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Philosophical Introduction -- The Three Worlds

Before discussing the brain-mind problem it is essential to give an account of the philosophical position which forms the basis of my discussion. I have written at length on this philosophy in my book "Facing Reality." It is developed from the fundamental contributions of Sir Karl Popper in defining the three worlds which subsume the whole of reality, in developing their philosophical status and in describing their interaction (K. R. Popper, Objective Knowledge, 1972, Chapters 3 and 4). Both Sir Karl and I are thus trialists and trialist interactionists. My lecture will give many examples of the explanatory power of these new concepts.

25 The scope of the three worlds can be seen in the tabular classification of Fig. 1, which indicates that Worlds 1, 2 and 3 takes care of everything in existence and in experience.

In Fig. 1, World 1 is the world of physical objects and states. It comprises the whole cosmos of matter and energy, all of biology including human brains, and all artifacts that man has made for coding information, as for example the paper and ink of books or the material base of works of art. World 1 is the total world of the monist materialists. They recognize nothing else. All else is fantasy.

World 2 is the world of states of consciousness and subjective knowledge of all kinds. The totality of our perceptions comes in this world. But there are several levels. In agreement with Polten (1973), I tend to recognize three kinds of levels of World 2, as indicated in Fig. 2, but it may be more correct to think of it as a spectrum.

The first level (outer sense) would be the ordinary perceptions provided by all our sense organs, hearing and touch and sight and smell and pain. All of these perceptions are in World 2, of course: vision with light and color; sound with music and harmony; touch with all its qualities and vibration; the range of odors and tastes, and so on. These qualities do not exist in World 1, where correspondingly there are but electromagnetic waves, pressure waves in the atmosphere, material objects, and chemical substances.

In addition there is a level of inner sense, which is the world of more subtle perceptions. It is the world of emotions, of feelings of joy and sadness and fear and anger and so on. It includes all memory, and all imaginings and planning into the future. In fact there is a whole range of levels which could be described at length. All the subtle experiences of the human person are in this inner sensory world. It is all private to you but you can reveal it in linguistic expression, and by gestures of all levels of subtlety.

Finally, at the core of World 2 there is the self or pure ego, which is the basis of our unity as an experiencing being throughout our whole lifetime.

This World 2 is our primary reality. Our conscious experiences are the basis of our knowledge of World 1, which is thus a world of secondary reality, a derivative world. Whenever I am doing a scientific experiment, for example, I have to plan it cognitively, all in my thoughts, and then consciously carry out my plan of action in the experiment. Finally I have to look at the results and evaluate them in thought. For example, I have to see the traces on the oscilloscope and their photographic records or hear the signals on the loudspeaker. The various signals from the recording equipment have to be received by my sense organs, transmitted to my brain, and so to my consciousness, then appropriately measured and compared before I can begin to think about the significance

of the experimental results. We are all the time, in every action we do, incessantly playing backwards and forwards between World 1 and World 2.

And what is World 3? As shown in Fig. 1 it is the whole world of culture. It is the theme of this lecture that World 3 was created by man and that reciprocally made man. The whole of language is here. All our means of communication, all our intellectual efforts coded in books, coded in the artistic and technological treasures in the museums, coded in every artifact left by man from primitive times--this is World 3 right up to the present time. It is the world of civilization and culture. Education is the means whereby each human being is brought into relation with World 3. In this manner he becomes immersed in it throughout life, participating in the heritage of mankind and so becoming fully human. World 3 is the world that uniquely relates to man. It is completely unknown to animals.

25 Following the thought of Popper we can say that the self or ego is the result of achieving a view of ourselves from the outside, as we emerge from the solipsism of babyhood. In that way we each place ourselves in our bodies in the spatial domain and with a time sequence dependent on memories that bridge the diurnal gaps that sleep gives to the stream of consciousness of each of us. The concept each of us has of our own ego is dependent on our intuitive acceptance of the World 3 in which we are immersed in all our cognitive life, which would include all perceiving, thinking and communication.

Sir Charles Sherrington (1947) has written in his own exquisite style on the ego or self.

