HISTORICAL KNOWLEDGE. PHILOSOPHICAL KNOWLEDGE. THE PROBLEM OF TRUTH AND ERROR

WE have endeavoured to trace the evolution of knowledge from its lowest to its highest manifestations, and have taken at least a bird's-eye view of the majority of its forms. Notable exceptions, it may be pointed out, are historical and philosophical knowledge, to which we have not given any special treatment. Nor is it worth while, in my opinion, to devote separate chapters to them. What little I have to say will be said here. As to historical knowledge, there is indeed little to say which would throw light upon our particular problems. For historical truths do not differ, from our point of view, from any other statements of fact. That Brutus stabbed Caesar is a proposition of the same epistemological kind as that some roses are red, or that there are lions in Africa, or that Jones beat Smith at golf. In pure history there is no constructive element over and above the constructions of the external world, and of space and time, which are common to all forms of knowledge above the most rudimentary. What has been said in Chapter XIV, section 3, on the nature of the past, and in section 1 of the same chapter on biological evolution, contains in principle all that we need say in this book on historical knowledge. Apart from the constructions of space, time, and the external world, it is purely factual in type, and presents no further features of interest. Its truth or falsity will be of the same character as the truth or falsity of other kinds of factual knowledge, the nature of which will receive their final definition in this chapter.

Philosophical knowledge might indeed form the subject of a special epistemological study. But I shall content myself here with recording my opinion that philosophical knowledge will not be found to differ epistemologically from other forms of knowledge already analysed. Special

claims have from time to time been put forward on behalf of philosophy. It has been supposed to possess its own peculiar method of knowing, different both from the methods of common knowledge and from the methods of the sciences. The philosophy of Hegel is the most notable example of this claim. Regarding such claims I have here only two remarks to make. The first is that their validity is exceedingly dubious, and that it is more probable that philosophy will have in the end to recognize that its methods must be simply those of the other sciences, suitably modified, no doubt, to meet its special subject-matter. The second is that, even if the claims put forward to special philosophical methods were allowed, they would never amount, so far as I know, to new epistemological *types* of knowledge. For example, the novelty in Hegel was his special method of deduction by means of thesis, antithesis, and synthesis. Whether this kind of deduction was or was not sound is a question for logic, not for epistemology. Epistemologically it is merely a kind of inference, and the place of inference in knowledge has already been determined. It is true that, even as epistemologists, we should be compelled to disallow the claim to be able to develop the whole world out of nothing by the mere process of inference. As we have seen, inferences lead us nowhere, never give rise to anything new, and merely ensure consistency in our knowledge. But this is really irrelevant to the issue we are discussing. The point is that, whether or not the Hegelian method is valid, it does not imply the existence of any new epistemological type of knowledge. Similar remarks will apply to all the other special claims of philosophers to methods different from those of ordinary knowledge.

For philosophies, too, in so far as they go beyond the facts of experience, are mental constructions, and can be nothing else. Consider, for example, the great philosophical concept of the Absolute. The Absolute may be regarded by some as a being—an infinite mind perhaps—which factually exists and experiences itself or is even experienced by other minds. This, or something like it, would be the special note of a definitely theistic idealism.

If the Absolute is so regarded, then we can place it without difficulty in our epistemological scheme. It is a factual existence similar in kind, though greater in degree, to our own minds. But if this view be not taken, then the Absolute must be regarded as a mental construction, a creation of the human intellect, an attempt to frame a single concept in which all the differences and contradictions in the universe can be merged in harmony. I need hardly say, at this late stage in our inquiry, that to call the Absolute a mental construction, is in no way to cast doubt upon its genuineness and reality. For if we have not yet learnt that the majority of real existences are constructions, we have learnt nothing. And to regard the Absolute as a construction, rather than as a factual existence, is, I think the more reasonable view. The question whether it 'exists' or not then becomes simply the question whether it is a valid construction, whether the conception of it is internally self-consistent, agrees with the facts of the world, and is valuable in the scheme of knowledge and for the purposes of thought. Those who attack it will do so, not on the ground that it cannot be found in experience (which is the way one would attack theism), but on the grounds that it is self-contradictory, that it is inconsistent with known facts, or that it is valueless as an instrument of knowledge. They will attempt to prove that it is an *in*valid construction.

Thus the Absolute must be regarded either as a factual existence or as a constructive existence. In either case it fits without difficulty into the epistemological scheme which has been developed, and presents no new characters. Nor is it likely that a detailed examination of the history of different philosophical conceptions—however interesting in itself—would throw any further light upon the special problems we are attempting to solve.

Before leaving the subject, however, I cannot refrain from one reflection. If, as I conceive, most philosophies are mental constructions, and not mere assertions of fact, then it will follow that there may be more than one true philosophy, and that rival systems of philosophy may be

alternative systems of truth. For, as we have time after time seen, even two formally incompatible propositions may both be true, provided that we choose one or the other and do not attempt to combine them in the same context. It is true that there are as many universes as there are minds. It is also true that there is only one single universe. These two propositions are logically inconsistent with one another. But they are alternative truths. Their logical inconsistency does not condemn one of them to falsehood. It means merely that the two truths cannot be both asserted at the same time, in the same context, and in the same system of truths. We have here then at least a suggestion that pluralistic and monistic philosophies may both be true. And perhaps even realism and idealism may be regarded as alternative mental constructions.

I now leave the topic of philosophical knowledge and pass to the more proper subject of this chapter, the problem of the nature of truth and error. We have to gather together, into a single theory or definition, the various threads of our discussion.

