SCIENCE 25 November 1966
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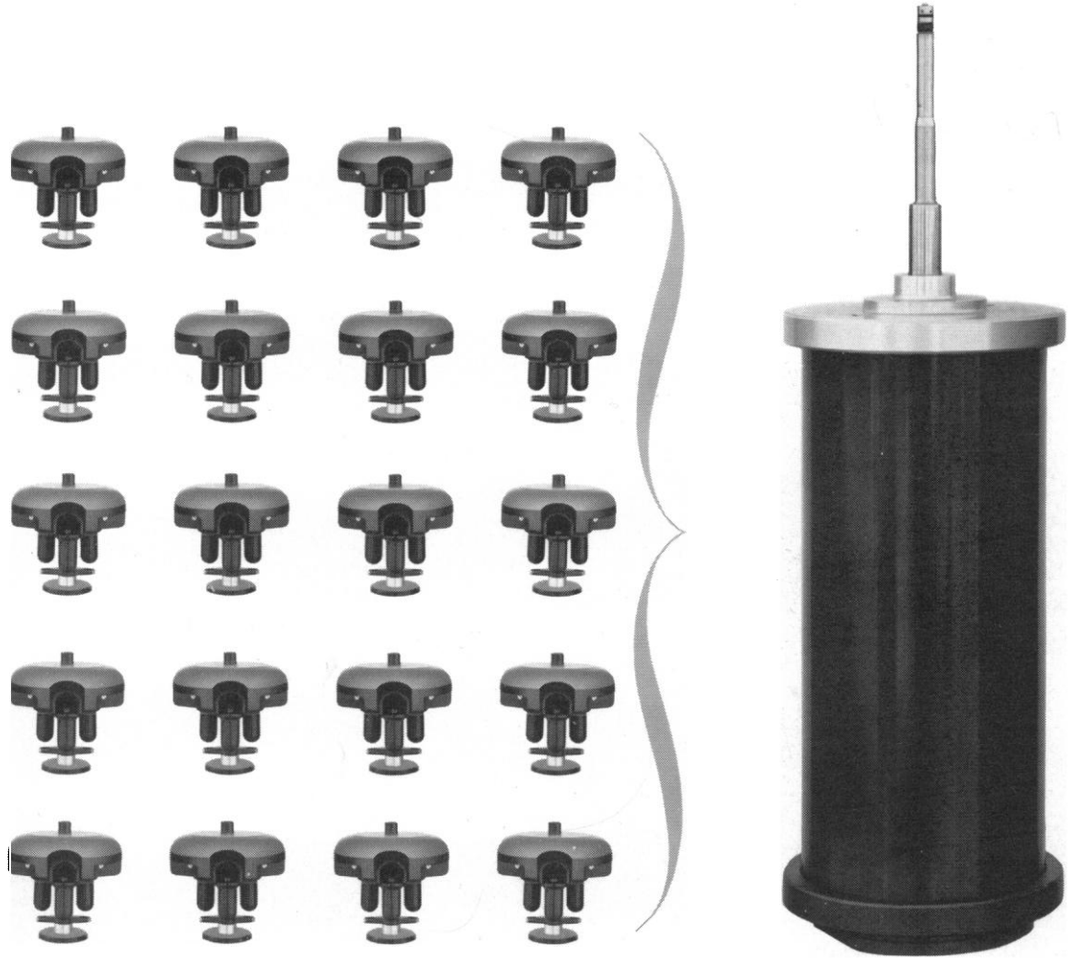
AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE



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(1) A. Giner-Sorolla & L. Medrek. J. Med. Chem. 9 (1) 97 (1966).
(2) C. Heidelberger, D. G. Parsons and D. C. Ramy, J. Med. Chem. 7, 1 (1964).

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The American Association for the Advancement of Science was founded in 1848 and incorporated in 1874. Its objects are to further the work of scientists, to facilitate cooperation among them, to improve the effectiveness of science in the promotion of human welfare, and to increase public understanding and appreciation of the importance and promise of the methods of science in human progress.

