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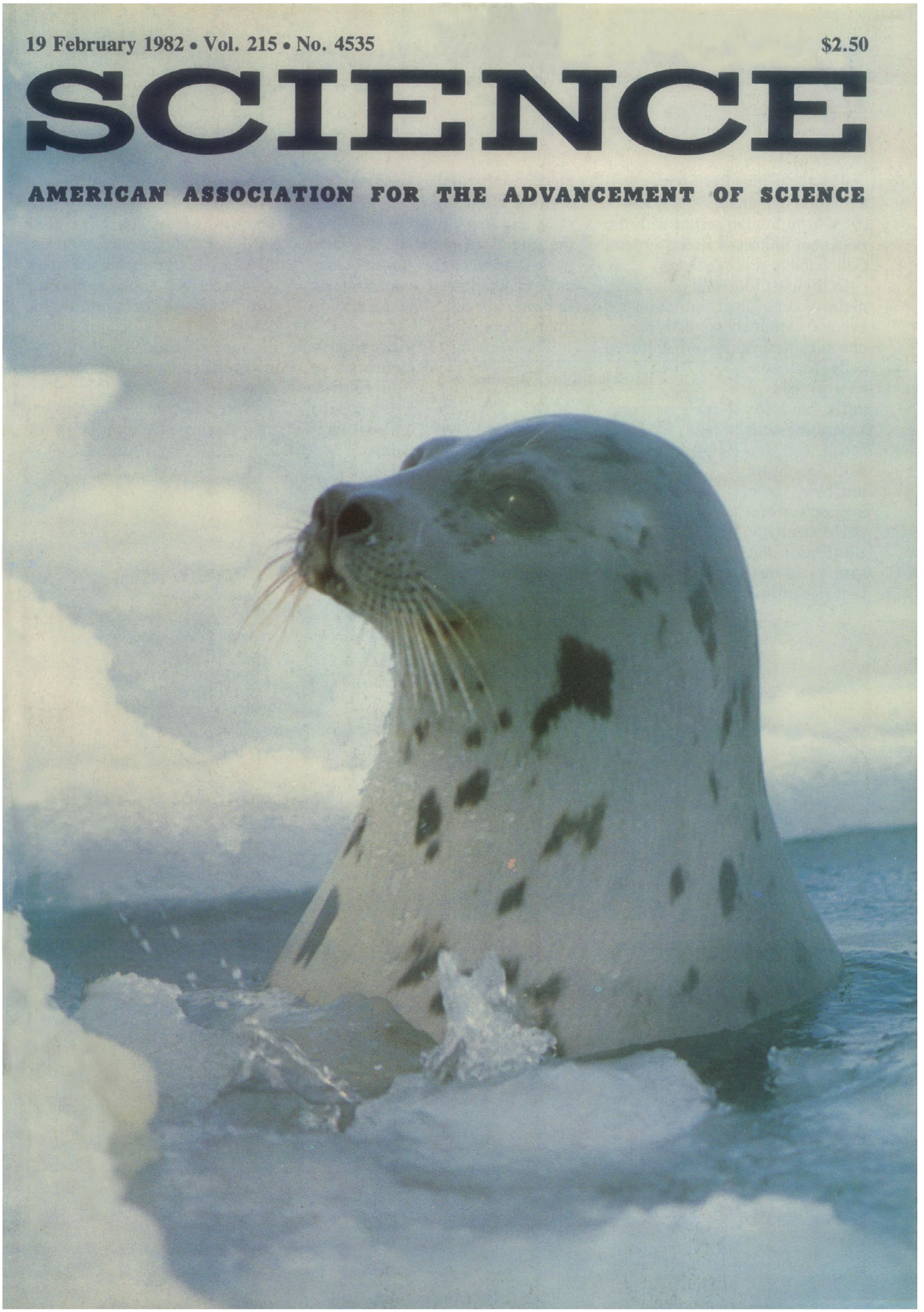

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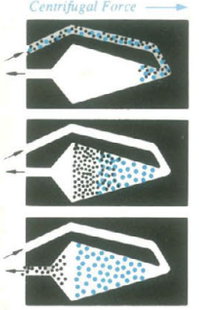

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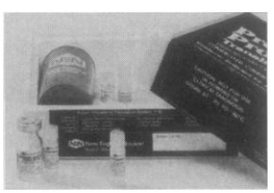

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ISSN 0036-8075

19 February 1982

Volume 215, No. 4535

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SCIENCE is published weekly on Friday, except the last week in December, by the American Association for the Advancement of Science, 1515 Massachusetts Avenue, NW, Washington, D.C. 20005. Second-class postage (publication No. 484460) paid at Washington, D.C., and at an additional entry. Now combined with **The Science Monthly**. Domestic individual membership and subscription (51 issues): $43. Domestic institutional subscription (51 issues): $80. Foreign postage extra: Canada $24, other (surface mail) $27, air-surface via Amsterdam $55. First class, airmail, school-year, and student rates on request. Single copies $2.50 ($3 by mail); back issues $3 ($3.50 by mail); classroom rates on request. **Change of address:** allow 6 weeks, giving old and new addresses and seven-digit account number. **Postmaster:** Send Form 3579 to *Science*, 1515 Massachusetts Avenue, NW, Washington, D.C. 20005. *Science* is indexed in the *Reader's Guide to Periodical Literature* and in several specialized indexes.