The first point to note is the familiar one that truth is a character of judgements. No doubt there are usages of the word truth which seem to import something different. We speak of a true friend or of a true artist. We say that 'God is Truth'. Some philosophers say that the Absolute is the Truth. I think that these uses of the word are mere metaphors which will mislead us if we take them literally. But whether this is so or not, the problem of this book, at any rate, is concerned with truth and error as characters of judgements, and not with any transcendental Truth with a capital T. What we want to know is simply what is meant by saying that any statement, such as 'Horses are useful', 'Trees are green', or 'Electrons exist', is true or false. We are concerned, therefore, with very lowly matters, and do not presume to pry into the Absolute, which is too high for us.

If it is accepted, then, that truth is concerned solely with judgements, the next point is that *all judgements either assert*

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or deny something about particular existents. These existents
may be either physical or psychical. Judgements may be
about either cabbages or souls. But they must in the end
refer, directly or indirectly, to particular realities. The
point of this statement is to eliminate any notion that
universal or abstract propositions do not refer to concrete
things. It is, of course, obvious that if we say 'This rose
is red', we are talking about a particular existent, namely,
this rose. Even if we say 'All roses are pretty' this judge-
ment, though it is universal, yet refers to particular exis-
tents, namely all the individual members of the class of
things called roses. But even if we take pure abstractions,
such as those of mathematics, it is still true that all pro-
positions about them, or containing them, are statements
the import of which is to assert or deny something about
particular existents. Mathematical propositions are simply
generalized statements of facts in the world. The judge-
ment that $2+2 = 4$ is just as much a statement about
particular existents as any other. It means that two apples
and two apples are four apples, that two thoughts and
two emotions are four mental states, &c. I am aware that
mathematicians are apt to take a different view, to suppose
that their science has nothing to do with 'things', that it is
about 'pure numbers', and so forth. But we thrashed this
question out in our chapter on mathematical knowledge.
We saw that the mathematician's attempt to live in a
vacuum, cut off from reality—though it may be an amus-
ing game or pose for professors—cannot be successful,
and that the only meaning and truth which mathematics
can claim lies in its applicability to the concrete world of
things. It is either true of those things or it is not true at
all. We saw that there is no harm in mathematics regard-
ing itself as self-enclosed, and as apart from the world, so
long as this was recognized as an abstraction which may
be useful to the mathematician, but is not actually the full
concrete truth. And it is not necessary again to agitate
these matters. I shall assert without further ado that
mathematical propositions, like all others, assert or deny
something about particular existents.

What has been said of mathematics will apply *a fortiori* to all lesser abstractions. It is admitted that mathematics is among the most abstract branches of knowledge. But if we take any other abstractions, such for example as Newton's law of gravitation, it will be equally true of them that their truth or falsity depends upon whether they correctly apply to things in the concrete world. The law of gravitation is 'about' the positions at different times of the earth, of the planet Mars, and so on. This is evident from the fact that if it predicts their positions wrongly it is said to be false. Enough has been said, I think, to prove our contention that all judgements of whatever kind assert or deny facts about particular existents, and will be true or false according as those particular assertions or denials are true or false.

Perhaps it is desirable briefly to consider one kind of judgement which might be alleged to be an exception. It might be said that judgements about Platonic Ideas, forms, or universals, are plainly not about particulars. The judgement 'the Idea of the Good is higher than all other Ideas' might be given as an example. But this is not really an exception. For we are in that case talking about *particular* universals, namely, the Idea of the Good and other particular Ideas.

The truth of judgements, therefore, is bound to be concerned with their application to the concrete. In other words, every judgement, in order to be true, must in some sense exhibit an 'agreement with the facts'. This is the same as saying that truth is tied by the given. And our first step must be to consider what this means.

We may begin by considering the simplest and lowest kind of perceptual knowledge such as is expressed in the proposition 'This is red'. I assume that the assertor of this judgement is himself experiencing the red sensation when he makes the judgement. Now the proposition is true if the 'this' is in fact red. If it is not red, the judgement is false. This statement is correct whether the assertor is experiencing what we call an hallucination or what we call a reality. For all that the judgement means is that the

presentation which is appearing to him is a presentation of red. Whether there really is a red *object* present or not is irrelevant. And we must not import into the proposition any implications that there exists a public external world, that there are 'realities' and 'unrealities', or other such. If we do so, then the proposition ceases to be of that elementary kind which we wish to consider first. Further and more elaborate considerations regarding the conditions which make for the validity of mental constructions will then have to be brought in. And it is our purpose to keep these till later.

The 'this', therefore, is not a thing or an object in the public external world. It is a mere colour patch. It is nothing but a presentation. The truth of the judgement, in that case, consists in the agreement between the presentation and the judgement, or between the percept and the concept. (Both expressions mean the same thing. It will be noted that I here use the word percept as equivalent to bare presentation, which may not be in accordance with strict usage, but will, I hope, not be misunderstood now that I have noted it.) 'This is red' is true if it agrees with the presentation, i.e. if the 'this' is in fact red. But if the 'this' were green, the judgement would be false.

To say this is so simple and obvious that one may well run the risk of being asked what necessity there is to write a book to say it. And one may be expected to say something more difficult and profound. And in particular one may be expected to explain what is meant by such agreement and disagreement, or how agreement and disagreement between concept and percept are possible. But to these questions there is, in my opinion, no answer, for the reason that we have reached rock bottom. These conceptions are ultimate facts of consciousness. They cannot be analysed into anything simpler (or more learned and elaborate, if that is what is demanded). They cannot be further explained in terms of anything other than themselves. That my judgement 'This is red' may either agree or not agree with my percept; that when I have a sensation, I may either make a judgement which does correspond

with it or one which does not; that if I see green, but say 'This is red', there is then a failure of my judgement to correspond with my percept; these are ultimate facts. If they are not admitted and understood, nothing further can be done to prove them or make them intelligible. We can no more say *why* there should exist such correspondence and lack of it than we can say why presentations exist, or why minds exist, or why one presentation bears the relation of resemblance to another, or why there are concepts in the mind.

