

PHILOSOPHICAL AND THEOLOGICAL REFLECTIONS ON RECENT NEUROBIOLOGICAL DISCOVERIES

by Karl Schmitz-Moormann

Abstract. Recent progress in neurophysiology research has created a certain uneasiness in the modes of explanation. Starting with body experiences this research has progressed to borderline experiences and confronts us anew with the age-old mind-body problem. At this point science is especially exposed to the dangers of reductionism as they have been spelled out by Carl Jung. Evolution, understood not as the deployment of pre-existing properties of matter but as the continued emergence of new realities which integrate and transform the pre-existing realities, may lead to a more profound understanding of humanity, which came into being through the emergence of mind. Archetypes and the human religious dimension or the capability to experience God may be the most significant mark of this emergence.

The very impressive hypotheses on the links between brain structures and the functioning of the human mind in all its dimensions, including the religious one, confront the theologian and the philosopher with a feeling of awe and uneasiness. Perhaps this feeling in itself should be subjected to an analysis by neurophysiologists. They might trace it back on its pathway from the consciousness of the forebrain to one or other of the nuclei of the midbrain, and they might even believe that in this way they can explain to me why I have this uneasy feeling—probably as a kind of atavism coming to me from my primate ancestors confronted with some unknown and unsolved problem-situation. From a neurophysiological point of view this explanation would have to be accepted, assuming that neurophysiological phenomena do explain psychological phenomena.

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This feeling of uneasiness is certainly not only with me. As a test I confronted a group of neurophysiological clinicians with the theories and hypotheses we are discussing here, following very closely one of the proposed texts (d'Aquili 1983). The result was a high degree of fascination with the combination of data—a fascination we all experience these days—and a feeling of uneasiness expressed in the question of the clinician: What does it tell us concretely about human thinking, about human religion, about god-experiences. At best, neurophysiology would give some hints as to the infrastructures of these human realities, but it does not seem likely that an EEG will ever let us know what a man or a woman experiences. Thus a gap is still wide open, a gap we barely understand, as it has always been barely understood. This gap has been filled with multiple hypotheses, which always seem to be more easily linked to the predominant world view of a time than to facts and knowledge concerning the bridge between body and mind.

What we are concerned with here is the borderline between what we may know about the physiological functioning of the body as it is centralized in the central nervous system and the functioning human being that thinks, feels, wills—and prays. In everyday language we call this aspect of the functioning human being “mind,” while the physiological functioning—as well organized through the central nervous system—is mostly experienced as our “body.” This experience of our body is not at all identical with our self-experience—at least not when it starts to bother us: as when, for example, our fingers hurt us. This separation of body and mind may certainly be “explained” by our left-hemisphere tendency to dichotomize everything in the field of our experience, thus breaking up a unity of a body-mind reality. Yet we should not forget that this dichotomizing would not be very efficient in the human species if dichotomizing were to act in an arbitrary way, sine fundamentum in re (without basis in reality), as the scholastics would say.

We are thus in a certain way exposed, in a very modern language, to one of the oldest problems of mankind. As far as any myth, any transmitted philosophy or religion, reaches back into the past of our species, the mind-body problem is central. As multifold as the theories of soul may be—from the divine spark in Plato to the divine blood-droplet in the *Enumah Elish* and the migrational soul in many Asian religions—the difference between body and mind is always experienced very clearly. Can we hopefull say that with the advent of modern neurophysiology the problem is solved? Perhaps we should pause a little before we try to find some answer to this question. We might well listen to Carl G. Jung who warns us against two forms of reductive thinking:

