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Punctuated Equilibrium: Empirical Response

The response to Jeffrey Levinton's letter (28 Mar., p. 1490) is really quite simple and empirical. He says that punctuated equilibrium is a slogan. Slogans are tools of rhetoric; they generate polemic and propaganda, not real work. The test of a good scientific theory is its utility in fostering fruitful empirical research.

I have the, perhaps naïve, faith that my colleagues in paleontology know the difference between science and propaganda. They have tested the theory of punctuated equilibrium, obtaining voluminous and rigorous results both pro and con. The relative frequency of punctuated equilibrium differs across taxa and environments, a basic result with broad and unexplored consequences for evolutionary theory.

Punctuated equilibrium has also been fruitful in focusing attention to two vital domains in our quest for a more comprehensive evolutionary theory: the meaning of stasis and the importance of selection upon units larger than conventional Darwinian organisms (1). But my pleasure in the utility of punctuated equilibrium centers firmly upon its role in fostering (for its test) a decade of direct and careful work on rates and patterns of evolution in fossil lineages (2).

Levinton, who began his career as a paleontologist, might care to have a look back. We are a magnanimous lot, and gladly greet our prodigal sons.

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Defining Risk

In his letter of 21 February (p. 783), Charles Perrow seeks to distinguish between active and passive risks, active risk being more voluntary and controllable by the individual and passive risk less voluntary and perhaps uncontrollable. This distinction is important because it is often made in justifying why certain risks are more and other risks less acceptable. But the distinction is misleading. One might imagine a static social system whose values, including its rules

of accountability, were petrified. The people who conferred meaning on objects must have lived long ago, no one having come along since with any changes to make. Classifications are clearly labeled and immobile. Then, and only then, might one allocate dangers according to those that are active and voluntary and, therefore, acceptable, or passive and involuntary and, therefore, properly subject to governmental regulation or prohibition. Once social change enters the picture, however, the active-passive distinctions become movable boundaries, constantly redrawn by social interaction.

We now see that people on the left consider the dangers stemming from technology (nuclear power or chemical carcinogens) as passive, while they perceive the dangers stemming from casual contact with those suffering from acquired immune deficiency syndrome (AIDS) as active. At the same time, people on the right view the dangers of technology as actively chosen, a price worth paying for the benefits of progress, while they view the carriers of AIDS as bringing plague upon people who are made their passive victims. Which of these dangers is voluntary? To say a danger is voluntary is tantamount to saying it is acceptable; involuntary dangers, imposed on passive people, by contrast, are unacceptable. Classification and decision are one and the same. If only the anger against institutions were comprehensive enough, suicides would be owed redress by the implacable institutions that drove them to their undeserved and involuntary end. Just as we-the-people are the ones who confer meaning on these distinctions, so we are also the ones who change these meanings.

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Overhead Costs on Research Grants

As a scientist who depends on research grants, I welcome the news that the Office of Management and Budget (OMB) plans to cut overhead (News & Comment, 7 Mar., p. 1059) because this long overdue action will make more money available for research. I have always found it difficult to accept the claim that overhead reimburses academic institutions for costs associated with research. Universities require faculty members to carry out research and secure grants. In fact, promotions often depend not only on publication and teaching but also on the number of grants and their dollar value. To

put it simply, faculty members obtain grants because they are required, or at least strongly encouraged, to do so by universities that also claim this influx of funds generates costs they seek to recover through overhead. In other words, universities charge the granting agencies and their own faculty for bringing in money. An analogy would be an industry that requires its workers to provide their own ideas, products, tools, raw materials, capital, and all other resources and then imposes a tax on these items.

The fact that the overhead varies from 30 percent to 100 percent is an indication that some universities (i) are more inefficient than others or (ii) have employed more effective negotiators, or both. Further, a large proportion of the overhead collected by universities is wasted by inefficient bureaucracies that hinder rather than assist the very faculty that generate these funds. Therefore I think a reduction of the overhead rate will benefit research by reducing university bureaucracies. Administrators whose inflated salaries depend on these bureaucracies and the overhead will, of course, fight the cuts and try to find other ways to collect as much or more money by other means. Possibilities that come to mind are new or increased charges for library use, interlibrary loan assistance, typing of manuscripts, custodial services, bookkeeping, electricity, water, and even "rental" of bench space. To prevent this from happening OMB should not only reduce overhead to 20 percent or less, but also prohibit charges that would allow university administrators to collect overhead under other guises.

OMB can increase savings and put even more money into direct costs by requiring that prices of university services and storehouse items that may be charged to grants be equal to or lower than those charged by private contractors. As matters stand now, prices for services and supplies provided in-house by universities are higher than on the outside. Last but not least, OMB and the granting agencies should require that the final approval of in-house costs be the sole prerogative of the principal investigator. Such a move would reduce costs and encourage university administrations to be more responsive to faculty needs.

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Erratum: In the listing of talks for the Gordon Research Conference "Chemistry and biology of pyrroles" (7 Mar., p. 1194), "Heme degradation by coupled oxidation" by Harvey A. Itano should have been included for 29 July.

Erratum: In the Research News article "Why dynamiting vampire bats is wrong" by Roger Lewin (4 Apr., p. 24), Gordon Orians' name was spelled incorrectly.