LETTERS

DNA Database

In July 1980, the National Institute of General Medical Sciences (NIGMS) of the National Institutes of Health sponsored a meeting of scientists to evaluate the need for a nucleic acid sequence data bank. As a result of that meeting steps were taken to set up such a resource in this country with the expectation that this bank would collaborate with similar banks in other countries and that data from the bank would be available internationally.

With the cooperation of the National Institute of Allergy and Infectious Diseases, the National Cancer Institute, the Division of Research Resources, the National Science Foundation, the Department of Energy, and the Department of Defense, the NIGMS has completed arrangements for the establishment of this resource, and effective 1 October 1982 the Genetic Sequence Data Bank (GenBank) will be available to the public. The bank will be a repository for all published nucleic acid sequences greater than 50 base pairs in length, cataloged and annotated for sites of biological interest. Distribution is primarily off-line by means of computer-readable magnetic tapes and a yearly hard copy edition, but limited on-line access is also available. Data bank management and distribution is under the direction of Howard Bilofsky at Bolt Beranek and Newman Inc. of Cambridge, Massachusetts. Data collection, verification, and annotation will be performed at Los Alamos National Laboratory under the direction of Walter Goad. For information write GenBank, c/o Computer Systems Division, Bolt Beranek and Newman, Inc., 10 Moulton Street, Cambridge, Massachusetts 02238.

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Roger Lewin, in his article "Long-awaited decision on DNA database" (Research News, 27 Aug., p. 817), discusses the award of a contract to Bolt Beranek and Newman with Los Alamos National Laboratory as subcontractor for the construction of a national DNA database. I should like to make an addition to the history of work at Los Alamos on biological sequences. It would seem from the article that Los Alamos started work on the subject in 1979.

Los Alamos' participation in the analysis of biological sequences was started at least a decade before. S. M. Ulam in the late 1960's often gave talks at Los Alamos on the mathematics of sequence comparison. In the early 1970's Temple F. Smith and I did extensive work at Los Alamos on the mathematics of sequences and its application to biology. Myron Stein did the computer programming. Michael Waterman joined our group at Los Alamos in 1974. Smith and Waterman have continued since to work on many aspects of biological sequences, much of the work being done at Los Alamos in groups T-7 and S-1. It was Smith who brought to the attention of many, including Los Alamos, the need for such a database.

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Elephant Grass

Eliot Marshall's quotes (News and Comment, 2 July, p. 32) from the Soviet paper suggesting that elephant grass has provided a breeding ground for toxin-producing *Fusarium* in Southeast Asia can be supplemented with background information about this highly desirable species, which presumably is *Pennisetum purpureum*. It is not a malignant weed, but rather an esteemed livestock feed, widely grown throughout the tropics and subtropics, where it is used for cutting daily as fresh feed, for grazing, sometimes for silage and is often included in rotation with food crops for soil improvement. Elephant grass yields more biomass per unit area of land than any other herbaceous species used for livestock feed production. Plants develop long roots (but not rhizomes), which is an advantage because they penetrate deeply into the soil, giving them access to more nutrients and water. The floral structure is simple and not polyspermous.

It is unlikely that a sufficient amount of seeds could be assembled to permit aerial seeding, since there is no commercial seed production of this species. The grass is established vegetatively by transplanting stem sections, similar to the method used for sugarcane.

With regard to the grass providing a "good breeding ground" for new fungi (in this case *Fusarium*), there is no report (to my knowledge) that any *Fusarium* species has developed a host-parasite relationship with elephant grass.

As for its practical value, without elephant grass there would be less meat, milk, butter, cheese, wool, and leather for human use. In addition, many wild animals would go hungry, including elephants that inhabit areas where elephant grass grows.

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The Inevitability of Cancer

I am concerned about the title of Thomas H. Maugh II's article " 'Cancer is not inevitable' " (Research News, 2 July, p. 36). All evidence now available indicates that cancer *is* inevitable in most people and that cancer *is* a part of the human estate. For example, as many as 80 to 90 percent of men who live long enough develop cancer of the prostate (*1*). Further, the incidence of cancer at all organ sites apparently increases with age (*2*). The most reasonable conclusion to be drawn from this evidence is that most people will develop cancer if they live long enough.

The cancer problem, then—at least the part addressed by the National Research Council in their report (*3*)—is the precocious development of (epithelial) cancer, which can be accelerated by malnutrition and exposure to genetic insults such as electromagnetic radiation or alkylating agents. It would be in the public's interest if this distinction were drawn.

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References and Notes

1. F. K. Mostofi and J. E. Leestma, in *Pathology*, W. A. D. Anderson, Ed. (Mosby, St. Louis, ed. 6, 1971), vol. 1, chap. 22, p. 850.
2. J. Cairns, *Cancer: Science and Society* (Freeman, San Francisco, 1978), pp. 36–40.
3. *Diet, Nutrition, and Cancer* (National Academy Press, Washington, D.C., 1982).

Empiricism or Diversity?

Wassily Leontief (Letters, 9 July, p. 104) argues that more empiricism would be healthy for a dismal economic discipline that has grown obese staring at its theoretical navel. The proposed cure, however, may lead to an alternative disorder.

Academicians in any area are faced with the problem of developing systematizations of knowledge that are more powerful than common sense. Perhaps for historically accidental reasons economics went theoretical, while academic psychology took a strongly empirical