Peirce's words, 'a member of a *genus* of arguments all constructed in the same way and all claiming that when their premisses are real facts, their conclusions are also.'* More commonly Peirce writes of *classes* of arguments or inferences or reasonings, and maintains that it is essential to any piece of reasoning that it should carry with it the 'side-thought' that

* 2·649.

it belongs to such a class. The defining principle of any class of arguments (or inferences or reasonings) – the principle in accordance with which each member of the class is 'constructed' – Peirce calls the 'leading principle' of that class.

Now it is altogether characteristic of Peirce that, when presented with any philosophical argument, he immediately asks for a clear statement not only of the premisses from which it is derived, but of the leading principle to which it conforms. To ask for this last is, however, easier than to get it, for, as Peirce himself fully realized, leading principles are in fact very seldom stated, and for this reason are best conceived as 'habits of mind, constitutional or acquired' which govern different classes of inference. Nevertheless, every piece of reasoning, however vague the terms in which it is couched, conforms to and exemplifies some leading principle or other; and one of Peirce's greatest services to philosophy was to urge that we should drag into the daylight the leading principles on which every piece of philosophical argument relies. And once they are explicitly stated, what sorry things the leading principles of the philosophers are often found to be! One great favourite is that a conclusion of inference should be accepted if, irrespective of any specific consequences, it seems 'agreeable to reason'; another is that a conclusion should be accepted because its contraries (seldom specified in any detail) 'seem inconceivable', or because thought or expression (seldom analysed or sampled with any great care) 'would be impossible without it'. It is chiefly through his exposure of the extreme weakness of their 'leading principles' that Peirce proves himself so devastating a critic of, for example, Descartes, Berkeley, Kant, and William James, and of almost every writer on logic since the Middle Ages.

Finally, Peirce's work as a symbolic logician also profoundly affected his manner of expressing some of the central ideas of his theory of knowledge. He frequently describes the thinking process as though it consists simply in the 'development' of one symbol – say a sentence asserting some matter of fact – out of another, or of the 'translation' of one symbol by another. Now

cause of its recurrence has been the rapid development of the mathematical and natural sciences. Scientists, since the time of Copernicus, have claimed to know very strange things by what seemed to ordinary men very strange methods; and they have also claimed to doubt very strange things, such as to ordinary men seem obvious or indisputable. It is largely because of this that theories of knowledge have bulked so large in philosophy from the time of Descartes onwards, and that these theories of knowledge should have been aimed primarily at helping intelligent, reflective people to make sense of the more surprising claims of the new sciences, and of the new uses of cognitive verbs which the making of these claims seemed to require.

Most modern theories of knowledge have a further feature in common: they presume – rather than explicitly argue or assert – that those uses of cognitive verbs which seem most serviceable for the expression of scientific argument provide the model for the correct use of these verbs in every other field of discourse. This is but one expression of a tendency, perhaps the most characteristic tendency of modern philosophy, to assimilate all human knowledge, and in particular all expressions of human knowledge, to the model of scientific statements. This tendency first appears clearly in the work of Descartes who, for this reason alone, would deserve the title of the 'father of modern philosophy'. But 'father' in philosophy is not simply an honorific title; for either subsequent philosophers have been bad sons of their father, revilers and destroyers of his characteristic doctrines, or else Descartes was a veritable father Adam, whose sins of omission and commission were to be visited on every succeeding generation of philosophers. If the latter account be true – and there is truth in it, for Descartes, like most great men, was great also in his sins – then every descendant who has rounded on him in one generation after another, may be thought of as a would-be redeemer of philosophy from Cartesian errors. But, and here is the proof of Descartes' greatness and lasting power, every such would-be redeemer seems fated to be accused in his turn of unwitting subservience to some more insidious



doctrine or presupposition, some deeper layer in the legacy, of 'that French cavalier who set forth with so bold a stride.'

Peirce is no exception to this rule. His criticisms of Descartes are historically as important as those made by Spinoza or Leibniz, Hume or Kant; and, in respect of logical force and simplicity, are vastly superior to any of theirs. Like all great philosophical criticisms they are essentially simple, and, once they are made, they seem to be the 'obvious' criticisms, such as we should have expected from any competent philosopher. More important is the fact that they are the criticisms of a man who has fully understood the inspired hope that lies behind Descartes' philosophy: namely, to get the whole of human knowledge 'under control' in the kind of way that scientists have got under control their own highly specialized methods of investigation. In rejecting Descartes' recipes for realizing this aim, Peirce has of course the advantage of writing after a lapse of two centuries, during which the rapidly developing methods of science had been interpreted and analysed by a succession of great philosophers. But this advantage – which other nineteenth-century philosophers shared with him – does not account for the force and thoroughness of Peirce's criticisms. These are due, rather, to the fact that Peirce, thanks to his superior logical equipment, goes to the very root of the matter: to the first premisses and guiding principles – and behind these, to the uncriticized presuppositions – of the Cartesian philosophy.

