Popper Selections / Edited by David Miller; Princeton
Princeton Univ. Press, 1985 (58-77, 118-130, 389-391, 408-409)

Anup : 10th Session

4 Knowledge: Subjective versus Objective (1967)

1 Three Theses on Epistemology and World 3

I might have challenged those who have heard of my adverse attitude towards Plato and Hegel by calling my lecture '*A theory of the Platonic World*', or '*A theory of the Objective Spirit*'.

The main topic of this lecture will be what I often call, for want of a better name, 'world 3'. To explain this expression I will point out that, without taking the words 'world' or 'universe' too seriously, we may distinguish the following three worlds or universes: first, the world of physical objects or of physical states; secondly, the world of states of consciousness, or of mental states, or perhaps of behavioural dispositions to act; and thirdly, the world of *objective contents of thought*, especially of scientific and poetic thoughts and of works of art.

Thus what I call 'world 3' has admittedly much in common with Plato's theory of Forms or Ideas, and therefore also with Hegel's Objective Spirit, though my theory differs radically, in some decisive respects, from Plato's and Hegel's. It has more in common still with Bolzano's theory of a universe of propositions-in-themselves and of truths-in-themselves, though it differs from Bolzano's also. My world 3 resembles most closely the universe of Frege's objective contents of thought.

It is not part of my view or of my argument that we might not enumerate our worlds in different ways, or not enumerate them at all. We might, especially, distinguish more than three worlds. My term 'world 3' is merely a matter of convenience.

In upholding an objective third world I hope to provoke those whom I call '*belief philosophers*': those who, like Descartes, Locke, Berkeley, Hume, Kant, or Russell, are interested in our subjective

beliefs, and their basis or origin. Against these belief philosophers I urge that our problem is to find better and bolder theories; and that *critical preference* counts, but *not belief*.

I wish to confess, however, at the very beginning, that I am a realist: I suggest, somewhat like a naïve realist, that there are a physical world (world 1) and a world of states of consciousness (world 2), and that these two interact. And I believe that there is a third world, in a sense which I shall explain more fully.

Among the inmates of my 'world 3' are, more especially, *theoretical systems*; but inmates just as important are *problems* and *problem situations*. And I will argue that the most important inmates of this world are *critical arguments*, and what may be called – in analogy to a physical state or to a state of consciousness – *the state of a discussion* or *the state of a critical argument*; and, of course, the contents of journals, books, and libraries.

Most opponents of the thesis of an objective world 3 will of course admit that there are problems, conjectures, theories, arguments, journals, and books. But they usually say that all these entities are, essentially, symbolic or linguistic *expressions* of subjective mental states, or perhaps of behavioural dispositions to act; further, that these entities are means of *communication* – that is to say, symbolic or linguistic means to evoke in others similar mental states or behavioural dispositions to act.

Against this, I have often argued that one cannot relegate all these entities and their content to world 2.

Let me repeat one of my standard arguments[1] for the (more or less) *independent existence of world 3*.

I consider two thought experiments:

Experiment (1). All our machines and tools are destroyed, and all our subjective learning, including our subjective knowledge of machines and tools, and how to use them. But *libraries and our capacity to learn from them* survive. Clearly, after much suffering, our world may get going again.

Experiment (2). As before, machines and tools are destroyed, and our subjective learning, including our subjective knowledge of machines and tools, and how to use them. But this time, *all libraries are destroyed also*, so that our capacity to learn from books becomes useless.

If you think about these two experiments, the reality,

significance, and degree of autonomy of world 3 (as well as its effects on worlds 1 and 2) may perhaps become a little clearer to you. For in the second case there will be no re-emergence of our civilization for many millennia.

I wish to defend in this lecture three main theses, all of which concern epistemology. Epistemology I take to be the theory of *scientific knowledge*.

My first thesis is this. Traditional epistemology has studied knowledge or thought in a subjective sense – in the sense of the ordinary usage of the words 'I know' or 'I am thinking'. This, I assert, has led students of epistemology into irrelevances: while intending to study scientific knowledge, they studied in fact something which is of no relevance to scientific knowledge. For *scientific knowledge* simply is not knowledge in the sense of the ordinary usage of the words 'I know'. While knowledge in the sense of 'I know' belongs to what I call 'world 2', the world of *subjects*, scientific knowledge belongs to world 3, to the world of objective theories, objective problems, and objective arguments.