In the judgement 'This is red' it is clear, of course, that 'red' is a concept. No doubt 'this' may also be represented as a concept. But in the example we are considering it is to be thought of rather as the verbal equivalent of the act of pointing. We may therefore concentrate on the fact that 'red' is a concept. This implies that the judgement 'This is red' really asserts the existence of the relation of resemblance between 'this' and other presentations which have previously been called red. If this is true, i.e. if this resemblance actually exists, then we have applied the right concept. If it is not true, then we have applied the wrong concept. Hence if we say that the truth of the judgement consists in the application of the right concepts to the facts, or to the percepts, this will mean exactly the same thing as saying that the truth consists in a correspondence between the concept and the percept.

It is obvious, I think, that in the kind of 'correspondence' here asserted to constitute the truth of these elementary kinds of judgement there is not that fatal fallacy which has so often been noted in most correspondence theories of truth. The essence of these theories consisted in supposing that truth lies in the correspondence of our perceptions with things which were believed to lie outside our perceptions in the external world. And it was evident that whether or not our perceptions agreed with outside things could never be known since we can inspect only our percepts and not things as they exist outside our percepts. That was the fallacy of the old correspondence theory of truth. It was a legacy of the absurd view that

things have a factual existence outside our perceptions. That it led to such a fallacy is in itself enough to condemn that view. But in the theory now presented no such fallacy occurs. A correspondence is alleged to exist between our percepts and our concepts, *both of which are open to our inspection and comparison.*

So far the only kind of judgement which we have considered is one framed in the present tense, 'This *is* red'. But whether the percepts concerned in the judgement are present, future, or past, makes no difference to the theory of truth. Suppose that the judgement were 'This will be red to-morrow'. (We will agree to ignore the fact that a mind at the extremely low level which we are studying could not yet have framed the construction of continuous time, and could scarcely, therefore, understand the idea of 'to-morrow'.) The judgement 'This will be red to-morrow' is true if to-morrow's percept corresponds with to-day's judgement. Similarly the judgement 'This was red yesterday' is true if the judgement agrees with yesterday's percept. No doubt there are difficult problems involved here regarding the nature of memory and imagination. But they are not the problems with which we are concerned. It is just as much a fact—however we try to explain it—that a concept of to-day may agree with a percept of yesterday or to-morrow as that a present concept may agree with a present percept. The formula of the correspondence of concept and percept as the essence of the truth of these kinds of elementary perceptual propositions is thus equally correct whether the propositions refer to the present, the past, or the future.

Now suppose that we advance to a very slightly higher level of knowledge. The kind of judgement which we have been considering was one which applied to the presentation before the mind *a concept of the given,* such as 'red', i.e. the lowest kind of concept in the gamut of knowledge. We will advance one step higher, and apply one of *the concepts of things.* Instead of 'This is red' we will say 'This is an apple', and we will ask ourselves wherein the truth of this judgement lies.

Concepts of things are, as we have seen, essentially pre-dictive of future possible experience. I see a red round patch and I say 'This is an apple'. The meaning of this is: if I bite the red patch, I shall experience a certain sweet taste; if I feel it, it will be soft; if I cut it open, it will appear whitish; and so on. The judgement, it is evident, will be true if these various predictions are true. The pre-dictions, however, when analysed into their simplest elements, are merely judgements in the future tense which apply concepts of the given to the presentation. They say 'If I bite it, this will be *sweet*', or 'if . . . this will be *white*, this will be *soft*', and so on. It is true that the 'if' clause introduces the construction of possibility, and other con-structions connected with thinghood, a public world, &c., may be involved. These, of course, would take the judgement into a much higher sphere of knowledge than that which we are now considering. We can for the pre-sent neglect these constructive elements of the judgement, since we shall be considering the whole question of the truth of constructions a little later. And if we thus neglect these constructive elements, it is clear that the truth of the judgement 'This is an apple' consists solely once more in the correspondence of the judgement with the percepts. The judgement is true if it turns out correct that the inside of the apple is white, sweet, and the rest. We do not need, therefore, as yet to go beyond the simple formula of the correspondence of concepts with percepts to find the essence of the truth or falsity of this kind of judgement.

It is at this point that we can solve the problem of *illusion*, so far as it is a problem of epistemology. An illusion occurs when we interpret a presentation wrongly, i.e. when we apply to it the wrong concept of things. I see a faint object in the distance, and take it for a man. On going nearer I find that it is a tree stump. Why I make this mistake is not a question for epistemology, but for psychology. It may be due to carelessness, lack of clear vision, mental confusion of one kind or another. With that we are not concerned. The epistemological character of the illusion consists in the fact that we have applied the wrong

predictive concepts to the presentation. There is a lack of agreement between the concepts and the future percepts. There is, therefore, nothing new here to be investigated.

If the judgement whose truth is under consideration is, say, 'This apple is red', it is clear that the epistemological analysis already made of such propositions as 'This is an apple' will apply with merely the necessary minor modifications. There will be no change in principle. The entire truth of the judgement, apart from its constructive elements, will reside in the correspondence of concepts with percepts. For the judgement 'This apple is red' tells us that 'this is an apple' and that 'it is red'. The first of these two statements is identical with the judgement whose truth we found in the paragraph before the last to consist solely in the agreement of concept with percept; and the second 'it is red' also plainly requires no further analysis.

We may now advance one step further to general and abstract propositions. For 'This apple is red' we substitute judgements such as 'All apples are pleasant-coloured', or 'All matter is heavy', or 'Most Englishmen are fair-skinned'. The truth of all general and abstract judgements lies in their applicability to particular cases. We have seen that once and for all in connexion with the case of mathematics. So that, if we still ignore the constructive elements, the truth of these general judgements lies in nothing but the correspondence of concepts with percepts.

