



# Bohm

Wholeness and the Implicate Order

# Wholeness and the Implicate Order

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*Abner Shimony, Nature*



David  
**Bohm**

Wholeness and the  
Implicate Order



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# CONTENTS

ACKNOWLEDGMENTS	ix
INTRODUCTION	x
1 Fragmentation and wholeness	1
<i>Appendix: Résumé of discussion on Western and Eastern forms of insight into wholeness</i>	25
2 The rheomode – an experiment with language and thought	34
1 <i>Introduction</i>	34
2 <i>An inquiry into our language</i>	36
3 <i>The form of the rheomode</i>	41
4 <i>Truth and fact in the rheomode</i>	53
5 <i>The rheomode and its implications for our overall world view</i>	59
3 Reality and knowledge considered as process	61
1 <i>Introduction</i>	61

2	<i>Thought and intelligence</i>	63
3	<i>The thing and the thought</i>	68
4	<i>Thought and non-thought</i>	71
5	<i>The field of knowledge, considered as process</i>	79
4	Hidden variables in the quantum theory	83
1	<i>Main features of the quantum theory</i>	84
2	<i>Limitations on determinism implied by the quantum theory</i>	85
3	<i>On the interpretation of indeterminism in the quantum theory</i>	86
4	<i>Arguments in favour of the interpretation of quantum-mechanical indeterminism as irreducible lawlessness</i>	88
5	<i>Bohr's resolution of the paradox of Einstein, Rosen and Podolsky – the indivisibility of all material processes</i>	93
6	<i>Preliminary interpretation of quantum theory in terms of hidden variables</i>	97
7	<i>Criticisms of our preliminary interpretation of quantum theory in terms of hidden variables</i>	102
8	<i>Steps toward a more detailed theory of hidden variables</i>	108
9	<i>Treatment of quantum fluctuations</i>	110
10	<i>Heisenberg's indeterminacy principle</i>	113
11	<i>The indivisibility of quantum processes</i>	117
12	<i>Explanation of quantization of action</i>	122
13	<i>Discussion of experiments to probe sub-quantum level</i>	133
14	<i>Conclusion</i>	139

5	Quantum theory as an indication of a new order in physics	141
	Part A: The development of new orders as shown through the history of physics	141
	1 <i>Introduction</i>	141
	2 <i>What is order?</i>	146
	3 <i>Measure</i>	149
	4 <i>Structure as a development from order and measure</i>	151
	5 <i>Order, measure and structure in classical physics</i>	153
	6 <i>The theory of relativity</i>	155
	7 <i>Quantum theory</i>	162
6	Quantum theory as an indication of a new order in physics	177
	Part B: Implicate and explicate order in physical law	177
	1 <i>Introduction</i>	177
	2 <i>Undivided wholeness – the lens and the hologram</i>	182
	3 <i>Implicate and explicate order</i>	186
	4 <i>The holomovement and its aspects</i>	190
	5 <i>Law in the holomovement</i>	197
	<i>Appendix: implicate and explicate order in physical law</i>	199
7	The enfolding-unfolding universe and consciousness	218
	1 <i>Introduction</i>	218
	2 <i>Résumé, contrasting mechanistic order in physics with implicate order</i>	219
	3 <i>The implicate order and the general structure of matter</i>	227



4	<i>Quantum theory as an indication of a multidimensional implicate order</i>	236
5	<i>Cosmology and the implicate order</i>	240
6	<i>The implicate order, life and the force of overall necessity</i>	245
7	<i>Consciousness and the implicate order</i>	248
8	<i>Matter, consciousness and their common ground</i>	262

NOTES	273
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INDEX	281
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## INTRODUCTION

This book is a collection of essays (see Acknowledgments) representing the development of my thinking over the past twenty years. A brief introduction will perhaps be useful in order to indicate what are the principal questions that are to be discussed, and how they are connected.

