EDITORIAL COMMENTS

It is my pleasure to thank the authors, article and book reviewers, letter writers, copy readers and peer reviewers who have contributed to volume 23 of *CRSQ*. Much effort from many people is necessary for the publication of a single quarterly. This editor is indeed indebted to many people and I hope to give them some form of recognition in future issues. I encourage you to help in the endeavor of creationist writing, research and review. Please contact me if you are willing to write or review.

Two letters to the editor suggest that the Society should sponsor creationist conferences. Although the idea sounds feasible, the Board of Directors has avoided sponsoring any type of a speaking symposium. Firstly, the finances of the Society do not allow us to underwrite a conference. Secondly, we do not have the manpower to handle all of the arrangements. It would fall on the shoulders of one Board member to do everything. Please understand our emphasis; we are a publishing and research organization and that requires all of our available finances and personnel.

I am amazed at the lack of scientific creationist reading matter in public libraries. I hope many of our readers will consider giving a subscription of the Quarterly to their local libraries. It would be best to discuss the possibility with library officials before the gift is actually made. This may insure that the periodical will be displayed properly. Also microfilms of past quarterlies are now available (see the inside front cover).

Dr. Frank Marsh presents some interesting research he did on insects many years ago. The data support the creation model of science and Dr. Marsh discusses a unique interpretation. William Rieman explores a limitation of science, i.e., the inability of scientists to perceive or dismiss non-material causes and phenomena. Also featured in this issue are several items involving the history of science. John Klotz notes some misunderstandings concerning Bishop Lightfoot and Galileo.

The research efforts sponsored by the Research Committee are featured in two articles. Part II of the Precambrian pollen studies centers on the likelihood of contamination of samples. The main thesis is that such contamination is highly unlikely. The interbedding of geologic strata in the Grand Canyon indicates that there was not a 200 million year interval between deposition of the two layers.

Paul Steidl presents information on comets that supports the concept of a young age for the solar system. Tom Barnes answers a theistic evolutionist who had accused young earth creationists of being poor scientists. Many of the technical notes should be of interest to you. Your comments on any subject are always welcome.

Emmett L. Williams, Editor

THE NON-MATERIAL HYPOTHESIS AND ITS IMPLICATIONS FOR MODERN SCIENCE

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Abstract

It is shown that modern science has espoused a materialist hypothesis. This assumption leads modern scientists to state unequivocally that they will reproduce evolution in the laboratory, produce life from nonliving materials, produce machines with conscious human-like intelligence and make the blind and deaf see and hear. It is the contention of this paper that these conclusions must be modified drastically if the non-material hypothesis that there are forces in the universe that science cannot manipulate is assumed.

Introduction

F. H. C. Crick (1979) makes the statements that ". . . our internal picture of the external world is both accurate and vivid, which is not surprising in view of the fact that human beings are highly visual animals" (p. 219) and ". . . in a certain sense everything she sees is a trick played on her by her brain." (p. 222)

These statements seem to show confusion between the facts of science and the facts of philosophy which must be assumed by science. Crick indicates that science has proved that we see by internal pictures and that these internal pictures accurately and vividly reflect an external world.

I assert that science is not capable of proving either that an external world exists or that we see this external world by internal pictures. Crick has made science appear to be much more powerful than it is. Science cannot prove that an external world exists, it must meekly assume its existence and look to philosophy for the justification of this assumption. Also, science must meekly assume that we can attain this external world vividly and accurately by direct or indirect means. Science can then proceed to discuss the nature of this external world via the results of experiments, an enterprise full of difficulties.

That science must make these two assumptions in conjunction with each other can be seen from the following considerations. If we could only reach the outside world, if it exists, by internal pictures, we could neither be sure that what we see is the same for different observers, nor that it corresponds to anything really existing outside our minds. We can see that we are at the point in philosophical history when modern philosophy under Descartes was born. To avoid this, science proceeds to make these assumptions consciously or unconsciously and Crick apparently has forgotten the underpinnings of the discipline.

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The Basic Assumptions of Modern Science

The assumptions which science must take from philosophy in order to be science are listed below.