"Each waking day is a stage dominated for good or ill, in comedy, farce or tragedy, by a dramatis persona, the 'self.' And so it will be until the curtain drops. This self is a unity. The continuity of its presence in time, sometimes hardly broken by sleep, its inalienable 'interiority' in (sensual) space, its consistency of view-point, the privacy

of its experience, combine to give it status as a unique existence."

A frequent objection to the concept of the ego or self is that its perception involves an infinite regress. This criticism arises from a misunderstanding. Reference to Fig. 2 shows that the conscious experiences listed under the categories outer sense and inner sense are perceived by the ego or self. In contrast, the ego or self is experienced, not perceived. Following Kant, we can make the distinction by saying that the self or ego is apperceived. As Polten (1973) states:

"the ontological basis for the difference between apperception and perception is that the pure ego is a mental thing in itself, whereas the mental phenomena of inner and outer sense are appearances. For that reason too, subject and object merge in the act of the pure ego's self-observation, while inner and outer data are the pure ego's objects."

Sherrington (1940) develops a comparable theme in relation to a voluntary motor act.

"This 'I' which when I move my hand I experience as 'I-doing', how do I perceive it? I do not perceive it. If perception means awareness through sense I do not perceive the 'I'. My awareness and myself are one. I experience it. The 'I-doing' is my awareness of myself in the motor act....This 'I' belongs more immediately to our awareness than does even the spatial world about us, for it is directly experienced. It is the 'self'."

The evolution of culture

As we survey the cultural story of mankind the most remarkable discovery is that there were eons of incredibly slow development (cf. Dobzhansky, 1962; Hawkes, 1965). There was an immense time lag between man's development of a large brain and his significant progress in

cultural evolution, i.e. in the creation of World 3. For the greater part of the immensely long Paleolithic age, some 500,000 years, all we know is the slow development of stone tools -- from flaked pebbles to the very gradually improved hand-axe. It is generally believed that this almost unimaginable slowness demonstrates that man was greatly handicapped by not having yet an effective communication by speech.

Evidently as recognized by Dobzhansky (1967) and Popper (1972) immense and fundamental problems are involved in the evolution of the brain that occurred as man was gradually developing his means of communication in speech. One can imagine that speech and brain development went on together in the evolving process and that from these two emerged the cultural performance of man. Over hundreds of millenia there must have been a progressive development of language from its primitive form as expressive cries to a language that became gradually a more and more effective means of description and argument. In this way, by forging linguistic communication of ever increasing precision and subtlety, man must gradually have become a self-conscious being aware of his own identity or selfhood. As a consequence he also became aware of death, as witnessed so frequently and vividly in other members of the tribal group that he recognized as beings like himself. We do not know how early in the story of man this tragic and poignant realization of death-awareness came to him, but it was at least a hundred thousand years ago, as evidenced by the ceremonial burial customs with the dead laid in graves with antlers, weapons, ornaments, etc.

It was not until the Upper Paleolithic era that man seemed to have achieved a new awareness and sense of purpose -- as witness the remarkable progress in a few thousand years, relative to the virtual stagnation for the previous hundreds of thousands of years. As one can readily imagine by a language that gave clear identifications of objects and descriptions

of actions and even more importantly the opportunity of discussing and arguing, man was lifted to a new level of creativity. We can presume that because of this linguistic communication man was enabled to progress in the development of the large variety of stone tools with greatly improved design, which is the most important characteristic of the upper Paleolithic age.

But the most fascinating insight into the artistic creativity of upper Paleolithic man is given by the cave paintings of southern France and northern Spain. When I saw the marvellous paintings of Lascaux, I was overwhelmed by the feeling that these artists had highly developed imagination and memory as well as a refined aesthetic sense. Undoubtedly they had a fully developed language so that they could discuss the techniques they employed and the ideas that inspired them. One has the impression that, at this period of about 15,000 BC, man was very richly contributing to the world of culture. At the same time there were carvings and modellings of animals and of archetypal female figures that probably are representative of Mother Goddesses. Many would achieve distinction in modern sculpture exhibitions!

In the subsequent Mesolithic age man developed and perfected hunting methods and also clothing and housing, but artistically it was disappointing after the great achievements of the later Paleolithic. This technological Mesolithic period beginning at 10,000 to 8,000 BC was relatively brief.

