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ORIGINS OPTIONS : IMPLICATIONS FOR CHRISTIAN BIOLOGY AND GEOLOGY TEACHER.

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INTRODUCTION

To Christians Bible and science are two possible sources of knowledge. Insofar as they do not contradict or interfere, there is no tension between these two sources, and this applies in most cases. However in dealing with origins issues the biblical and the current scientific views conflict.

This opposition occured mainly during the nineteenth century when the first evolutionary theories appeared. At that time biology and geology along with their related disciplines were deeply involved in developing the concepts of species evolution and of uniformitarianism. Since the beginning of our century, the conflict has become so acute that today there are few Christians that are still believing in the Genesis account of the origins. How did the Christians react to this conflict ? What are the main causes of this conflict ? How to deal with the growing philosophical influence of science in our society when being both a biology and/or a geology teacher and a creationist ? This paper is a tentative answer to these questions and proposes some ideas that could help a teacher to develop a Christian approach to biology and geology.

DIFFERENT VIEWS ON ORIGINS AMONG CHRISTIANS AND THEIR PHILOSOPHICAL IMPLICATIONS.

Facing the origins problem in a time when science has become the prevailing source of knowledge and has imposed its evolutionary view to the world, Christians have been obliged to enter in the debate.

Different models have been proposed. Blocher (1979, pp.14-18) distinguished three conceptions of relation between Bible and science : creationism or "antiscientism", "concordism" and "fideism".

Creationism

Creationism is called by Blocher antiscientism because it develops a substitutive science to replace the official science. To Nelson (1987, pp.317,325-326) this is the reconstructionalist strategy that envisages the radical reconstruction of science on fully biblical fondations. This approach originates from a literal reading of Genesis : God created in six literal days some thousands years ago, and

followed a worldwide catastrophe, the Noachian flood that is responsible for most of the fossiliferous sediments. Creationism is thus linked with catastrophism.

"Fideism"

"Fideism" is a dualistic approach in which faith and science are separated. The Genesis account of creation has a religious message but no scientific purposes and is considered as a myth. Consequently this approach leads to a theistic evolutionism in which the process of gradual evolution of the species is initiated and/or directed by God.

"Concordism"

"Concordism" is the attempt to find harmonious connections between Bible and science. For example, each day of the creation week represents a geological period (Day-Age theory) and the sequence of these periods in Genesis a summary of the geological history of the earth (progressive creation). The Bible compared to other contemporary writings is considered as more in agreement with science. This view is to be paralleled with Nelson's compatibilist strategy.

Besides these three conceptions Roth (1980) added several models he called intermediate views between creation and materialistic evolution. One of these, the gap theory or restoration theory, is widespread among Christians. The Gap theory is the idea that God created life on the earth in a very distant past. Because of the judgment upon Satan, God destroyed that life and the earth consequently was ruined to the point it was without form and void (Genesis 1:2). The creation week account deals with a second creation.

Two different philosophical views on origins

These different views on Bible-science relations are the result of different world views.

Creationists believe in God as the creator of the earth, of the plant and the animal species. Man created in God's image has been given a mandate, that is to cultivate and to keep the creation. Scripture, the Word of God, is to be considered by creationists as the basis of their world view. Genesis, as a part of Scripture, must be seen as the true origins account. Science may be useful in providing a better understanding of the origins, but it must in any case be subordinate to Scripture. Creationists tend to believe in species fixity. Because of his special status, man is offered by God a personal relationship, and because of his fall he is offered salvation through Jesus Christ.

Contrasting with this view, theistic evolutionism accepts the idea of creation of life by God, but denies any usefulness to the book of Genesis which is the result of human imagination and thus a legend. Science is the only valid way of knowledge because it is based on reason. Man is the result of a species evolution planned and controled by God. In that context God loses part of his omnipotence and

of his loving character, and seems to lose interest in man as an individual. Man is autonomous and is able to master his destiny. Such a humanist view suggests that some Christians have been trapped by scientism, that is "the absolutization of science, the elevation of human scientific prowess to a place of salvific and redemptive significance" (Walsh and Middleton, 1984, p.122).