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Young adult female harp seal (*Phoca groenlandica*) in a breathing hole scans the ice for the position of its white-coated young. The seal utilizes auditory, visual, and olfactory clues in separating its offspring from several thousand other neonates on a single pan of ice. See page 928. [N. Lightfoot, Office of Educational Practice, University of Guelph, Guelph, Ontario, Canada]

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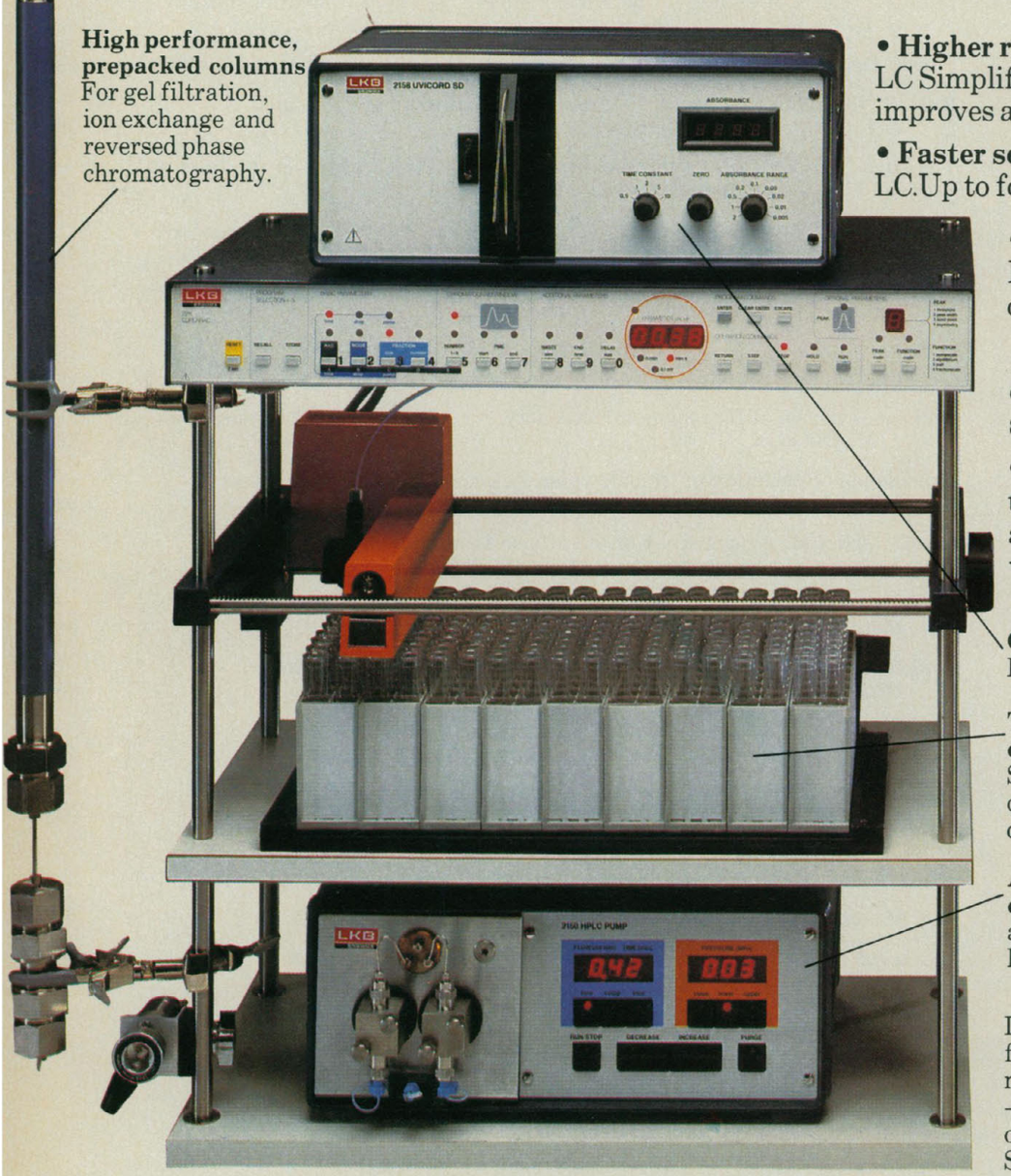