Thus my first thesis is that the traditional epistemology, of Locke, Berkeley, Hume, and even of Russell, is irrelevant, in a pretty strict sense of the word. It is a corollary of this thesis that a large part of contemporary epistemology is irrelevant also.

My first thesis involves the existence of two different senses of knowledge or of thought: (1) *knowledge or thought in the subjective sense*, consisting of a state of mind or of consciousness or a disposition to behave or to react, and (2) *knowledge or thought in an objective sense*, consisting of problems, theories, and arguments as such. Knowledge in this objective sense is totally independent of anybody's claim to know; it is also independent of anybody's belief, or disposition to assent; or to assert, or to act. Knowledge in the objective sense is *knowledge without a knower*: it is *knowledge without a knowing subject*.

Of thought in the objective sense Frege wrote: 'I understand by a *thought* not the subjective act of thinking but its *objective content*...'[2]

The two senses of thought and their interesting interrelations can be illustrated by the following highly convincing quotation from Heyting, who says about Brouwer's act of inventing his theory of the continuum:[3]

'If recursive functions had been invented before, he [Brouwer] would perhaps not have formed the notion of a choice sequence which, I think, would have been unlucky.'

This quotation refers on the one hand to some *subjective thought processes* of Brouwer's and says that they might not have occurred (which would have been unfortunate) had the *objective problem situation* been different. Thus Heyting mentions certain possible *influences* upon Brouwer's subjective thought processes, and he also expresses his opinion regarding the value of these subjective thought processes. Now it is interesting that influences, *qua* influences, must be subjective: only Brouwer's subjective acquaintance with recursive functions could have had that unfortunate effect of preventing him from inventing free choice sequences.

On the other hand, the quotation from Heyting points to a certain objective relationship between the *objective contents* of two thoughts or theories: Heyting does not refer to the subjective conditions or the electrochemistry of Brouwer's brain processes, but to an *objective problem situation in mathematics* and its possible influences on Brouwer's subjective acts of thought which were bent on solving these objective problems. I would describe this by saying that Heyting's remark is about the objective or world 3 *situational logic* of Brouwer's invention, and that Heyting's remark implies that the world 3 situation may affect world 2. Similarly, Heyting's suggestion that it would have been unfortunate if Brouwer had not invented choice sequences is a way of saying that the *objective content* of Brouwer's thought was valuable and interesting; valuable and interesting, that is, in the way it changed the objective problem situation in world 3.

To put the matter simply, if I say 'Brouwer's thought was influenced by Kant' or even 'Brouwer rejected Kant's theory of space' then I speak at least partly about acts of thought in the subjective sense: the word 'influence' indicates a context of thought processes or acts of thinking. If I say, however, 'Brouwer's thought differs vastly from Kant's', then it is pretty clear that I speak mainly about contents. And, ultimately, if I say 'Brouwer's thoughts are incompatible with Russell's', then, by using a *logical term* such as *'incompatible'*, I make it unambiguously clear that I am using the word 'thought' only in Frege's objective sense, and

that I am speaking only about the objective content, or the logical content, of theories.

Just as ordinary language unfortunately has no separate terms for 'thought' in the sense of world 2 and in the sense of world 3, so it has no separate terms for the corresponding two senses of 'I know' and of 'knowledge'.

In order to show that both senses exist, I will first mention three subjective or world 2 examples:

(1) 'I *know* you are trying to provoke me, but I will not be provoked.'

(2) 'I *know* that Fermat's last theorem has not been proved, but I believe it will be proved one day.'

(3) From the entry 'Knowledge' in *The Oxford English Dictionary*: *knowledge* is a 'state of being aware or informed'.

Next I will mention three objective or world 3 examples:

(1) From the entry 'Knowledge' in *The Oxford English Dictionary*: *knowledge* is a 'branch of learning; a science; an art'.

(2) 'Taking account of the present state of *metamathematical knowledge*, it seems possible that Fermat's last theorem may be undecidable.'

(3) 'I certify that this thesis is an original and significant *contribution to knowledge*.'