Its habitus is best characterized by the two “nothing buts.” Goethe has personified this kind of thinking in the figure of Mephistopheles. It shows especially the tendency to reduce the object of its judgement to some banality and to divest it of its own autonomous meaning. This is done by describing the object as dependent on another trivial matter. If there is between two men a conflict of a seemingly objective nature, the negative thinking will say: “Cherchez la femme”. If somebody defends or propagates a cause, the negative thinking will not inquire into what its meaning is, but ask “How much money does he make that way? The saying ascribed to Moleschott, man is what he eats, is part of the same chapter as many other sayings and opinions are, which need not be quoted. The Destructiveness of this kind of thinking, as well as its limited utility, does not need any further explanation. But there is still another form of negative thinking which is not recognizable as such at first sight. That is the *theosophical* thinking which is rapidly spreading in all parts of the world, perhaps as a reaction against the materialism of the immediately preceding period. Theosophical thinking is seemingly not at all reductive; rather it heightens everything to transcendental and world-encompassing ideas. A dream pie is no more a modest dream, but an experience on “another level.” The for the time being still unexplainable fact of telepathy is very simply explained by “vibrations,” which go from one being to another. A common nervous irritation is very simply explained, because something has happened to the “astral body.” Certain anthropological peculiarities of the inhabitants of the Atlantic coast are easily explained by the destruction of Atlantis, and so on. You need only open a theosophical book to become overwhelmed by the perception that everything is already explained and that the “sciences of the spirit” (*Geisteswissenschaften*) have not left any more mystery. This kind of thinking is fundamentally as negative as the materialistic one. If the latter conceives psychology as chemical changes of the ganglions or as an outstretching and retracting of cellular processes (outgrowths) or as inner secretions, then this is as much part of superstition as theosophy. The only difference is that materialism reduces to the physiology we are acquainted with, while theosophy reduces everything to the concepts of Indian metaphysics. If one reduces a dream to an overlaid stomach, then we do not have an explanation of the dream, and, if one explains telepathy as vibrations, that does not say any more. For what are vibrations? Both modes of explanation are not only impotent, but they are also destructive, since they prohibit serious research into the problem by using a sham explanation to draw away any interest in the problem and to invest all interest into the stomach in the first case and into imaginary vibrations in the latter one. Both kinds of thinking are sterile and sterilizing. The negative quality stems from the fact that this thinking is so undescribably cheap, that it is poor in generating and creative energy. It is thinking tugged along by other functions (Jung 1971-1983, 6: para. 661-62).¹

Certainly I do not suggest that any of the implied theories on the mind-body relation or body-mind unity in these *Zygon* issues could be classified by the criteria developed by Jung—even though sometimes, when I read “natural selection” I get some feeling of stomach. And not so rarely I have the impression that, at least philosophically and theologically, the important questions are covered up by concentrating, for example, on questions of ethology versus psychology (a new version of the old academic struggle of nature versus nurture). What is

of interest for the theologian—at least as I conceive him or her—is the capacity of the human being to think and to experience God; the way human nature has taken to get to this point is absolutely of secondary importance. It is interesting to know about the past, and since our past is part of our existence, to know about it is even more important; but this neither explains human existence nor tells us who human beings are. The human tendency to believe that knowing the origins is knowing the reality is certainly older than science; however, this does not make the statement of Tertullian “*id verius quod prius*” (that is more true what is earlier)² anymore acceptable as a truth-criterion. The theologian’s question will thus not be How have brain-structures, how have archetypes, how have religious symbols evolved?—especially not if the answer is given in terms of pre-existing features and selective pressures. Certainly these are real conditions of any existing world, but to explain the evolved world, for example, the human brain in terms of cell functioning, is to a very large extent a reductive procedure. To a certain degree it appears to me a negation of evolution to limit it to a description of matter that always stays the same, although it may take on quite a number of different appearances. Whoever has taken a large enough look at the history of this planet should know that evolution is principally marked by the fact that in its course really new things appear which transcend visibly the earlier states of evolution. If this point is true, then it is evident that anything which has evolved out of the past as something new cannot be explained or understood in terms of the preceding stages. At best we can suggest some analogies which allow us to see in the mammalian past, for example, early behavioral features characteristic of the class we call mothering behavior. However, although we might by abstraction encompass rat and human behavior by this concept, we hardly can call it the same kind of behavior in a univocal way.

Even though the evolutionary past stays present through all primates and also in humankind, we must learn that we must not identify too easily the similar structures we encounter in animals and humans. It seems to be one of the most widespread ideas that changes on a higher level may be supported by older, lower levels, which still influence the higher level by their archaic features. We have seen several ways of presenting such theories. But is there no evidence that the development of the cortex, for example, changes not only the functions but even the structures of the lower level? One case in question would be the development of vision. In rabbits and ground squirrels the retina still has highly specialized (in terms of stimulus requirements) ganglions which feed preferentially to the superior colliculus (which feeds back into the muscles controlling the eye movements) and some less special-

ized ganglion cells that feed into the lateral geniculate body and from there into the cortex; however, in cats, monkeys, and humans the less specialized retina ganglions feed practically exclusively into the lateral geniculate body and from there to the visual cortex, from where the necessary signals go to the superior colliculus and then to the eye muscles (Michael 1969). In this case the later developed visual cortex took over in a more efficient way (presumably) the functions of the earlier brain, changing the latter's structure and function. This example might perhaps be looked at as a kind of model to understand evolution not as a continuously produced addition of new features to old pre-existing ones, a process in which the new features are fundamentally tainted by the older ones, but rather as a process that continuously transcends itself opening up new possibilities to itself and being penetrated down into the very last fiber of its being by the new reality it has reached by its transcending process.³ (Naturally, I am idealizing: it must always be kept in mind that the transcending process may as well end up in a total failure.)