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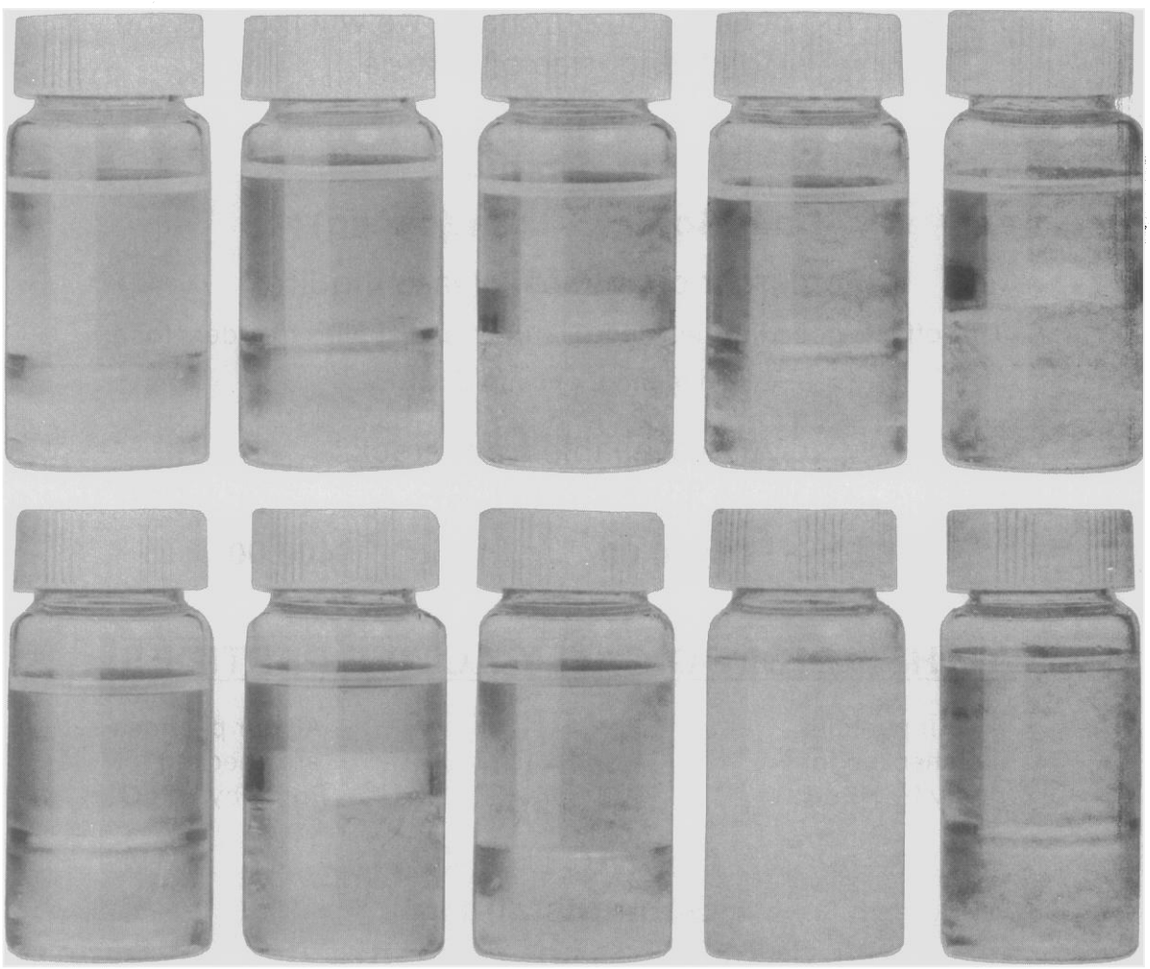

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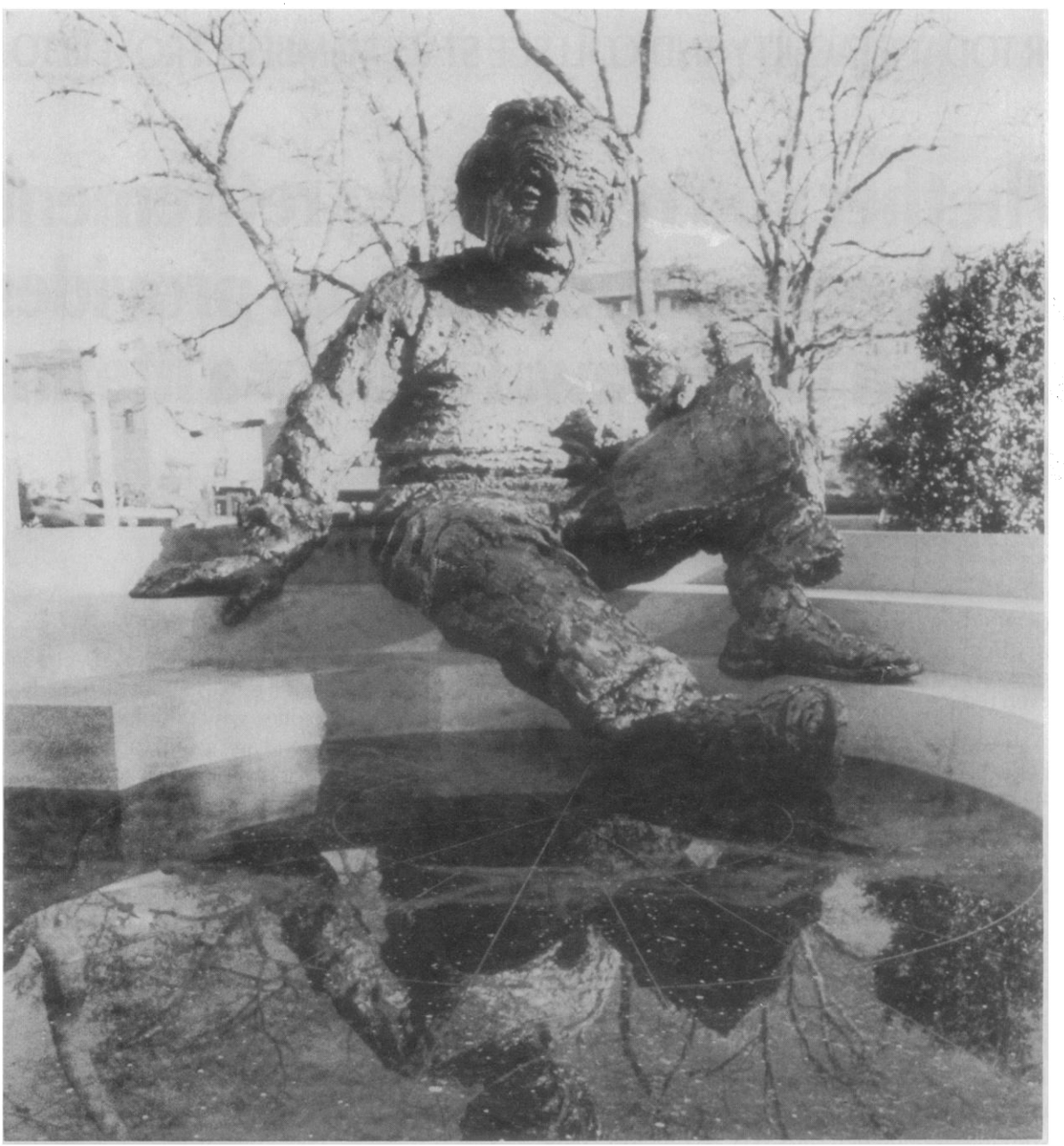