COVER

Aerial view looking east along the Taylor Valley, with the terminus of the Taylor Glacier in the foreground. To the right are the Kukri Hills, and beyond is the Ferrar Glacier. Visible in the background are the open waters of McMurdo Sound, the Ross Ice Shelf, and active volcano Mount Erebus on Ross Island. See page 995. [U.S. Navy photograph taken for the U.S. Geological Survey]

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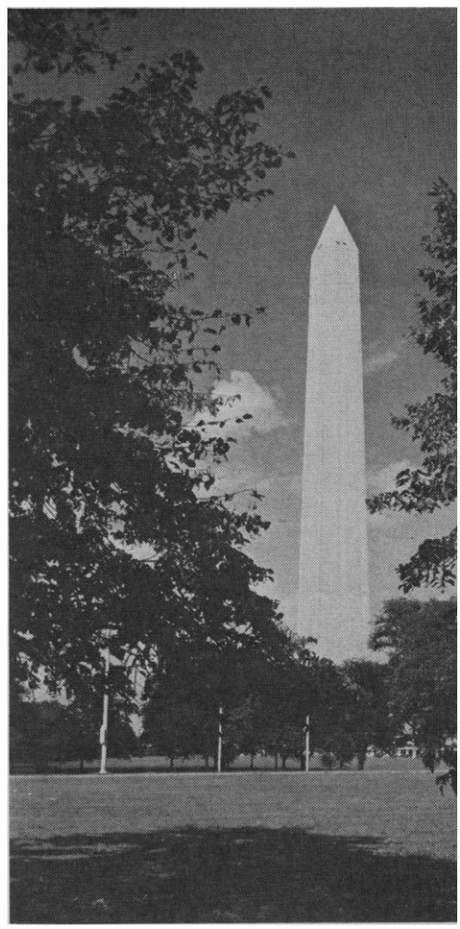

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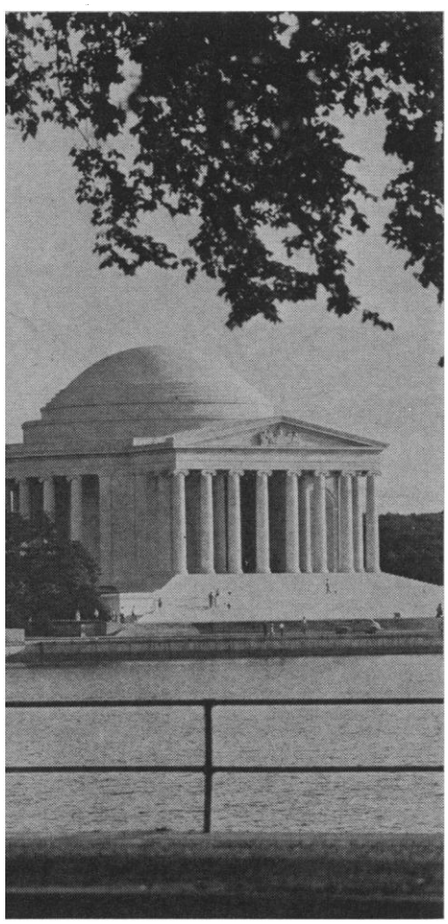

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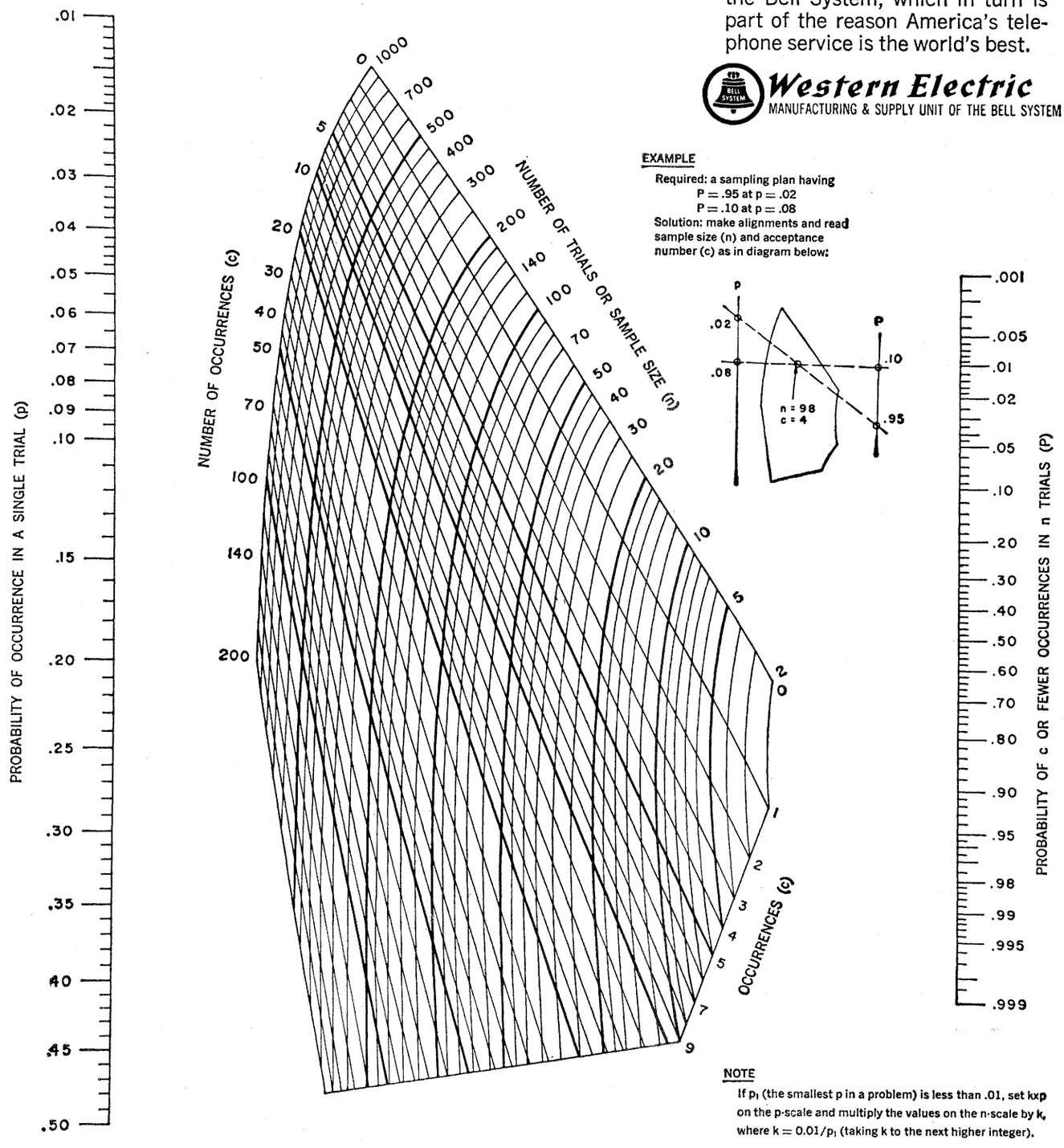