These very trite examples have only the function of helping to clarify what I mean when I speak of 'knowledge in the objective sense'. My quoting *The Oxford English Dictionary* should not be interpreted either as a concession to language analysis or as an attempt to appease its adherents. It is not quoted in an attempt to prove that 'ordinary usage' covers 'knowledge' in the objective sense of my world 3. In fact, I was surprised to find in *The Oxford English Dictionary* examples of objective usages of 'knowledge'. (I was even more surprised to find some at least *partly* objective usages of 'know': 'to distinguish . . . to be acquainted with (a thing, a place, a person); . . . to understand'.) At any rate, my examples are not intended as arguments. They are intended solely as illustrations.

My *first thesis*, so far not argued but only illustrated, was that traditional epistemology with its concentration on world 2, or on knowledge in the subjective sense, is irrelevant to the study of scientific knowledge.

My *second thesis* is that what is relevant for epistemology is the study of scientific problems and problem situations, of scientific conjectures (which I take as merely another word for scientific hypotheses or theories), of scientific discussions, of critical arguments, and of the role played by evidence in arguments; and therefore of scientific journals and books, and of experiments and their evaluation in scientific arguments; or, in brief, that the study of a *largely autonomous* world 3 of objective knowledge is of decisive importance for epistemology.

An epistemological study as described in my second thesis shows that scientists very often do not claim that their conjectures are true, or that they 'know' them in the subjective sense of 'know', or that they believe in them. Although in general they do not claim to know, in developing their research programmes they act on the basis of guesses about what is and what is not fruitful, and what line of research promises further results in world 3, the world of objective knowledge. In other words, scientists act on the basis of a guess or, if you like, of a *subjective belief* (for we may so call the subjective basis of an action) concerning what is promising of impending *growth in world 3, the world of objective knowledge*.

This, I suggest, furnishes an argument in favour both of my *first thesis* (of the irrelevance of a subjectivist epistemology) and of my *second thesis* (of the relevance of an objectivist epistemology).

But I have a *third thesis*. It is this. An objectivist epistemology which studies world 3 can help to throw an immense amount of light upon world 2, the world of subjective consciousness, especially upon the subjective thought processes of scientists; but *the converse is not true*.

These are my three main theses.

In addition to my three main theses, I offer three supporting theses.

The first of these is that world 3 is a natural product of the human animal, comparable to a spider's web.

The second supporting thesis (and an almost crucial thesis, I

think) is that world 3 is largely *autonomous*, even though we constantly act upon it and are acted upon by it: it is autonomous in spite of the fact that it is our product and that it has a strong feedback effect upon us; that is to say, upon us *qua* inmates of world 2 and even of world 1.

The third supporting thesis is that it is through this interaction between ourselves and world 3 that objective knowledge grows, and that there is a close analogy between the growth of knowledge and biological growth; that is, the evolution of plants and animals.

II A Biological Approach to World 3

In the present section I shall try to defend the existence of an autonomous world 3 by a kind of biological or evolutionary argument.

A biologist may be interested in the behaviour of animals; but he may also be interested in some of the *non-living structures* which animals produce, such as spiders' webs, or nests built by wasps or ants, the burrows of badgers, dams constructed by beavers, or paths made by animals in forests.

I will distinguish between two main categories of problems arising from the study of these structures. The first category consists of problems concerned with *the methods used* by the animals, or *the ways the animals behave* when constructing these structures. This first category thus consists *of problems concerned with the acts of production*; with the behavioural dispositions of the animal; and with the relationships between the animal and the product. The second category of problems is concerned with the *structures themselves*. It is concerned with the chemistry of the materials used in the structure; with their geometrical and physical properties; with their evolutionary changes, depending upon special environmental conditions; and with their dependence upon or their adjustments to these environmental conditions. *Very* important also is the *feedback relation* from the properties of the structure to the behaviour of the animals. In dealing with this second category of problems – that is, with the structures themselves – we shall also have to look upon the structures from the point of view of their biological *functions*. Thus some problems

of the first category will admittedly arise when we discuss problems of the second category; for example 'How was this nest built?' and 'What aspects of its structure are typical (and thus presumably traditional or inherited) and what aspects are variants adjusted to special conditions?'

