

Chapter 17

Science and Religion: Is There Room for the Complementarity Principle?¹

A. Formulation of the Problem

The complementarity principle changes our scientific vision of the world: it gradually becomes more and more polymorphous. We are ready to perceive one and the same phenomenon from different angles, describing it by non-rival models. Even mathematical statistics, traditionally directed at selecting the best and therefore the only true model, is now ready to acknowledge the legitimacy of a multitude of models. However, so far the entire manifold of possible models has remained within one paradigm and was always expressed in the same language, that of contemporary science. Here it seems relevant to pose a question: can the complementarity principle be broadened to the extent of preparing our culture to perceive the world by a manifold of models generated by essentially different paradigms. And if so, will this perhaps lead to the fuzziness and intersection of mutually opposed paradigms.

The divergence between science and religion seems to have started as long ago as in the epoch of Galileo. Both systems aimed at the utmost mutual separation, perhaps as a consequence of the inherited tendency in European culture for a dichotomous vision of the world. This had found its symbolic expression in the myth of original sin, which lay at the source of our epoch. There was a time when science and religion seemed to be mutually orthogonal.

However, from time to time there were attempts to glance at the world in its inseparable integrity. Of interest in this respect are two books which are fairly close both in contents and in foundations. The latter contains

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the notion of noosphere central for both books, which brings scientific and religious concepts close together. One of the books is written by Teilhard de Chardin (1965), a paleoanthropologist and a Jesuit monk; the other one, by Vernadsky (1977), an outstanding geochemist who occupied a fairly high position in the Soviet scientific hierarchy.² It is noteworthy that both books could be published only posthumously. However, such protuberance-like flashes, though they aroused interest, did not affect the contemporary culture in a serious way.

Recently, there appeared papers which trace the parallels between the ideas of modern science and Oriental religious concepts. I mention the book by Capra (1975), though it was criticized by Restivo (1978), who emphasized the traps lying in wait for the studies of this kind. In our paper (Nalimov and Barinova, 1974) we attempted to trace the ideas of cybernetics back to Ancient Indian philosophy. We proceeded from the idea that a priori (before reading the text) we ascribe to the notion a meaning quite different from that ascribed to it in Ancient India. But, ascribing to words the broad meaning of our culture (and thus introducing distortions in the meaning, since the texts are translated into modern languages by using words borrowed from the philosophical vocabulary of the twentieth-century culture), we constantly reduce it as compared with the meaning of the ancient texts.³ This is what makes hermeneutics so difficult and so attractive simultaneously. However, reading philosophical works of the nineteenth century, we come across the same difficulty: the prior meaning of philosophical terms has changed considerably from that time. Moreover, in science we also face the difficulty of understanding texts. Lysenko was still a Darwinist, though an absurd one, and it was senseless to argue with him since he proceeded from different prior meanings of words. Be it as it may, the possibility of discovering contemporary ideas in ancient texts is fascinating. It may well be an illusion, but comprehension of any contemporary text is no less an illusion.

But no matter how fascinating the parallels between modern science and ancient religions are, they are not enough to bring the two different visions of the world close together.

² V. I. Vernadsky (1863-1945), professor and academician, was well known in the USSR not only as a scholar but also as a philosopher and public figure. He is a representative of Russian Cosmism, a natural philosophical trend at the beginning of the twentieth century which tried to comprehend all the phenomena of our earthly life, including human spiritual life, in their inseparable connection with the evolution of the entire Cosmos. Vernadsky paid great attention to the attempt to develop a biological understanding of time. In the Isarist period, being a public figure, he acted as an active opponent of reactionary policy. At the beginning of 1917 he entered the so-called Provisional Government formed immediately after the fall of the Isarist autocracy. After his death there remained a huge archive which has only recently begun to be published.

³ I considered the mechanism of perceiving verbal semantics in my earlier book (Nalimov, 1981a) where I proceeded from the assumption that semantic fuzziness could be probabilistic. The Bayesian theorem that served as the basis for probabilistic semantics was already mentioned in Chapters 2, 3, 5, and 8.

