

has nothing to say about the process whereby the pattern came about. Cladists, far from drawing political inferences from their view of evolution, are not deriving any necessary conclusions from cladism about evolution itself. Patterson is a "transformed cladist," scoffs Halstead, who maintains that there is a correlation between cladists' scientific and political beliefs.

It is true that scientific debates are sometimes shaped by extraneous influences, politics included, as was evident in the recent discussion of sociobiology. Paleontologists both in the United States and England, however, say that this has not been the case with cladistics. Halstead disagrees, citing in evidence a well-known article which appeared in the spring 1977 issue of *Paleobiology*. In it, two leading evolutionary biologists contrast the Marxist penchant for abrupt change in both nature and society with

the notion of punctuated equilibria comes from prior acceptance of Marxism is ridiculous, and in any case, cladistics and punctuated equilibria have no necessary relation," remarks Eldredge.

Behind the present clash over cladism lies a dispute of long standing between Halstead and R. S. Miles, the strong-willed head of the public services department of the museum. At a symposium held in 1978 in Reading, on Halstead's home turf, Miles mentioned, with perhaps a touch of disparagement, that the public would always expect the museum to provide "halls of monsters" and the aim was to satisfy both that and more intellectual thirsts. Miles was explaining the new exhibition schemes at the museum which had caused a certain amount of consternation among those attached to the traditional displays. The "late lamented dinosaur gallery," responded Halstead, was a victim of those who saw

Darwin may have imbued his theory with the political gradualism of Victorian England, but today's theorists claim immunity from contemporary political passions.

the Western preference for gradualism. The authors of the elegantly assertive tract, Stephen Gould and Niles Eldredge, contend that "even the greatest scientific achievements are rooted in their cultural contexts." By way of one example, they suggest that Darwin unconsciously mimicked the laissez-faire liberalism of Victorian society in making gradualism the central mechanism of his theory of evolution. By way of another, they confess that "it may also not be irrelevant to our personal preferences that one of us learned his Marxism, literally at his daddy's knee." (The parent in question is understood to have been daddy Gould.)

The Gould-Eldredge paper certainly corroborates Halstead's implicit premise that scientific theories may be influenced by their authors' political beliefs. But with respect to his specific assertion that cladism is linked to Marxism, the paper offers less support, in as far as Gould is not a cladist and Eldredge is not a Marxist. Their theme is that evolution proceeds not by a continuum of small changes but by "punctuated equilibria"—long periods of stasis interrupted by bursts of rapid speciation. "The idea that

the role of the museum as one of social engineering rather than as a national repository.

Museum officials on the American side of the Atlantic are watching the shindig at the British Natural History Museum with a touch of envy. The eruption of these monumental passions, after all, means that at least people care. Cladistic displays have long been a feature of the American Museum of Natural History in New York. "We have done this for years and nobody gives a damn," says a paleontologist there. At the British museum, on the other hand, when some paleontologically worthless bones of elephants and tigers were removed from exhibit on, an outcry ensued from Londoners who had fond memories of them from childhood. The elephants and tigers remained.

As for the dinosaurs, contrary to the impression that might be given by the present clamor, they still grace the London museum's halls, as large as extinct life can be. Yes, grumbles Halstead, but they are not there in their own right any more, merely to demonstrate the principles of cladistics.

—NICHOLAS WADE

Joint Research Guidelines for Industry

As part of the Carter Administration's drive to encourage industrial innovation, the Justice Department Antitrust Division has produced a 114-page booklet to clarify what kinds of joint research ventures by industry are acceptable in light of antitrust laws.

In addition to general guidelines, the document presents and analyzes eight hypothetical cases of joint research, and discusses a number of ventures on which the Justice Department has bestowed its blessing over the past 2 years.

Basically, the department says a joint venture is in accord with the laws if it stimulates rather than stifles competition. Circumstances in which joint projects are favored include a venture so costly or risky that it would not be undertaken at all by a single company; collaboration that would serve to strengthen a weak company and thus increase the number of competitors in a field; partnerships in projects aimed at developing a new product for which the parties would have different end uses. Joint ventures are frowned on if the result would impede progress or competition by committing several major rival firms to the same approach to a problem. For example, in the late 1960's, the Justice Department brought suit against four auto companies that proposed a research venture on emission control devices, mainly because the agreement would not have allowed any company to use the resulting technology without the consent of the others. Such a venture could actually impede the development of a new technology. By contrast, early this year the Justice Department approved a "cooperative automotive research program" within the industry as a positive basic research program that no company could have conducted individually and that would enhance the science base of the whole industry.

