Letters

U.S.–China Collaboration

While we appreciate the interest shown in our collaborative project in China (Research News, 4 May, p. 553), I would like to clear up three possible misunderstandings.

First, the arrangements we have made with Taiwan and with China represent two bilateral agreements with Cornell that will lead to joint compilation of data. This is not a research project "between the two countries," but two bilateral projects.

Second, mortality study undertaken in the 1970s at the Chinese Academy of Sciences was conducted by Li Junyao and his colleagues. Since then, Li has been one of the four principal investigators on our collaborative project.

Third, there was quite naturally early skepticism on both sides of the Pacific about the logistics of effecting sample shipment, analytical reliability, data reliability, and so forth for our project.

But whatever difficulties have been experienced or even perceived did not come for the most part from the Chinese side. We have found our Chinese colleagues' interest and willingness to participate in a forthright and scholarly manner to be exceptional. We could not have hoped for a more forthright and generous collaboration.

T. Colin Campbell
Division of Nutritional Sciences,
Cornell University,
Ithaca, NY 14853–4401

Moffat states that in the traditional Chinese diet "animal fat provides only 15% of the calories," while noting that in a "typical U.S. diet, animal fat provides 40 to 45% of the calories."

Data collected for the U.S. Department of Agriculture (USDA) Nationwide Food Consumption Survey for 1985 (*1*) indicates that fat consumption by adults in the United States was 36 to 37% of total calories consumed. Having been reported as over 40% in both 1965 and 1977, this figure represents a decrease in fat calories estimated by this survey. The USDA reports that about 50% of our fat intake is from animal products, slightly more than 30% coming from meats (red meat, poultry, fish, and mixtures).

Careful interpretation of epidemiological information is needed when it is suggested that a single environmental component is the cause of an effect, in this case, that meat consumption is the cause of the differences in disease susceptibility. In China, the isolation of populations, both nutritionally and genetically, makes interpretation of differences among these subgroups difficult and also makes direct comparison with the U.S. population questionable.

These epidemiological studies are the beginning of research aimed at improving our understanding of the relationships between diet and disease, not the end. Much of the public view that individual foods are the cause of chronic disease comes from misuse of epidemiological observations. A great deal of basic and applied research is needed to establish the existence of a sound relationship between a diet component and susceptibility to a disease.

Jon A. Story
Connie M. Weaver
Department of Foods and Nutrition,
Purdue University,
West Lafayette, IN 47907

REFERENCES

1. National Research Council, *Designing Foods: Animal Product Options in the Marketplace* (National Academy Press, Washington, DC, 1988).

Anne Simon Moffet describes the opportunity China provides for epidemiological study. A photo on page 553 shows children lined up in front of a balance beam scale, having, according to the caption, their "heights" measured. The clever surveyors must know how high the correlation is between weight and height and decided to measure just one of these values. But the article closes with the statement that "This study . . . offers the Chinese an opportunity to learn from our mistakes." Is this one of them?

Martin J. Steinbach
Department of Psychology,
York University,
North York, Ontario, Canada M3J 1P3

Response: Unfortunately, yes. During editing, "heights" was substituted for "weights."

—Eds.

Support for Systematics

Ward Watt's defense (Letters, 6 Apr., p. 18) of Paul Ehrlich's mid-century work in systematics complements today's research in phylogenetic systematics. Unfortunately, as exemplified in other recent *Science* articles on biodiversity (*1*), there is still little understanding of how to use such reconstructions of shared evolutionary history and trait inheritance as a basis for comparative biology. This does not augur well for biology's "golden" interdisciplinary age (News & Comment, 1 Dec. 1989, p. 1115). If systematics is to meet E. O. Wilson's prediction (*2*) and guide this pluralization, there must be an understanding that systematics matters to biology because it embodies the process theories of organisms' existence.

The most remarkable collective property of organisms is not their diversity, but their many shared traits through which that diversity is expressed. Through evolutionary modification, certain traits of species have become the inherited, homologous traits of their descendants in a historical hierarchy of clades of descendent taxa, each nested within a more inclusive, temporally prior, clade, with every taxon sharing certain primitive and derived traits. Systematics tries to identify these traits and reconstruct the hierarchy of relationships. So systematics is not only taxonomy—the description of organisms in an ordered system of words—or only the collection and identification of organisms. It is, most generally, the study of how to best compare the results of evolution (*3*).

Yet biologists today are being asked to support systematics for only the service-industry tasks of identification and enumeration (*4*). This is a needlessly restrictive and nonevolutionary approach, for without a phylogenetic context, species might as well have been created yesterday one by one (*5*) and biodiversity studies, for all their breadth, are arcane exercises in splitting, lumping, and pigeon-holing. With a phylogenetic context, biological research becomes more efficient: kinship is distinguished from overall similarity; nested clades eliminate redundant explanations; a biological "law" may be restricted to a speciose clade, therefore, check outside the clade before relying on the law. And research can *save money*. For example, if a model species proves impractical (for, say, genomic sequencing, drug production, or even species preservation), the homologous trait(s) of interest may be present in the sister species, which might be a continent away; conversely, the expense of species assays can be reduced by avoiding clades that have never yielded the trait(s) of interest. Systematics can provide the evolutionary basis for these and other comparative decisions.

Richard T. O'Grady
Rich Mooi
Department of Invertebrate Zoology,
National Museum of Natural History,
Smithsonian Institution,
Washington, DC 20560

REFERENCES AND NOTES

1. E. O. Wilson, *Science* **230**, 1227 (1985); J. H. Oliver, *ibid.* **241**, 967 (1988); T. M. Powledge, *Science* **246**, supplement, 16 (1989); see also S. Nash, *The Scientist* (16 October 1989), p. 7.
2. E. O. Wilson, *BioScience* **39**, 242 (1989).
3. A. B. Smith and C. Patterson [*Evol. Biology* **23**, 127 (1988)] demonstrate how poor systematic method-