Peirce's criticisms of Descartes provide, both logically and historically, the best possible introduction to his own developed theory of knowledge. They are to be found in two papers which he published in 1868, and which bear the quaint titles *Concerning Certain Faculties Claimed for Man* and *Some Consequences of Four Incapacities*. These papers were to remain virtually ignored by other philosophers for at least sixty years, partly, no doubt, because they are so cryptically expressed, but chiefly because of their profound originality. It is no exaggeration to say that they foreshadow the most important developments in the theory of knowledge which have been

premature, if not wholly gratuitous. For in all three cases Peirce succeeds in showing that the original specimens of knowledge chosen are, in all probability, not intuitive at all.

He first examines the allegedly privileged case of the knowledge which each one of us has of himself as a unique 'thinking subject'.* Such knowledge, it has sometimes been claimed, is 'obviously' intuitive; but observation of young children, and especially of their speech-habits, suggests a total absence of such knowledge in them. Children appear to come by the idea of themselves as unique individuals having thoughts of their own (a) through interpreting the speech which others (adults) address to them ('That is what *you* think, Tommy, not what Peter thinks'), and (b) as a hypothesis to account for, or provide a locus for, their own errors, dreams, etc. A plausible conclusion from these facts is that our self-knowledge is always in fact inferential, although the inferences on which it is based have become for the most part so habitual to us, and as a result of this habituation so 'telescoped', that we very easily come to regard our self-knowledge as immediate or intuitive. This conclusion is of course not a necessary one. It is possible that Peirce's account of how we *come* by our self-knowledge is correct, and yet that at some point in our lives our self-knowledge, which had hitherto been inferential, suddenly – or perhaps gradually – becomes direct or intuitive. This is a possible view; but it sounds suspiciously like special pleading. As a hypothesis it compares, in respect of simplicity and cohesion, very unfavourably with the account of the facts which Peirce offers. We may therefore reasonably conclude that the case for the intuitive character of self-knowledge is not proven; and hence that the claim, that we can recognize this intuitively, hardly merits consideration.

Peirce next considers the allegedly intuitive character of our knowledge of our different mental states, in particular our capacity to distinguish a state of belief from a state of mere supposition or a state of doubt.† Here it will suffice to say, for this is a subject we shall deal with in more detail in our next chapter,

* 5·225 ff. † 5·238 ff.

when this happens there are ways of deciding which of the disputants is right – for instance by fetching a colour chart, whose correctness both parties will admit, and laying a shade or range of shades on the chart over against the object about whose colour there is disagreement. Hence it would appear that one's knowledge, or the correctness of one's classification, of a given colour is not so simple and direct after all; it is something whose hidden complexity can be suggested by some such formula as, 'If one were to apply certain standard tests, one would find that the colour falls within a certain range of shades, those referred to in ordinary English as "red".' To know that the colour of an object is red means then, at the very least, to know that it shows a resemblance in greater or less degree to one wide class of objects (other red objects) and a contrast in greater or less degree to a second, wider class of objects (those whose colours are other than red); and the use of the word 'red' or of any logically equivalent symbol presupposes the capacity to perform this, admittedly very simple, piece of comparison and contrasting. But whether one really possesses this capacity is something that can only be shown by one's later actions and statements with regard to the object in question. If, for instance, after pronouncing the colour of a flower to be red one proceeded to group it with blue flowers, or if one went on to say, 'Yes, its shade is of a redness that is almost olive-green', one would naturally be suspected either of being unable to discriminate colours in the way people of normal vision do, or of not knowing how to use colour words correctly. Now incapacities of both these kinds are sometimes found; and this fact helps us to see that our allegedly direct and intuitive *knowledge* of, say, a given colour is something that admits of testing by evidence – or, in the language of Peirce's Pragmatism, by certain of its later practical effects.

This brings us to Peirce's own, at first sight, somewhat paradoxical suggestion that every piece of apparently direct intuitive knowledge – including our knowledge of the most elementary 'data of consciousness' – is in fact of the nature of a



hypothesis; since every claim to knowledge involves the *assumption* that a certain method of classification or systematization will in fact apply to a particular object or set of objects in a particular way. Now of course the *truth* of a hypothesis is something that has to be tested, by its consequences or effects. Just which, or how many, of these effects must be considered and found to hold good if a hypothesis is to count as true, is a question to which no over-all answer can be given; but it is difficult to believe that all possible relevant tests of the truth of *any* hypothesis can be enumerated and checked over *in a single act of Intuition*. Unless this can be done, however, it would seem that recognition of even the simplest quality must rest on the *assumption* that certain relevant necessary consequences are in fact realized in the case in question. And such an assumption is something which the Cartesian doctrine of Intuition cannot possibly allow.