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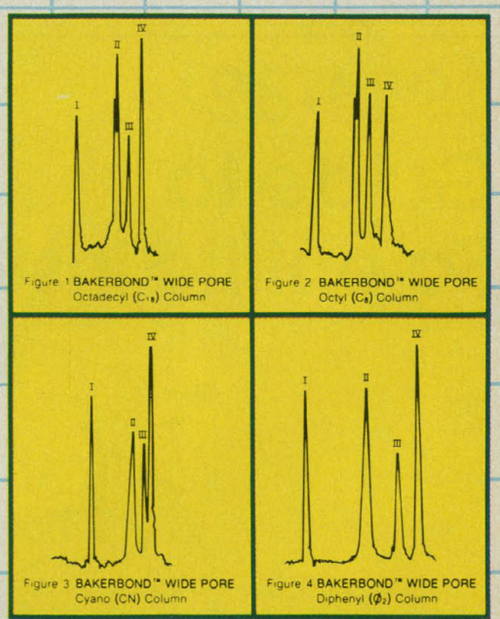

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LETTERS

International Scientific Exchange

It appears to me that the "T. K. Bachman" mentioned in the reply from Frank Carlucci to William D. Carey concerning scientific exchanges and U.S. national security (8 Jan., p. 139) is the same Talis Bachmann that I had the distinct pleasure of hosting last year during the Psychology Exploration Day weekend (an undergraduate-oriented event) at Southeast Missouri State University. Carlucci's letter states that Bachmann "came to study the interface between man and machine." He does not mention that Bachmann's research interests and publications are in the areas of human information processing, cognition, and perception and that man-machine interactions are currently of importance in these academic areas.

Bachmann and I have corresponded freely about our mutual research pursuits for some time, and during his visit with me I found his interests to be far-ranging, from aspects of clinical psychology to differences between the educational systems of the United States and Russia. Although Bachmann may have been handpicked by his government to visit this country because of his expertise in man-machine interfaces and although he may have been told to be on the lookout for information relevant to Russian military interests, I think it would be a mistake to imply that he came here for any other personal reason than to develop professionally. Bachmann is an excellent scientist and a fine individual, and I am convinced that his commitment is to the progress of science in general.

At the time of his visit, Bachmann knew that I was conducting unclassified research in the area of perception that was sponsored by the U.S. Air Force. Nonetheless, he did not press me for information regarding the project. Rather, conversations centered mainly on the interpretation of published reports, well-known theories, and future possibilities for collaboration between us on topics of mutual interest.

For its part, our State Department did a thorough job of apprising me of the potential for information loss in contacts with Russian scientists. If such information loss is a reality, it seems that our government needs to consider more carefully procedures and criteria for classifying the research it sponsors. Furthermore, if our scientific exchanges are one-sided, it would appear that the burden of responsibility for producing a

more equitable situation would be upon the ones who make their information so freely available. If a problem exists in the information flow between the two superpowers, it is not to be found in the scientific community. Rather, the political agencies that set the rules for the exchange of information are to blame. As any consumer in our society knows, it is foolish not to take advantage of a bargain. Why should the Russians do otherwise?

J. TIMOTHY PETERSIK
Department of Psychology,
Ripon College,
Ripon, Wisconsin 54971

I am writing in regard to one of the examples in Frank Carlucci's reply to William D. Carey. Carlucci writes, "In the case of K. H. Rozhdestvensky, it was not until several months after his departure that we learned his research paper was concerned with the 'wing-in-ground effect' aerodynamic vehicle." It is not quite clear what is meant by "his research paper," but in any case, Rozhdestvensky (K. V., not K. H.) has published at least eight papers going back to 1972 on wings moving close to a rigid boundary. This research should not have been a surprise to any one interested in knowing. During the time he was in the United States, partly at the University of Michigan, partly at the University of California, Berkeley, he worked on the closely related problem of ships moving near to a wall or in a canal. (He is a naval architect by education and profession.) This work will presently be published in English. A recent monograph by him on the wing problem exists in Russian.