Ph.D.'s Need High Hurdles

It was refreshing to find the Ph.D. language requirements discussed in the rational manner adopted by Ross and Shilling (Letters, 30 Sept.). Having recently qualified in both French and German for the Ph.D. in business, where these language requirements were essentially useless and where an equal amount of time devoted to quantitative methods or economics would have had great value, I feel qualified to make one point.

It is increasingly apparent that a student who appears in class a minimum required number of times will someday have these added up to equal a bachelor's degree. One or two more years of the same practice equals a master's degree, and the same approach can be found in many doctorate programs. Therein lies one of the major functions of the language requirements; they do present a very serious hurdle that the student must overcome before he gets his Ph.D., and they cannot be met merely by classroom attendance. Perhaps the suggestion made by Ross and Shilling can be implemented, while those who are responsible for the quality of the Ph.D. programs can still make certain that some other exacting requirement for the degree will serve to screen the highly capable from the average student.

GEORGE R. WREN
Hospital Administration, Georgia State College, Atlanta 30303

Conspiracy and Espionage

The Rosenberg - Greenglass - Sobell case has been thoroughly, but one-sidedly, discussed by Langer (News and Comment, 23 Sept., p. 1501).

The facts are that there *was* espionage and that the evidence was good enough to convict the Rosenbergs. It was more than merely "some documentary evidence that a crime occurred." The trail goes from Whittaker Chambers through Elizabeth Bentley, through Judith Coplon and Alger Hiss, not to mention Pontecorvo, Fuchs, Joan Hinton, and the infamous duo, Burgess and MacLean. There was espionage and there is reason to believe that a Soviet apparat is still operating. The same issue of *Science* also reports on the recently expelled Soviet aid, Valentin Revin. He was expelled for attempted espionage. For additional information about recent Soviet espionage, *The Penkovskiy Papers* are a good start (*1*).

Probably Ralph De Toledano expressed it best (*2*):

> Before the bomb could be built, means had to be found for the mass separation of fissionable U-235 and U-238. To this end, the green light was given to three different methods: the gaseous diffusion process, the electromagnetic process, and the thermal diffusion process. Eventually the gaseous diffusion process proved to be most effective. And it was this process, which Klaus Fuchs helped develop, to which the Soviets became heir. Had the U.S.S.R. been compelled, by sound security at the Manhattan Engineer District, to duplicate this three-pronged assault, the story of the last decade would have been differently written. The bad quality of Soviet workmanship, to which any visitor to the U.S.S.R. can attest, would have led to serious failures. But with the knowledge that they were moving down an already blazed trail, Soviet scientists proceeded with confidence.

Morrison's and Linschitz's demurrers notwithstanding; there were secrets vital to the United States, there are new secrets equally vital, there was a conspiracy and espionage—and there still is.

RAPHAEL G. KAZMANN
611 College Hill Drive, Baton Rouge, Louisiana 70808

References

1. O. V. Penkovskii, *The Penkovskiy Papers* (Doubleday, New York, 1965).
2. R. DeToledano, *The Greatest Plot in History* (Duell, Sloan & Pearce, New York, 1963).