1. There is an actually existing external world. The opposite philosophical position is untenable as it leads logically to solipsism. The nature of this world has been a major philosophical concern throughout history. (Dubray, 1938. pp. 421-30, Coffey, 1958a. pp. 19-51, Halverson, 1958, pp. 319-24, Joad, 1946, pp. 24-59, Randall and Buchler, 1971, pp. 224-7)
2. This external world is attainable accurately by our senses. There is a rich and colorful philosophical history connected with this assumption but common sense certainly corroborates it. (Coffey, 1958a, pp. 64-138, Halverson, 1958, pp. 326-52)
3. This external world is orderly and endowed with cause and effect and it follows the laws of logic. (Coffey, 1938, pp. 58-119, Coffey, 1958a, pp. 148-249, Dubray, 1938, pp. 431-50).
4. Many correlations with phenomena of this world can be obtained through induction and its correlate that nature is consistent over time. This assumption ultimately depends on the nature of God. It is considered one of the most difficult assumptions to justify. The so-called problem of induction is not solvable without a knowledge of God. (Coffey, 1938, pp. 23-53, Coffey, 1958b, pp. 84-6, Dubray, 1938, pp. 273-8)
5. The basic assumption which is the least justifiable is the materialist assumption. It can be stated as follows: All causes in the world or universe are similar to the causative means that science uses in its experiments. In short, there is nothing in the universe that is nonmaterial in any way. The word "non-material" here simply means things or properties not reproducible or manipulatable by physical and chemical means.

An alternate fifth assumption would be that there may, in some cases, be nonmaterial causes present, causes that are beyond chemical and physical methods. This is the nonmaterial assumption. Using this assumption keeps our minds open to possibilities that we would ignore under the material assumption.

A third version of the fifth assumption that all causes ultimately are not physical and chemical, which we might call the complete nonmaterial assumption, has obviously been disproved in our lives by breathing and eating for instance. Chemical and physical forces are present in our universe.

Thus we have two possible fifth assumptions. I intend to see how science will have different conclusions under these two versions.

The Fifth Assumption and Its Effect On The Physical Sciences

Staying strictly in the realm of the physical sciences, it would in most cases matter very little which version of the fifth assumption was made since all our experiments deal with physical and chemical forces. However, it is proposed that the non-material version (NMH) of the fifth assumption postulate in some cases is more in the interest of science as a lover of truth than the material hypothesis (MH). This is true since science can only disprove hypotheses decisively (Popper, 1968 pp. 35-119, 215-50). For instance, if MH is adopted for the creation of matter and energy, then science will have no means of proving that the creation of matter/energy from nothing is impossible by physical and chemical means alone. In fact, adoption of MH in this case makes science state that it is inevitable that science will create matter/energy out of nothing. Under NMH, it is highly unlikely that matter/energy can be created out of nothing by only physical-chemical forces. If some day scientists succeed in producing matter/energy out of nothing then NMH will be discarded in this case. But in the meantime, science will seem much more plausible and scientific if it proceeds more cautiously in this matter (Coffey, 1970, pp. 74-9, 101-13). This conclusion in no way denies that science should not proceed as far as it can under MH, but only that it not completely shut itself off from possible truth.

Moreover, theories of the origin of the universe, either the big bang theory, the continuous creation of matter or the expansion-contraction of an eternally-existing material universe, (Chapman, 1978, pp. 458-65) will be less plausible under NMH because, until we can create matter/energy from nothing, there will always be the suspicion that physico-chemical forces alone are insufficient to account fully for the material universe.

The Fifth Assumption and Its Effect On The Biological Sciences

The area of life is a sensitive region for many scientists. Most prominent biologists work under MH and, hence, eschew any hint of vitalism, (Tax, 1960, Labarre, 1956). They are quite adamant that physical-chemical forces are sufficient to explain life. In other words, not only will science inevitably be able to reproduce evolution and make animals and plants to specification, but be able to create life *de novo* in the laboratory.

But, all of these possible future accomplishments would not be inevitable if NMH is adopted. As a matter of fact, under NMH, we would say that it is a good possibility that the creation of life in a laboratory situation will never be achieved. Since Pasteur showed that spontaneous generation of life does not occur, there is considerable experimental evidence that has accumulated which has the effect of making adoption of NMH with regard to the creation of life most reasonable. And with respect to interspecies evolution, another large amount of laboratory work has shown that no one has been able to make an existing species evolve into either another existing species or into a new species using cross-breeding, gene splicing, recombinant DNA, radiation or other laboratory methods. Thus the findings of science have shown that interspecies evolution and the creation of life do not seem possible any more than the production of a perpetual motion machine. The burden falls on modern science to show that the laws of nature are such that interspecies evolution can actually take place before it can consider whether or not it occurred historically.