The gist of Carlucci's letter is that the visiting scientists from the U.S.S.R. learn a lot from us but contribute little. This was certainly not so with Rozhdestvensky. We learned a good deal from him. We hope he learned something from us.

JOHN V. WEHAUSEN
Department of Naval Architecture and Offshore Engineering, University of California, Berkeley 94720

Alzheimer's Disease: Research Guidelines

Gina Kolata's article (1 Jan., p. 47) about the conference sponsored by the National Institute on Aging on "Senile dementia of the Alzheimer's type and related diseases: Ethical and legal issues related to informed consent" is a balanced presentation of the difficult and

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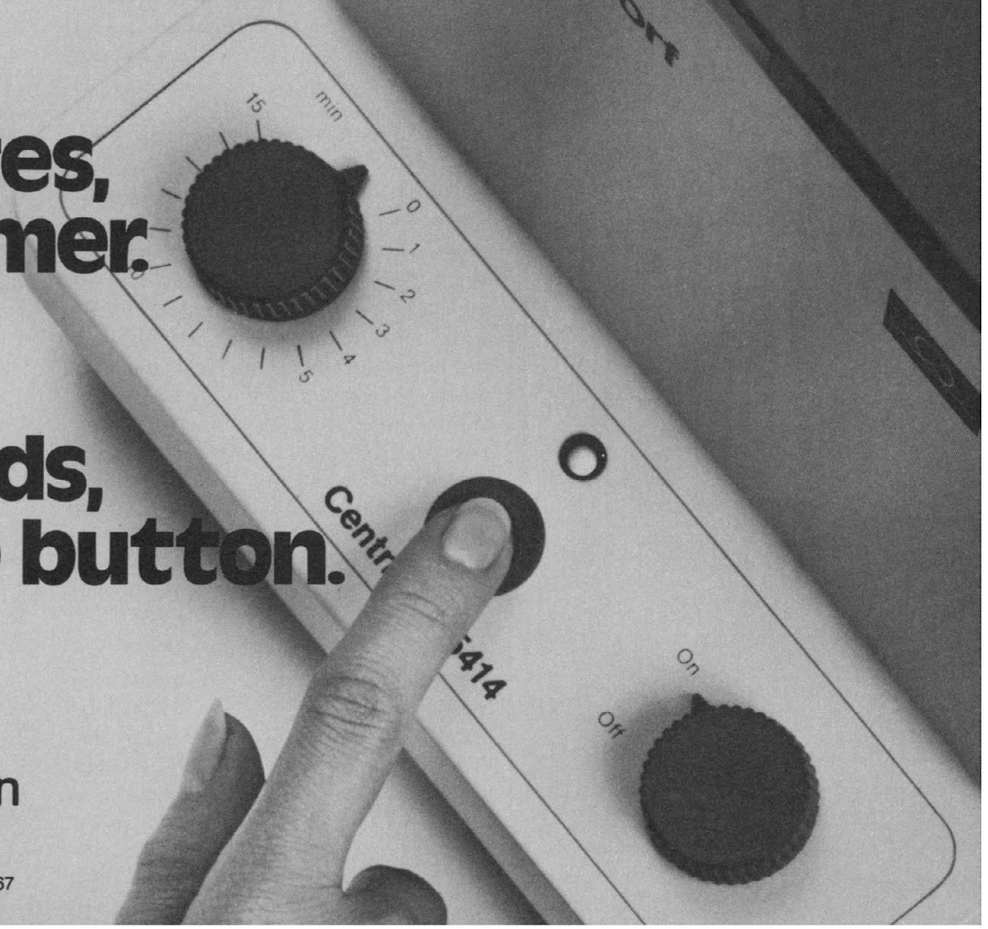

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ter has been found in the shallow sediments off the Atlantic Coast from New Jersey to Cape Cod. The common interpretation (*1*) suggests that this is the result of lower sea level during periods of Pleistocene glaciation. Even after at least 8000 years, the ground-water system has not equilibrated with the present sea level.

At the Nevada Test Site, the great depth to the water table beneath Yucca Flat (up to 660 meters), and many other valleys of the south-central Great Basin, is controlled by the regional subsurface extent of a highly transmissive carbonate-rock aquifer that also has a topographically low discharge point. That these deep water tables are not a result of the modern, arid to semiarid climate of the region is best seen by comparing Yucca Flat with Emigrant Valley, an intermontane basin bordering Yucca Flat on the northeast. The water table beneath Emigrant Valley is as shallow as 30 meters, yet both valleys have the same climate. The shallow water table beneath Emigrant Valley reflects extremely low transmissivity of the metasedimentary rocks surrounding this valley, not higher precipitation. Details on the hydrogeology (*2*) of both valleys and estimates of water level rises in the carbonate-rock aquifer in response to future, wetter climates (*3*) are available. Briefly, future, wetter climates—reflecting some combination of increased precipitation and reduced temperature—are unlikely to raise the water table significantly in Yucca Flat. Of far greater importance to the unsaturated zone notion advanced, a future increase in precipitation is likely to cause more frequent and deeper infiltration of water through the unsaturated zone than occurs at present. Nevertheless, as pointed out explicitly and at some length in Winograd's article, several barriers to radionuclide mobilization and migration remain in the event of a change to a wetter climate; namely, the high sorptive capacity of the valley fill and underlying zeolitized tuffs, the engineered capillary barrier, and a presumed low solubility of the waste form. Any radionuclides somehow reaching the carbonate-rock aquifer despite these barriers would additionally be diluted, as discussed by Winograd.