Let us take as an example a very highly abstract judgement, namely Newton's law of gravitation. We will consider it purged of the concept of force. For force is, in the first place, a construction, and in the second place an invalid construction. So that it would complicate our inquiry from every point of view for us to take it into account. Instead, we will think of Newton's law as no more than a formula stated in terms of its essential factors, such as time, mass, distance. Now although Newton's law makes no direct assertions about particular percepts—as it would do if it said, for example, 'This planet is now visible at this spot'—although it is abstract,

yet its whole meaning and truth reside in the end in its applicability to percepts. It is a general formula or recipe from which can be drawn particular statements about particular facts of perception. That is its sole function and use. We can deduce from it the position of Mars at midnight on 1 January 1950, the times and dates of solar and lunar eclipses or of a transit of Venus, and so on. The correctness of these deductions consists in the agreement of them with what is actually perceived, i.e. in the correspondence of the concepts with the percepts, and the truth of the law *is* nothing but the correctness of the deductions made from it.

It is true, of course, that we get cases in which it is said that true deductions follow from a false law. It is a commonplace of the logic books that a hypothesis may cover all the known facts and yet be false. But it will be found in all such cases that the law is not a mere generalized statement of what happens, containing nothing except the very deductions which are made from it wrapped up in pill form, but that there is always in the law which is thus found false some other element, usually a constructive element, which is false, and which poisons the supposed law with its falsehood. Very likely 'phlogiston' in its time explained the then known facts. If it had been nothing but a generalized statement of those facts, it would have been true. But it contained also the assertion of a new existence, an element called 'phlogiston'. This was plainly an existential construction. For reasons which we need not at the moment discuss it was an invalid construction. Again, if it is true that the ether of space, so long believed in, is not a real existence at all—as appears to be nowadays thought—we have another example of the same thing. Elaborate laws were discovered for the propagation of radiation through space by the medium of the ether. The laws explained the facts, and in so far as they resulted in an agreement of concepts with percepts, were true. If there was any untrue element, it lay in the invalid existential construction of the ether.

It begins plainly to emerge that in most judgements

there are two elements, the factual and the constructive. A statement may be wholly factual, such as 'This is red'. Or it may be wholly constructive, such as 'ether exists'. Or, by far the commonest case, it may be a mixture of the factual and the constructive. Practically all ordinary judgements belong to this mixed class. This will be evident when we consider that the very existence of a public world of 'things' is a construction, so that all judgements which rise above the level of mere statements that we have some particular sensation such as redness contain a constructive element.

It is also becoming plain that the truth of the factual part of a judgement always depends solely upon the correspondence of concepts with percepts. We may generalize and say that all judgements about the external world are judgements whose truth resides in the correspondence of concepts and percepts, so long as we ignore the constructive element. What are the conditions of the truth of mental constructions is a question which we have still to discuss.

But before leaving the present topic I will give one or two more examples to make matters clearer. No one has ever seen an electron. But if we assume the existence of electrons and of the laws which are believed to govern their activities we can then make deductions which agree with our actual perceptions. These perceptions may consist in the visual readings of the position of a pointer on a dial, or in feelings of heat, or in the readings of a thermometer, or in the perceived behaviour of any material object. If the deductions are correct, then we have a correspondence between concepts and percepts. This correspondence does not alone prove the truth of the theory, for as we already noted, there may be constructive elements in the theory, and owing to this fact correct deductions may always follow from false theories.

Again the truth of the judgement 'All men are mortal' —if it means only that the presentations which make up what we call human bodies all come in the end to be perceived as cold, motionless, rigid, &c., i.e. if we ignore all

constructive elements—depends solely upon whether it agrees with all actual past, present, and future perceptions in regard to human bodies.

The judgement $2+2 = 4$, though it is highly abstract, contains no construction, and its truth therefore consists solely in correspondence. It means that any two percepts and any two percepts make four percepts. And it can only be shown false if in some case there turn out to be two percepts and two percepts which make three, five, or a dozen percepts, i.e. if the percepts do not agree with the judgement.

We have so far had in mind only judgements about the physical world. And it is for that reason that we have made 'percepts' the basis of our argument. Now if we turn to judgements about non-physical things, we have of course to substitute for physical percepts the internal awarenesses by the mind of its own states. To use the word percept for our awarenesses of our own states would not be incorrect; but it is apt to mislead owing to the fact that it is more usually confined to the physical sphere. Moreover, as already noted, philosophers have rightly distinguished between mere presentations and perceptions, whereas our use of the word percept has not kept that fact in view because it was not relevant to our discussion here. It will be better, however, in the final statement of the theory to substitute for the word 'percept' the word 'given'. The 'given' covers both the internal and the external worlds. My emotions, thoughts, &c., in so far as I am aware of them, are as much givens as are the red patches and sounds of the physical world. Moreover, if we use the word 'given,' this will make it clear that all constructive elements are excluded. We may therefore sum up this part of our theory by saying that *all judgements are either factual or constructive or both; and in regard to all factual judgements, and all factual elements in mixed judgements, their truth consists solely in a correspondence between concept and given.*

Before passing to the question of the validity of con-

structions—which is the next main point on our pro-
gramme—it will be convenient here shortly to consider
the place of logic in the theory. Nothing can be true, it
will be admitted, if it involves a breach of the laws of logic.
A single judgement cannot by itself, however, involve such
a breach. For every illogicality must in the end boil down
to a contradiction or inconsistency between *two* judge-
ments. Therefore there must be at least two judgements
to make an illogicality. Examples such as 'This is both red
and not-red' do not, of course, prove the contrary. For
such a judgement is compound, and may be analysed into
two judgements which contradict each other. Hence
questions of logic do not arise for single truths, but only
for systems of truths, a system being constituted by at
least two judgements. Where the question is whether a
certain judgement shall be admitted into a given system
of supposed truths, logic may decide whether it can or not.
If it is consistent with all the judgements which already
make up the system, then the new judgement can be ad-
mitted to membership of the system. If it is inconsistent
with any of them, it cannot. In that case either the new
judgement must be rejected from this system—though it
might perhaps fit into another—or the system itself must
be modified to make it consistent with the new judgement,
and then the new judgement accepted into it.