I would say that in my scientific and philosophical work, my main concern has been with understanding the nature of reality in general and of consciousness in particular as a coherent whole, which is never static or complete, but which is in an unending process of movement and unfoldment. Thus, when I look back, I see that even as a child I was fascinated by the puzzle, indeed the mystery, of what is the nature of movement. Whenever one *thinks* of anything, it seems to be apprehended either as static, or as a series of static images. Yet, in the actual experience of movement, one *senses* an unbroken, undivided process of flow, to which the series of static images in thought is related as a series of 'still' photographs might be related to the actuality of a speeding car. This question was, of course, already raised in

essence philosophically more than 2,000 years ago in Zeno's paradoxes; but as yet, it cannot be said to have a satisfactory resolution.

Then there is the further question of what is the relationship of thinking to reality. As careful attention shows, thought itself is in an actual process of movement. That is to say, one can feel a sense of flow in the 'stream of consciousness' not dissimilar to the sense of flow in the movement of matter in general. May not thought itself thus be a part of reality as a whole? But then, what could it mean for one part of reality to 'know' another, and to what extent would this be possible? Does the content of thought merely give us abstract and simplified 'snapshots' of reality, or can it go further, somehow to grasp the very essence of the living movement that we sense in actual experience?

It is clear that in reflecting on and pondering the nature of movement, both in thought and in the object of thought, one comes inevitably to the question of wholeness or totality. The notion that the one who thinks (the Ego) is at least in principle completely separate from and independent of the reality that he thinks about is of course firmly embedded in our entire tradition. (This notion is clearly almost universally accepted in the West, but in the East there is a general tendency to deny it verbally and philosophically while at the same time such an approach pervades most of life and daily practice as much as it does in the West.) General experience of the sort described above, along with a great deal of modern scientific knowledge concerning the nature and function of the brain as the seat of thought, suggest very strongly that such a division cannot be maintained consistently. But this confronts us with a very difficult challenge: How are we to think coherently of a single, unbroken, flowing actuality of existence as a whole, containing both thought (consciousness) and external reality as we experience it?

Clearly, this brings us to consider our overall *world view*, which

includes our general notions concerning the nature of reality, along with those concerning the total order of the universe, i.e., *cosmology*. To meet the challenge before us our notions of cosmology and of the general nature of reality must have room in them to permit a consistent account of consciousness. Vice versa, our notions of consciousness must have room in them to understand what it means for its content to be 'reality as a whole'. The two sets of notions together should then be such as to allow for an understanding of how reality and consciousness are related.

These questions are, of course, enormous and could in any case probably never be resolved ultimately and completely. Nevertheless, it has always seemed important to me that there be a continuing investigation of proposals aimed at meeting the challenge that has been pointed out here. Of course, the prevailing tendency in modern science has been against such an enterprise, being directed instead mainly toward relatively detailed and concrete theoretical predictions, which show at least some promise of eventual pragmatic application. Some explanation of why I want to go so strongly against the prevailing general current seems therefore to be called for.

Aside from what I feel to be the intrinsic interest of questions that are so fundamental and deep, I would, in this connection, call attention to the general problem of fragmentation of human consciousness, which is discussed in [chapter 1](#). It is proposed there that the widespread and pervasive distinctions between people (race, nation, family, profession, etc., etc.), which are now preventing mankind from working together for the common good, and indeed, even for survival, have one of the key factors of their origin in a kind of thought that treats things as inherently divided, disconnected, and 'broken up' into yet smaller constituent parts. Each part is considered to be essentially independent and self-existent.

When man thinks of himself in this way, he will inevitably tend to defend the needs of his own 'Ego' against those of the

others; or, if he identifies with a group of people of the same kind, he will defend this group in a similar way. He cannot seriously think of mankind as the basic reality, whose claims come first. Even if he does try to consider the needs of mankind he tends to regard humanity as separate from nature, and so on. What I am proposing here is that man's general way of thinking of the totality, i.e. his general world view, is crucial for overall order of the human mind itself. If he thinks of the totality as constituted of independent fragments, then that is how his mind will tend to operate, but if he can include everything coherently and harmoniously in an overall whole that is undivided, unbroken, and without a border (for every border is a division or break) then his mind will tend to move in a similar way, and from this will flow an orderly action within the whole.