Alpher's general concern that "an ever-increasing carbon dioxide concentration in the atmosphere . . . must ultimately affect the global distribution and flow of groundwater" is unwarranted when one examines the specific waste disposal strategy of putting wastes in thick unsaturated zones within the arid- to semiarid southern Great Basin. The deep ground-water system discussed by Bredehoeft and Maini do not respond rapidly to changes in climate; their stability under the right setting can be assured for thousands, if not tens of thousands, of years.

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Reston, Virginia 22092
JOHN BREDEHOEFT
U.S. Geological Survey,
Menlo Park, California 94025
TIDU MAINI
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Imperial College of Science and Technology, University of London,
South Kensington,
London, SW7 2AZ

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1. J. C. Hathaway *et al.*, *Science* **206**, 515 (1979); H. Meisler, *U.S. Geol. Surv. Open-File Rep. 81-71* (1981).
2. I. J. Winograd and W. Thordarson, *Geol. Soc. Am. Mem. 110* (1968), pp. 35–48; *U.S. Geol. Surv. Prof. Pap. 712-C* (1975).
3. I. J. Winograd and G. C. Doty, *U.S. Geol. Surv. Open-File Rep. 80-569* (1980).

Myeloma, Not Melanoma

Arnold Demain's article (27 Nov., p. 987) on industrial microbiology is excellent. However, there is one minor mistake in the article. Somehow, in the third column of page 993, myeloma (a tumor of the bone marrow characterized by the excessive production of either the "heavy" or the "light" chain of the antibody molecule) is confused with melanoma (a form of skin cancer). In the technique for the production of monoclonal antibody introduced by Kohler and Milstein (*1*), a hybrid of myeloma and immunized spleen cell is used.

D. K. Lo
Research Laboratory,
Westvãco, Johns Hopkins Road,
Laurel, Maryland 20810

References

1. G. Kohler and C. Milstein, *Nature (London)* **256**, 495 (1975).

Erratum. In the letter from Senator Warren B. Rudman (29 Jan., p. 456), a quote from testimony by Ronald Lamont-Havers was incorrectly printed. The correct quote is as follows: "What I would be concerned about, in saying that, would be the fact that funds are then set aside, protected funds, which would prevent one of our own investigators not being supported. That's all I'm concerned about. I'm not really concerned about whether or not there's funding. I'm concerned about protecting my own investigators as far as their funding, and any reduction in funds within that system is going to have a perturbation within our system."

Erratum. In figure 1 of the report by D. Regan and K. I. Beverley (8 Jan., p. 194), the photograph on the left should have appeared on the right, and vice versa.

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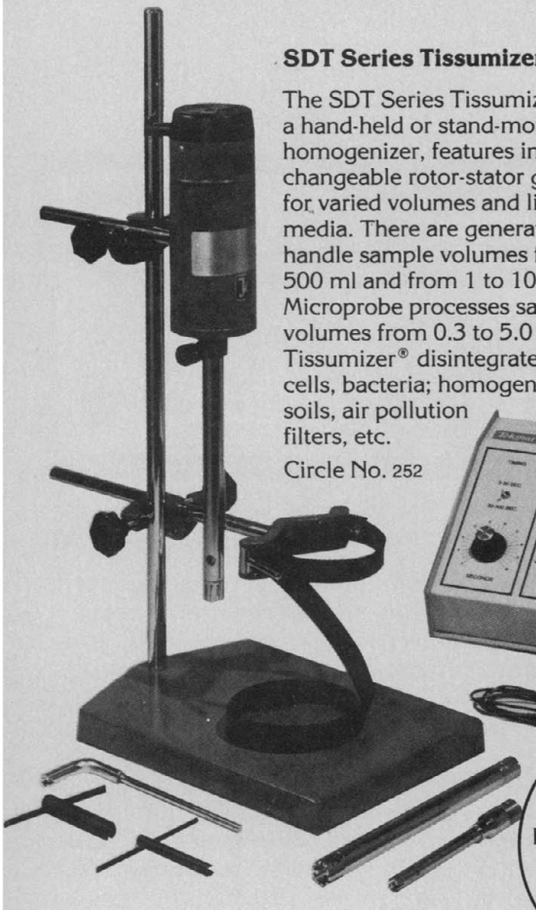

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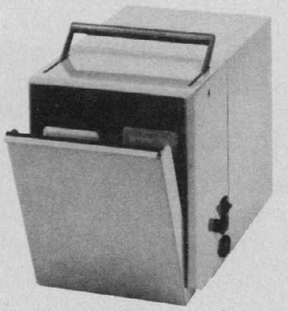

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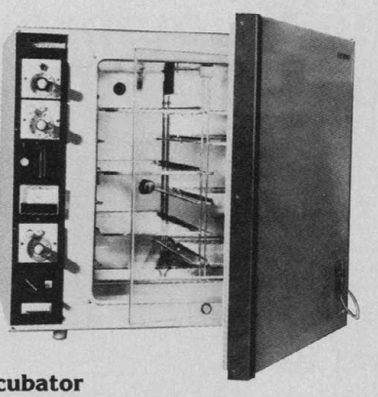