It seems most inappropriate to me that your journal has embarked upon the troubled waters of politics and morality. It is even less becoming that your pages have been invaded by legal opinions, authored by a person with no special competence in the field. And it will be unforgivable if you fail to publish a reply to the emotionally charged brief by Langer in defense of Morton Sobell. In this story she has appointed herself judge, jury, and chief defense counsel and has then emitted the opinion of an appellate court. The business of *Science* should be science. The essence of science is controversy and the freedom to receive and judge contradictory opinions. The fact that a subject is controversial does not open the field to uncontradictable monologues by writers trained only in diatribe.

THOMAS P. LEARY
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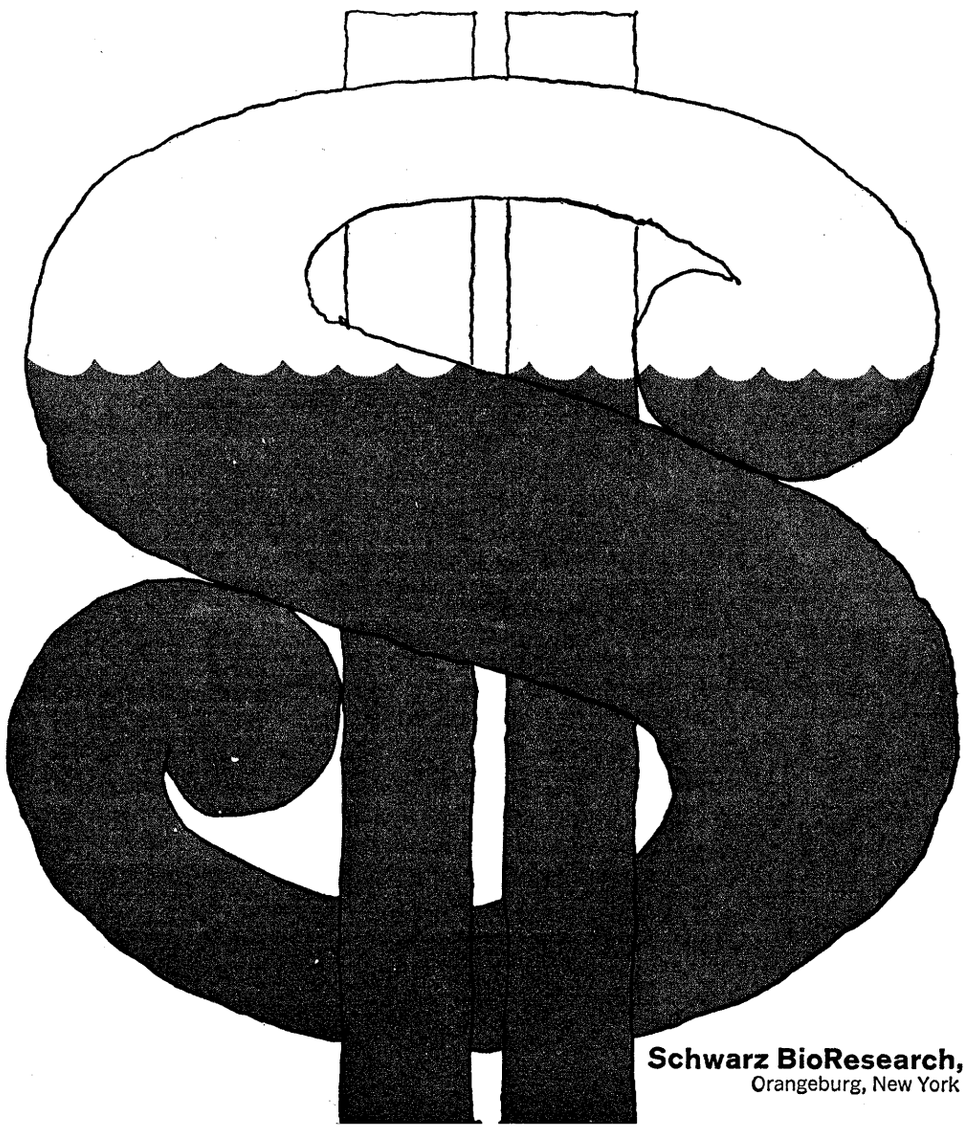