If this argument of Peirce's could be accepted, then it seems clear that the very existence of Intuitions – let alone the claim that their existence can be intuitively known – would be very dubious indeed. It is therefore important to consider a third line of defence to which believers in Intuitions (or in 'knowledge by acquaintance') may resort. This defence, which depends entirely on general considerations and requires no reference to any specific instances (or alleged instances) of Intuition, may be stated briefly as follows. Suppose that Peirce is right, and that any judgement we care to examine, no matter how simple and direct it may at first appear to be, turns out to rest on certain assumptions, i.e. to be such that in making it we are *ipso facto* accepting certain prior premisses as true. Then we may ask: What is the logical status of these premisses themselves? Were they, in their turn, established by some prior process of inference? And if so, what about the premisses of this prior process? Were these also derived from certain still remoter premisses? Evidently this line of questioning can be pushed back and back: but ultimately (so the present argument maintains) we must come to some piece of knowledge which was not

self-dependent premisses. But if we accept Peirce's contention that all knowledge involves the use of signs and symbols, it is fairly easy to appreciate the positive point that he here has in mind. For we have all had to learn how to use symbols correctly in order to make even the most elementary classifications correctly. For instance, when asked to name the colours of different objects, a young child has – visibly – to stop and think: he tries to recall certain instructions which he has previously received and which are, for him, the only possible justification of whatever answer he tentatively and hopefully puts forward. (His thoughts might be expressed by saying: 'If Mother *did* say red for this object yesterday – and I *think* she did – then red it is!') Generalizing from this, we may say that every piece of knowing depends, not simply causally but logically, on what one has previously learnt, since all knowledge rests on the assumption that certain methods of classification and systematization, which have been learnt in connection with other earlier situations, can be applied, in a particular way, to a given situation. Once this is admitted, the great error of Descartes and of all later Cartesians becomes plain: it is the assumption that we cannot learn *until* we know. If this assumption were warranted, then it would be senseless to say of any two thought-sequences, neither of which develops or builds on a basis of self-evident first premisses, that one is performed better or more intelligently than the other. But to common sense it seems obvious that in most processes of learning we simply must build upon – with a view to testing, improving, or rejecting – whatever prior beliefs or conjectures we can bring to bear on the problem facing us. We must build on what we have; and we quite obviously build better or more intelligently in some cases than we do in others.

Development of this line of thought would lead us to an alternative conception of knowledge as the claim that we have learnt to apply certain methods of classification and systematization ideally well; this claim, however, being always open to possible questioning and testing. Peirce calls this general con-

– namely that, in a sense which does no violence to the known facts, our thinking life has no definitely assignable beginning in time – that common sense finds unpalatable.

Suppose, then, that we were to re-state the paradox in conditional – and therefore apparently milder – form as follows. So long as we are talking about a person's *thoughts* we must assume that these are intelligible in the sense of being at the very least attempts to apply previously learnt methods of classifying, relating, and so on. This statement must be taken to allow that if we were to probe back imaginatively in the attempt to understand any particular thought, we should find prior thoughts (premisses) giving place to habitual and in the end to purely instinctive responses, adapted to the course of experience by means that are entirely beyond intelligent control. But so long as the process, which we might thus imaginatively reconstruct, remained a genuine thinking or learning process, its successive advances would depend logically as well as causally on previous conjectures, beliefs, suppositions, etc., which would enable us to understand them, though they would not of course in all cases fully justify them.

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Can we now attempt an assessment of Peirce's criticisms of the doctrine of Intuition? Certainly they would appear to rob it of all its immediate plausibility, so that it can at best be maintained as a hypothesis, claiming assent because it helps to explain certain facts which no other theory can. Now Descartes himself would certainly have claimed that his doctrine explains why certain methods of investigation give us results of a uniquely high degree of certainty and exactitude. Before attempting any final assessment of Peirce's criticisms, therefore, let us see what, according to Descartes, the main methodological consequences of the doctrine of Intuition are. These may be summarized very briefly, since they are among the most famous theses of modern philosophy.

1. Since all genuine knowledge consists in, or is derived from, Intuitions, the possibility that we may continue to harbour

course of his studies, find reason to doubt what he began by believing; but in that case he doubts because he has a positive reason for it, and not on account of the Cartesian maxim. Let us not pretend to doubt in philosophy what we do not doubt in our hearts.' *

The nerve of Peirce's criticism here is that we cannot doubt without a *positive* reason: genuine doubt arises only when two or more beliefs appear to conflict with one another. Doubt has, as it were, the effect of suspending belief; but it would be impossible for this to happen unless one believed – or knew – that there is something incompatible between certain beliefs which he had previously held. In fine, one can never doubt except on a positive basis of belief or knowledge.