Of course, as I have already indicated, our general world view is not the *only* factor that is important in this context. Attention must, indeed, be given to many other factors, such as emotions, physical activities, human relationships, social organizations, etc., but perhaps because we have at present no coherent world view, there is a widespread tendency to ignore the psychological and social importance of such questions almost altogether. My suggestion is that a proper world view, appropriate for its time, is generally one of the basic factors that is essential for harmony in the individual and in society as a whole.

In [chapter 1](#) it is shown that science itself is demanding a new, non-fragmentary world view, in the sense that the present approach of analysis of the world into independently existent parts does not work very well in modern physics. It is shown that both in relativity theory and quantum theory, notions implying the undivided wholeness of the universe would provide a much more orderly way of considering the general nature of reality.

In [chapter 2](#) we go into the role of language in bringing about fragmentation of thought. It is pointed out that the subject-verb-object structure of modern languages implies that all action

arises in a separate subject, and acts either on a separate object, or else reflexively on itself. This pervasive structure leads in the whole of life to a function that divides the totality of existence into separate entities, which are considered to be essentially fixed and static in their nature. We then inquire whether it is possible to experiment with new language forms in which the basic role will be given to the verb rather than to the noun. Such forms will have as their content a series of actions that flow and merge into each other, without sharp separations or breaks. Thus, both in form and in content, the language will be in harmony with the unbroken flowing movement of existence as a whole.

What is proposed here is not a new language as such but, rather, a new *mode* of using the existing language – the *rheomode* (flowing mode). We develop such a mode as a form of experimentation with language, which is intended mainly to give insight into the fragmentary function of the common language rather than to provide a new way of speaking that can be used for practical communications.

In [chapter 3](#) the same questions are considered within a different context. It begins with a discussion of how reality can be considered as in essence a set of forms in an underlying universal movement or process, and then asks how our knowledge can be considered in the same manner. Thus, the way could be opened for a world view in which consciousness and reality would not be fragmented from each other. This question is discussed at length and we arrive at the notion that our general world view is itself an overall movement of thought, which has to be viable in the sense that the totality of activities that flow out of it are generally in harmony, both in themselves and with regard to the whole of existence. Such harmony is seen to be possible only if the world view itself takes part in an unending process of development, evolution, and unfoldment, which fits as part of the universal process that is the ground of all existence.

The next three chapters are rather more technical and mathematical. However, large parts of them should be comprehensible to the non-technical reader, as the technical parts are not entirely necessary for comprehension, although they add significant content for those who can follow them.

Chapter 4 deals with hidden variables in the quantum theory. The quantum theory is, at present, the most basic way available in physics for understanding the fundamental and universal laws relating to matter and its movement. As such, it must clearly be given serious consideration in any attempt to develop an overall world viewing.

The quantum theory, as it is now constituted, presents us with a very great challenge, if we are at all interested in such a venture, for in this theory there is no consistent notion at all of what the reality may be that underlies the universal constitution and structure of matter. Thus, if we try to use the prevailing world view based on the notion of particles, we discover that the 'particles' (such as electrons) can also manifest as waves, that they can move discontinuously, that there are no laws at all that apply in detail to the actual movements of individual particles and that only statistical predictions can be made about large aggregates of such particles. If on the other hand we apply the world view in which the universe is regarded as a continuous field, we find that this field must also be discontinuous, as well as particle-like, and that it is as undermined in its actual behaviour as is required in the particle view of relation as a whole.