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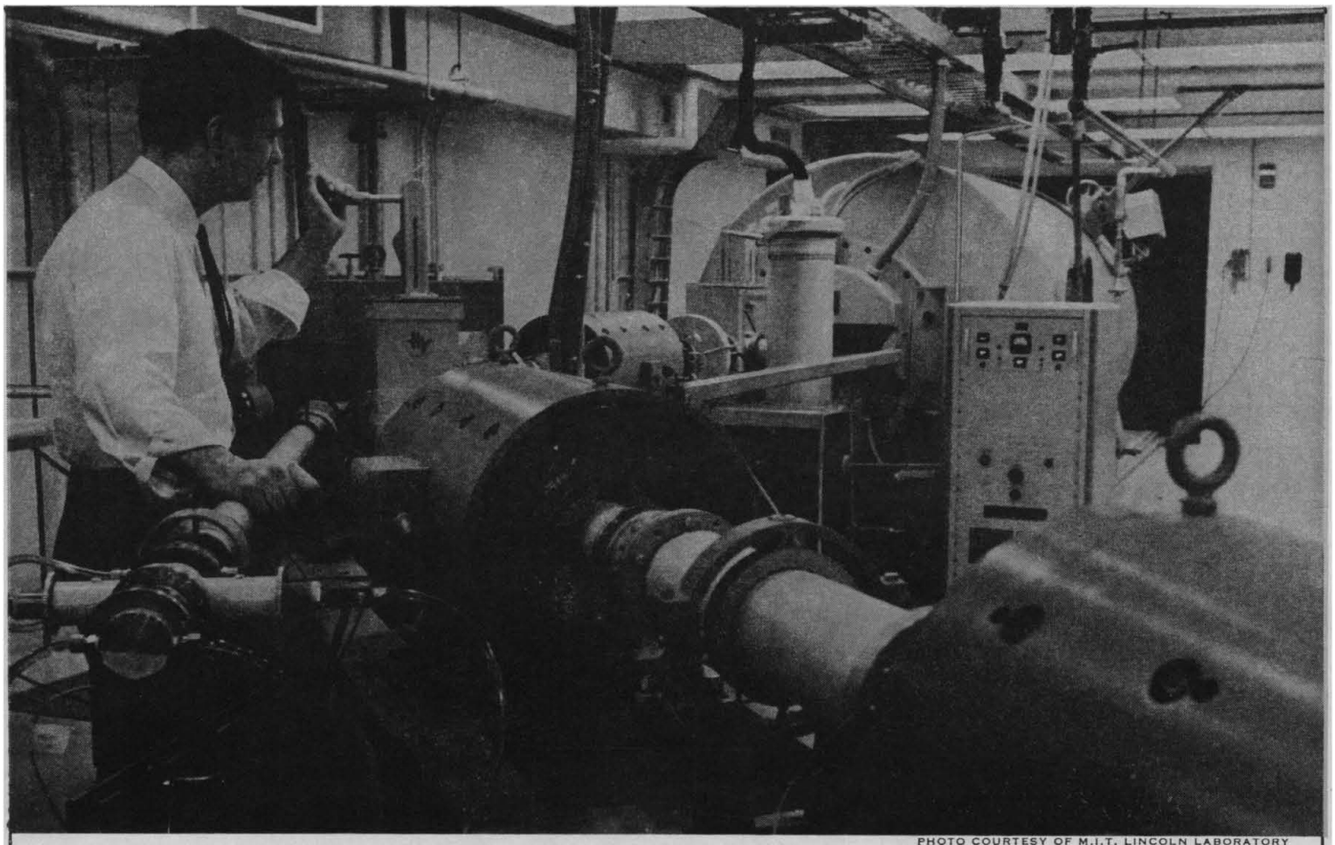

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HIGH VOLTAGE ENGINEERING

25 November 1966, Volume 154, Number 3752

SCIENCE

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Brain Drain

If the flow of talent from the poorer to the wealthier countries is to be reduced, the initiative must be taken by the losing rather than the receiving countries. A migrant moves partly because he is attracted to the new country but partly—sometimes chiefly—because conditions at home are unfavorable. To retain more of their talented young people, the losing countries may have to modernize their educational systems, offer higher salaries, modify promotion policies to place greater emphasis on merit, increase the number of senior posts in universities, or in other ways improve career opportunities. All of this requires money, but willingness to change is an even more important requirement.

We can help, however, by examining and perhaps modifying our own policies to be sure they are not working at cross purposes. In educating foreign students, we give some of them better preparation for work here than for work at home. Our research and educational assistance to other countries sometimes seems inadequately coordinated in terms of overall impact on the development of the countries we are trying to assist. Domestic policies which encourage the importation of talent may conflict with our foreign policies, which can be successful only if the countries we are trying to help can retain the people on whom their own economic and social advancement depends.

Our educational, economic, and technical missions can also help the countries to which they are assigned to recognize and make the necessary internal changes. And, if we wish, we can insist upon reasonable progress as a condition for continued financial aid. Obviously the conditions would have to be negotiated separately for each country, and surely there would be difficulties, but we can help a country that is willing to try to help itself.