We have already seen many times that two incompatible
judgements may be alternative truths. Euclid's axiom of
parallels and the corresponding axioms of non-Euclidean
geometry are a case in point. Another example is the
following pair of propositions, which formally contradict
each other but are both true: (1) that there exist as many
worlds as there are minds; (2) that there is only one world.

The truth that there are many worlds does not fit into
the system of truths which the human race happens to
have adopted and which constitutes its body of knowledge.
But it would have been quite possible to build up another
system of truths into which this would have fitted, and of
which it would have been the foundation.

This does not signify, however, that we are entitled to

break the laws of logic. Nor is it to be made the basis of one of those shallow quibbling attacks on the laws of logic by means of which a reputation for brilliance is nowadays to be made. The substance of the old law of contradiction is essentially valid. But the recognition of alternative truths may indicate that some slight modification is necessary in the traditional mode of expressing or presenting that law. Two contradictory propositions may both be true, but not in the same system of truths. The precise modification of the law required, the precise definition of the law, must be left to the logicians. I am, however, indicating the lines on which the modification must proceed. We can accept the truth that there is only one world, but in that case we must consistently stick to that view and to all that it implies throughout the system of truths in which we are moving. A system based on the opposite truth is possible and may be adopted if desired. But that too must be consistently held by. We cannot mix up the two systems. In the same way we may adopt Euclidean or one of the non-Euclidean geometries. They are all true. And in studying, say, a problem of astronomy we can adopt whichever is most convenient. But having once adopted one we must stick to it consistently throughout the consideration of that problem.

It will now be convenient to consider the problem of the validity of mental constructions. A construction is a fiction, a judgement invented by the mind without any foundation in fact (i.e. in the given). That being so, it is evident that, unless strict conditions are laid down as to precisely what constructions are to be allowed within the fold of truth, we shall be reduced to the pass of allowing any wild figments of a diseased imagination to pose as truths. We might be compelled to believe in salamanders and goblins, in magic, in charms, in the man in the moon. These are all certainly in a sense 'mental constructions'. But they cannot be accepted as truths. We have therefore somehow to distinguish between those constructions which are true and those which are false. In other words

we have to find the criteria of the validity of mental constructions.

It is clear, in the first place, that constructive truths, like those which are factual, are subject to the laws of logic. A *single* constructive judgement cannot, for reasons pointed out in the last section, be either logical or illogical. But not only are systems of constructions common, but even what would ordinarily pass as a single construction can usually be analysed into several judgements. We may therefore lay it down (1) that a construction must be internally self-consistent, and (2) that it must be consistent with the system of truths into which it is sought to embody it. These conditions will serve to eliminate a vast number of otherwise possible constructions. They will invalidate belief in the man in the moon because such a belief is inconsistent with many accepted truths such as that there is no atmosphere in the moon which men could breathe.

Our next step must be to investigate the relation of constructions to the given, i.e. to facts, to actual percepts, and so on. We laid it down very early that all truth is tied to the given. We shall find that this applies as much to constructions as to factual truths. But it cannot mean, in the case of constructions, that there is an actual correspondence of the judgement with the given, for the very essence of the construction is that it is not a fact and that no given corresponds to it. We judge that the table exists unperceived, and we consider this to be a truth. But the unperceived table can never be given. In other words there is no given which corresponds to the construction of the unperceived table. Constructions, however, are tied to the given in the sense that if any deductions from them *disagree* with the given, the constructions must be false. For it commonly happens that the very purpose of a construction is that we may be able to deduce from it judgements which are not themselves constructions but factual propositions. This is practically always the case with the constructions of science. It is not the case with all constructions. From the existence of the unperceived table, for example, we cannot deduce anything whatever regarding

the perceived facts of the world. They would all be exactly the same if the table went out of existence when we ceased to perceive it and came into existence again when perception of it began again. We do not invent the unperceived table in order to make deductions from it which will enable us to predict future experience. We invent it for certain other reasons of convenience which have been examined in their proper place. But in the case of scientific constructions, although their logical structure and characters are the same as those of the ordinary constructions such as the unperceived table, their purpose is somewhat different. Their purpose is to 'explain' actual facts, and to predict future ones. The 'explanation', it need hardly be said, does not aim at telling us the 'why' of anything, but only the 'how'. It consists only in being able to deduce the many facts from one concept, i.e. to subsume the particulars under a universal, to discover a law. The universal concept which is assumed as the explanation of the facts may be a construction. And it is then a condition of the validity of the construction that the deductions from it shall agree with the facts, i.e. that in them there shall be a correspondence between the concepts and the given. For example, an electron is a construction. But the theory of the electron agrees with the facts in the sense that deductions from it agree with our actual perceptions. If deductions from it clashed with the facts of perception, we should have to conclude that the construction is false.

If we express this relationship of constructions to the given by saying that *if any deduction from a construction clashes with the given, that construction is invalid*, this will be found to be a universal condition of the validity of constructions and to apply, not only to scientific constructions, but to all. Take the construction of the unperceived table. As already pointed out, we do not make elaborate deductions and predictions from it. That is not its purpose. But still it is nevertheless the case that, if any deduction from this or any other such construction were found somehow to clash with actual perceptions, we should

have to reject the construction. We are enabled to believe in the unperceived table precisely because to do so *makes no difference to the facts*, i.e. does not clash with them.