Thus we may turn to the question of archetypes—which certainly have evolved as everything else—without asking the always readily presented question of their survival value. Of course, some central archetypes have a function for survival—like the father, the mother, the child archetype, or the anima and the animus; but this is only true if we do not think of other possibilities of life. The whole family of archetypes as developed by Jung (1971-1983, 9: para. 1) and put into a more evolutionary context by Anthony Stevens (1983) is not necessary for survival in general; rather it is helpful for a thinking animal that is able to recognize the uniqueness of the other person and to give it a name it is called by. Naturally we are tempted to look backwards and find in other mammals (or birds) similar features; and ethology provides us with splendid examples, especially among the primates, of early forms of symbolism (Kortlandt 1968). In this field of archetypes where basic dispositions for abilities are asked for in order to make actual behavior understandable, for example, the structuring and selecting process involved in any perception, our present tendency is to ask for genetics as the only alternative of learning. What makes us use only such a limited approach? If transmitting information from one generation to the next is the core question of the life-chain, then we might confidently state that humanity has developed quite a number of different systems of information storage—from language and memory, from rituals and symbols, from teachers and writing to printing and books collected in libraries, and lately to data storage in electronic devices. And there is no foreseeable definite end to the list of possibilities. To restrict nature to a single mechanism for storing and

transmitting information—to DNA—in this field seems at least presumptuous. What we might expect is at least some kind of redundancy in information transfer as well as we know it in other fields where evolution is going on.

So when we are confronted with the reality of archetypes—and after having read Stevens's book (1983) or his *Zygon* essay (1986) on this point nobody should be in doubt about their existence—it is hard to imagine some kind of transmission for them from one generation to the next by means of DNA. Even less, by the way, would it appear probable that they would be inscribed into the genetic code. What rather might have happened is that the pre-existing structuring of the animal psyche has been restructured by the appearance of what we call the human mind—if we define it as thinking, reflecting, loving, and future-devising capability. Just as visual perception is restructured through the appearance of the visual cortex, so the archetypes (at least as far as they have predecessors in the animal realm) have become part of the human reality: they are not in any way atavisms to be overcome but are an essential part of the human reality. Thus they are, as Jung states several times, part of our evolutionary outfit; they are handed on as a heredity from one generation to the next on the level of unconsciousness, but they have become as human as our whole being has become human. As Jung has explained, “there are as many archetypes as there are typical situations in life” (1971-1983, 9: pt. 1, para. 99); and, if he is right, they are the preconditions for the human ability to confront the outside reality (which is always open to us only and exclusively as conveyed through the psychic processes).

If we are to believe statements about the dominant left half of the human brain, then our approach to reality should be a dichotomous one. Certainly we have the habit of thinking in opposites. But the dichotomous approach to understanding human thinking has been influenced far too much in recent years by the advent of the computer, which is basically only capable of binary yes/no statements. In this light the generative grammar of Noam Chomsky and his followers should be reexamined: it was developed to be computer-compatible, not to be compatible with existing human language and the developing human speech capacity in infants. So we should resist one fundamental misinterpretation: the human brain is not a binary structured computer—not even in the left-sided language center. Even while analyzing reality, the left half of the brain visibly thinks complementary opposites, which become meaningless if each pole is not contrasted with its partner. The brain divides reality not (as the computer must do if it is to function) into “high” and “not high” but into deep and high or into in-front-of and behind, and so forth. We cannot think the one without the com-

plementary other, although we can express the opposites in their necessary and complementary holistic reality only in discursive speech.

Therefore, we have to begin to throw some doubts on the position which holds that the left brain is the dominant hemisphere. If it is correct that the right brain is responsible for the holistic perception of the world, then the left brain might even be the analyzer for the right brain's perceptions; and that could be interpreted that it is a servant of the right brain. If human mind and its capacity is measured in terms of creativity, then it is very probable that true creativity, which can reasonably be defined as the ability to realize new wholeness in our experienced reality, originates in the right brain. This might be the case in the arts, especially in music (whose real home is in the right brain), in everyday life, or in science (where a new hypothesis creates exactly a new way of conceiving unity, wholeness). If this is so, then we might confidently challenge at least the dominance of the left or analytic brain, even though it allows us to write this essay.