The Neolithic age of settled farming communities began as early as 7,000 BC in Jericho and at 6,500 BC at Jarmo in Meopotamia. The settled towns and villages of the Mesopotamian region soon became remarkable for their substantial houses and for the fine pottery and weaving. These developments were possible because of the prosperous farming with crops of barley and wheat and with domesticated animals, sheep, ox, goat, pig and dog. In addition the stone tools were finely made with polished surfaces. The pottery clearly reveals that Mesopotamian man was guided by

an aesthetic sense. The decorative patterns of Hasuma and Jarmo were in part abstract, but also, as with the Samarra pottery of the 5th millenium BC, there was a very sophisticated stylization of animal forms to give designs that display a high artistic sense. This Mesopotamian pottery is remarkable for the combination of utility and elegance. Already they had invented the potter's wheel. Cultural evolution was well advanced and the ceramics of Susa represent their highest artistic performance in this field.

About 1000 years after its development in Mesopotamia, Neolithic culture had spread from there to Egypt, so seeding the great periods of Egyptian civilization. Later there was a wide dispersal to Europe and to Asia (first to the Indus valley and later to China) of this central feature of the Neolithic culture, namely farming with settled communities of villages and towns. Meanwhile great developments continued in Mesopotamia, which undoubtedly led the world during the magnificent periods of Sumerian civilization from 3,500 BC for more than a millenium. The Neolithic age gave place to the Bronze age at about 4,000 BC and, during the third millenium BC, gold, silver and bronze workmanship was of a high order.

The greatest of all contributions of the Sumerians to culture was the development of a written language. The beginnings were about 3,300 BC, but for some hundreds of years it was still in the form of ideograms that had been developed from pictograms. The Sumerians progressively simplified the forms so that eventually it was completely abstract, consisting of various arrangements of tapered signs inscribed in soft clay tablets by a stylus made like a wedge, hence the name "Cuneiform" for the first written language that was fully developed by about 2,800 BC.

A written language must rank as one of the greatest discoveries in human history, for by means of it man could live beyond time. Thoughts, imaginings, ideas, understandings, and explanations experienced and

developed by men living in one age can be written down for distribution in that age and also for recovery in later ages. A man's creative insights need no longer die with him, but, when encoded in written language, can be re-experienced by later men who have the ability to decode. And so we enter into the historical epochs where the different civilizations have left records of their economic and political activities, their myths and legends, their drama, poetry, history, philosophy and religion.

Culture exclusively human

It must be recognized that each human individual has to be educated from babyhood to be able to participate even at the simplest level in the Culture he has been born into, though of course he carries genetically the potentiality for this participation. This generalization applies to babies from all races. Their cultural development from that of the stone age culture of primitive men of today in which they may be born to that of the advanced technological cultures is dependent on their opportunities to learn. A very young child from a stone age culture can be assimilated readily to our culture, its achievement being of course dependent on what we may call "brain potentiality;" and, conversely, a very young child of our culture if immersed in a stone age culture would carry no genetic memory whatsoever of our culture, and merely be assimilated to the primitive culture of his society. Completely different propositions obtain for all of the instinctive behaviors of animals. This behavior is largely if not entirely inborn, but it is of course modified by environmental influences. Animals brought up in isolation exhibit a remarkable ability to develop the behavior patterns of the normal adult, for example nest-building or bird-song, but with birds and mammals the finesse of the performance is dependent on having examples on display, i.e. the details of the performance have an imitative basis (Tinbergen, 1951; Thorpe, 1956).

It can be concluded that animal behavior in constructions on the one hand and human purpose and design at all levels of doing and making on the other hand are quite distinct. The one belongs to the biological evolution, the other to the cultural evolution. Animals are innocent of culture and civilization, which are distinctively human. There is no trace of them in the whole of animal evolution, which is governed by trial and error acting blindly, but of course being guided by instinctive and learning behavior. I use the word "blind" because there is no evidence that animal behavior pattern is based on the understanding of a situation, in the way that we use the word "understanding" in respect of human behavior.

Culture and man

Popper (1970) has expressed very well the specific relationship of World 3 (the world of objective knowledge or culture) to World 2 (the self or ego).