It seems clear, then, that we are faced with deep and radical fragmentation, as well as thoroughgoing confusion, if we try to think of what could be the reality that is treated by our physical laws. At present physicists tend to avoid this issue by adopting the attitude that our overall views concerning the nature of reality are of little or no importance. All that counts in physical theory is supposed to be the development of mathematical equations that permit us to predict and control the behaviour of large



statistical aggregates of particles. Such a goal is not regarded as merely for its pragmatic and technical utility: rather, it has become a presupposition of most work in modern physics that prediction and control of this kind is all that human knowledge is about.

This sort of presupposition is indeed in accord with the general spirit of our age, but it is my main proposal in this book that we cannot thus simply dispense with an overall world view. If we try to do so, we will find that we are left with whatever (generally inadequate) world views may happen to be at hand. Indeed, one finds that physicists are not actually able just to engage in calculations aimed at prediction and control: they do find it necessary to use images based on some kind of general notions concerning the nature of reality, such as ‘the particles that are the building blocks of the universe’; but these images are now highly confused (e.g. these particles move discontinuously and are also waves). In short, we are here confronted with an example of how deep and strong is the need for some kind of notion of reality in our thinking, even if it be fragmentary and muddled.

My suggestion is that at each stage the proper order of operation of the mind requires an overall grasp of what is generally known not only in formal, logical, mathematical terms, but also intuitively, in images, feelings, poetic usage of language, etc. (Perhaps we could say that this is what is involved in harmony between the ‘left brain’ and the ‘right brain’.) This kind of overall way of thinking is not only a fertile source of new theoretical ideas: it is needed for the human mind to function in a generally harmonious way, which could in turn help to make possible an orderly and stable society. As indicated in the earlier chapters, however, this requires a continual flow and development of our general notions of reality.

Chapter 4 is then concerned with making a beginning in the process of developing a coherent view of what kind of reality might

be the basis of the correct mathematical predictions achieved in the quantum theory. Such attempts have generally been received among the community of physicists in a somewhat confused way, for it is widely felt that if there is to be any general world view it should be taken as the 'received' and 'final' notion concerning the nature of reality. But my attitude has, from the beginning, been that our notions concerning cosmology and the general nature of reality are in a continuous process of development, and that one may have to start with ideas that are merely some sort of improvement over what has thus far been available, and to go on from there to ideas that are better. [Chapter 4](#) presents the real and severe problems that confront any attempt to provide a consistent notion of 'quantum-mechanical reality', and indicates a certain preliminary approach to a solution of these problems in terms of hidden variables.

In [chapter 5](#) a different approach to the same problems is explored. This is an inquiry into our basic notions of order. Order in its totality is evidently ultimately undefinable, in the sense that it pervades everything that we are and do (language, thought, feeling, sensation, physical action, the arts, practical activity, etc.). However, in physics the basic order has for centuries been that of the Cartesian rectilinear grid (extended slightly in the theory of relativity to the curvilinear grid). Physics has had an enormous development during this time, with the appearance of many radically new features, but the basic order has remained essentially unchanged.

The Cartesian order is suitable for analysis of the world into separately existent parts (e.g. particles or field elements). In this chapter, however, we look into the nature of order with greater generality and depth, and discover that both in relativity and in quantum theory the Cartesian order is leading to serious contradictions and confusion. This is because both theories imply that the actual state of affairs is unbroken wholeness of the universe, rather than analysis into independent parts. Nevertheless, the

two theories differ radically in their detailed notions of order. Thus, in relativity, movement is continuous, causally determinate and well defined, while in quantum mechanics it is discontinuous, not causally determinate and not well defined. Each theory is committed to its own notions of essentially static and fragmentary modes of existence (relativity to that of separate events, connectable by signals, and quantum mechanics to a well-defined quantum state). One thus sees that a new kind of theory is needed which drops these basic commitments and at most recovers some essential features of the older theories as abstract forms derived from a deeper reality in which what prevails is unbroken wholeness.