In addition, there are good philosophical reasons for adopting NMH in the case of living things. If one considers even the simplest living organism one is struck by its inordinate complexity. This complexity,

to say the least, is hardly diminished when the human body and human brain is taken into account. In addition, living things have self-movement and, hence, apparently differ from machines in that there is the distinct possibility that a guiding principle is an integral part of them. It has, of course, been postulated by Watson and Crick and others that nuclear DNA is this guiding principle. But the DNA of a cell is located in the nucleus and consequently, its influence on remote non-nuclear parts of the cell can be at best indirect. Also, at death the DNA is largely intact but still not able to revive the cell or keep it alive. And finally, the cell is very highly complex both anatomically and physiologically which means that it needs a strong unifying principle. Putting all these responses together, it appears likely that DNA does not have the properties needed. Other factors may be needed. (Koren, 1955, pp. 14-55)

Some scientists have taken the position that life and evolution can be produced in the laboratory if enough time is involved. They reason that since vast periods of geologic time were involved to accomplish these ends, time is needed to duplicate these feats in the laboratory. However, it is not time per se they say is needed but time to produce the enormous complexity found in life which is what is ultimately responsible for life. But complexity alone is insufficient as a corpse has the same complexity at death as the living entity. Put another way, anatomy is not sufficient for life.

These considerations lead us to adopt NMH with regard to the origin and evolution of life. This position, unlike the MH position, allows for the possibility of refutation by physico-chemical means by the *de novo* creation of life and possible laboratory-induced evolution.

The Fifth Assumption and Its Effect On The Medical Sciences

The effect of MH on two areas that have direct bearing in biology in general and in medical science in particular will be examined. Under MH it must be dogmatically stated that given time and money we should be able to 1) make the blind see and the deaf hear, 2) to cure all diseases, 3) to raise the dead and 4) to achieve immortality. Unfortunately this is not an exaggeration since MH effectively states that life is nothing but a physico-chemical machine.

On the other hand, the adoption of NMH would lead scientists to ameliorate this position somewhat. Under NMH the four positions above would be modified to become (1) it is not possible using only physico-chemical means to make the blind see and the deaf hear; (2) it is not possible to cure all diseases; (3) it is not possible to raise the dead and (4) it is not possible to achieve immortality. When stated thusly, they appear more reasonable that the original versions. In addition, they are refutable by physico-chemical means available to us in the clinic and laboratory. Proceeding further, it can be asked if there are any philosophical reasons for adopting NMH in these four cases.

Curing all diseases, the resurrection of the dead and immortality will be considered first. Remembering the discussion on the possible non-material organizing principle of life, I can state that if life depends on a non-material factor, then we will be unsuccessful in curing all diseases, in raising the dead and achieving immortality using only physico-chemical means.

Lastly, I will consider the possibility of making the blind see and the deaf hear. At this point it is important to review briefly the theories of sensations as presented by modern physiology. Physiology considers sensation to be the result of the brain under stimulation to produce the internal representation of the outside world. (Montcastle, 1968, pp. 1315-17) For example, consider sight. Light from the outside world enters the eye and falls on the retina. This light starts a whole chain of physico-chemical events in which light is changed into chemical energy in the retina which is in turn converted to bioelectrical impulses in the optic nerve which finally arrives at the visual cortex area of the brain which then produces an internal image of the outside world. This picture appears in every aspect to the beholder as if he is looking directly into the outside world, but, in effect, his brain fools him as he really is looking at an internal picture.

Modern physiology arrives at this position because it has adopted MH consciously or unconsciously. The reasoning is largely as follows: Vision and all sensations are only physico-chemical processes. Thus, light, in the case of vision, and other physical stimuli for the other senses, cause in the appropriate organ of sensation a train of physico-chemical events that end in the brain. The brain then produces the sensation of consciousness, a logical conclusion under MH.

However, in order to accept such a conclusion, an observer has to convince himself that what he sees, hears, tastes, touches and smells is really not outside at all but really inside his brain. This "picture" or "image" in his brain is such that it seems as if he is looking, hearing, tasting, touching, and smelling the outside world.

Science assumes that this outside world exists and we have access to it through our sense organs. These are excellent assumptions and their worth is very fully explored by P. Coffey (1958a, pp. 19-51). Consequently, I am not concerned whether the theory of perceptions advanced by physiology would lend itself to doubt the existence of an outside world. But, we need to concern ourselves whether it is a truly scientific method whereby we reach the external world. Philosophically this type of theory is called the mediate or representational theory of perception as against the immediate theory of perception which claims that we perceive the external world directly. (Coffey, 1958a pp. 64-88)

We have seen above that MH will lead to the mediate theory of perception. I propose that NMH will adopt the immediate theory of perception. In addition, I will show that the possibility of serious but opposite practical applications can result depending on which theory is assumed.