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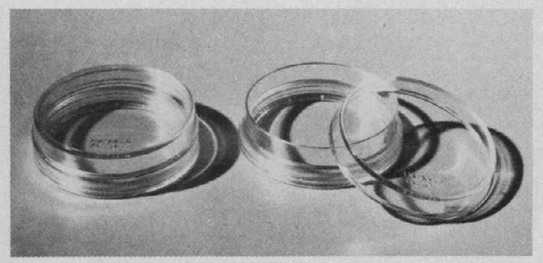

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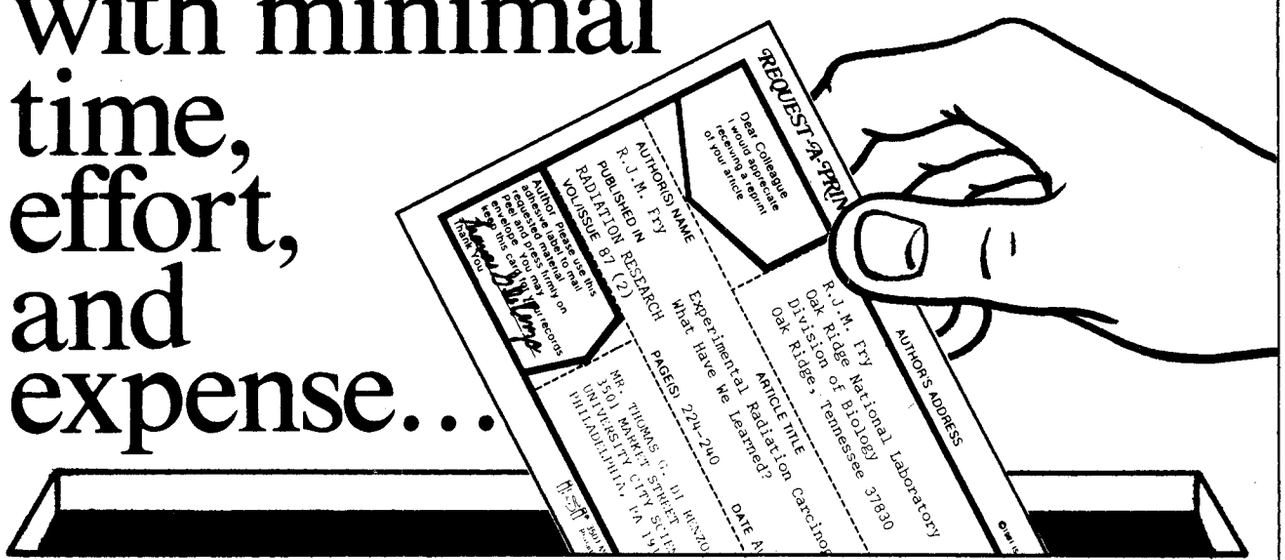

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19 February 1982, Volume 215, Number 4535 **SCIENCE**

Science Advisers to the Government

There is a little-known but important committee that functions, reasonably effectively, as a scientific and technological advisory body to the secretary of state. The Advisory Committee on Oceans and International Environmental and Scientific Affairs was formed 2 years ago and, happily, has been continued by the present Administration. It has two interlocking missions: to deal with current priorities, and to provide early warning on longer term developments that will affect our international interests. The goal is to generate good policy based on good science.