In [chapter 6](#) we go further to begin a more concrete development of a new notion of order, that may be appropriate to a universe of unbroken wholeness. This is the *implicate* or *enfolded* order. In the enfolded order, space and time are no longer the dominant factors determining the relationships of dependence or independence of different elements. Rather, an entirely different sort of basic connection of elements is possible, from which our ordinary notions of space and time, along with those of separately existent material particles, are abstracted as forms derived from the deeper order. These ordinary notions in fact appear in what is called the *explicate* or *unfolded* order, which is a special and distinguished form contained within the general totality of all the implicate orders.

In [chapter 6](#) the implicate order is introduced in a general way, and discussed mathematically in an appendix. The seventh and last chapter, however, is a more developed (though non-technical) presentation of the implicate order, along with its relationship to consciousness. This leads to an indication of some lines along which it may be possible to meet the urgent challenge to develop a cosmology and set of general notions concerning the nature of reality that are proper to our time.

Finally, it is hoped that the presentation of the material in

these essays may help to convey to the reader how the subject itself has actually unfolded, so that the form of the book is, as it were, an example of what may be meant by the content.



# 1

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## FRAGMENTATION AND WHOLENESS

The title of this chapter is 'Fragmentation and wholeness'. It is especially important to consider this question today, for fragmentation is now very widespread, not only throughout society, but also in each individual; and this is leading to a kind of general confusion of the mind, which creates an endless series of problems and interferes with our clarity of perception so seriously as to prevent us from being able to solve most of them.

Thus art, science, technology, and human work in general, are divided up into specialities, each considered to be separate in essence from the others. Becoming dissatisfied with this state of affairs, men have set up further interdisciplinary subjects, which were intended to unite these specialities, but these new subjects have ultimately served mainly to add further separate fragments. Then, society as a whole has developed in such a way that it is broken up into separate nations and different religious, political, economic, racial groups, etc. Man's natural environment has

correspondingly been seen as an aggregate of separately existent parts, to be exploited by different groups of people. Similarly, each individual human being has been fragmented into a large number of separate and conflicting compartments, according to his different desires, aims, ambitions, loyalties, psychological characteristics, etc., to such an extent that it is generally accepted that some degree of neurosis is inevitable, while many individuals going beyond the 'normal' limits of fragmentation are classified as paranoid, schizoid, psychotic, etc.

The notion that all these fragments are separately existent is evidently an illusion, and this illusion cannot do other than lead to endless conflict and confusion. Indeed, the attempt to live according to the notion that the fragments are really separate is, in essence, what has led to the growing series of extremely urgent crises that is confronting us today. Thus, as is now well known, this way of life has brought about pollution, destruction of the balance of nature, over-population, world-wide economic and political disorder, and the creation of an overall environment that is neither physically nor mentally healthy for most of the people who have to live in it. Individually there has developed a widespread feeling of helplessness and despair, in the face of what seems to be an overwhelming mass of disparate social forces, going beyond the control and even the comprehension of the human beings who are caught up in it.

Indeed, to some extent, it has always been both necessary and proper for man, in his thinking, to divide things up, and to separate them, so as to reduce his problems to manageable proportions; for evidently, if in our practical technical work we tried to deal with the whole of reality all at once, we would be swamped. So, in certain ways, the creation of special subjects of study and the division of labour was an important step forward. Even earlier, man's first realization that he was not identical with nature was also a crucial step, because it made possible a kind of autonomy in his thinking, which allowed him to go beyond the

immediately given limits of nature, first in his imagination and ultimately in his practical work.