As my last example of a problem shows, problems of the first category – that is, problems concerned with the production of the structure – will sometimes be suggested by problems of the second category. This must be so, since both categories of problems are dependent upon *the fact that such objective structures exist*, a fact which itself belongs to the second category. Thus the existence of the *structures themselves* may be said to create both categories of problems. We may say that the second category of problems – problems connected with the structures themselves – is more fundamental: all that it presupposes from the first category is the bare fact that the structures are somehow *produced by* some animals.

Now these simple considerations may of course also be applied to products of *human* activity, such as houses, or tools, and also to works of art. Especially important for us, they apply to what we call 'language', and to what we call 'science'.[4]

The connection between these biological considerations and the topic of my present lecture can be made clear by reformulating my three main theses. My first thesis can be put by saying that in the present problem situation in philosophy, few things are as important as the awareness of the distinction between the two categories of problems – production problems on the one hand and problems connected with the produced structures themselves on the other. My second thesis is that we should realize that the second category of problems, those concerned with the products in themselves, is in almost every respect more important than the first category, the problems of production. My third thesis is that the problems of the second category are basic for understanding the production problems: contrary to first impressions, we can learn more about production behaviour by studying the products themselves than we can learn about the products by studying production behaviour. This third thesis may be described as an anti-behaviouristic and anti-psychologistic thesis.

In their application to what may be called 'knowledge' my three theses may be formulated as follows.

(1) We should constantly be aware of the distinction between problems connected with our personal contributions to the production of scientific knowledge on the one hand, and problems connected with the structure of the various products, such as scientific theories or scientific arguments, on the other.

(2) We should realize that the study of the products is vastly more important than the study of the production, even for an understanding of the production and its methods.

(3) We can learn more about the heuristics and the methodology and even about the psychology of research by studying theories, and the arguments offered for or against them, than by any direct behaviouristic or psychological or sociological approach. In general, we may learn a great deal about behaviour and psychology from the study of the products.

In what follows I will call the approach from the side of the products – the theories and the arguments – the 'objective' approach or the 'world 3' approach. And I will call the behaviourist, the psychological, and the sociological approach to scientific knowledge the 'subjective' approach or the 'world 2' approach.

The appeal of the subjective approach is largely due to the fact that it is *causal*. For I admit that the objective structures for which I claim priority are caused by human behaviour. Being causal, the subjective approach may seem to be more scientific than the objective approach which, as it were, starts from effects rather than causes.

Though I admit that the objective structures are products of behaviour, I hold that the argument is mistaken. In all sciences, the ordinary approach is from the effects to the causes. The effect raises the problem – the problem to be explained, the explicandum – and the scientist tries to solve it by constructing an explanatory hypothesis.

My three main theses with their emphasis on the objective products are therefore neither teleological nor unscientific.

III The Objectivity and the Autonomy of World 3

One of the main reasons for the mistaken subjective approach to knowledge is the feeling that a book is nothing without a reader: only if it is understood does it really become a book; otherwise it is just paper with black spots on it.

This view is mistaken in many ways. A wasps' nest is a wasps' nest even after it has been deserted; even though it is never again used by wasps as a nest. A bird's nest is a bird's nest even if it was never lived in. Similarly a book remains a book – a certain type of product – even if it is never read (as may easily happen nowadays).

Moreover, a book, or even a library, need not even have been written by anybody: a series of books of logarithms, for example, may be produced and printed by a computer. It may be the best series of books of logarithms – it may contain logarithms up to, say, fifty decimal places. It may be sent out to libraries, but it may be found too cumbersome for use; at any rate, years may elapse before anybody uses it; and many figures in it (which represent mathematical theorems) may never be looked at as long as men live on earth. Yet each of these figures contains what I call 'objective knowledge'; and the question of whether or not I am entitled to call it by this name is of no interest.

The example of these books of logarithms may seem far-fetched. But it is not. I should say that almost every book is like this: it contains objective knowledge, true or false, useful or useless; and whether anybody ever reads it and really grasps its contents is almost accidental. A man who reads a book with understanding is a rare creature. But even if he were more common, there would always be plenty of misunderstandings and misinterpretations; and it is not the actual and somewhat accidental avoidance of such misunderstandings which turns black spots on white paper into a book, or an instance of knowledge in the objective sense. Rather, it is something more abstract. It is its possibility or potentiality of being understood, its dispositional character of being understood or interpreted, or misunderstood or misinterpreted, which makes a thing a book, And this potentiality or disposition may exist without ever being actualized or realized.