Hence all constructions are limited by the two conditions that they are bound (1) by the given, and (2) by the laws of logic. These are not, however, the sole conditions of their validity. For we might invent all kinds of fanciful figments of the imagination which would be logically feasible and also not clash with any known facts. Therefore there must be some other condition of the truth of a construction. This further condition is that the construction must be *necessary for the purposes of knowledge*. That is to say, we cannot admit as valid any constructions which are unnecessary and superfluous. Under this canon we shall refuse to allow the mind to multiply all kinds of fantastic agencies and existences which may perhaps not clash with the laws of logic nor with the given, but which we should nevertheless declare unreal.

We will analyse more carefully in a moment the nature of this condition. But we will first remark that it is the logical foundation of the famous principle of Occam's razor. That principle has not up till now been understood in its true light. It could not be, because the nature and function of mental constructions has not been understood. It has been assumed that the principle of Occam's razor is merely a methodological one. But what we have now to see is that it is much more than this. It is a constitutive principle of reality. It was supposed to be no more than a rule for guiding research, for avoiding unnecessary complexity, for attaining economy and simplicity, and also for seeing that we do not go beyond the evidence. This would be all that could be said so long as the mental construction was not recognized as *creating* existence. Now that this is recognized, now that such creation by thought is seen to be one of the constitutive elements of real existence, it follows that the question whether an entity actually exists or not may depend solely upon whether it satisfies the conditions of a valid construction. It may depend, therefore, upon whether the construction is necessary for the

purposes of knowledge. Its being necessary for the purposes of knowledge brings it into existence, creates it, constitutes its existence. Its being superfluous prevents its existence, constitutes its non-existence, if such a phrase may be allowed. Hence Occam's razor serves, not only to guide thought into economical methods, but to prevent unnecessary existences from being created.

But it must not be supposed that the condition of the validity of constructions which we are here examining, i.e. that of necessity for knowledge, can be *identified* with Occam's razor. It is, on the contrary, much wider than the latter. It is the logical foundation of the razor, and the razor is merely one example of it. Occam's principle is that we must not suppose superfluous existences. Our principle is that we must not invent superfluous constructions of any kind. It thus applies just as much to unificatory as to existential constructions. The principle would invalidate the construction of a single world in place of the many private worlds, or the assumption that the continuing appearances of the table constitute the 'same' thing, if it could be shown that these fictions are not necessary to thought.

But what is meant by the phrase 'necessary for the purposes of knowledge'? It is clearly essential that it should not be left vague. The question resolves itself into two: (1) What kind of 'necessity' is intended? (2) What are 'the purposes of knowledge'?

As to the first question, it is clearly not logical necessity that is meant. There was no logical necessity to reduce the many worlds to one public world, to assume the resemblance of your red to my red, to invent the third visual dimension of space, or to suppose that the table goes on existing when no one is aware of it. That it is not logical necessity that is involved follows indeed from the very definition of a construction. For a construction is, among other things, an assumption which cannot be proved, i.e. cannot be shown to be logically necessary. It is true, as we have seen, that earlier constructions do often logically necessitate later constructions. We saw many examples of

this in earlier chapters. Having invented one construction, we are often compelled by sheer logic to invent another for the sake of consistency. But the original motivation of such a series or system of constructions is not any logical necessity. In such a case the members of the system may be related to each other by bonds of logical necessity, but the system as a whole is a pure assumption, i.e. is not logically necessitated by anything.

The 'necessary' here means simply what is *required*. It is the simple and homely notion of what we *need* for our purposes, i.e. for the purposes of knowledge. We assumed the single public world because it was convenient, because it helped thought, because we needed it for the purposes of thought. The same will be found true of any construction whatever. This will, I think, suffice as an explication of the kind of 'necessity' involved in constructions.

Next we have to inquire what are 'the purposes of knowledge'. I cannot see that any single all-inclusive answer can be given to this question. Philosophers are too much in love with such simple answers. One school emphasizes the practical necessities of the physical organism, another the spiritual ideal of pure knowledge. Why it should be supposed that the truth can be summed up in a single concept I do not know. And it seems clear in the present case that both of the answers just mentioned are partial truths.

At the beginning of the evolution of mind practical needs will hold exclusive sway. The crocodile has no ideal of knowledge for its own sake. Even the average uneducated human being has very little, and thought for him is mostly practically conditioned. It may be taken as certain that the main necessities which led to the early development of knowledge, and therefore of mental constructions, were strictly practical. A single world was originally assumed, not as a truth for its own sake, but because it rendered communication and co-operation between organisms easier, and because minds hungered for the society of their fellows. Communication could have been carried on, as we have shown in an earlier chapter, on

the basis of a multitude of private worlds. A single world was assumed because it was easier and simpler. In the last resort, ease and simplicity of thought are preferred to labour and complexity because the mind's energy is limited, because, if you like, the mind is lazy. Similar considerations apply to all the early constructions of the human mind.

Later constructions, such as those of science, are similarly conditioned, because of two possible constructions we prefer the simpler. But the elaboration of such constructions is undertaken for two reasons. Firstly, they are forced on us by logic, by the fact that, having once created constructions, we are compelled to invent others in order to maintain consistency. This process has been fully illustrated in previous chapters. When once we have invented the idea of the atom, logic, together with new facts (i.e. new perceptions) which appear inconsistent with the older forms of the theory of the atom, will force us on to later forms of the theory, to the construction of the electron, &c. Secondly, there grows up a desire for knowledge for its own sake. *Curiosity* is aroused. This forces us to carry on the process of constructing new truths to fit in with the old.