Nevertheless, this sort of ability of man to separate himself from his environment and to divide and apportion things ultimately led to a wide range of negative and destructive results, because man lost awareness of what he was doing and thus extended the process of division beyond the limits within which it works properly. In essence, the process of division is a way of thinking about things that is convenient and useful mainly in the domain of practical, technical and functional activities (e.g., to divide up an area of land into different fields where various crops are to be grown). However, when this mode of thought is applied more broadly to man's notion of himself and the whole world in which he lives (i.e. to his self-world view), then man ceases to regard the resulting divisions as merely useful or convenient and begins to see and experience himself and his world as actually constituted of separately existent fragments. Being guided by a fragmentary self-world view, man then acts in such a way as to try to break himself and the world up, so that all seems to correspond to his way of thinking. Man thus obtains an apparent proof of the correctness of his fragmentary self-world view though, of course, he overlooks the fact that it is he himself, acting according to his mode of thought, who has brought about the fragmentation that now seems to have an autonomous existence, independent of his will and of his desire.

Men have been aware from time immemorial of this state of apparently autonomously existent fragmentation and have often projected myths of a yet earlier 'golden age', before the split between man and nature and between man and man had yet taken place. Indeed, man has always been seeking wholeness – mental, physical, social, individual.

It is instructive to consider that the word 'health' in English is based on an Anglo-Saxon word 'hale' meaning 'whole': that is, to be healthy is to be whole, which is, I think, roughly the



equivalent of the Hebrew 'shalem'. Likewise, the English 'holy' is based on the same root as 'whole'. All of this indicates that man has sensed always that wholeness or integrity is an absolute necessity to make life worth living. Yet, over the ages, he has generally lived in fragmentation.

Surely, the question of why all this has come about requires careful attention and serious consideration.

In this chapter, attention will be focused on the subtle but crucial role of our general forms of thinking in sustaining fragmentation and in defeating our deepest urges toward wholeness or integrity. In order to give the discussion a concrete content we shall to some extent talk in terms of current scientific research, which is a field that is relatively familiar to me (though, of course, the overall significance of the questions under discussion will also be kept in mind).

What will be emphasized, first of all in scientific research and later in a more general context, is that fragmentation is continually being brought about by the almost universal habit of taking the content of our thought for 'a description of the world as it is'. Or we could say that, in this habit, our thought is regarded as in direct correspondence with objective reality. Since our thought is pervaded with differences and distinctions, it follows that such a habit leads us to look on these as real divisions, so that the world is then seen and experienced as actually broken up into fragments.

The relationship between thought and reality that this thought is about is in fact far more complex than that of a mere correspondence. Thus, in scientific research, a great deal of our thinking is in terms of *theories*. The word 'theory' derives from the Greek 'theoria', which has the same root as 'theatre', in a word meaning 'to view' or 'to make a spectacle'. Thus, it might be said that a theory is primarily a form of *insight*, i.e. a way of looking at the world, and not a form of *knowledge* of how the world is.

In ancient times, for example, men had the theory that celestial matter was fundamentally different from earthly matter and that it was natural for earthly objects to fall while it was natural for celestial objects, such as the moon, to remain up in the sky. With the coming of the modern era, however, scientists began to develop the viewpoint that there was no essential difference between earthly matter and celestial matter. This implied, of course, that heavenly objects, such as the moon, ought to fall, but for a long time men did not notice this implication. In a sudden flash of insight Newton then saw that as the apple falls so does the moon, and so indeed do all objects. Thus, he was led to the theory of universal gravitation, in which all objects were seen as falling toward various centres (e.g. the earth, the sun, the planets, etc.). This constituted a new way of looking at the heavens, in which the movements of the planets were no longer seen through the ancient notion of an essential difference between heavenly and earthly matter. Rather, one considered these movements in terms of rates of fall of all matter, heavenly and earthly, toward various centres, and when something was seen not to be accounted for in this way, one looked for and often discovered new and as yet unseen planets toward which celestial objects were falling (thus demonstrating the relevance of this way of looking).