2. Why cannot the individual consciousness be taken as the ultimate criterion of knowledge? What is wrong with asserting with Descartes, 'Whatever I clearly and distinctly perceive is true'? The history of philosophy supplies one fairly obvious reason. It shows us that metaphysicians 'will all agree that metaphysics has reached a pitch of certainty far beyond that of the physical sciences; – only they can agree on nothing else.' He then proceeds: 'In sciences in which men come to agreement, when a theory has been broached, it is considered to be on probation until this agreement is reached. After it is reached, the question of certainty becomes an idle one, because there is no one left who doubts it. We individually cannot reasonably hope to obtain the ultimate philosophy which we pursue; we can only seek it, therefore, for the *community* of philosophers. Hence, if disciplined and candid minds carefully examine a theory and refuse to accept it, this ought to create doubts in the mind of the author of the theory himself.' †

Here the observable practice and authority of the *community* of scientists is contrasted with the excessive individualism which we find in philosophy. We should notice, however, that the authority of the community of scientists derives entirely from the fact that agreement tends to be reached (if we except the

* 5·265. † 5·265.

The philosopher works for the sake of the community of men, the scientist within the society of scientists

most elementary questions) *only by those who inquire*. Why is this? Partly because, by tradition within the several sciences, every new result for which attention is claimed is accompanied by a full account of the problems that gave rise to it and of the methods by which it was reached, as well as an adequate indication of the background of theory which it assumes to be true. Thus every contribution to science is an appeal to *other* scientists to go over the same ground for themselves: and this is in practice the scientist's substitute for Cartesian doubt. But Peirce's conception of the community of inquirers means more than the observable fact that co-operation and mutual criticism are of the first importance in science; it also embodies his understanding of the first article of faith of every scientist, namely the belief and hope that if investigation into any given problem be carried sufficiently far, one solution will always establish itself as logically superior to all its rivals. This hope, which binds together successive generations of scientists, is all that Truth means, Peirce claims, in science. Wherever that opinion is reached – as it no doubt is reached on many questions in both science and history – agreement *among those who inquire* is automatically reached. Everyone concerned with the truth will have put the suggested solution to the test by the best methods available to the community; and therefore no one concerned with the truth 'is left to doubt it.'

3. 'Philosophy', Peirce goes on to tell us, 'ought to imitate the successful sciences in its methods, so far as to proceed only from tangible premisses which can be subjected to careful scrutiny, and to trust rather to the multitude and variety of its arguments than to the conclusiveness of any one. Its reasoning should not form a chain which is no stronger than its weakest link, but a cable whose fibres may be ever so slender, provided they are sufficiently numerous and intimately connected.'*

Why did Descartes seek to erect a comprehensive system of knowledge on the basis of a single factual premiss ('I exist as a thinking being') with the aid of a small number of allegedly

* 5·265.



self-evident, though in fact never clearly enunciated, principles of reasoning? Chiefly, as we have suggested, and indeed as he himself tells us, because of the example of geometry. In Euclid's geometry a large number of theorems are deduced from a surprisingly small number of axioms and definitions. Now quite obviously the truth of the different theorems in Euclid's ten books was not originally suggested to their separate discoverers in the exact order in which we find these theorems presented by Euclid. Descartes of course knew this; but he would have claimed that what matters in Euclid, namely the demonstrative or proven character of his theorems, does depend on this order: more generally, he would have claimed that there is one, and only one, order in which any system of progressively more complex truths can be properly demonstrated. Modern mathematicians, however, would reject this claim. They would maintain that whenever a subject-matter admits of demonstrative or deductive presentation, there are a variety of ways in which this can be done. In other words, the theorems we find deduced in any one system can as a rule be deduced from any one of a number of different sets of axioms, and the only reasons for preferring one of these axiom sets to another are those of economy, elegance, and pedagogic efficiency. The general importance of this view, however, is perhaps most clearly seen in the case of the physical science, whose truths are quite obviously gained in piecemeal fashion and therefore always subject to subsequent corrections, but are nevertheless in the end presented (for instance, in most textbooks) in deductive or semi-deductive form. Let the reader glance through three or four textbooks of mechanics, and he will quickly discover that their different writers, although agreeing entirely in all their conclusions, i.e. the proved general principles of mechanics, nevertheless differ considerably as regards the nature of their proofs and the order in which they present them, and may well also differ in their definitions of the key terms of the science.

It turns out therefore that the third of Descartes' methodological rules combines three important errors. Descartes wrongly

assumes that, to achieve knowledge of any given subject-matter, we must commence from some piece of direct, indubitable knowledge: largely because of this, he has greatly exaggerated the part which deduction from first premisses plays in any branch of knowledge; and finally he has misconceived the characteristic function, or service, of deduction itself. These errors are particularly insidious in the case of philosophy which is concerned with wide, and in the main vaguely expressed issues – the very last issues to admit of 'knock-down' demonstrative solution.

