

Michael T. Ghiselin

## Probleme der Phylogenetik



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For several years I have been studying the genealogical relationships among major groups of animals using new molecular data: 18S ribosomal RNA sequences. The results of this and other molecular work are now of sufficient quality and quantity that we can assess their validity and compare them with the traditional results from comparative anatomy, embryology and other approaches. To do so effectively requires that one read and reread a vast literature in many languages and reassess the whole field of animal phylogenetics.

When I arrived at the Wissenschaftskolleg it was my intention to spend my time re-analyzing my molecular data and to resume my historical studies on the history of invertebrate comparative anatomy. That is precisely what I did. From October through January I worked on a long paper dealing with one of the most controversial topics in animal phylogenetics: the origin of the phylum Mollusca. I have presented what seems to be compelling evidence that mollusks are modified annelids, not modified flatworms. A draft of the paper was submitted for publication in December. I read the proofs in June, and it is scheduled for publication in October 1988 in the *Oxford Surveys in Evolutionary Biology*.

I am also interested in the philosophy of my subject. I presented, as the first colloquium in our series, a lecture entitled "Individuality, history, and laws of nature in biology". The outline prepared for this talk has been worked up into a paper and is now in press in a *Festschrift* for the philosopher David Hull. I also completed two short items on the philosophy of systematics. One of these has already been published in *Systematic Zoology*, the other is in press in *Biology and Philosophy*.

I made substantial progress in analyzing molecular data and comparing them with traditional ones in preparation for a lecture to be delivered at a Nobel Symposium in September 1988. A manuscript now in preparation should be ready for publication in the proceedings volume on schedule. I also re-analyzed our data on echinoderms, in order to compare those data with radioimmunoassay data now being collected by a collaborator.

It was most fortunate that Professor Volker Erdmann of the Freie Universität is one of the leading students of ribosomal RNA. I collaborated extensively with his student, Dr. Jörn Wolters, who works on phylogeny using various ribosomal RNAs, and is interested in developing computer programs that will assist in that endeavor. It is taking longer than we had hoped to get good results, but we will continue to work together on this project.

It was also fortunate that Professor Peter Ax, of Göttingen, is an *Altfellow*. Professor Ax, like me an invertebrate zoologist, will also be presenting a paper at the Nobel Symposium, September 1988. During his visits to Berlin, we had some opportunity for discussion. I also traveled to Göttingen, and presented a seminar on my molecular research to his students and one on philosophy to a more general audience.