The Newtonian form of insight worked very well for several centuries but ultimately (like the ancient Greek insights that came before) it led to unclear results when extended into new domains. In these new domains, new forms of insight were developed (the theory of relativity and the quantum theory). These gave a radically different picture of the world from that of Newton (though the latter was, of course, found to be still valid in a limited domain). If we supposed that theories gave true knowledge, corresponding to 'reality as it is', then we would have to conclude that Newtonian theory was true until around 1900, after which it suddenly became false, while

relativity and quantum theory suddenly became the truth. Such an absurd conclusion does not arise, however, if we say that all theories are insights, which are neither true nor false but, rather, clear in certain domains, and unclear when extended beyond these domains. This means, however, that we do not equate theories with hypotheses. As the Greek root of the word indicates, a hypothesis is a supposition, that is, an idea that is 'put under' our reasoning, as a provisional base, which is to be tested experimentally for its truth or falsity. As is now well known, however, there can be no *conclusive* experimental proof of the truth or falsity of a *general* hypothesis which aims to cover the whole of reality. Rather, one finds (e.g., as in the case of the Ptolemaic epicycles or of the failure of Newtonian concepts just before the advent of relativity and quantum theory) that older theories become more and more unclear when one tries to use them to obtain insight into new domains. Careful attention to how this happens is then generally the main clue toward new theories that constitute further new forms of insight.

So, instead of supposing that older theories are falsified at a certain point in time, we merely say that man is continually developing new forms of insight, which are clear up to a point and then tend to become unclear. In this activity, there is evidently no reason to suppose that there is or will be a final form of insight (corresponding to absolute truth) or even a steady series of approximations to this. Rather, in the nature of the case, one may expect the unending development of new forms of insight (which will, however, assimilate certain key features of the older forms as simplifications, in the way that relativity theory does with Newtonian theory). As pointed out earlier, however, this means that our theories are to be regarded primarily as ways of looking at the world as a whole (i.e. world views) rather than as 'absolutely true knowledge of how things are' (or as a steady approach toward the latter).

When we look at the world through our theoretical insights,

the factual knowledge that we obtain will evidently be shaped and formed by our theories. For example, in ancient times the fact about the motions of the planets was described in terms of the Ptolemaic idea of epicycles (circles superimposed on circles). In Newton's time, this fact was described in terms of precisely determined planetary orbits, analysed through rates of fall toward various centres. Later came the fact as seen relativistically according to Einstein's concepts of space and time. Still later, a very different sort of fact was specified in terms of the quantum theory (which gives in general only a statistical fact). In biology, the fact is now described in terms of the theory of evolution, but in earlier times it was expressed in terms of fixed species of living beings.

More generally, then, given perception and action, our theoretical insights provide the main source of organization of our factual knowledge. Indeed, our overall experience is shaped in this way. As seems to have been first pointed out by Kant, all experience is organized according to the categories of our thought, i.e., on our ways of thinking about space, time, matter, substance, causality, contingency, necessity, universality, particularity, etc. It can be said that these categories are general forms of insight or ways of looking at everything, so that in a certain sense, they are a kind of theory (but, of course, this level of theory must have developed very early in man's evolution).

Clarity of perception and thought evidently requires that we be generally aware of how our experience is shaped by the insight (clear or confused) provided by the theories that are implicit or explicit in our general ways of thinking. To this end, it is useful to emphasize that experience and knowledge are one process, rather than to think that our knowledge is *about* some sort of separate experience. We can refer to this one process as experience-knowledge (the hyphen indicating that these are two inseparable aspects of one whole movement).

Now, if we are not aware that our theories are ever-changing

forms of insight, giving shape and form to experience in general, our vision will be limited. One could put it like this: experience with nature is very much like experience with human beings. If one approaches another man with a fixed 'theory' about him as an 'enemy' against whom one must defend oneself, he will respond similarly, and thus one's 'theory' will apparently be confirmed by experience. Similarly, nature will respond in accordance with the theory with which it is approached. Thus, in ancient times, men thought plagues were inevitable, and this thought helped make them behave in such a way as to propagate the conditions responsible for their spread. With modern scientific forms of insights man's behaviour is such that he ceases the insanitary modes of life responsible for spreading plagues and thus they are no longer inevitable.