4. Both in his 1868 papers and in later writings Peirce consistently urges that science knows nothing of 'absolutely inexplicable' facts. In general, science aims at rendering facts intelligible or manageable by discovering the laws which, in the appropriate sense, explain them. It may be, of course, that these explanations will involve the hypothesis of further facts whose existence and character remain (thus far) wholly unexplained: but where this is so, the suggestion that these further facts should be counted absolutely inexplicable is one which no scientist will allow. The suggestion of 'ultimates' and 'inexplicables' smacks to the scientist of dogmatism or mysticism or both. In Peirce's judgement, it commits the supreme sin against the scientific spirit: 'It blocks the road of inquiry.'

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It would be difficult to find, in the whole history of philosophy, a battery of criticisms more devastating and complete than those which we have just cited from the second of Peirce's papers of 1868. If the doctrine of Intuition is to be judged by its methodological consequences, then the case against it is here decided once for all. There are, however, certain further consequences of the doctrine which, although of a less general character than those just considered, have perhaps exercised an even stronger hold on subsequent philosophers; and it will be useful before we close the present chapter to notice Peirce's reaction to these more specific tenets of the Cartesian philosophy.

ledge may be as certain, as well-attested, as any other knowledge we possess: all he denies is that such knowledge is wholly intuitive, i.e. non-derivative, non-inferential. In this spirit he points out, for instance, that we cannot know that we are angry unless we believe in the objective existence of some person or situation which, as it were, 'deserves' our anger.* And similarly, he argues, we cannot recognize the quality of one of our sensations save as the result of a complex process of inference from the fact (or presumed fact) that some object, which we claim to perceive, appears to have that very quality. Again, we may recall his suggestion that we first form a definite idea of ourselves as a *hypothesis* to account for the existence of, or provide a locus for, our own errors – the fact that we claim to see or remember or in some other way to know of the existence of things which other people, to judge by their speech and actions, do not see or remember or believe in. Now on all these scores ordinary common-sense reflection – unless and until it is affected by the Cartesian philosophy – will almost certainly agree with Peirce. But in the next step he takes common sense will have more difficulty in following him. For he argues that it is only a generalization of this last suggestion to maintain that *all* our knowledge of minds and their workings – our own minds or other people's – is derived from our knowledge of certain 'outward' physical facts: namely those parts or results of our own and other people's behaviour which we call *signs*.† Signs – most of the sounds we utter and many of the other bodily movements we make – are, in their actual occurrence, perfectly good physical things or happenings; but the relations in which one physical thing must stand to others if it is to work as a sign are of a kind that we should not expect in things or processes that are, as we say, purely physical or material. Now we shall find Peirce claiming that to know, with regard to a succession of physical events, that they make up a sign or series of signs, is to know of the existence and operation of a mind (or number of minds); and that to be engaged in making or manifesting or

* 5·247. † 5·249 ff.



reacting to a series of signs is to be engaged in 'being a mind' or, more simply and naturally, to be engaged in thinking intelligently.

At first sight this view seems highly paradoxical: chiefly perhaps because it seems to put our knowledge of our own minds, thoughts, attitudes, etc., on all-fours with our knowledge of the minds, thoughts, and attitudes of their people. And this is something that common sense cannot easily accept. On the contrary it seems, at any rate on first reflection, that everyone's thoughts are in a quite unique and peculiarly intimate way his own; his own private and in large measure secret possession. But Peirce has no wish to deny the obvious fact that every man's thoughts and feelings – in this like his incipient words and actions – are in some way private to him: indeed, in a *sense*, are him and therefore quite uniquely his.* What has to be denied, on Peirce's view, is that this immediacy and privacy of a man's thoughts, feelings, and incipient actions in any way serve to account for his *knowledge* of them. (Still more must it be denied that such immediacy and privacy can be taken as a criterion of *all* genuine knowledge.) And on this score common sense can perhaps be won round to agree with Peirce. For in ordinary life we all know very well how difficult it is to be sure how we have come to think as we do – as opposed to being able to reiterate our formed opinion and offer reasons, that is to issue statements, in defence of them. On the other hand, it is in some cases relatively easy to 'read' other people's thoughts, as disclosed in their overt speech and actions; and it is no exaggeration to say that we learn to read our own minds with skill largely as a result of practice in reading the minds (or descriptions of the minds) of other people. This suggests that we should be unable to 'know ourselves', or to know what we are thinking, unless our thoughts got expressed in words and other signs such as we find other people using in appropriate situations and ourselves learn to apply to *their* actions, in just those situations. Is it then so very paradoxical to say, as Peirce virtually does in a number

* 5·310 ff.

of passages,* that we know what we have been thinking only in so far as we find ourselves asserting, by words or other suitable means, some conclusion which we have come to, and find further that we are capable of defending this conclusion, or of providing reasons for it – and always in this latter case by means of words or other symbols? And is it not perfectly obvious that words, or signs of whatever description, are things whose function is not confined to expressing our own private thoughts; i.e. that 'sign-reading' is essentially of the same kind, whether the signs we read are made by ourselves or made by other people?