To see this more clearly, we may imagine that after the human

race has perished, some books or libraries may be found by some civilized successors of ours (no matter whether these are terrestrial animals which have become civilized, or some visitors from outer space). These books may be deciphered. They may be those logarithm tables never read before, for argument's sake. This makes it quite clear that neither its composition by thinking animals nor the fact that it has not actually been read or understood is essential for making a thing a book, and that it is sufficient that it might be deciphered.

Thus I do admit that in order to belong to world 3, the world of objective knowledge, a book should – in principle, or virtually – be capable of being grasped (or deciphered, or understood, or 'known') by somebody. But I do not admit more.

We can thus say that there is a kind of Platonic (or Bolzanoesque) world 3 of books-in-themselves, theories-in-themselves, problems-in-themselves, problem-situations-in-themselves, arguments-in-themselves, and so on. And I assert that even though this world 3 is a human product, there are many theories-in-themselves and arguments-in-themselves and problem-situations-in-themselves which have never been produced or understood and may never be produced or understood by men.

The thesis of the existence of such a world of problem situations will strike many as extremely metaphysical and dubious. But it can be defended by pointing out its biological analogue. For example, it has its full analogue in the realm of birds' nests. Some years ago I got a present for my garden – a nesting-box for birds. It was a human product, of course, not a bird's product – just as our logarithm table was a computer's product rather than a human product. But in the context of the bird's world, it was part of an objective problem situation, and an objective opportunity. For some years the birds did not even seem to notice the nesting-box. But after some years, it was carefully inspected by some blue tits who even started building in it, but gave up very soon. Obviously, here was a graspable opportunity, though not, it appears, a particularly valuable one. At any rate, here was a problem situation. And the problem may be solved in another year by other birds. If it is not, another box may prove more adequate. On the other hand, a most adequate box may be removed before it is ever used. The question of the adequacy of the box is clearly an objective one; and whether the box is ever used is partly accidental. So it is with all ecological niches. They are potentialities and may be studied as such in an objective way, up to a point independently of the question of whether these potentialities will ever be actualized by any living organism. A bacteriologist knows how to prepare such an ecological niche for the culture of certain bacteria or moulds. It may be perfectly adequate for its purpose. Whether it will ever be used and inhabited is another question.

A large part of the objective world 3 of actual and potential theories and books and arguments arises as an unintended byproduct of the actually produced books and arguments. We may also say that it is a byproduct of human language. Language itself, like a bird's nest, is an unintended byproduct of actions which were directed at other aims.

How does an animal path in the jungle arise? Some animal may break through the undergrowth in order to get to a drinking place. Other animals find it easiest to use the same track. Thus it may be widened and improved by use. It is not planned – it is an unintended consequence of the need for easy or swift movement. This is how a path is originally made – perhaps even by men – and how language and any other institutions which are useful may arise, and how they may owe their existence and development to their usefulness. They are not planned or intended, and there was perhaps no need for them before they came into existence. But they may create a new need, or a new set of aims: the aim-structure of animals or men is not 'given', but it develops, with the help of some kind of feedback mechanism, out of earlier aims, and out of results which were or were not aimed at.[3]

In this way, a whole new universe of possibilities or potentialities may arise: a world which is to a large extent *autonomous*.

A very obvious example is a garden. Even though it may have been planned with great care, it will as a rule turn out partly in unexpected ways. But even if it turns out as planned, some unexpected interrelationships between the planned objects may give rise to a whole universe of possibilities, of possible new aims, and of new *problems*.

The world of language, of conjectures, theories, and arguments – in brief, the universe of objective knowledge – is one of the most

important of these man-created, yet at the same time largely autonomous, universes.

The idea of *autonomy* is central to my theory of world 3: although world 3 is a human product, a human creation, it creates in its turn, as do other animal products, its own *domain of autonomy*.

There are countless examples. Perhaps the most striking ones, and at any rate those which should be kept in mind as our standard examples, may be found in the theory of natural numbers.

