Envisioning the future structure of the university, a university president writes, "There must always be a mix of chaos and order to promote creative achievement and learning among faculty and students." Monogamy in humans is discussed. Curators of museum research collections ask that their work be respected. Lectins are elucidated. More debate about salt and its relation to hypertension is offered. And the "let forest fires burn" policy is decried.

Restructuring the University

Michael S. Gazzaniga's proposal (Editorial, 9 Oct., p. 237) to encourage universities to reconfigure themselves along whatever lines faculty members see fit bears serious attention. Missing from his analysis, however, is any mention of students, degrees, majors, and accreditation processes that ensure minimal orderliness. The traditional organization of universities into schools and departments has not entirely thwarted creativity within and among disciplines, and it has provided advantages in terms of reasonable sizes of units for governance and common interest. There must always be a mix of chaos and order to promote creative achievement and learning among faculty and students. Whether the faculty free-for-all suggested by Gazzaniga would bear fruit or merely create confusion and bewilder students remains to be seen, but I suggest a dry-run pilot test before any university cashes in its current structure wholesale. With some ground rules governing feasible size of groupings, facilities, finance, and academic expectations for curriculum and research productivity, it could be a fascinating experiment. Certainly most of us have shaken our heads from time to time about some existing departments but, just as armies require platoons, some organizational unit of manageable size seems necessary, if sometimes frustrating. Experience with centers and institutes has shown that these interdisciplinary entities are no more fallible than departments. Human interactions in groups of highly creative people are bound to bring both opportunities and challenges regardless of structural groupings, although any reconfiguration that improves the total organization is worth considering. Thankfully, discovery and learning usually manage to emerge regardless of framework.

Will universities be able to reconfigure themselves in the future so as to maximize learning and discovery?

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A somewhat more structured version of Gazzaniga's proposal would ask faculty, students, and administrators to work together to design an organization that perhaps includes seven or so major units, based on major intellectual threads that the university community already represents and wants to pursue in a sustaining way. My guess is that within such groupings something like departments would emerge in practice before long, just as big departments at large state universities have individual programs with major authority within them. What Gazzaniga cites at Rockefeller University works well because the faculty do not need to align their research groups with degree programs that serve students. But at most universities, more structure with greater continuity is needed for the sake of students and degree programs, yet with flexibility enough to promote creative synergy within and among units. While I do not subscribe to Gazzaniga's particular proposal, I applaud it as a stimulus as we work to create university environments that minimize administrative burden and maximize learning and discovery.

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Response

Cooper's insightful remarks flesh out some of the pesky details and issues that would accompany consideration of my proposal. I am aware of these issues and agree that the devil is in the details. However, I strongly feel that, if we are faced with a challenge to change, solutions would follow by academics of goodwill and vitality. I applaud Cooper's response, and I hope all of us are ready to work on the needed restructuring of the university.

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Human Monogamy

Kudos to *Science* for the fascinating Special Section on the evolution of sex (25 Sept., pp. 1979–2008). I found it curious, however, that only incidental reference was made to human sexual aspects of sociality. We tend to forget that humans—as hominids—have an evolutionary history that goes back more than 5 million years and that, during most of that time, the cultural—or learned—component of behavior was minimal. The implication of this is that much of what we take to be intentional, quasi-rational, learned behavior—the product of socialization—is actually rooted deep in our evolutionary heritage (*1*).

Monogamy is rare not only in nature, but among humans. Of 1154 societies in the Human Relations Area Files (a large database originally compiled at Yale University), more than 1000 (93%) recognize some degree of sanctioned polygyny (that is, at least occasionally, males can mate with more than one female), and polygyny is the preferred choice in 70% of them (*2*).

A large body of research, some of it decades old, indicates that sex roles, and our psychology about sex roles, probably have their origins at least as far back as the ape-human split, 6 to 8 million years ago, and possibly as far back as the divergence between the hominoids (the superfamily containing both apes and humans) and the Old World monkeys, about 25 million years ago, when female kin-based coresidence at sexual maturity apparently lapsed (*3*). This, in turn, has had numerous and far-reaching consequences for subsequent aspects of hominid social organization (*4*). There is a broad consensus among evolutionary psychologists that socially constructed sex roles actually have relatively little to do with intentional, quasi-rational choice, moral values, or other epiphenomena. They are instead a product of natural and sexual selection over more than 5 million years of human evolution.

Seen from this perspective, humans are only animals—albeit highly intelligent, technologically sophisticated, socially complex ones—and culture is a thin veneer stretched over the evolved epigenetic and developmental mechanisms that actually generate what some think of—erroneously—as uniquely human.

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Net-Wielding Anachronisms?

The editorial "A revolution in evolution" by Jim Bull and Holly Wichman (25 Sept., p. 1959) disparages empirical comparative biologists as 19th-century anachronisms. As insect-net–wielding curators of a natural history collection, we resent the implication that museum-based research is a dust-laden activity irrelevant to the study of evolution today. Although a fascinating exercise, the experimental evolution of viruses in test tubes tells us perhaps even less about the origins of biological diversity than did Darwin's experiments with fancy pigeon breeds. Instead, the empirical foundation of modern evolutionary biology stems almost entirely from the continuing success of comparative morphological research over the past two centuries. Theories of evolution and the process of phylogeny are explanations for the hierarchical pattern of relationships among taxa inferred from independent empirical data by biological systematists (*1*).

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The editorial by Bull and Wichman highlights the discrepancy between the common view of evolutionary biology as a discipline with little value to society and the current reality of evolutionary biology as an important economic, medical, legal, and scientific force. As directors of museum research collections, we are all too aware of the difficulties posed by similar outdated perceptions about the value of the resources our collections provide. Funding is increasingly difficult to obtain, even as the number of such collections in the United States dwindles. At the same time, we and others in similar positions have seen a need to enhance the relevance of our collections by modernizing—creating archives of frozen tissues, listing our specimens online, making data available in a format usable in relational and other computer analyses, and enabling the emerging field of bioinformatics. The choice of words by Bull and Wichman, "the image of naturalists collecting butterflies and museum curators dusting fossils" typifies the misconception of many people, including, unfortunately, some evolutionary biologists. The reality is that research collections have played the major role in creating this "revolution in evolution" and will continue to contribute to this and other importance advances in the future. The existence of these collections will be increasingly useful in the future, especially given the rapid loss of biological diversity being experienced worldwide. The museum traditions that dictate specimen archival data for future generations and broad-based information sharing have caused collections to evolve in parallel with technical and conceptual developments that are fueling revolutions throughout the biological sciences. For example, upon the discovery of a new hantavirus in 1993, our frozen tissue collections verified its existence in rodent populations at least 20 years earlier and documented that the range of hantavirus in the New World was widespread both geographically and taxonomically. We are cur-