The statement that some truths, namely, for the most part, the earlier constructions of the mind, are created to meet practical needs, is not an admission of the pragmatist position. It is indeed the element of truth which that position contains. But the pragmatist position as a whole is false because (1) all truth, whether factual or constructive, is tied by the given, and because (2) it is tied by the laws of logic. Both the given and the laws of logic are absolute, are forced upon us *ab extra*, whether we like it or not, whether it suits our convenience or no. This is true whether we interpret convenience as meaning convenience for the purposes of practical action or of theoretical thought. Truth, therefore, is not whatever we will to believe. Nor is the will the sole arbiter, as the name 'voluntarism' would seem to imply. Truth is compelled both by facts and by logic.

The elements of truth in pragmatism are as follows: A *part* of truth is constructive, and constructions may be moulded by the will, i.e. by considerations of either practical or theoretical needs, within the limits laid down by fact and logic. But the truth of purely factual judgements, and of the factual elements in mixed judgements, is entirely independent of pragmatic considerations. It is also to be admitted, however, that even among factual truths the mind *selects* those which are useful or convenient to it. And as between two or more alternative truths it chooses the simpler for reasons of convenience. The pragmatic elements in knowledge are, therefore, threefold, (1) free construction within fixed limits, (2) selectiveness, and (3) simplification for ease and convenience.

The element of truth in the 'correspondence' theory is that all factual truths are in fact true by virtue of a correspondence. Not the correspondence, however, between external thing and perception, but between concept and given. Moreover even in constructive truths correspondence is involved in that a *dis*agreement between the implications of, or deductions from, the construction and the given renders the construction false.

The element of truth in the 'coherence' theory is that knowledge constitutes a system of judgements which must be logically coherent, which must be consistent with one another, which must obey the laws of logic.

Any judgement, therefore, is true

  (1) *if it is a bare statement of what is given, and if in such statement the concepts correspond with the given;*

  or (2) *if it is a valid construction, i.e. a construction which* (a) *involves no implications which are contradicted by the given, and* (b) *is required or necessary for the practical or theoretical purposes of knowledge;*

  or (3) *if it is a combination of the above two.*

This is the definition of the truth of single judgements. If more than one judgement is in question a further condition is involved, namely (4) *in systems of truths the laws of logic must be obeyed.* This includes the condition that a

complex construction, i.e. a construction which is a compound of more than one judgement, must be internally self-consistent.

It will be observed that no special mention is made of universal, general, or abstract judgements. This is because they are regarded merely as a multitude of individual judgements telescoped into one. The same conditions of truth, therefore, apply to them as to individual judgements.

The majority of judgements come under head (3). They are combinations of factual and constructive elements.

The definition of *error* is the opposite of that of truth. Any proposition which does not conform to the above conditions is *false*.

It may rightly be asked whether this definition implies belief in 'absolute' truth, i.e. whether it involves that a judgement once true is always true, that if it is true at all, it is true at all times and for all purposes. Or does our theory, on the contrary, imply the pragmatist doctrine that a judgement may be true for the purposes we have in hand, but false when our purpose changes; or true in one age and false in another?

The answer is plainly that our theory implies belief in absolute truth, and is therefore in agreement with the view always taken in the past by common sense. It will be best to make the issue clear by thinking in terms of a specific example. Suppose that there is one theory of the atom which is accepted in 1932 because it explains all the known facts. We will call this theory *A*. Suppose that in 1942 a new set of facts is discovered which definitely clashes with theory *A* and necessitates the elaboration of a new theory *B*. In 1952 this may again be upset by the discovery of new facts and the establishment of a third theory *C*; and so on.

What are we to say regarding this series of theories? The pragmatist will say apparently that theory *A* was true in 1932, but became false in 1942. Common sense and the theory of 'absolute' truth say, on the contrary, that if theory *A* was proved false in 1942, it must have been false

in 1932, and will always have been false at all times. This latter is the view with which we agree. For the falsity of the theory in 1942 was due to the fact that it clashed with certain givens or certain percepts. In ordinary parlance we should say that it clashed with certain facts. Now those facts were also facts in 1932, only they were not then known. That they existed unperceived in 1932 is, of course, a construction. But it is a construction which has long ago been accepted as true by the human mind. Hence the issue is quite clear. When we say that a judgement is false if it disagrees with the given facts, do we mean to refer to the then known facts or to all facts known and unknown? It seems to me that the former view introduces chaos into the theory of truth. For suppose that I believe that horse X won the Derby yesterday, when in fact horse Y won it. We should surely say that my belief was false. But, if we adopt the view against which I am arguing, we shall have to say that, as my belief did not clash with any facts which were known to me, it was true. Which is absurd.

Or we may put the matter thus. Let the proposition which asserts the existence of the new facts discovered in 1942 be called P. P, it is admitted, is true in 1942. Was it true in 1932? If the newly discovered facts existed in 1932, then P was true, if not, it was false. But by construction long admitted those facts did exist in 1932. (I am assuming, of course, that they are not the kind of facts which come newly into existence, in which case they would hardly be of a nature which could be relevant to the problem of the constitution of matter.) Therefore P was true in 1932. But P is inconsistent with theory A. For it asserts precisely those facts which rendered A obsolete. Hence if we assert with the pragmatists that A was true in 1932, then we shall have to admit that A and P, which are logically inconsistent, were both true at the same time. For these reasons we reject the pragmatist view, and adopt that of common sense. This is what one would have expected. For common sense proceeds upon a crude form of the 'correspondence' theory of truth. Our theory is also

essentially a form of the correspondence theory, though it is hoped that it is less crude. Both for us and for common sense truth is tied by the facts, and does not change Proteus-like from day to day, according to our wishes, as the pragmatists would have us think.