Pace Kronecker, I agree with Brouwer that the sequence of natural numbers is a human construction. But although we create this sequence, it creates its own autonomous problems in its turn. The distinction between odd and even numbers is not created by us: it is an unintended and unavoidable consequence of our creation. Prime numbers, of course, are similarly unintended autonomous and objective facts; and in their case it is obvious that there are many facts here for us to *discover*: there are conjectures like Goldbach's. And these conjectures, though they refer indirectly to objects of our creation, refer directly to problems and facts which have somehow emerged from our creation and which we cannot control or influence: they are hard facts, and the truth about them is often hard to discover.

This exemplifies what I mean when I say that world 3 is largely autonomous, though created by us.

But the autonomy is only partial: the new problems lead to new creations or constructions – such as recursive functions, or Brouwer's free choice sequences – and may thus add new objects to world 3. And every such step will create *new unintended facts*; *new unexpected problems*; and often also *new refutations*.[6]

There is also a most important feedback effect from our creations upon ourselves; from world 3 upon world 2. For the new emergent problems stimulate us to new creations.

The process can be described by the following somewhat oversimplified schema:[7]

$$P_1 \rightarrow TT \rightarrow EE \rightarrow P_2.$$

That is, we start from some problem P_1, proceed to a tentative solution or tentative theory TT, which may be (partly or wholly) mistaken; in any case it will be subject to error-elimination, EE,

which may consist of critical discussion or experimental tests; at any rate, new problems P_2 arise from our own creative activity; and these new problems are not in general intentionally created by us, they emerge autonomously from the field of new relationships which we cannot help bringing into existence with every action, however little we intend to do so.

The autonomy of world 3, and the feedback of world 3 upon world 2 and even world 1, are among the most important facts of the growth of knowledge.

Following up our biological considerations, it is easy to see that they are of general importance for the theory of Darwinian evolution: they explain how we can lift ourselves by our own bootstraps. Or in more highbrow terminology, they help to explain 'emergence'.

IV Language, Criticism, and World 3

The most important of human creations, with the most important feedback effects upon ourselves and especially upon our brains, are the higher functions of human language; more especially, the *descriptive function* and the *argumentative function*.

Human languages share with animal languages the two lower functions of language: (1) self-expression and (2) signalling. The self-expressive function or symptomatic function of language is obvious: all animal language is symptomatic of the state of some organism. The signalling or release function is likewise obvious: we do not call any symptom linguistic unless we assume that it can release a response in another organism.

All animal languages and all linguistic phenomena share these two lower functions. But human language has many other functions (for example, the advisory, hortative, and fictional functions). Strangely enough, the most important of the higher functions have been overlooked by almost all philosophers. The explanation of this strange fact is that the two lower functions are always present when the higher ones are present, so that it is always possible to 'explain' every linguistic phenomenon, in terms of the lower functions, as an '*expression*' or a '*communication*'.

The two most important higher functions of human languages

are (3) the *descriptive* function and (4) the *argumentative* function.[8]

With the descriptive function of human language, the regulative idea of *truth* emerges, that is, of a description which fits the facts. Further regulative or evaluative ideas are content, truth content, and verisimilitude.[9]

The argumentative function of human language presupposes the descriptive function: arguments are, fundamentally, about descriptions: they criticize descriptions from the point of view of the regulative ideas of truth; content; and verisimilitude.

Now two points are all-important here:

(1) Without the development of an exosomatic descriptive language – a language which, like a tool, develops outside the body – there can be *no object* for our critical discussion. But with the development of a descriptive language (and further, of a written language), a linguistic world 3 can emerge; and it is only in this way, and only in world 3, that the problems and standards of rational criticism can develop.

(2) It is to this development of the higher functions of language that we owe our humanity, our reason. For our powers of reasoning are nothing but powers of critical argument.

This second point shows the futility of all theories of human language that focus on *expression and communication*. As we shall see [in selections 20 and 21 below], the human organism which, it is often said, is intended to express itself, depends in its structure very largely upon the emergence of the two higher functions of language.

With the evolution of the argumentative function of language, criticism becomes the main instrument of further growth. (Logic may be regarded as *the organon of criticism*.[10]) The autonomous world of the higher functions of language becomes the world of science. And the schema, originally valid for the animal world as well as for primitive man,

$$P_1 \rightarrow TT \rightarrow EE \rightarrow P_2$$

becomes the schema of the growth of knowledge through error-elimination by way of systematic *rational criticism*. It becomes the schema of the search for truth and content by means of rational discussion. It describes the way in which we lift ourselves by our bootstraps. It gives a rational description of evolutionary emergence, and of our *self-transcendence by means of selection and rational criticism*.