We should not, however, try to stop migration. Scholars have always been a migratory lot—to Alexandria, Rome, Baghdad, Paris, and other centers, and now to western Europe and North America—and no one can contend that the world would now be better off if the migrants had been forced to stay at home. Reduction of migration must not stop the free movement of scholars, artists, artisans, and other venturesome souls within or across national boundaries.

A laissez-faire policy may not be best, however, and in any event it is likely to be impossible, for uneasiness about the situation here and jealousy and resentment abroad indicate that corrective actions are likely to be taken. Great Britain is studying her loss of medical talent. The Pan American Health Organization has studied the migration of professionals from Latin America. The Council on International and Cultural Affairs of the U.S. Government recently held a conference on the migration of talent and skills. Senator Mondale's amendment to the International Education Act of 1966 will require a study of migration from the developing countries to the U.S. These studies are desirable, for we need more complete, more detailed, and more analytical information than we now have about the numbers and sources of migrants, the number who return, their fields of specialization, why they come, and why they do or do not return. Some information is available, but not enough to give confidence that we know how to take proper account of both national needs and individual rights under the different circumstances of different countries. As a principal beneficiary of the migration of scholars and professionals, the U.S. should take the lead in arranging with other countries to secure the information that can make action most reasonable and helpful.—DAEL WOLFLE

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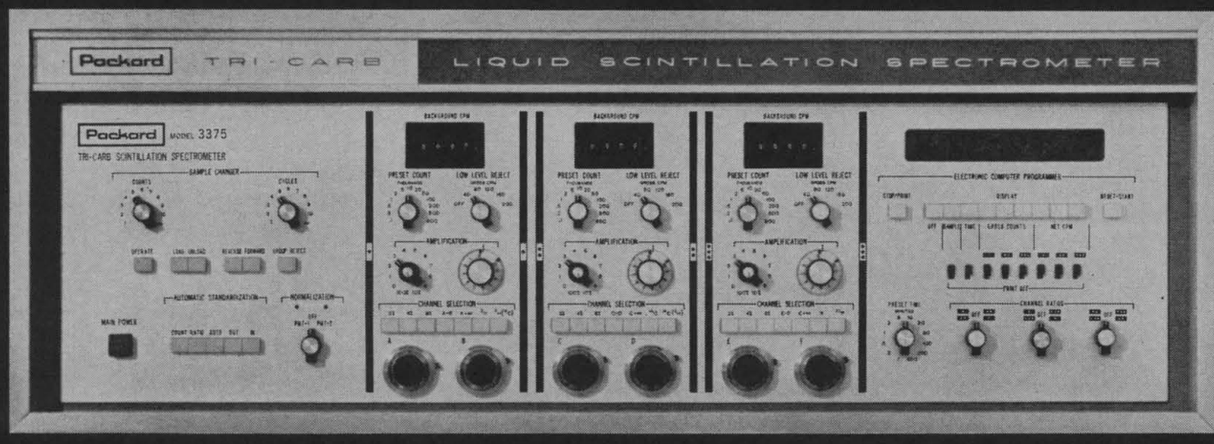