But, while urging this, we may agree that we never succeed in 'seeing ourselves' *exactly* 'as others see us', or in seeing others exactly as they see themselves; nevertheless we do – if Peirce's view is correct – see ourselves, as others do, through our own speech and the rest of our interpretable behaviour; and we see others (as they see themselves) through *their* speech and other interpretable behaviour. The important consequence is, that our knowledge of our own thoughts, and hence the possibility of our controlling, developing, and criticizing them, is not essentially different from our knowledge of, and hence our power to influence, the thoughts of others. In other words, whenever we think we are in effect communicating – seeking to persuade or instruct or perhaps simply questioning – either covertly with ourselves or overtly with other people. 'All thinking', Peirce writes, 'is dialogic in form. Your self of one instant appeals to your deeper self for his assent';† and again, 'One's thoughts are what he is "saying to himself", that is, is saying to that other self that is just coming into life in the flow of time. When one reasons, it is that critical self that one is trying to persuade; and all thought whatsoever is a sign, and is mostly in the nature of language.'‡ What a man says to himself, he (or his later self) understands: and just as we have to *learn* the meanings of the words which other people address to us, so we have to learn the meanings of the things we say, or think, to ourselves.

* 2·26 ff. † 6·338. ‡ 5·421, cf. 4·6.



Peirce's contention that thoughts are signs, or that every knowledge-situation is essentially a sign-situation, will be considered in more detail in later chapters. Here, however, we may notice that it signalizes, in the clearest possible manner, Peirce's break with the Cartesian tradition. Whereas that tradition sees knowledge as essentially direct and dyadic, a two-term relation between knowing mind and known fact, Peirce sees it as essentially triadic, that is, as involving in all cases the three terms, sign, object signified, and interpreter – or, as he prefers to say, interpretant. The formal contrast between the two views is striking. Other critics of Cartesianism have rightly pointed out that the knowledge-situation is always a much more complex affair than the Cartesian view, epitomized in the image or model of 'the natural light', will allow. But it is one thing to make such a general criticism; quite another thing to set out an alternative of such indisputable shape as Peirce's, and admitting, as we shall find his to do, of such surprisingly fruitful development.

CHAPTER FOUR

# PEIRCE'S THEORY OF KNOWLEDGE

## 11. *Critical Commonsensism*

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PEIRCE nowhere gives us a unified official exposition of his own theory of knowledge. Its central tenets, powerfully illustrated in his elucidations of certain 'cognitive verbs', have to be brought together from writings of widely different dates, in some of which his primary purpose is to refute *other* theories of knowledge, in some to expound his Pragmatism, in some again to defend his own metaphysical theories. Largely for this reason we are faced with what at first seems a formidable difficulty: we find the main tenets of Peirce's theory of knowledge expressed in three different terminologies, with the result that its underlying unity is obscured. On closer inspection, however, each of these terminologies is seen to have a merit of its own: each enables Peirce to bring out certain facets of his own thought which neither of the others is so well suited to express. Therefore, at the risk of some repetition, we shall in this and the following chapter present Peirce's theory of knowledge in three successive versions or stages, indicating the importance – and indeed the necessity – of his shifts in terminology, as we pass from stage to stage. Our first version, which we shall call Peirce's *Conception of Inquiry*, is couched in terms which at first sight appear to be psychological, or at any rate to be simply descriptive, in nature. Our second version, Peirce's *Conception of Inference*, is couched, roughly speaking, in the terms of traditional logic: our aim at this stage will be to clarify Peirce's view of inference as the 'essential function of the cognitive mind' and his conception of 'habits of inference'. Our third version (Chapter V) will consist in a fairly detailed exposition of Peirce's doctrine of *Thought-signs* – broadly the consequences



which he draws from his claim that every thought-situation, like every sign-situation, is essentially triadic in structure.

Throughout our first two versions we shall emphasize Peirce's 'critical commonsensism', his contention – already adumbrated in his criticisms of Descartes – that we must commence philosophy, like every other branch of inquiry, from an examination of our relevant common-sense beliefs, and then subject these to that general line of criticism – 'fallibilism' Peirce calls it – which the example of the most successful sciences suggests. Peirce's critical commonsensism, we shall find, expresses an attitude of mind as valuable as it is rare; that of a man of profound scientific culture who nevertheless retains an almost reverent appreciation of the vague matrix of practical beliefs from which all science springs.

