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ennial celebration for Darwin's *On the Origin of Species*.) Taxonomists, in other words, were regarded as bookkeepers and accountants in need of a little loosening up. In his 1959 book *Nature & Man's Fate*, Garrett Hardin, a professor of human ecology at the University of California at Santa Barbara, quoted a zoologist as giving this advice: "Whoever wants to hold to firm rules should give up taxonomic work. Nature is much too disorderly for such a man."

The transformed cladists think otherwise, and have sought to re-establish taxonomic rigor. In doing so, they have come to think that it is the evolutionists who have the problem—the problem being slipshod methodology. Colin Patterson, perhaps the leading transformed cladist, has enunciated what might be regarded as the cladists' battle cry: "The concept of ancestry is not accessible by the tools we have." Patterson and his fellow cladists argue that a common ancestor can only be hypothesized, not identified in the fossil record. A group of people can be brought together for a family reunion on the basis of birth documents, tombstone inscriptions, and parish records—evidence of process, one might say. But in nature there are no parish records; there are only fossils. And a fossil, Patterson told me once, is a "mess on a rock." Time, change, process, evolution—none of this, the cladists argue, can be read from rocks.

What can be discerned in nature, according to the cladists, are patterns—relationships between things, not between eras. There can be no absolute tracing back. There can be no certainty about parent-offspring links. There are only inferences drawn from fossils. To the cladists, the science of evolution is in large part a matter of faith—faith different, but not all that different, from that of the creationists.

"I really put my foot in it," Patterson told me that day I first met him nearly two years ago. We were in a restaurant on Columbus Avenue near the Museum of Natural History, and he was recalling the talk he had given eighteen months earlier to the systematics discussion group. "I compared evolution and creation and made a case that the two were equivalent. I was all fired up, and I said what I thought. I went through merry hell for about a year. Almost everybody except the people at the museum objected. Lots of academics wrote. Deluges of mail. 'Here we are trying to combat a political argument,' they said, 'and you give them ammunition!'"

He ordered something from the menu and said: "One has to live with one's colleagues. They hold the theory very dear. I found out that what you say will be taken in 'political' rather than rational terms."

Patterson told me that he regarded the theory of evolution as "often unnecessary" in biology. "In fact," he said, "they could do perfectly well without it." Nevertheless, he said, it was presented in textbooks as though it were "the unified field theory of biology," holding the whole subject together—and binding the profession to it. "Once something has that status," he said, "it becomes like religion."

The founding father of cladistics was an entomologist named Willi Hennig. Hennig was born in what is now East Germany and spent the bulk of his career there, studying and classifying flies. At some point in the mid-1960s (there is very little biographical information available about him) he turned up in West Germany; he died there, at the age of 63, in 1976. His principal work is *Phylogenetic Systematics*, an updated version of which was translated into English and published in the United States in 1966 by the University of Illinois Press. It is a difficult book, and an enormously influential one. By the 1970s, as the prominent evolutionary biologist Ernst Mayr wrote in *The Growth of Biological Thought*, a virtual Hennig cult had developed. A Willi Hennig Society was formed in 1980, and its fourth annual meeting, held last summer in London, was attended by some 250 scientists from around the world. Last month, the society published the first issue of its new quarterly journal, *Cladistics*. According to David Hull, the philosopher of science (he was at the meeting too), "among evolutionary biologists, cladistics is what everyone is arguing about."

At the heart of cladistics are the concepts of "plesiomorphy" and "paraphyly." A characteristic, or trait, is said to be plesiomorphic if it is found in a group of organisms of more general scope than the specific group under consideration. Thus, while all primates have hair, hair is also a characteristic of a more general class of creatures—mammals. What Hennig called the fallacy of plesiomorphy is the belief that a characteristic (like hair) identifies and helps to define a particular species or order of animal life when in fact it can be found among a broader group.

Hennig also objected to the still common practice in biology of identifying a grouping of animal life only by the absence of certain characteristics. (His reasoning was Aristotelian; in *On the Parts of Animals*, Aristotle wrote that "there can be no specific forms of a negation, of Featherless, for instance or of Footless, as there are of Feathered or Footed.") It was the lack of precision that bothered Hennig: a feathered animal is one thing (a bird); a non-feathered animal is anything (except a bird). Groups