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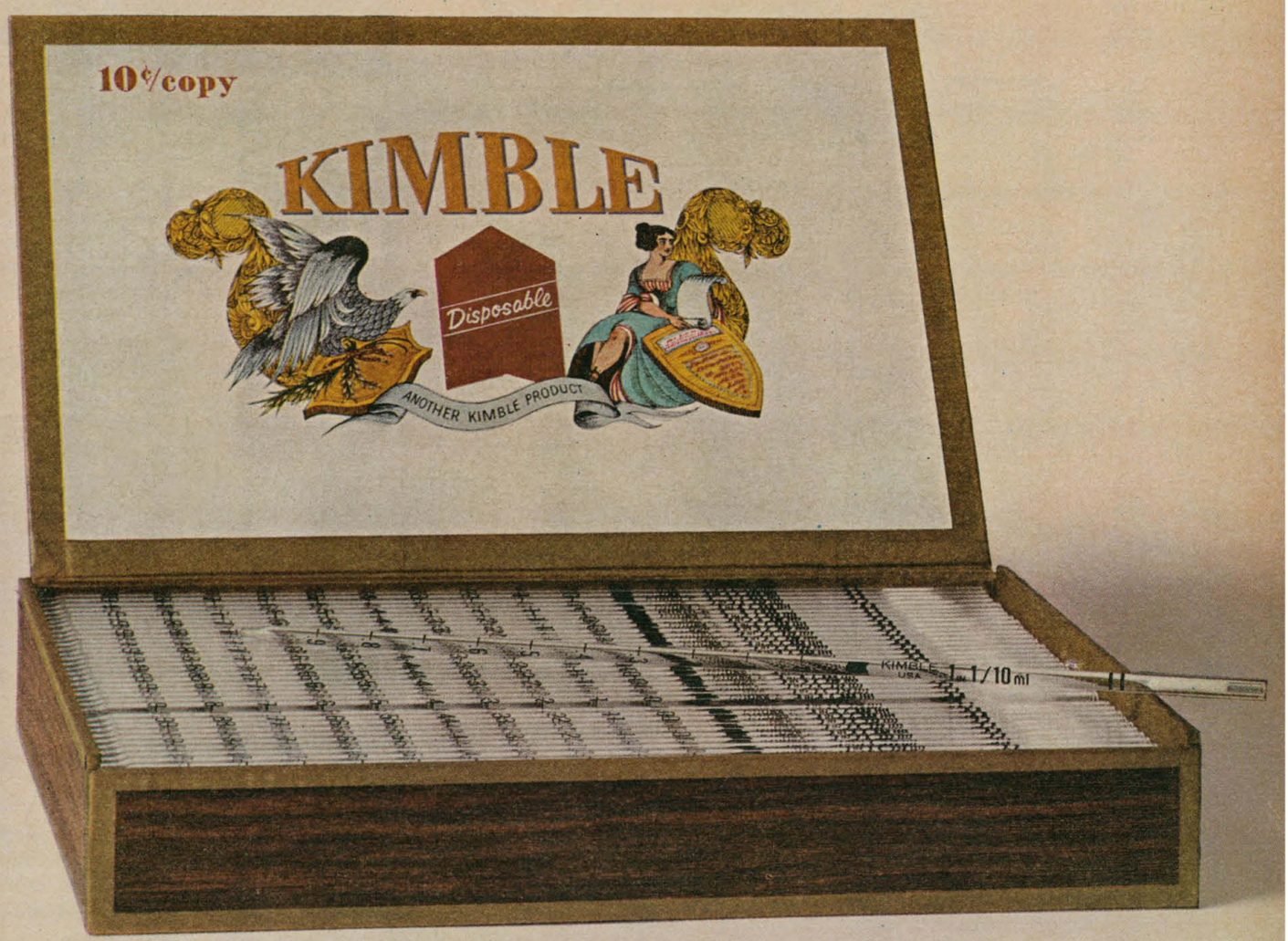

and central anticholinergic effects of many of these compounds were also reported.

A number of investigators discussed the clinical results obtained with various therapies involving antidepressant drugs. In an extensive multicentered comparative study of the therapeutic efficacy of electroconvulsive therapy (ECT) and antidepressant drugs, M. Shepherd (England) found imipramine to be significantly better than placebo but less effective than ECT. Phenelzine, a monoamine oxidase inhibitor, was found to be no better than placebo, but questions were raised concerning the dosage of phenelzine used in the study.

D. R. Gander (England) presented data suggesting the clinical value of combined administration of monoamine oxidase inhibitors and tricyclic antidepressants in patients refractory to other treatments. Although other reports had warned of the risks of administering these drugs in combination, in this study, Gander found no difference in the nature or frequency of side effects (except for weight increase) from those seen with a single antidepressant. P. Dick (Switzerland) reported favorable clinical responses in some patients when tetrabenazine (a catecholamine-releasing agent) was added to the therapeutic regimen of patients refractory to treatment with a tricyclic antidepressant alone.

The formal presentations concluded with an inspired address by R. Kuhn (Switzerland) who, less than 10 years before, had discovered imipramine to be clinically effective in the treatment of depression. After reviewing much of the progress in the field during the past decade, Kuhn indicated that he was now studying the clinical effects of a drug which promised to be an even more effective and specific antidepressant than imipramine.

On the day after the formal program had ended, a selected group of participants gathered for a period of discussion. In the informality of this unprogrammed session many of the barriers to interdisciplinary communication were overcome. Considerable light was shed on many relevant conceptual and semantic problems which separate the various disciplines. It was the consensus of the participants that such discussions could contribute significantly to future research and to our ultimate understanding of the mechanism of the action of antidepressant drugs.

This meeting was attended and the report prepared while I was the recipient of NIMH special fellowship No. MH-28,079-01.