The development of the Day-Age theory among some Christians reveals a will to erase any conflict between science and Scripture that are both valid and concordant sources of knowledge. Whereas science has limitations, Scripture, because of its infallibility, is scientifically credible (Vernet, 1978, p.236). Those who favor this theory thus tend to rationalize the content of the Bible, even the miracles, and to make the biblical and the scientific world views reach a compromise.

As the previous view, the Gap theory is an attempt to lessen the discrepancy between science and Scripture. But here the Bible has no specific scientific value. This theory is just a biblical justification to the long ages suggested by geology.

In fact both the Day-Age theory and the Gap theory are different trends in creationism generated by a less literal reading of the Genesis.

INFLUENTIAL FACTORS ON THE SHAPING OF ORIGINS VIEWS

Historial factors.

Darwinism is one of the results of the liberation of scientific research from theology (Gillespie, 1979, p.8). According to Tkachuck (1983a) five historical events prepared the way to Darwinism.

The first event is the Renaissance, an age of intensive intellectual activity that shook dogmas and traditions and developed a tension with the church that reached its climax with the Galileo affair. The second event was the Protestant Reformation that promotes the idea that the individual could freely approach God, and thus his creation without fear. The Industrial Revolution was one of the consequences of this new trend. It brought prosperity to the Western world through exploitation of nature and at the same time eroded the religious convictions through materialism. The third event was the development of geology. Geologists such as James Hutton and Charles Lyell began to advance the idea of an old earth supported by the philosophy of uniformitarianism. Gould (1984, pp.9-12) defined the four tenets of uniformitarianism : uniformity of natural laws, uniformity of processes called actualism, uniformity of processes rates called gradualism, and uniformity of conditions. The fourth event was the birth of liberal theology that interpreted the passages of Scripture involving supernatural processes as allegories. The fifth was Darwin's

voyage around the world aboard the "Beagle". During this five-year trip Darwin became convinced of the ability of species to change. This idea was contrary to the belief of the species fixity thought to be affirmed by Scripture.

Darwinism took root because "it answered some major dissatisfaction in human experience" of that time (Tkachuck, 1983a).

Personal factors.

A scientist, as everybody, is part of a community composed of the people he lives with and he usually meets (friends, teachers, colleagues).

Charles Darwin, for example, was personally influenced by several people. His own grand-father, Erasmus, a naturalist, believed in evolution of the species and in long ages. On the "Beagle", Darwin intensively read Lyell's "Principles of Geology" so that he interpreted his "observations" in a "completely uniformitarian attitude" (Ager, 1981, p.46). He became a close friend of Lyell, the antibiblicism of whom he adopted. Consequently he turned to "a life-long aversion to theologically grounded thinking in science" (Gillespie, 1979, pp.20,41). Malthus' pessimistic ideas on human populations suggested to Darwin the application of natural selection and survival of the fittest concepts to animal species (Thuillier, 1981, p.30 ; Tkachuck, 1983b). According to Gillespie, Darwin had also some knowledge of the positivist philosophy of Auguste Comte. Positivism is the idea that science task is to discover laws that are the results of purely natural causes. It promotes the use of mechanistic models and the rejection of supernatural factors that lie beyond scientific examination.

Effects of historical and personal factors on scientific work.

According to Ratzsch (1986, pp.22-25) the traditional scientific method includes three steps : collecting observational data, organizing data, and generalizing by induction and explaining. All these steps are supposed to be achieved without any philosophical or religious presuppositions. Science thus is empirical, rational and objective.