Consider some implications for the mediate theory of perception. The mediate theory must explain two things. 1) How does the mediate produce a three-dimensional representation on the sense phenomena? 2) Who or what reads this internal picture which represents the external world so well none of us would have the slightest idea we were not looking out into the world directly unless we were told by the physiologists we were actually looking at our own brains "picture?"

Secondly, it can be asked if a picture (a mediate representation) of the outside world is needed to "see," is it necessary for the brain to produce another picture of the internal representation to "see"? If so, one can immediately foresee an infinite regress of "pictures" to "see" the previous "picture." Science, of course, will reject any such implications. Since science must accept the consequence that somehow this internal representation is grasped directly and immediately, it not only has to explain how this "seeing" occurs as pointed out by Crick above but it must explain further why we cannot view the world directly if we can view an internal picture directly.

I propose that perception might be partly immaterial. Certainly, the two difficulties with the mediate theory of perception outlined above point in this direction. When we add that mankind believes it perceives the external world directly, which the mediate theory has much difficulty in explaining, we see that NMH would lead science to opt for the theory of immediate sense perception of the external world. This theory is abundantly supported by philosophy (Coffey, 1958a, pp. 89-202). In addition, the immediate theory has the scientific advantage over the mediate theory in that the immediate theory of perception can be refuted by purely physico-chemical means by making the blind see, the deaf hear and making a person to see with his eyes closed.

Science, in adopting MH and its consequent the mediate theory of sense perception, must claim, given enough time and money, that science will be able to make the blind see, make the deaf hear, and make men smell, taste and have the sense of feel by immediate brain stimulation. These are strong but inevitable consequences of MH for science.

It is concluded that it is much better to accept the immediate theory of sense perception on both philosophic and scientific grounds and also the consequence that it is, unfortunately, a very long shot that science will ever make the blind see and deaf hear by direct brain stimulation. To summarize, science has shown that the whole optic organ is the eye, optic nerve and brain in combination with each other. But it is highly likely that as necessary to sight as that organ is, it is not sufficient to produce sight and a non-material element is present which allows us to directly perceive the outside world.

The Effect of the Fifth Assumption on the Information and Social Sciences

It has been the dream of philosophers, scientists and engineers for a long time to produce intelligent machines which really can think and converse with human beings with meaning. There is much controversy regarding just how feasible it is in reality to accomplish these admittedly awe-inspiring results (Dreyfus, 1979, pp. 1-136; Taube, 1961, pp. 155-227).

There is no doubt that science working under the MH must state unequivocally that it is impossible not to produce such machines. Science must state equally unequivocally that it will produce machines with emotions as well. This result, of course, is close to producing life itself in a machine. It is sufficient to realize that MH will lead the engineering sciences to state emotions and true intelligence can be reproduced in dead machines which can be seemingly brought to "life" simply by placing their electrical plugs in an appropriate socket.

On the other hand, if emotions and intelligence might not be completely reducible to physico-chemical forces then the spectacular results listed above may not be achievable. Consequently, we must examine which version of the fifth postulate is most appropriate for science to adopt with regard to the possibility of producing truly intelligent machines with or without internally produced emotions.

It seems impossible to have internal feeling and emotions and internal intelligence without a minimum of consciousness. Feelings, emotions, sensation and reasoning by their very nature require a subject to whom these things are reported. With this stipulation in mind, the problem of producing a machine having internal feeling, emotions and intelligence will require engineers to make it conscious at the same time.

It is highly likely that there is a non-material component involved in sense perception. Thus, the conscious component in a living organism which uses this perception must also be partly non-material. It must be concluded that to place consciousness in a machine will require the use of some nonphysico-chemical methods.

Once again, then, it is more philosophically and scientifically satisfying to state that it is impossible for engineers to produce truly intelligent machines. Science can prove the NMH wrong in this case by producing such machines. However, I must agree with the conclusions of R. J. Henle (1985, pp. 131-55) that artificial intelligence is a "perverse grand fantasy" (Weizenbaum, 1976, p. 203). For a detailed discussion on how far the "intelligence" of computers that do not possess consciousness can be taken in the future see Dreyfus, 1979, pp. 227-305.