JOSEPH J. SCHILDKRAUT
National Institute of Mental Health, National Institutes of Health, Bethesda, Maryland

Forthcoming Events

December

12–14. **Air Pollution**, natl. conf., Washington, D.C. (A. C. Stern, Div. of Air Pollution, U.S. Public Health Service, Washington, D.C. 20201)

12–17. **History of Oceanography**, intern. congr., Monte Carlo. (R. Novella, Villa Girasole, 16, boulevard de Suisse, Monaco)

14–16. **Fluid Logic and Amplification**, 2nd intern. conf., Cranfield, England. (H. Stephens, British Hydromechanics Research Assoc., South Rd., Harlow, Essex, England)

15–16. International **Brain Research** Organization, central council and executive committee, mtg., Paris, France. (UNESCO, Pl. de Fontenoy, Paris 7)

16–18. American **Psychoanalytic** Assoc., fall mtg., New York, N. Y. (American Psychoanalytic Assoc., 1 E. 57 St., New York 10022)

19–20. British **Biophysical** Soc., winter mtg., London, England. (W. Gratzer, Biophysics Dept., King's College, 26 Drury Lane, London W.C.2)

19–21. **Acceleration Biology**, Sunnydale, Calif. (Univ. of California Extension, Berkeley 94720)

26–31. **American Assoc. for the Advancement of Science**, annual, Washington, D.C. (R. L. Taylor, AAAS, 1515 Massachusetts Ave., NW, Washington, D.C. 20005)

In addition to the 20 sections of the Association and five AAAS committees, the following organizations have arranged sessions at the AAAS annual meeting 26–31 December in Washington, D.C.

Mathematics

American Mathematical Soc. (E. Pitcher, Lehigh Univ., Bethlehem, Pa.)

Association for Computing Machinery (D. Leiti, Heliodyne Corp., Rosslyn, Va.)

National Council of Teachers of Mathematics (J. Gates, 1201 16 St., NW, Washington, D.C.)

Society for Industrial and Applied Mathematics (J. H. Griesmer, I.B.M., T. J. Watson Research Center, Yorktown Heights, N.Y.)

Physics

American Astronautical Soc. (S. F. Singer, Univ. of Miami, Coral Gables, Fla.)

American Meteorological Soc. (J. E. Masterson, Natl. Center for Atmospheric Research, Greenbelt, Md.)

Harvard Project Physics (F. J. Rutherford, Harvard Univ., Cambridge, Mass.)

Chemistry

American Assoc. of Clinical Chemists (R. S. Melville, Natl. Inst. of General Medical Sciences, NIH, Bethesda, Md. 20014)

Geology and Geography

Association of American Geographers, Middle Atlantic Div. (D. J. Patton, Carnegie Inst. of Washington, Washington, D.C.)

National Geographic Soc. (R. Gray, The Society, Washington, D.C.)

National Speleological Soc. (W. B. White, Pennsylvania State Univ., University Park)

Zoological Sciences

American Fisheries Soc. (R. F. Hutton, The Society, Washington, D.C.)

American Soc. of Zoologists (L. E. DeLanney, Ithaca College, Ithaca, N.Y.)

Animal Behavior Soc. (E. M. Banks, Univ. of Illinois, Urbana)

Herpetologists' League (J. E. Huheey, Dept. of Chemistry, Univ. of Maryland, College Park)

Society of Systematic Zoology (R. P. Higgins, Wake Forest College, Winston-Salem, N.C.)

Zoological and Botanical Sciences

American Soc. of Naturalists (R. D. Hotchkiss, Rockefeller Univ., New York, N.Y.)

Association of Southeastern Biologists (E. Quarterman, Vanderbilt Univ., Nashville, Tenn.)

Beta Beta Beta Biological Soc. (Mrs. F. G. Brooks, Box 515 Ansonia Sta., New York, N.Y.)

Ecological Soc. of America (C. D. Monk, Laboratory of Radiation Biology, Bldg. 772-G, Aiken, S.C.)

Society for the Study of Evolution (E. C. Olson, Univ. of Chicago, Chicago, Ill.)

Psychology

American Speech and Hearing Assoc. (E. D. Schubert, Stanford Univ., Palo Alto, Calif.)

Social and Economic Sciences

American Economic Assoc. (H. F. Williamson, Northwestern Univ., Evanston, Ill.)

American Political Science Assoc. (G. M. Lyons, Natl. Acad. of Sciences, Washington, D.C.)

American Soc. of Criminology (D. E. J. MacNamara, City Univ. of New York, New York)

American Sociological Assoc. (J. A. Beegle, Michigan State Univ., East Lansing)

Metric Assoc. (R. P. Fischelis, College of Pharmacy, Ohio Northern Univ., Ada)

National Inst. of Social and Behavioral Science (D. P. Ray, The Institute, Washington, D.C.)

Society for the Scientific Study of Religion (H. L. Silverman, Seton Hall Univ., South Orange, N.J.)

History and Philosophy of Science

History of Science Soc. (B. S. Finn, Museum of History and Technology, Smithsonian Inst., Washington, D.C.)