To sum up, although the meaning of 'knowledge', like that of all words, is unimportant, it is important to distinguish between different senses of the word.

(1) Subjective knowledge, which consists of certain inborn dispositions to act, and of their acquired modifications.

(2) Objective knowledge; for example, scientific knowledge which consists of conjectural theories, open problems, problem situations, and arguments.

All work in science is work directed towards the growth of objective knowledge. We are workers who are adding to the growth of objective knowledge as masons work on a cathedral.

Our work is fallible, like all human work. We constantly make mistakes, and there are objective standards of which we may fall short – standards of truth, of content, of validity, and other standards.

Language, the formulation of problems, the emergence of new problem situations, competing theories, mutual criticism by way of argument: all these are indispensable means to scientific growth. The most important functions or dimensions of human language are the descriptive and the argumentative functions (which animal languages do not possess). The growth of these functions is, of course, of our making, though they are unintended consequences of our actions. It is only within a language thus enriched that critical argument and knowledge in the objective sense become possible.

The repercussion, or the feedback effects, of the evolution of world 3 upon ourselves – our brains, our traditions (if anybody were to start where Adam started, he would not get further than Adam did), our dispositions to act (that is, our beliefs),[11] and our actions, can hardly be overrated.

As opposed to all this, *traditional epistemology* is interested in world 2: in knowledge as a certain kind of belief – justifiable belief, such as belief based upon perception. As a consequence, this kind of belief philosophy cannot explain (and does not even try to

explain) the decisive phenomenon that scientists criticize their theories and so kill them. *Scientists try to eliminate their false theories, they try to let them die in their stead. The believer – whether animal or man – perishes with his false beliefs.*

v Historical Remarks

(i) *Plato and Neo-Platonism* For all we know, Plato was the discoverer of world 3. As Whitehead remarked, all Western philosophy consists of footnotes to Plato.

I will make only three brief remarks on Plato, two of them critical.

(1) Plato discovered not only world 3, but part of the influence or feedback of world 3 upon ourselves: he realized that we try to grasp the ideas of his world 3; also that we use them as explanations.

(2) Plato's world 3 was divine; it was unchanging and, of course, true. Thus there is a big gap between his and my world 3: my world 3 is manmade and changing. It contains not only true theories but also false ones, and especially open problems, conjectures, and refutations.

And while Plato, the great master of dialectical argument, saw in it merely a way of leading to world 3, I regard arguments as among the most important inmates of world 3; not to speak of open problems.

(3) Plato believed that world 3, the world of Forms or Ideas, would provide us with ultimate explanations (that is, explanation by essences [see p.165 below]). Thus he writes for example (*Phaedo*, 100 c): 'I think that if anything else apart from the idea of absolute beauty is beautiful, then it is beautiful *for the sole reason* that it has some share in the idea of absolute beauty. *And this kind of explanation applies to everything.*'

This is a theory of *ultimate explanation*; that is to say, of an explanation whose explicans is neither capable nor in need of further explanation. And it is a theory of *explanation by essences*; that is, by hypostatized words.

As a result, Plato envisaged the objects of world 3 as something like non-material things or, perhaps, like stars or constellations – to be gazed at, and intuited, though not liable to be touched by our

minds. This is why the inmates of world 3 – the Forms or Ideas – became concepts of things, or essences or natures of things, rather than theories or arguments or problems.

This had the most far-reaching consequences for the history of philosophy. From Plato until today, most philosophers have either been nominalists[12] or else what I have called essentialists. They are more interested in the (essential) meaning of words than in the truth and falsity of theories.

I often present the problem in the form of a table.

IDEAS	
that is	
DESIGNATIONS *or* TERMS *or* CONCEPTS	STATEMENTS *or* PROPOSITIONS *or* THEORIES
may be formulated in	
WORDS	ASSERTIONS
which may be	
MEANINGFUL	TRUE
and their	
MEANING	TRUTH
may be reduced, by way of	
DEFINITIONS	DERIVATIONS
to that of	
UNDEFINED CONCEPTS	PRIMITIVE PROPOSITIONS
The attempt to establish (rather than reduce) by these means their	
MEANING	TRUTH
leads to an infinite regress	

My thesis is that *the left side of this table is unimportant*, as compared to the right side: what should interest us are theories; truth; argument. If so many philosophers and scientists still think that concepts and conceptual systems (and problems of their meaning, or the meaning of words) are comparable in importance to theories and theoretical systems (and problems of their truth, or the truth of statements), then they are still suffering from Plato's main error.[13] For concepts are partly means of formulating theories, partly means of summing up theories. In any case their significance is mainly instrumental; and they may always be replaced by other concepts.

