

A Textbook Critical of Evolution

(Translated from a book review by P. Rüst, 2003)

"Evolution - ein kritisches Lehrbuch" ("Evolution - a critical textbook") by Reinhard Junker and Siegfried Scherer (Weyel Lehrmittelverlag, Giessen: 2001, 328 pages, ISBN 3-921046-10-6) is an unconventional biology textbook. In 2002, it was given the "German textbook award". Because of the book's attitude critical of evolution, this appears to have "drawn considerable uneasiness with biologists". Both authors are collaborators with "Wort und Wissen" ("Scripture and Science"), an evangelical research fellowship which advocates "creation science" as an alternative to "evolution science". Professor Scherer is the director of the Microbiological Institute of the Technical University of Munich.

Didactical aspect

The book is primarily concerned with thoroughly investigating the interpretational problems and open questions of the theory of evolution, which are to a large extent unpublished, and tries to show that evolution cannot count as a "proven fact". In this way, the leading authors and the other eight contributors to this textbook, all scientists, are deliberately placing themselves in opposition to the convictions of the large majority of biologists. Of course, this need not be wrong in itself.

The introduction specifically emphasizes that one's worldview often influences the interpretation of observations and measurements. Throughout most of the book, this problem area is then carefully kept in view by means of boxes pointing to "border violations" between science and worldview. On the worldview side, the biblical faith is taken as the starting point throughout.

The textbook's design is very attractive. It does not only address scientists, students, and teachers, but first of all "pupils and interested laypeople". By far the largest part of the contents appears to be presented in a way sufficiently comprehensible to the readership in view.

As a biochemist and christian, I have not only myself criticized extensively the misuse of the theory of evolution years ago, but I also share with the authors their belief in the divine inspiration of the Bible. So I should actually be enthusiastic about this book. But in spite of its merits, it gives a very mixed impression. It is not so much a question of what it says, but of what it fails to say. Can this bias be justified as a counterweight against the reverse bias of the usual textbooks?

Scientific aspect

The last chapter is specially dedicated to "creation science" ("Schöpfungslehre"), and occasional further statements point in the same direction. With the exception of these passages, most of the topics addressed are treated very well and in a scientifically reliable manner. In particular, this applies to the clear distinction made between micro- and macroevolution, the differentiation between causal and historical evolution research, then in general to the sections in the fields of biological systematics, biochemistry, molecular biology and genetics, and in particular to the excellent chapter about the fossil documentation with respect to human origins (by Sigrig Hartwig-Scherer). But in other chapters, as well, much can be assessed as good - where, in this short review, I don't want to go into details.

Microevolution is usually seen as evolution within the species. Here, however, it is extended to include all developments and transitions explainable by the known mechanisms of evolution. On the basis of hybridizations (and beginning embryonal developments) observed, "base types" ("Grundtypen") are defined, each of which includes all species contiguously linked by the network of such hybridizations. In this way, the taxonomical boundaries of species, genus, and subfamily are usually transgressed. It is correct to accept this kind of evolution, including traditional speciation, because it has been documented by observations and experiments.

But it is also true that evolutionary mechanisms going further, which would explain macroevolution properly speaking, are (still) unknown and in this sense not understood. There are (still) no documented observations for the origin of fundamentally novel structures and functions. Biologists usually assume that chains of microevolutionary steps are responsible, and that corresponding observations are missing simply because such processes would take too long. On the usual

definition of microevolution, this term appears to be of no use, as it coincides with the (often ill defined) species definition. The "base type" motivated by "creation science", however, augmented by experimental evolutionary research, would define a meaningful empirical demarcation between micro- and macroevolution. This would also benefit a well-targeted investigation of macroevolutionary mechanisms.

Thus, many fundamentals of evolutionary theory are well presented. But an overall view of the total connection within life's history is lacking in this textbook. The systematical relationships between the findings of the various fields of research would have to be properly described. The macroscopic forms and biochemical findings depend, of course, on genetics and molecular biology. In particular, the phylogenetic conclusions derived from DNA sequence analyses and the fossil documentation would have to be compared. It doesn't suffice to simply say that the phylogenetic trees of different genes often contradict each other, and that the fossil documentation contains virtually nothing but lines of descent separated from each other. For both observations - which are correct, as far as they go -, there are reasonable explanations derived from molecular biology, genetics, and population dynamics, which are based on known mechanisms. They contribute to a deeper understanding of evolutionary processes.

Interpretational models from a worldview aspect

A main problem of this textbook, however, presents itself in the first chapter already. It is connected with a certain prejudice in choosing the designations for different worldviews. Therefore, I here place these designations between quotes. The "Creation model" and the "evolution model" are not only made out to be alternative possibilities of interpretation, but the only logical possibilities, but they are even placed on an equal epistemological standing - with the claim that testable conclusions can be derived from both. Furthermore, without discussion, the "creation model" is assumed to be of the young-earth type.