### *Peirce's conception of Inquiry*

In what is perhaps his most famous paper, *The Fixation of Belief* (published in 1878 as the first of that series of papers in which his original formulation of the 'Pragmatist maxim' appeared), Peirce gives a careful elucidation of some of the most important mutual relations of the words 'belief', 'doubt', 'thought', 'knowledge', and 'experience'; and it is to achieve this elucidation that he introduces, in a technical sense of his own, the word 'inquiry'.

Belief, Peirce tells us, is the natural or most common condition of the intelligent mind: it is a 'self-satisfied' condition, and this is due to its apparent adequacy to the needs of action. Different beliefs, in fact, are best distinguished by the different modes of action to which they give rise; hence a given belief may be conveniently described as 'the establishment of a rule of action, or, say for short, a habit.'* We should also remark that a belief does not necessarily make us act at once, but rather 'puts us into such a condition that we should behave in such a way when the occasion arises.'† Hence the most accurate way of expressing any belief will contain a hypothetical element; since it will tell

* 5·398. † 5·373.

us that *if* a situation of such and such a character ever arises, the person, or perhaps any person holding that belief, will regard that kind of situation, and will be inclined to react to it, in a characteristic way.

'While belief lasts', Peirce tells us, 'it is a strong habit, and as such, forces a man to believe until surprise breaks up the habit. The breaking of a belief can only be done to some novel experience, whether external or internal....'* What is the precise force of the word 'experience' in this connection? Peirce does well to remind us, in one passage, that 'experience which could be summoned up at pleasure would not be experience':† on the contrary, experience is the main thing that constrains our thinking, and, at any rate on some occasions, compels us to a 'forcible modification of our ways of thinking.'‡ In a word, belief, like action, must accommodate itself to that which it finds thrust upon it: that is, to the broad course of experience.

Once we are constrained to abandon a given belief, however, a new condition of mind, Doubt, ensues, which provides in almost every aspect the sharpest possible contrast to belief. Doubt is an 'uneasy and dissatisfied state' from which we 'at once struggle to free ourselves and pass into the state of belief.'§ Peirce compares it to the irritation of a nerve and the reflex action produced thereby, whereas the physiological analogue of belief would be provided by nervous associations. The struggle to *re*-fix belief, by removing the irritation of doubt, Peirce names Inquiry: and the sole purpose of inquiry, he tells us in his 1878 paper, is the settlement of belief. 'We may fancy that this is not enough for us, and that we seek, not merely an opinion, but a true opinion. But put this fancy to the test, and it proves groundless; for as soon as a firm belief is reached we are entirely satisfied, whether the belief be (*sc.* in fact) true or false.... The most that can be maintained is, that we seek for a belief that we shall *think* to be true... But we think each one of our beliefs to be true, and, indeed, it is a mere tautology to say so.'‖ He makes the same point in the neat epigram, 'Thought in action

* 5·524. † 5·524. ‡ 1·321. § 5·372. ‖ 5·375.



has for its only possible motive the attainment of Thought at rest.'*

Thus far it might seem that the function of Inquiry is a purely instrumental one – to produce fixed or firm beliefs – and that, so long as it achieves this end, it matters not what particular methods or canons it employs. Peirce mentions three methods of fixing belief which have in fact been commonly employed by the great mass of men, by their rulers and by philosophers: the method of Tenacity, the method of Authority, and the method of 'Agreeableness to Reason'. But none of these methods wholly succeeds in fulfilling its function. For Inquiry has as its aim the attainment of *that* belief, on any particular question, which shall prove satisfactory under every conceivable relevant circumstance; and circumstances inevitably arise in which purely traditional beliefs, maintained by the method of Tenacity, and beliefs imposed by Authority or suited to the intellectual predilection of particular thinkers, are either questioned by some rebellious thinker or discredited by their manifest conflict with the facts of experience. It thus turns out that there is only one genuine or trustworthy method of Inquiry, namely the method of science. The central tenet of this method is that there is *one* discoverable answer to every genuine question, one answer, that is to say, to which all who seek to fix opinion on a given question – not for today or tomorrow or in subservience to any practical interest, but having regard to every conceivable circumstance in which the question might be raised – would agree. But now, whenever this tenet takes full possession of a man's mind he is driven to devote himself to the ideal – or hope – of approaching *towards* the one true opinion on some subject, no matter whether he himself is likely ever to reach it. Men of this type may be said to be possessed by the 'will to learn'; and it is only such men, Peirce tells us, who have any real success in scientific research. By contrast with them, the rest of us tend to employ the scientific method on any given question, Mondays, Tuesdays, and Wednesdays, and one or more of the alternative,

* 5·396.

less efficient but less arduous methods of fixing opinion on Thursdays, Fridays, and Saturdays.