Darwin's case illustrates the failure of this idealistic view of science that was predominent in the nineteenth century and is still valid now at the popular level. It seems evident that Darwin was influenced by his cultural environment, by his peers, his family and his personal experience. According to Thuillier (1981, pp.24-25), the testimony of Darwin's notebooks is explicit: when Darwin was going to state his fundamental ideas he was busy with reflections regarding anthropology, psychology, theology, epistemology, philosophy and ethics. "Natural selection did not arise from the Beagle's facts... The immediate

precipitators were a social scientist (Comte), an economist (Malthus), and a statistician (Quetelet)" (Gould, 1980, pp.55-57). His correspondance showed that he first wanted to hide his presuppositions from the public because they did not fit in both with the official model of scientific method and with the Christian views of his contemporaries. In order to avoid conflicts he wrote : I have "to avoid stating how far I believe in materialism" (Thuillier, 1981, p.27).

Darwin's choice of data consequently could not be free of all preferences. Since data do not organize themselves, Darwin must have organized his data according to prior theories. Since data do not dictate theories, some prejudices on the part of Darwin must have interfered in the explanatory process.

Most of the epistemologists now agree in saying that science cannot work without presuppositions. Thuillier (1981, pp.20-21) affirms that ideology very frequently intervenes in the genesis of theories and that science is a human construction.

Darwin's presuppositions were the results of the influence of personal and historical factors generated in a period of questioning in many fields such as theology, philosophy and science.

According to Kuhn (1962) this type of setting corresponds to a crisis period when the old paradigm is questioned because researchers repeatedly point out its anomalies. Darwin thus was involved in a scientific revolution process by converting to a new paradigm and by contributing to its development.

Nature of the evolutionary theory

The scientific method should lead to a scientific theory. According to Karl Popper, a scientific theory is testable by repeatable experiments that may falsify it, and should thus be able to make some predictions. Then one may ask the question whether the theory of evolution is scientific or not. Using Popper's criteria, Patterson (1978, p.146) answers : "Evolutionary biologists can make no predictions about the future evolution of any particular species, and they cannot explain past evolution but only produce interpretations, or stories, about it". Since scientific tools are used in developping the evolutionary theory, this theory "is thus neither fully scientific, like physics, for example, nor unscientific, like history" (Patterson, 1978, p.146), but "a metaphysical research programme" from which testable scientific theories may be derived (Popper, 1976, p.168).

Partial conclusion

Adhesion of a Christian to such and such origins views depends on the nature and the influence of historical and personal factors. Christians shifted from the old paradigm

(creationism) to the new paradigm (theistic evolutionism) in the same way as Darwin did. This change resulted in a different interpretation of the fossil record and of the Genesis account. In the old paradigm fossils represent the remains of plants, animals and humans, descendants from those who had been created by God and buried by sediments during the Noachian Deluge. In the new paradigm the fossil record is the testimony to the evolution of species descended from a primitive living form and successively buried in the course of long geological periods, and the Genesis account is nothing but a literary work. Christians who do not see or do not want to see any discrepancy between science and Scripture think that Genesis must be interpreted in the light of science.

Besides, Christians, when shaping their origins views, should keep in mind the fact that some epistemologists and scientists do not hesitate to see both evolution and creation theories as metaphysical theories.

INTEGRATION OF SEVENTH-DAY ADVENTIST FAITH WITH SCIENCE ON ORIGINS VIEWS

Specificity of the Adventist teacher's task

The expression "Seventh-day Adventist faith" is intentionally used in this section because Adventists and some fundamentalists are the only Christians to support creationism in the strict meaning of the term. Adventists therefore face a double problem, that is first to be a creationist in our materialistic society and secondly to be confident in what the book of Genesis says about the origins in a time when Genesis is considered as a legend or as an account to be interpreted in the light of science. The task of an Adventist biology or geology teacher is a specific one. He must know exactly how he understands Genesis and the nature of scientific theories.

How to understand Genesis

In the first section of this paper the origins view of a Christian has been shown to be dependent on his understanding of the Genesis record and particularly of the expression "day". Blocher (1979, p.33) defined four interpretations of the term "day" proposed by Christians : (1) the literal interpretation (six-day creation), (2) the "restitutionist" interpretation (six days of restoration of creation ruined by the Lucifer's fall, (3) the "concordist" interpretation (six long geological periods), (4) the literary interpretation (six legendary days).