25 "My central thesis . . . is that the self or the ego is anchored in the third world, and that it cannot exist without the third world. Before discussing this thesis more fully it may be necessary to remove the following difficulty. As I have here so often said, the third world is, roughly, the universe of the products of our minds. How can this be if, on the other hand, our minds or our selves cannot exist without the third world? The answer to this apparent difficulty is very simple. Our selves, the higher functions of language, and the third world have evolved and emerged together, in constant interaction; thus there is no special difficulty here. To be more specific, I deny that animals have states of full consciousness or that they have a conscious self. The self evolves together with the higher functions of language, the descriptive and the argumentative functions."

In summary we can state that World 3 is a world of storage, for the whole of human creativity through the prehistory and the history of the cultures and civilizations. What we call in old-fashioned terminology a cultured man is a man able to retrieve from this storage and to enter into an understanding of it. But of course this retrieval is also right up to the contemporary scene, where critical evaluation is concerned in elimination of error or banality and in the setting of standards.

I believe that central to each human being is the primary reality of conscious experience in all the richness and diversity that characterizes World 2 existence. Furthermore this experience is self-reflective in the sense that we know that we can know. Our ultimate efforts are to understand this primary reality in relation to the secondary realities of the matter-energy world (World 1) and of the world of objective thought that embraces the whole of civilization and culture (World 3). We as experiencing beings must be central to the explanations, because all the experiences derived from Worlds 1 and 3 are recognizably dependent on the manner in which we obtain information by means of the transductions effected by sense organs and the coded transmission to our brains.

The story of man's thoughts on the meaning of life and on the ultimate human destiny in death provide a poignant testimony. Myths and religions and philosophies have been concerned with this tragic enigma of "ultimate concern" that faces each one of us. Is human destiny but an episode between two oblivions? Or can we have hope that there is meaning and transcendent significance in the wonderful, rich and vivid conscious experience that is our birthright?

And that brings me to assert that any fundamental question in philosophy must be considered in the full context of related questions, and never in some arbitrary isolation. The question of death-awareness and self-annihilation must not be discussed except in relation to the question of birth and the subsequent self-actualization, which has been

expressed by Plato in the Phaedo. As I have argued previously (Eccles, 1970), I believe that my experiencing self is only in part explained by the evolutionary origin of my body and brain, that is of my World 1 component. It is a necessary but not a sufficient condition. About the origin of our world of conscious experience (World 2) we know only that it can be described as having an emergent relation to the evolutionary development of the human brain. The uniqueness of individuality that I experience myself to have cannot be attributed to the uniqueness of my genetic inheritance, as I have already argued (Eccles, 1970, Chapt. V). Our coming-to-be is as mysterious as our ceasing-to-be at death. Can we therefore not derive hope because our ignorance about our origin matches our ignorance about our destiny? Cannot life be lived as a challenging and wonderful adventure that has meaning to be discovered?

28

Let us look now at the future for cultural evolution. It is my thesis that this will provide man with virtually unlimited opportunities in the many rich fields of World 3. Even before the great and pioneering cultural achievements of Sumerian civilization, we can assume that the cerebral potentiality of man had evolved to the level of modern man. It seems that in this respect there has been no significant evolutionary advance in the last tens of millenia -- perhaps from the latter part of the upper Paleolithic age. From then on biological evolution had given place to cultural evolution. And if we survey the recent history of man, century by century, we can see that there have been tremendous achievements in one or other aspect of culture. Not all aspects advance continuously. Great creative discoveries and inspiring leadership by men of genius have led to a flourishing of now one great cultural discipline, now another. At one time it is in literature, at another in philosophy or in the plastic arts or in music or in science and technology. For example the classical age of Greece was remarkable for architecture, sculpture, literature and philosophy. In the Renaissance