This line of thought, which came to mean more and more to Peirce as he aged, is powerfully illustrated in the following passage: 'In all its progress science vaguely feels that it is only learning a lesson. The value of *Facts* to *it*, lies only in this, that they belong to Nature; and Nature is something great, and beautiful, and sacred, and eternal, and real – the object of its worship and its aspiration. It herein takes an entirely different attitude towards facts from that which Practice takes. For Practice, facts are the arbitrary forces with which it has to reckon and to wrestle. Science, when it comes to understand itself, regards facts as merely the vehicle of eternal truth, while for Practice they remain the obstacles which it has to turn, the enemy of which it is determined to get the better. Science, feeling that there is an arbitrary element in its theories, still continues its studies, confident that so it will gradually become more and more purified from the dross of subjectivity; but practice requires something to go upon, and it will be no consolation to it to know that it is on the path to objective truth – the actual truth it must have, or when it cannot attain certainty, must at least have high probability, that is, must know that, though a few of its ventures may fail, the bulk of them will succeed.' *

Here we seemed to have moved a long way from Peirce's earlier conception of Inquiry as an activity possessing purely instrumental value. And this apparent inconsistency in Peirce's thought might seem to be underlined by his contention, with which we shall presently be concerned, that scientific inquiry is essentially an endless undertaking, and that 'Thought without development is nothing. ... Thought must live and grow in incessant new and higher translations or it proves itself not to be genuine thought.' † But if there is apparent inconsistency here, it is of a kind that is forced on us by the facts and that points the way to a deeper understanding of the relation between science

* 5·589. † 5·594.



and practice and between inquiry and belief. On the one hand, scientific inquiry *is* grounded, both logically and causally, in a number of pre-scientific beliefs, which have been reached and maintained by one or other of the three alternative methods of fixing belief which Peirce describes: moreover, Peirce fully recognizes that even in its most developed phases science remains hedged about, and is to some extent directed by, the needs and interests of practical life. On the other hand, the ends and standards of scientific inquiry cannot be equated with those of practice – whether conceived in terms of immediate economic utility, personal well-being, or social cohesion. For if once science is directed to fixing belief in subservience to the interim needs of practice, it thereby ceases to be genuine science. Any adequate account of the position must do justice to both these sides of it. Science, the free spirit of inquiry, the will to learn, have their roots in our practical beliefs, and have as their initial motive simply the 'fixation' of these beliefs. Nevertheless, by the cunning or dialectic of Nature, inquiry can only fulfil its proper function, the settlement of belief, if it abjures all thought of an immediate or temporarily useful settlement: in hitching its waggon to the star of the one true opinion that *may* be discovered, or at least approached, if only the scientific method be employed, inquiry establishes itself as a partially autonomous activity, with ends, standards, and indeed interests of its own.

But what, besides the inspired hope of attaining the one unquestionable opinion, is the peculiar genius of the scientific method? Peirce's answer is at first sight surprisingly simple: conformity to the laws of inference. But behind the apparently naïve simplicity, and indeed at first sight obvious inadequacy, of this answer, lies a revolutionary innovation on Peirce's part. For by 'the laws of inference' he does not mean, as does the traditional Aristotelian logic, simply those standards by which the *demonstrative* character of certain arguments can be judged: nor does he simply add to this conception, in the manner of many nineteenth-century logicians, the considerations of those standards by which inductive arguments can be assessed. Among

the laws of inference Peirce places one which relates to the *admissibility of hypotheses* – this law, we shall find, turns out to be equivalent to his Pragmatism – and the effects of the extension of the traditional conception of inference are considerable. But even if this innovation be acceptable, the assertion that the scientific method is to be distinguished from other than scientific habits of thought simply by its conformity to logical laws, seems at first blush very odd. Logical principles are, roughly speaking, principles of appraisal and criticism, principles for judging whether certain arguments *really* establish the conclusions which they claim to establish. As such, logic seems to play an entirely critical, uncreative rôle. How then can strict or conscientious conformity to logical principles – even if these are taken to include Peirce's principle of Pragmatism or the logic of hypothesis – account for the positive virtue, the power of discovery which we ordinarily attribute to the methods of science?

Peirce has, in effect, two answers to this objection. In the first place we find him maintaining that, just because the scientific method is the one method which genuinely fulfils the task of inquiry, we all do in fact use it in connection with many of our everyday problems; indeed, whenever we think *in order to find out*, we set about employing it, if only in a very rudimentary fashion. Failure to adhere to it may be due to mere laziness, as when we lapse back on to habitual, uncriticized beliefs; or it may be due to the exigencies of practical life, as when we cannot afford to wait for the hypothetical achievement of the one true opinion; or it may be due to the inherent vagueness or clumsiness of the symbols we employ in our everyday thinking. But whatever the cause, the manifest fact of such failure indicates part of the answer to the above objection; namely, that even if logical principles are themselves purely critical and uncreative in character, resolute adherence to them may well prove creative. In the second place, we must not forget the inspired hope, that there *is* one opinion to be reached on every significant question, with which scientific inquiry begins. Possibly not all scientists share Peirce's conception of Nature as 'something