No doubt this means that we can never be certain, in regard to complicated scientific theories, that we have reached any measure of truth. We can never be certain until we know *all* the facts, i.e. until we are omniscient. But I see no objection to admitting this. It does not render science hopeless or vain. For although we can never attain certainty, there is a growing probability that our theories are true the more we come to know of the facts. Moreover it must be remembered that theories are complex, i.e. they consist of a large number of judgements some of which may be true, some false. When theory *A* is superseded by theory *B*, it is not usual to find that the whole of theory *A* is false. We are more likely to find that a very few of the judgements of which it was composed are inconsistent with the new facts, but that most of them are still left standing as true. In this way theories *A*, *B*, and *C* may be regarded as increasing approximations to the truth. And lastly, theory *A*, though false or partly false, was useful in its time since it explained the then known facts and yielded true predictions of experience. Even in 1942, when it has been superseded, it may still be used *within certain defined limits* to explain and predict. This means that it has become a methodological assumption.

There is one fact regarding the nature of existential constructions which may, if its implications are not discussed and cleared up, give rise to difficulties. This is the fact that such constructions are only expressible in hypothetical propositions whose antecedents contain impossible conditions. This appears so far as a strange peculiarity, a sort of eccentricity on the part of the existential construction. We have stressed it throughout, but made no attempt to explain it. The time has now come when we must endeavour to do so.

The difficulty which it seems to create is that it appears to involve the construction in a logical contradiction. And since it is one of the conditions of the validity of a construction that it shall be internally self-consistent, any such admission would be fatal to the validity of all existential constructions. The difficulty will be most easily examined if we take a concrete case. We assume the existence of the unperceived table. This means 'if any one were now looking, he would perceive the table'. But by hypothesis no one is looking. The belief in the unperceived table therefore attempts to combine the hypothesis that no one is looking with the supposition that some one is looking. This is what renders the condition which is contained in the antecedent an impossibility. This is, in fact, a logical contradiction. The point may be put otherwise by considering that since, in its ultimate meaning, *esse* is simply *percipi*, the hypothesis of the unperceived table amounts to believing in an unperceived percept, a non-existent existence. The same kind of contradiction may be found in every existential construction. And it may therefore be argued with some show of plausibility that no existential construction is ever valid.

The first point to notice here is that, although every existential construction contains an apparent logical contradiction, it is always one and the same contradiction which appears in them all. The assertion of the existence of the atom means 'if . . ., then we should perceive atoms'. The assertion of the existence of the invisible side of the moon means 'if we were on the other side, we should see it'. Every existential construction supposes an existence which we should perceive *if* . . . . The contradiction in all cases resides in the fact that we suppose something to be perceived while at the same time asserting that it is not perceived. It arises from the attempt which we are always making to get away from the fundamental identity of *esse* and *percipi*. It is, in short, the contradiction of the *unperceived percept*.

This primitive contradictory assumption is a kind of original sin which the human mind committed when man

first began to eat of the fruit of the tree of knowledge. It keeps breaking out afresh everywhere in knowledge, in the case of the ether or the atoms as much as in our common sense beliefs about tables and chairs. But we have at least only one contradiction to deal with in all cases, not a distinct contradiction for each existential construction.

We have thus only one problem to solve, and it does not seem difficult of solution when we come to examine it. There is in truth a contradiction involved, and the mind accepted it once and for all when it undertook the great adventure of admitting that, although *esse* is *percipi*, yet things can exist unperceived. There is only one possible way of reconciling the contradiction, and that consists in pointing out that this admission is, after all, only a supposal, a make-belief, a pretence which has been entered into for the purpose of enriching life and knowledge. The contradiction is reconciled, in fact, by pointing out that the unperceived object has not factual but only constructive existence. If it were supposed that the unperceived object has factual existence, then the contradiction would be final and insoluble. This is, in fact, the contradiction which lies at the root of all forms of the theory of representative ideas, and which has broken out perpetually in the history of philosophy in one form or another. If we persist in asserting it, we shall then either have to give up the doctrine that *esse* is *percipi*, or the doctrine that things exist unperceived. Realists follow the former course and deny to existence its essential relativity to perception. Phenomenalists, I suppose, would follow the latter alternative, and deny that anything exists unless it is actually perceived. Our theory is enabled to grasp together both sides of the dilemma and to reconcile them. The theory of constructive existence resolves the contradiction.

It is the character of knowledge as constructive which has given rise to the category of 'possibility'. Presumably every proposition asserts or denies something. Now what is asserted or denied by the proposition 'if it had rained to-day, the ground would have been wet'? It did not rain,

and the ground was not wet. Yet most people would say that the proposition is nevertheless true. What is it that is true? What is it that is asserted or denied to be true? Not any *actual fact* about the universe. What is asserted is a *possibility*. But what is the possible? By definition it is not anything actual. It is not anything that exists or is real. Is it then an absolute non-entity? And if so, how is it that it can be meaningfully asserted? Here is a flat self-contradiction which is yet admitted every day as a valid part of knowledge. The world of possibility, it seems, is neither an existence nor a non-existence. For what exists is the actual and not the merely possible. And what does not exist is nothing, and cannot be truthfully asserted about the universe. That is the contradiction involved in the notion of the possible.

The solution of the puzzle is that the contradiction involved here is the very same contradiction which we have been considering in existential constructions. It is the same 'if . . ., then we should perceive'. 'If it had rained, we should have perceived wet ground.' And it ceases to be a contradiction when it is recognized as a supposal, a realm set up and brought into existence by the mind for its own purposes, a realm which is not factual. It is neither existent (factual) nor non-existent (non-entity). It is constructive existence. If we believe that in asserting the possible, in asserting hypothetical propositions generally, we are asserting a factual or actual existence, then indeed we are involved in hopeless contradictions. But if we admit that the world of possibility is a world supposed or constructed by the mind, the contradiction vanishes.

This, then, is the explanation of the strange 'if' clause which dogs the steps of the existential construction.