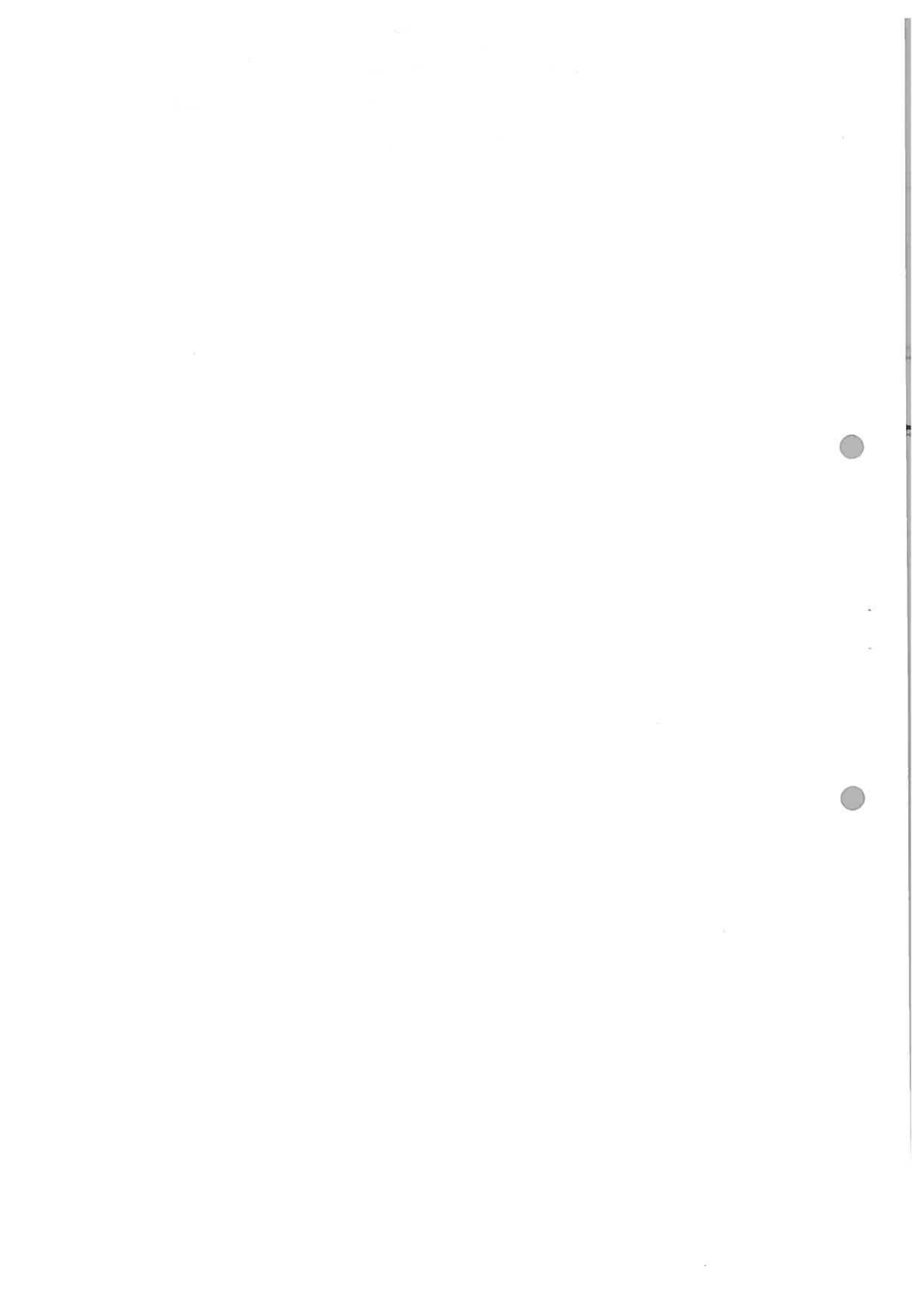
there were great developments in architecture, painting, sculpture and literature; later came music, philosophy, cosmology and science. It would be generally agreed that for more than a century the greatest cultural achievements of man have been in science and technology.

I will now recapitulate my thesis. It has been argued that man differs radically in kind from other animals. As a transcendence in the evolutionary process there appeared an animal differing fundamentally from other animals because he had attained to propositional speech, abstract thought and self-consciousness, which are all signs that a being of transcendent novelty had appeared in the world -- creatures existing not only in World 1 but realizing their existence in the world of self-awareness (World 2) and so having in the religious concept, souls. And simultaneously these human beings began utilizing their World 2 experiences to create another world, the third World of the objective spirit. This World 3 provides the means whereby man's creative efforts live on as a heritage for all future men, so building the magnificent cultures and civilizations recorded in human history. Do not the mystery and the wonder of this story of our origin and nature surpass the myths whereby man in the past has attempted to explain his origin and destiny?