The true contiguity of the two forms of world perception will become possible only after each of them feels the acute need for a new approach to the evaluation of their reality. This is to say that both paradigms must be extended and softened so as to make possible the emergence of a new, unified paradigm. Only in this way will our culture be able to absorb both forms as complementary. *Complementarity*⁴ is possible only *under the cover of one paradigm*. But so far this question has not been discussed in the literature. Why?

Today both sides seem to be beginning to feel their paradigmatic insufficiency. Western science has come to feel that the paradigm fostered by it has closed the possibility of studying man. And the problem of man has unexpectedly come to the fore in our culture.

Quite recently, when cybernetics was only in the bud, the majority of scientists believed the problem of *control* to be linked, on the one hand, with the progress of computers, and, on the other hand, with the development of applied mathematics. Now it is clear that the solution of the problem is hampered by our ignorance of man.

It is becoming evident that salvation from the ecological crisis, if any, can only be achieved by creating a new culture (Nalimov, 1981*b*), but, again, this problem is connected with the knowledge of man, and we still cannot estimate his hidden desires and faculties.

B. A Possible Solution

If modern science is willing to cope with the problem of man, it will have to revise at least the following three basic paradigmatic requirements:

1. The requirement of reproducibility. In studies of man, it is not so much recurrence of his states and behavior that is important as their rare and exclusive manifestations which reveal the hidden part of the spectrum of consciousness.
2. The requirement of separating the subject and the object of the research. It is impossible to take a detached view of the parts of the spectrum of consciousness concealed from the direct observation. They must be entered, lived through consciously; they must be discovered within oneself. An illustration is the brilliant descriptions of pupillage by Carlos Castañeda (1968, 1972, 1974)—no matter whether

⁴ According to the complementarity principle introduced into physics by Bohr, in the process of world description it is necessary to apply mutually exclusive "complementary" classes of concepts, each of which generates its own logically consistent line of reasoning but proves logically incompatible with the others. Bohr was sure the complementarity principle should be used to describe the integrity of live organisms, human consciousness, and human cultures (for more detail, see Chapter 6 in Nalimov, 1981*b*).

these books are actual sketches of an anthropologist or merely a literary device.

3. The requirement to acknowledge as ontological reality only what can be perceived by means of technical devices. This requirement may be opposed by stating that man, too, is a special receptor who is able, under specific conditions and after special training, to discover a reality concealed from physical instruments.

The last requirement is especially hard to fulfill. The essence of science is aimed at the mastery of the world (Nalimov, 1981*b*), and it agrees to accept as scientific only what can be made by human hands and mind; man cannot be regarded as a scientific instrument since he cannot be made in this manner.

It seems impossible to discover a single demarcation line between science and religion. Popper's (1962, 1965) concept of falsification has not provided such a separation either.

Undoubtedly, however, one such division includes the attitude towards *questions*. Any question contains a hidden assertion that makes the answer possible. Science has been developing answers to the question which in a compact form formulated the entire knowledge accumulated up to that moment. Any scientific theory is primarily a question posed to nature. A theory disappears when it stops being a question calling forth answers. The early forms of mastering nature, e.g., alchemy, knew no such questions. Western religion, at least in its traditional form, did not know them either. As to Eastern religions, they permitted questions to some extent (certainly, not to the extent science does), and this may explain the interest in them in the contemporary West.

Religion of today, at least to my mind, has faced the necessity to acknowledge the right to ask questions: many-sided modern questions whose assertive component contains all the novel knowledge of the world. This is the only way for religion to acquire the dynamism it needs.

It is now also necessary for religion to acknowledge the right of experimentation in its domain.⁵ Strictly speaking, religion has never been alien to experimentation. Its experiments were personal experience, meditation, or prayer. But what we now have in mind is a directed experiment carried out as the answer to a question.

Contemporary religion and science have a point of contiguity. This is the search for a new culture as the answer to the challenge made by the ecological crisis. I believe the new culture cannot be found without acknowledging a different ontological reality which one could enter to leave the consumers' reality.

⁵ Our experiment described in Chapters 13-15 of this book is an example of a scientific experiment bordering on religious experience.