route. In neither case has a scientific system been achieved that is comparable in power to the parsimonious systems of physics and chemistry. For a couple of decades, academic psychology has been edging away from the empirical compulsiveness that marked the peak of behaviorism; with Leontief's help, the dialectical pendulum of economics is now set to swing in the opposite direction. In my opinion, such swings can be expected merely to yield newly worded variations of old ideas, to which elaborate empirical decorations are added when this is in fashion.

The complex subject matter of the social sciences strains the attention spans of social scientists, who sometimes cope by grasping at local disciplinary orthodoxies. As Leontief observes, the power structures of intellectual establishments reinforce this tendency. The solution is not to encourage swings toward empiricism or theory but somehow to encourage greater diversity of theories. This, rather than data, might be the more important set of contributions from the adjoining disciplines that Leontief lists. Indeed, it is a question of multiple balances rather than of either-or. "Too much" diversity will lead to the Babel of conversations that scientifically disciplined minds strive to avoid, but too little diversity has led to present states of near sterility in other areas as well as in economics.

We should explicitly acknowledge that important sources of theory are philosophical reflections carried out by intelligent people in many disciplines and professional areas; one's informal observations may sometimes be even more useful than those that are conditioned by the expectations of a formal theory in one's own field.

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Rabies Treatment

T. L. Lentz *et al.* (Reports, 8 Jan., p. 182) provide evidence to suggest that acetylcholine receptors may serve as receptors for rabies virus. In *Sushruta Samhita*, the ancient Indian classic on the science of life, there is a fascinating account of *Datura* as a prophylaxis for rabies (*1*). *Datura* is to be given by mouth immediately after a dog bite in a dosage sufficient to produce dilation of the pupils and symptoms of mild delirium, which pass in a day or two, when the next oral dose is given to produce similar symptoms. Several such doses are recommended. The treatment is to be started as early as possible because, once the clinical symptoms of rabies become manifest, the disease is fatal.

The active principles of *Datura stramonium*, like *Atropa belladona*, are atropine and related alkaloids that predominantly block the muscarine actions of acetylcholine. In view of Lentz's findings, *Datura* for rabies may represent the first documented example of prophylaxis by receptor blockage.

Because clinical rabies is fatal and antirabic vaccine is routinely administered to victims of bites from rabic dogs, it is not possible to conduct a controlled clinical trial to assess the efficacy of *Datura* prophylaxis. However, it would be interesting to compare the effectiveness of antirabic vaccine with acetylcholine inhibitors, such as atropine, in experimental animals.

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Reference

1. *Sushruta Samhita* (circa 300 B.C.), Kalpa Sthanam, chap. 7, stanzas 49–59.

Index Medicus: Essential Tool

In his letter (13 Aug., p. 586) responding to Philip H. Abelson's editorial (28 May, p. 937), Robert S. Willard advocates charging foreign users fees based on full cost recovery for National Library of Medicine products and databases. In the case of Canadian subscribers to *Index Medicus*, most of which are health science libraries, Sherrington (*1*) estimates that the extra cost involved would be $250,000 per year. As I pointed out in response (*2*), it is impossible in the present financial climate to stretch library budgets to maintain the collection standards of former, more affluent, times. In the case of my own library, and probably of most health science libraries, whether Canadian or in other countries, *Index Medicus* is regarded as an essential tool. If its price is drastically increased, librarians will be forced to cancel subscriptions to other abstracting and indexing tools in order to free the additional funding needed for *Index Medicus*. Therefore, full cost recovery of *Index Medicus* and its associated databases might well be the death knell for some private sector indexes, rather than their salvation.

Foreign users have, for many years, contributed to the production of *Index Medicus* and its databases through international quid pro quo agreements. The value of the goodwill generated through this cooperation cannot be overemphasized; nor can the convenience of having one international tool of excellent quality, rather than a plethora of potentially less comprehensive national indexes.

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References

1. A. Sherrington, *Can. Med. Assoc. J.* **126**, 459 (1982).
2. A. D. Nevill, *ibid.*, p. 1266.

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Engineering Programs in Arizona

Colin Norman's article "Electronics firms plug into the universities" (News and Comment, 6 Aug., p. 511) is a valuable description of the importance of university/industrial ties. These surely represent major elements of the solution to the ever-present need for modern academic and research facilities at our universities. In referring to an Arizona State University engineering program, however, Norman states that "last year the center was one of only two items in the state budget to receive an increase in funds. The other was the prison system." As a matter of fact, the state legislature authorized a major increase in the funding of the Microelectronics Laboratory of the University of Arizona, already one of the leading such facilities in the country. The University of Arizona was also allocated 30 new faculty positions, the largest segment of which went to the College of Engineering.

It is fair to say that the established, nationally ranked programs in engineering at the University of Arizona are still improving and that both we and Arizona State University are benefiting from forward-looking actions of both industry and government in the state.

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Erratum. In the report by N. Yamamoto *et al.*, "Transformation of human leukocytes by cocultivation with an adult T cell leukemia virus producer cell line" (20 Aug., p. 737), the column headings in Table 1, on page 738, under "Cells with markers (%)," should have read: Leu 1, Leu 2a, Leu 3a, Leu 4, and Ia (not immunoglobulin A).