But naturally all these discussions on the different functions of the brain, the different cortical regions from Wernicke's to Broca's areas, from the frontal lobe to the occipital region (which I do not want to repeat) do not give us central answers to our existential question: Who are we who are able to think, to will, and to pray? Are we the unreal illusions of functioning brains, which produce these illusions to keep organisms going? Or is the brain the functional tool dominated by the mind, which has emerged out of the long evolutionary process. Actually I have a tendency to opt for the latter possibility; I do this because I have no definite proof for which of the two ways to read the reality. But I think there are some good indications for my option. Without any doubt the human brain is constantly influenced through essentially immaterial information creating material changes in the brain, changes which must be retrievable as memories. Naturally the information is conveyed by some material means. But the vehicle is not essential for the changes brought about in the brain: languages in terms of soundwaves are materially different and printing can have many different forms; yet they still convey the same information in the brain, which stores this information making it part of our physical make-up. This seems to me a case where clearly mind proves to be the dominant feature of the brain. To repeat, the evolutionary process is not questioned here; the mind in humanity, as well as in the individual, makes its appearance with the infrastructure of the brain, whose past and present is the *conditio sine qua non* for the emergence of the mind. But once it has emerged all human reality will have to be explained in terms of functions of the mind if we are not to fall into the trap of reductionism depicted by Jung.

Thus the archetypes themselves are not only to be understood as helpful structures for the continuing life of humankind, but they are also the stored experiences of the human mind: the possibilities opened up by the emergence of the human mind and new human experiences, not only the transformed experiences of mammalian heredity which have evolved into family archetypes. Beyond these we have ample demonstrations of the religious archetypes—which, as Jung explains over and over again, is not a psychological way to explain the existence of religions but which is the psychological precondition for the human capability to experience God. Further, although we do not think that this offers any proof that any religion is true, not even if we combine this demonstrated religious archetype with the need of the right brain to create a holistic world view which always transcends the materially experienced world in space and time, it opens the human mind for the experience of the religious dimension, for the divine. Of course, this experience is not necessarily everyone's, but, as Jung states, you cannot dispute it: "Religious experience is absolute." And he continues,

It is of no importance what the world thinks about the religious experience; the one who has it owns a great treasure of something which became for him a source of life, meaning, and beauty and which has given to the world and to mankind a new splendor. . . . It must be a very real illusion if you want to formulate it in a pessimistic way. But what is the difference between a real illusion and a healing religious experience? It is only a difference in words. One could say, for example, that life is a disease with a very poor prognosis: it lasts for many years to end with death; or that normality is a generally predominant, constitutional defect; or that man is an animal with a disastrously overdeveloped brain. This kind of thinking is the privilege of habitual cranks (fault-finders) with constipation. Nobody can know what the ultimate last things will be. Therefore, we have to take them as we experience them. And if such an experience helps to live a more healthy or more beautiful or more complete or more meaningful life, for oneself and for those whom one loves, then you might say: "It was the grace of God."

Herewith no superhuman truth has been proven, and we must confess with all humility that the religious experience extra ecclesiam is subjective and exposed to the dangers of limitless errors. The spiritual adventure of our time is the surrender of the human conscienceness to the undeterminate and the undeterminable, even though it seems to us—and not without good reason—as if in the boundless reality those psychic laws govern which no man has imagined but of which he received knowledge through "gnosis" in the symbolism of the christian dogma, which only imprudent fools but never the lover of the soul try to shake (Jung 1971-1983, 11: para. 67).

NOTES

1. C. G. Jung, *Gesammelte Werke* (1971-1983), quotations follow this German edition, quoting the volume and the paragraph, ex. 6: 661. The numbering of paragraphs differs from the English translation.

2. The argument is central to Tertullian: "Flatly stated, when it is a fact that is more true than what is earlier, and that earlier, which it from the beginning, and that from the beginning what stems from the apostles, and then likewise it is especially a fact that that is from the apostles transmitted, what has been held as sacrosanct among the churches of the apostles" (Tertullian 1866, bk. 4, chap. 5, 430).

3. There are multiple other changes in function integrating earlier features into new ones by changing fundamentally their task. They are used as a kind of raw material. One of the best known examples is the development of the middle ear in mammals using earlier reptilian maxillary bones (os quadratum and os articulare becoming incus and malleus). Both reptilian bones had lost their function in mammals, and should by consequence have disappeared, at least that is what normally happens with unused organs, e.g., the disappearance of eyes in cave-dwelling Amblyopsidae or Brotulidae.

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