We have seen from our discussion on intelligent machines that consciousness is needed in intelligence. This conclusion forces us to state that both psychology and the social sciences must take into account that men have internal states which must be taken seriously. In other words, behaviorism is, at best, a very partial and misleading theory of human and animal behavior. Behaviorism is perhaps fairly satisfactory for animals as they apparently do not have free will. This is so because they do not have true language and true intelligence.

Those who follow MH and claim there is no human freedom have not been very convincing in explaining away this feeling. (Schoeck & Wiggins, 1960, pp. 159-80). Further, human intelligence most likely has a non-physico-chemical component which would be necessary as a basis of human freedom. (Dubray, 1938, pp. 503-24). Thus in the psychological and social sciences human freedom must be taken into account (Schoeck & Wiggins, 1960, pp. 202-60). This is certainly the conclusion of NMH. This position can be refuted by making a true human being *de novo,* from a dead person or by evolution from a lower species.

Summary and Conclusions

The conclusions that have been reached should have profound significance for modern science. Armed with the materialist fifth assumption, science has put forth many claims of dubious value and truth. Science should

become more scientific. This will aid in its important mission of seeking truth. It should become less dogmatic about the origin of the universe and matter/energy, of life and evolution. It also should be less dogmatic about the ability of the human race to cure all diseases, make the blind see and the deaf hear, raise the dead and make truly intelligent machines with feelings and emotions. And finally it must not deny social science the variable of human freedom.

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INVITED PAPER

FIVE-LINKED FOOD CHAIN OF INSECTS*

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Abstract

Within southwestern Chicago the food relations of a five-linked food chain of insects (a case of hyperparasitism) was studied. The larvae of the large Saturniid moth ***Hyalophora*** *(formerly* ***Samia) cecropia*** *(Linnaeus), while feeding upon black willow, box elder, and wild black cherry, served as the key industry for four successive links of hymenopterous parasites (more accurately named* ***parasitoids).*** *The primary parasite was the ichneumonid* ***Spilocryptus extrematis*** *(Cresson); the secondary parasite was* ***Aenoplex smithii*** *(Packard); and the tertiary and quaternary parasitic positions were held, respectively, by the chalcids* ***Dibrachys boucheanus*** *(Ratzeburg) and* ***Pleurotropis tarsalis*** *(Ashmead).*

Contributing to the delicate dynamic balance of this food chain were the tachinid fly ***Winthemia cecropia*** *(Riley) (formerly* ***W. datanae Tns.),*** *two additional ichneumonids* ***Ephialtes aequalus*** *(Provancher), and* ***Hemiteles tenellus*** *(Say) and the chalcids* ***Dimmockia incongruus*** *(Ashmead) and* ***Cirrospilus inimicus*** *(Gahan).*

Reference is made to an assumed controversy throughout all the natural world between the Creator and Satan. A brief discussion is also included suggesting how, from a creationist viewpoint, a change in food in some animals from plant sources to animal sources, may have occurred.

Introduction

Within the Chicago area near Summit, Illinois, there is a level prairie community supporting scattered clumps of black willow, box elder, and wild cherry. These trees were found to be heavily infested with cocoons of *Hyalophora* (formerly *Samia) cecropia* (Linnaeus), the infestation being reasonably constant from year to year. The writer became engaged in a study of the feeding interrelationships existing between these trees, the Cecropia larvae, and the involved chain of hymenopterous parasites and hyperparasites— see Marsh, 1934: pp. I-IV, 1-98). This opportunity is taken to discuss briefly certain general aspects of the problem, *e.g.* the biotic balance between moth, predators, and parasites.

Methods

In collecting the material for this study, the cocoons were kept in three separate groups: (a) those found on the ground— chiefly beneath brittle-stemmed willow trees, *(b)* those spun from the ground to a height of 15 ft., and *(c)* those spun from 15 to 35 ft.— the upper limit of cocoons in this region due to the absence of high trees. Age or condition of cocoon made no difference in the uniform sampling of the area. Thus the regulatory factors of several years were determined. The separation into groups according to the stratum occupied was made in order to learn the vertical spread of the factors involved.

*Throughout the course of this work I have had the advantage of counsel from Dr. C. L. Turner (Northwestern University). It is also a pleasure to acknowledge the criticism of Dr. Orlando Park (Northwestern University) and I am especially indebted to the following taxonomic experts, J. M. Aldrich, R. A. Cushman, A. B. Gahan, C. L. Metcalf, C. F. W. Muesebeck and C. W. Sabrosky for their care in determination of insect material.

**Much of the material in this article first appeared in *Ecology*— see Marsh (1937). Permission for its use here was given May 5, 1986, by the Ecological Society of America.

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