We can have hope as we recognize and appreciate the wonder and mystery of our existence as experiencing selves. Mankind would be cured of his alienation if that message could be expressed with all the authority of scientists and philosophers as well as with the imaginative insights of artists. In my recent book I expressed my efforts to understand a human person, namely myself, as an experiencing being. I offered it in the hope that it may help man to discover a way out of his alienation and to face up to the terrible and wonderful reality of his existence -- with courage and faith and hope. Because of the mystery of our being as unique self-conscious existences, we can have hope as we set our own soft, sensitive and fleeting personal experience against the terror and immensity

of illimitable space and time. Are we not participants in the meaning, where there is else no meaning? Do we not experience and delight in fellowship, joy, harmony, truth, love and beauty, where there else is only the mindless universe?

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Legends

ig. 1. Tabular representation of the three worlds that comprise all existents and all experiences as defined by Popper (1970).

ig. 2. World of consciousness. The three postulated components in the world of consciousness together with a tabulated list of their components.

WORLD 1

PHYSICAL OBJECTS AND STATES

1. INORGANIC

Matter and energy of cosmos

2. BIOLOGY

Structure and actions
of all living beings

- human brains

3. ARTEFACTS

Material substrates
of human creativity
of tools
of machines
of books
of works of art
of music



WORLD 2

STATES OF CONSCIOUSNESS

Subjective knowledge

Experience of

perception

thinking

emotions

dispositional intentions

memories

dreams

creative imagination



WORLD 3

KNOWLEDGE IN OBJECTIVE SENSE

Records of intellectual efforts

philosophical

theological

scientific

historical

literary

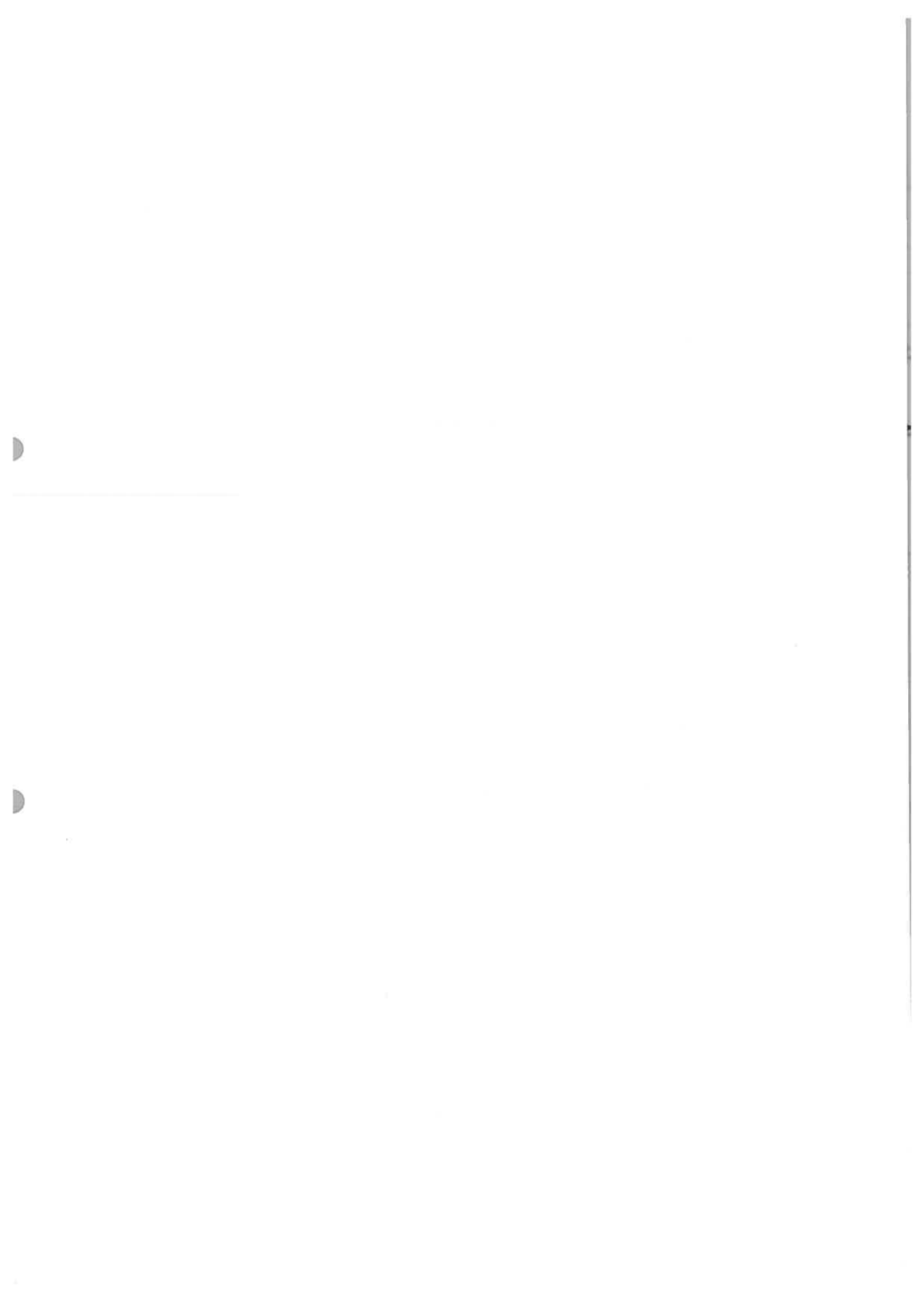
artistic

technological

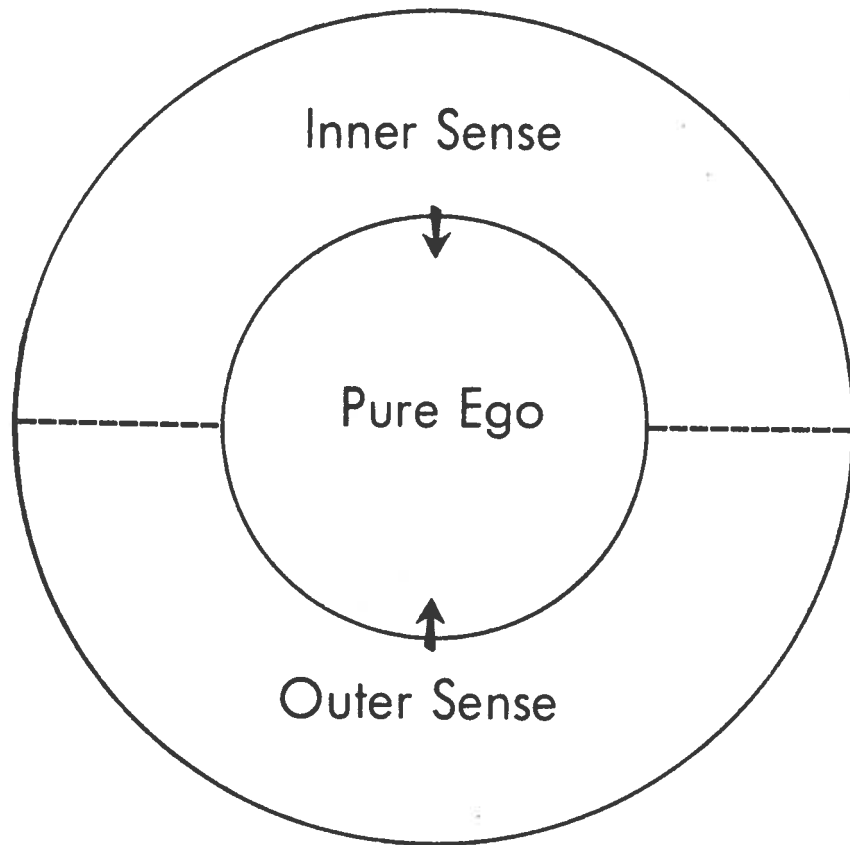
Theoretical systems

scientific problems

critical arguments



WORLD OF CONSCIOUSNESS



Outer Sense	Inner Sense	Pure Ego
Light	Thoughts	The self
Color	Feelings	The soul
Sound	Memories	
Smell	Dreams	
Taste	Imaginings	
Pain	Intentions	
Touch		