Businessmen have complained that antitrust laws make it impossible to engage in the kinds of joint research endeavors that have made Japan such a formidable competitor in high-technology products. Joel Davidow of the antitrust department says, how-

ever, that "a pure research joint venture without ancillary restraints [that is, agreements relating to patents, licensing, information exchange, marketing, or production] has never been challenged by the Antitrust Division."

Furthermore, says Davidow, "antitrust policies are really a small part of our differences with the Japanese." Japan and other countries, he says, accept the "chosen instrument" concept where certain industries or sectors are treated to special tax, trade, and other advantages to spur growth. That, says Davidow, is not the way of doing business in America, where the government tries to pick "neutral" tools to stimulate industry.

The Justice Department acknowledges that the guidelines are "defensive in nature" and designed to forestall moves to curb antitrust power in the interests of stimulating innovation. Thus, they may be regarded as particularly timely in view of the strongly antiregulatory stance of the incoming Reagan Administration.

Anti-Nuclear War Consciousness Raising

An international conference on the medical consequences of nuclear war will be held in the Washington area next March, featuring biologists and physicians from the Soviet Union, Japan, England, and France as well as the United States.

The conference is organized by several physicians allied to Physicians for Social Responsibility, a Harvard-born group whose aim is to acquaint the public with the medical realities of a nuclear strike.

The March meeting will reiterate the message that no effective medical response is possible to a nuclear disaster. Long- and short-term biological and ecological effects will be explored as well as the effect of the arms race on human needs around the world.

Another group seeking to remedy what it perceives as Americans' insensitivity about nuclear war is called Ground Zero. Endorsed by a variety of educational, religious, and labor organizations, the group has set up a Washington office and is trying to raise money from private sources. Roger Molander, a SALT negotiation

expert and National Security Council staffer who may become director of Ground Zero, says the primary focus will be organizing an "earth day-type" week on the realities of nuclear war, to be held in April 1982.

Long-Awaited Changes Made in Patent Law

In accordance with the federal government's innovation thrust, Congress before adjourning passed a wide-ranging amendment to patent and copyright laws which would allow federal contractors greater control over the results of research. The bill, H.R. 6933, also for the first time extends copyright law to cover computer programs.

The law's main purpose is to permit universities, small companies, and nonprofit organizations to retain ownership of patents gained as a result from federal grants and contracts. Large corporations were excluded from the provisions, although it is expected Congress will in the future consider more liberal patent policies for them as well.

Until now, every government agency supporting outside research has had its own patent policy, with decisions often made on a case by case basis. The Department of Health and Human Services has been the most generous in granting patent rights with the result that, of all the patents resulting from government-sponsored research, the great majority that have been developed into commercial products have been pharmaceuticals.

When the government retains title to a new invention, it often stays on the shelf. The government will allow anyone a nonexclusive license to it, but as a rule companies are not interested in spending the additional money required to produce a marketable product if they do not have exclusive rights to it.

In addition to stimulating the transfer of new findings into the marketplace, the legislation is expected to ease relationships between universities and small companies that are often reluctant to exploit the results of university research when ownership of the title is unclear.

The copyright section of the new

law resolves a dispute that was highlighted in a 1978 Supreme Court decision, *Parker v. Flook*. At that time, the court ruled that computer programs and mathematical formulas were not subject to patents, although they tacitly acknowledged things might change by saying in their opinion that they felt obliged to "proceed cautiously" when moving "into areas wholly unforeseen by Congress." Congress has now resolved the issue by stating, in the Computer Software Copyright Act of 1980, that computer programs are included among "writings" to which exclusive rights can be granted. Computer industry representatives contend that this protection will stimulate investment in the development of programs, speed new software technology, and generally result in a brisker and more competitive software situation.

Second Gene Splicer to Go Public

Cetus, the Berkeley-based genetic engineering company, is apparently about to offer shares to the public, following the lead of its rival Genentech, which went public in September.

Genentech shares zoomed from \$35 to \$89 within a few minutes of trading. Anyone who bought at the price, however, is now nursing a disastrous loss: the shares are currently worth \$46. The Wall Street establishment was so concerned at the high-technology hype that seemed to be in the air that it took steps to see that no such price explosion accompanied the recent stock offering by Apple, the home computer maker.

According to an article in the *Wall Street Journal*, Cetus is seeking to raise public capital only after a \$50 million private stock offering made earlier this year apparently flopped. Three large corporations—SoCal, National Distillers, and Sohio—own a major part of Cetus. Their understanding of the gene-splicing business does not seem to be uniformly sophisticated, at least to judge by the comment a spokesman for one of the companies gave the journal: "We have little to say about what they do. We're just financing a bunch of mad scientists."

Constance Holden