It's true that theistic and old-earth "evolution doctrines" are mentioned shortly in another place, but they are assessed much too superficially and simplistically. It is only the young-earth "creation doctrine" that the textbook considers to be a legitimate creation model.

This is unquestionably misleading. Most of the bible-believing scientists hold young earth creationism for scientifically impossible and theologically questionable, deeming an evolution model possible - at least from the point of view of a theology accepting divine inspiration of the bible. Why could or should God not use evolution as a creation mechanism? Of course, he would be capable of creating all species independently of each other and within a short time. But wouldn't this boil down to God "lead[ing] us into temptation" by putting a "stumbling block" into our way through false pretenses? This is what rejecting the scientifically determined old ages and the inter-compatible DNA phylogenies would imply.

The young-earth "creation doctrine" propagated in the textbook derives from the claim of death - including animal death - having existed since Adam's fall only. Very likely, this opinion comes mainly from a misunderstanding of Romans 5:12. As an animal biosphere cannot exist for a long time without death, one concludes that the days of the creation story must represent "literal" days, and that therefore all organisms were called into existence within a few days a few thousand years ago - according to their "base types". As in this case the time for a long geological development was not available either, one resorts to Noah's flood. This is then interpreted as worldwide, "with grave consequences for life on earth and geology" - the geological strata would have had to be formed within very short times.

The young earth model critically tested

It is true that the textbook mentions some testable questions which could possibly support this young earth model, but it does not name any testable criteria which could possibly refute it, although this is exactly what the introduction demands of scientific hypotheses.

Yet it is quite possible to point out such criteria, and the book's readers should be informed about them, because the consequences for life's history on earth are far-reaching. I shall put forward three salient criticisms of this bias, one each regarding theology, dating, and evolution:

(1) The theological questions occasioned by young earth creationism should be discussed. There are alternatives which accept old ages of the earth and of life, and there are interpretations assuming creation by means of evolution. Such views are not at all bound to give a rewritten historical-critical interpretation to the biblical texts, making myths out of them as liberal theology does. Theological liberalism avoids all possible conflicts with science by sacrificing divine inspiration. Therefore it is important to discuss the models put forward by authors accepting biblical inspiration - and in particular by those conversant with the scientific connections. Doing this makes it clear that a young earth interpretation is not only unnecessary, but doesn't make sense theologically, either.

(2) The astronomical, geological, and diverse radiometric dating methods would have to be discussed. What follows from the fact that they result in a consistent overall picture? Here, the authors are evasive. Plate tectonics is dismissed as an "evolutionistically oriented interpretation". It is said that, in the framework of the "young earth creation doctrine", there are "attempts, in the sense of earlier catastrophism, to arrange the *entire* earth history in a short ... period of time." It is conceded that this model - honestly labelled as "theologically motivated" - is "so far" bumping into "a series of unsolved problems, which are connected with radiometric dating methods, as well", but it is said that these problems "cannot be dealt with adequately" in the setting of a biology textbook. From other young earth creationist texts, however, it is known that these attempts are completely untenable. This has been shown in depth by bible-believing scientists, among others. A discussion of these criticisms would probably have had disastrous consequences for the acceptability of this textbook. The concordant totality of these datings constitutes a final refutation of the "young earth creation doctrine".

(3) The newly available genome sequences have furnished proofs for a common biological descent of man and animals, which can hardly be doubted any more with a good conscience. I am talking about mobile DNA sequences, which can insert themselves into a genome at a huge number of different positions, in an inactive form, being detectable in the descendants. These are genetic errors arising with very small probabilities, but whose positions can be determined exactly. If they occur at identical positions in different lines of descent one knows that these organisms must have descended from a common ancestor. A large and increasing number of such cases (many are already known between man and chimpanzee) amounts to a proof of common ancestry, because the sequences inserted are functionless and their identity cannot therefore be reduced to common needs. This corresponds to a new situation of proof for the factuality of evolution, which has been in existence since a few years only. Here, the historical question of whether these organisms descended from a common ancestor is independent from the causal question of which mechanisms might have produced this evolution. These mechanisms are still unknown, because we don't know the frequencies with which new useful gene sequences can be found.

These three points are so significant, that they should not have been left out in a textbook presenting young earth creationism as a feasibility - or even still advocating it today. With the third point, one might perhaps still turn a blind eye for the current edition of the textbook, as these results have been available for a short period only.

These facts should actually motivate christians to seek interpretations which are compatible both with a full divine inspiration of the bible *and* with all clearly documented scientific facts. There are in fact such interpretational possibilities. But a "young earth creation doctrine" is no longer acceptable.

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