Since, as Adventists, we think that Genesis is a part of God's Word, quoted by Jesus himself, and that God's Word must not be subordinate to science, we discard the interperetations (2), (3) and (4) and tend to support a literal interpretation.

But what does the literal meaning of Genesis tell us ? According to Flori (1980, pp.47-59, 90) Genesis, as the whole Scripture, was written in order to teach us rather than to inform us. Genesis consequently has no historical or scientific goals, even if sometimes it may contain some useful data. The Day-Age theory is a result of the idea of a scientific purposefulness of Genesis.

Genesis is a pedagogic way of teaching us that God, anterior to time and matter, created time, a physical environment, plants and animals, and man. God's creation is immediate, perfect, free. Man and woman are created in God's image, free and responsible (Flori, 1980, pp.97-98).

Insoluble problems that we find in a literal reading of Genesis could be, according to Flori (1980, p.102), a way to lead us to an interpretation suited to make us recover the profound meaning of the text. Besides the wording used by the Genesis author is simple enough to be understood by everybody at any time. It does no address scientists of a particular time. The Genesis book is not a scientific report and therefore cannot be questioned and replaced as scientific theories. This simple wording contrasts with the mythic style of other origins accounts and allows us nethertheless to consider Genesis as a true account.

How to understand science

The successful achievements of science are numerous. This fact shows that the scientific method is valid. A Christian teacher therefore must teach his students how to use this method, to exercise their sense of observation and their reasoning, and to interpret. He however must warn them about the limitations of the method. As discussed in the second section of this paper the scientific method needs presuppositions in order to work. According to Ratzsch (1986, pp.22-25), these presuppositions influence the choice and the interpretation of the data and of the observations. Neutrality of science then is a myth (Thuillier, 1981, p.162). Besides, because "they (the data) are not generated out of science itself", this implies that "science cannot be the only legitimate basis of believing something" (Ratzsch, 1986). There are many areas that lie beyound the scope of science. Science does not answer the "questions of the ultimate purpose of our existence or of the universe", does not deal with questions of morality and values, psychology, theology and religion, philosophy" (Ratzsch, 1986). A purely scientific knowledge is thus reductionist, that implies that Christian teachers must promote the integration of particular insights of his discipline with those of other disciplines in order to lead his students to wholistic knowledge (Walsh and Middleton, 1984, pp.183-184).

Scientific creationism

Because of the large gap that lies on origins issues between science and Genesis, Adventist biology or geology

teachers tend to feel that they have to apply the principle of faith-discipline integration through the "reconstructionalist strategy" (Nelson, 1987, pp.325-326). To them at least a partial reconstruction of their discipline is necessary.

This reconstruction is motivated by their specific presuppositions, previously discussed. It leads them to a scientific creationism that consists, through the use of the scientific method, in a reinterpretation of already used data, and in an interpretation of new data suggested by their presuppositions in the light of the Genesis account.

Such a reconstruction has to be done carefully and to avoid two traps : rejection of some data (e.g. fossils arrangement in the stratigraphic column), because they do not fit in with one's a priori , and "use as scientific evidence of material which has not been carefully scrutinized" (Chadwick, 1987) because they fit in too well with one's a priori (e.g. alleged Mesozoic human tracks of the Paluxy River).

CONCLUSION

The Adventist teacher here has a good opportunity to show the inevitable character of presuppositions in the scientific method and at the same time the risk they represent when they are supported by an overflowing enthousiasm that may produce intellectual blindness and even dishonesty.

Through the study of origins issues the Adventist teacher shows his students not only the limitations and the relativity of scientific knowledge but also he favors the development of his students' character by introducing in his lectures on evolution theories and the creationist alternative the notion of intellectual honesty and the necessity to think by oneself.

Finally he has the responsibility through, the comparison of the evolutionist with the creationist views, to make his students feel the difference between the selfish and the hopeless life proposed by the evolution theories whether theistic or naturalistic, and the meaningful life guided by a personal God proposed by the Scriptures.

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