What prevents theoretical insights from going beyond existing limitations and changing to meet new facts is just the belief that theories give true knowledge of reality (which implies, of course, that they need never change). Although our modern way of thinking has, of course, changed a great deal relative to the ancient one, the two have had one key feature in common: i.e. they are both generally 'blinkered' by the notion that theories give true knowledge about 'reality as it is'. Thus, both are led to confuse the forms and shapes induced in our perceptions by theoretical insight with a reality independent of our thought and our way of looking. This confusion is of crucial significance, since it leads us to approach nature, society, and the individual in terms of more or less fixed and limited forms of thought, and thus, apparently, to keep on confirming the limitations of these forms of thought in experience.

This sort of unending confirmation of limitations in our modes of thinking is particularly significant with regard to fragmentation, for as pointed out earlier, every form of theoretical insight introduces its own essential differences and distinctions (e.g., in ancient times an essential distinction was between

heavenly and earthly matter, while in Newtonian theory it was essential to distinguish the centres toward which all matter was falling). If we regard these differences and distinctions as ways of looking, as guides to perception, this does not imply that they denote separately existent substances or entities.

On the other hand, if we regard our theories as 'direct descriptions of reality as it is', then we will inevitably treat these differences and distinctions as divisions, implying separate existence of the various elementary terms appearing in the theory. We will thus be led to the illusion that the world is actually constituted of separate fragments and, as has already been indicated, this will cause us to act in such a way that we do in fact produce the very fragmentation implied in our attitude to the theory.

It is important to give some emphasis to this point. For example, some might say: 'Fragmentation of cities, religions, political systems, conflict in the form of wars, general violence, fratricide, etc., are the reality. Wholeness is only an ideal, toward which we should perhaps strive.' But this is not what is being said here. Rather, what should be said is that wholeness is what is real, and that fragmentation is the response of this whole to man's action, guided by illusory perception, which is shaped by fragmentary thought. In other words, it is just because reality is whole that man, with his fragmentary approach, will inevitably be answered with a correspondingly fragmentary response. So what is needed is for man to give attention to his habit of fragmentary thought, to be aware of it, and thus bring it to an end. Man's approach to reality may then be whole, and so the response will be whole.

For this to happen, however, it is crucial that man be aware of the activity of his thought as such; i.e. as a form of insight, a way of looking, rather than as a 'true copy of reality as it is'.

It is clear that we may have any number of different kinds of insights. What is called for is not an *integration* of thought, or a

kind of imposed unity, for any such imposed point of view would itself be merely another fragment. Rather, all our different ways of thinking are to be considered as different ways of looking at the one reality, each with some domain in which it is clear and adequate. One may indeed compare a theory to a particular view of some object. Each view gives only an appearance of the object in some aspect. The whole object is not perceived in any one view but, rather, it is grasped only *implicitly* as that single reality which is shown in all these views. When we deeply understand that our theories also work in this way, then we will not fall into the habit of seeing reality and acting toward it as if it were constituted of separately existent fragments corresponding to how it appears in our thought and in our imagination when we take our theories to be 'direct descriptions of reality as it is'.

Beyond a general awareness of the role of theories as indicated above, what is needed is to give special attention to those theories that contribute to the expression of our overall self-world views. For, to a considerable extent, it is in these world views that our general notions of the nature of reality and of the relationship between our thought and reality are *implicitly* or *explicitly* formed. In this respect, the general theories of physics play an important part, because they are regarded as dealing with the universal nature of the matter out of which all is constituted, and the space and time in terms of which all material movement is described.

Consider, for example, the atomic theory, which was first proposed by Democritus more than 2,000 years ago. In essence, this theory leads us to look at the world as constituted of atoms, moving in the void. The ever-changing forms and characteristics of large-scale objects are now seen as the results of changing arrangements of the moving atoms. Evidently, this view was, in certain ways, an important mode of realization of wholeness, for it enabled men to understand the enormous variety of the whole world in terms of the movements of one single set of basic