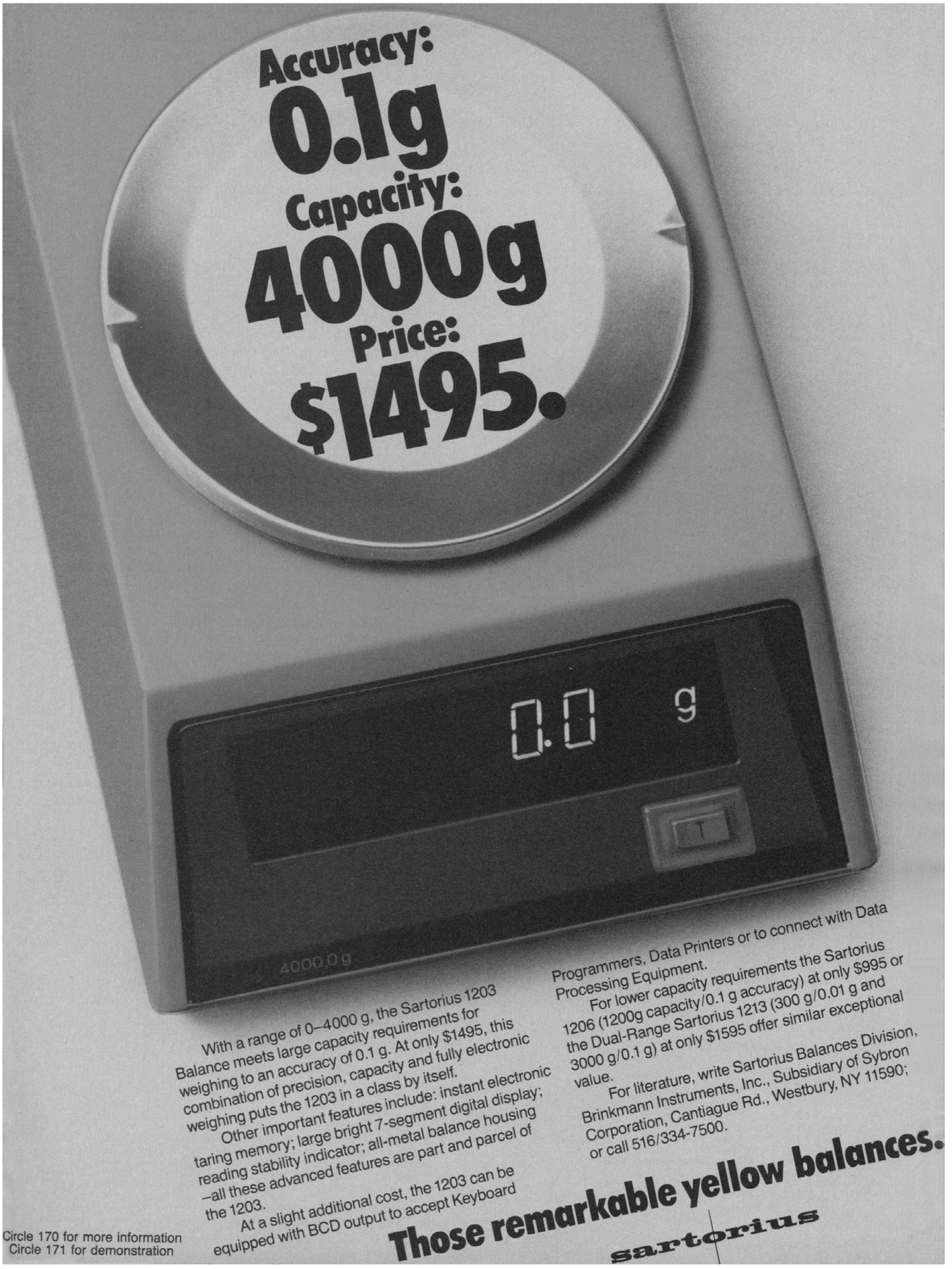
To my knowledge, there is no other advisory body in the federal establishment that has the same broad distribution of scientists and laymen of recognized stature looking at the diversity of problems that affect our nation in its relations with the world. The committee's members are drawn from industry, universities, and the nonprofit sector. Thus they are equipped to deal in a general way with a great many topics. For example, they have considered scientific exchanges with the Soviet Union; industrial, health, agricultural, and military implications of genetic engineering; organizations for energy cooperation with developing countries; data collection systems for evaluating potential carbon dioxide problems and the "glasshouse effect," and how we should look at strategic nonfuel, land-based mineral reserves in the light of seabed reserves and technological changes.

The last meeting, on 7 January, dealt in part with the problem of acid rain. An examination of the data confirmed the committee's opinion that sulfur dioxide is not the limiting factor in the formation of acids, including sulfuric acid, in acid rain. The limiting factor seems to be oxidizing agents, in particular NO_x. This dictates a different strategy from that recommended by the Canadian government. The committee also looked at the shift in interest in the exploitation of seabed minerals from small nodules to polysulfides of as many as 20 metals. The scientific conditions are thus very different from those that obtained when negotiations on the Law of the Sea treaty began 15 years ago. We need to seek a new solution, one that is generous, practicable, and based on the geological situation.

Because of its structure, the committee is also equipped to look in depth at a chosen issue by setting up an ad hoc subcommittee of specialists. The subcommittee on genetic engineering, which was formed last year, is a good example. The panel, convened by the AAAS for the Department of State, was small but included the leaders in research in genetic engineering. Perhaps because I was the member who had only a layman's understanding (or lack of it) of the field, I was made chairman. The panel brought in a number of recommendations, of which the first—more attention to the conservation of germplasm—led to a 3-day conference in Washington last November under the auspices of the Department of State and the Agency for International Development. It produced specific recommendations, which are being followed up.

The committee is functioning well for the State Department; it is attentive to a number of problems, but could attack more. Its success clearly demonstrates the need for some committee of equal breadth, independence, and prestige to advise the Administration on new directions in research and possible changes of emphasis in established ones. It is essential that there should be some overall control of the value, direction, and quality of research in general. It may be hopeless to expect one person to exert such leadership, but there should be one committee, and the work of the Advisory Committee on Oceans and International Environmental and Scientific Affairs is a demonstration of the fact that it can be done.—JEAN MAYER, *President, Tufts University, Medford, Massachusetts 02155*

*James L. Malone, State Department, chairman; Ivan L. Bennett, Jr., New York University; Lucy Wilson Benson, SRI International; Harvey Brooks, Harvard University; William Carey, AAAS; Jewell Plummber Cobb, Rutgers University; Lincoln Gordon, Senior Review Panel for the Central Intelligence Agency; Gilbert M. Grosvenor, National Geographic; N. Bruce Hannay, Bell Laboratories; Hans Landsberg, Resources for the Future; Jean Mayer, Tufts University; Rodney Nichols, Rockefeller University; William Nierenberg, Scripps Institution of Oceanography; Joseph Nye, Harvard University; Lawrence Scheinman, Cornell University; S. Fred Singer, University of Virginia; Charles Warren; and Robert White, University Corporation for Atmospheric Research.



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