Contents and objects of thought seem to have played an important part in Stoicism and in neo-Platonism: Plotinus preserved Plato's separation between the empirical world and Plato's world of Forms or Ideas. Yet, like Aristotle,[14] Plotinus destroyed the transcendence of Plato's world by placing it into the consciousness of God.

Plotinus criticized Aristotle for failing to distinguish between the First Hypostasis (Oneness) and the Second Hypostasis (the divine intellect). Yet he followed Aristotle in identifying God's acts of thought with their own contents or objects; and he elaborated this view by taking the Forms or Ideas of Plato's intelligible world to be the immanent states of consciousness of the divine intellect.[15]

(ii) *Hegel* Hegel was a Platonist (or rather a neo-Platonist) of sorts and, like Plato, a Heraclitean of sorts. He was a Platonist whose world of Ideas was changing, evolving. Plato's 'Forms' or 'Ideas' were objective, and had nothing to do with conscious ideas in a subjective mind; they inhabited a divine, an unchanging, heavenly world (super-lunar in Aristotle's sense). By contrast Hegel's Ideas, like those of Plotinus, were conscious phenomena: thoughts thinking themselves and inhabiting some kind of consciousness, some kind of mind or 'Spirit'; and together with this 'Spirit' they were changing or evolving. The fact that Hegel's 'Objective Spirit' and 'Absolute Spirit' are subject to change is the only point in which his Spirits are more similar to my 'world 3' than is Plato's world of Ideas (or Bolzano's world of 'statements-in-themselves').

The most important differences between Hegel's 'Objective Spirit' and 'Absolute Spirit' and my 'world 3' are these:

(1) According to Hegel, though the Objective Spirit (comprising artistic creation) and Absolute Spirit (comprising philosophy) both consist of human productions, man is not creative. It is the hypostatized Objective Spirit, it is the divine self-consciousness of the Universe, that moves man: 'individuals ... are instruments', instruments of the Spirit of the Epoch, and their work, their 'substantial business', is 'prepared and appointed independently of them'.[16]

Thus what I have called the autonomy of world 3, and its feedback effect, become with Hegel omnipotent: it is only one of the aspects of his system in which his theological background manifests itself. As against this I assert that the individual creative element, the relation of give-and-take between a man and his work, is of the greatest importance. In Hegel this degenerates into the doctrine that the great man is something like a medium in which the Spirit of the Epoch expresses itself.

(2) In spite of a certain superficial similarity between Hegel's dialectic and my evolutionary schema

$$P_1 \rightarrow TT \rightarrow EE \rightarrow P_2$$

there is a fundamental difference. My schema works through error-elimination, and on the scientific level through conscious criticism under the regulative idea of the search for truth.

Criticism, of course, consists in the search for contradictions and in their elimination: the difficulty created by the demand for their elimination constitutes the new problem (P_2). Thus the elimination of error leads to the objective growth of our knowledge – of knowledge in the objective sense. It leads to the growth of objective verisimilitude: it makes possible the approximation to (absolute) truth.

Hegel, on the other hand, is a relativist.[17] He does not see our task as the search for contradictions, with the aim of eliminating them, for he thinks that contradictions are as good as (or better than) non-contradictory theoretical systems: they provide the mechanism by which the Spirit propels itself. Thus rational criticism plays no part in the Hegelian automatism, any more than does human creativity.[18]

(3) While Plato lets his hypostatized Ideas inhabit some divine heaven, Hegel personalizes his Spirit into some divine consciousness: the Ideas inhabit it as human ideas inhabit some human consciousness. His doctrine is, throughout, that the Spirit is not only conscious, but a self. As against this, my world 3 has no similarity whatever to human consciousness; and though its first inmates are products of human consciousness, they are totally different from conscious ideas or from thoughts in the subjective sense.