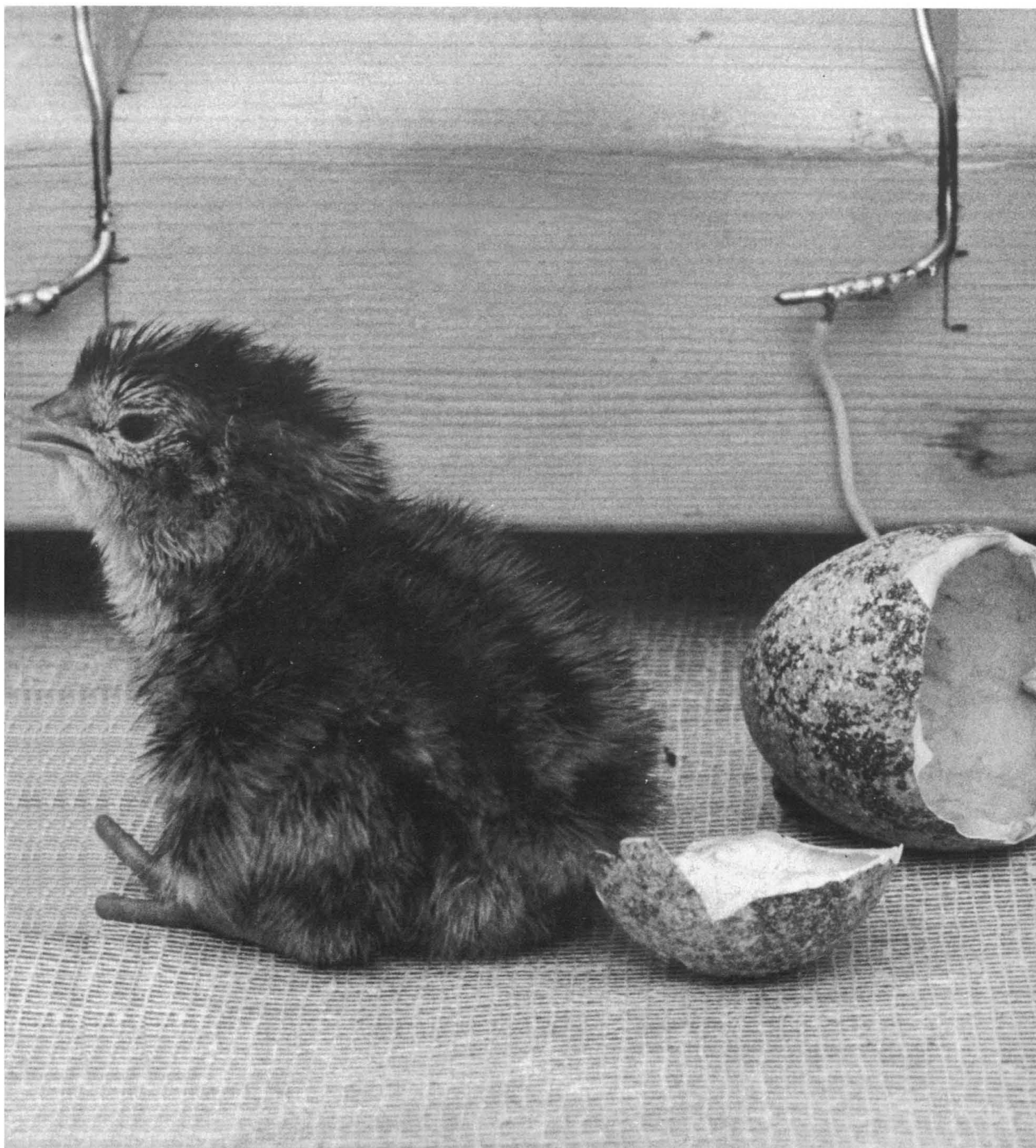


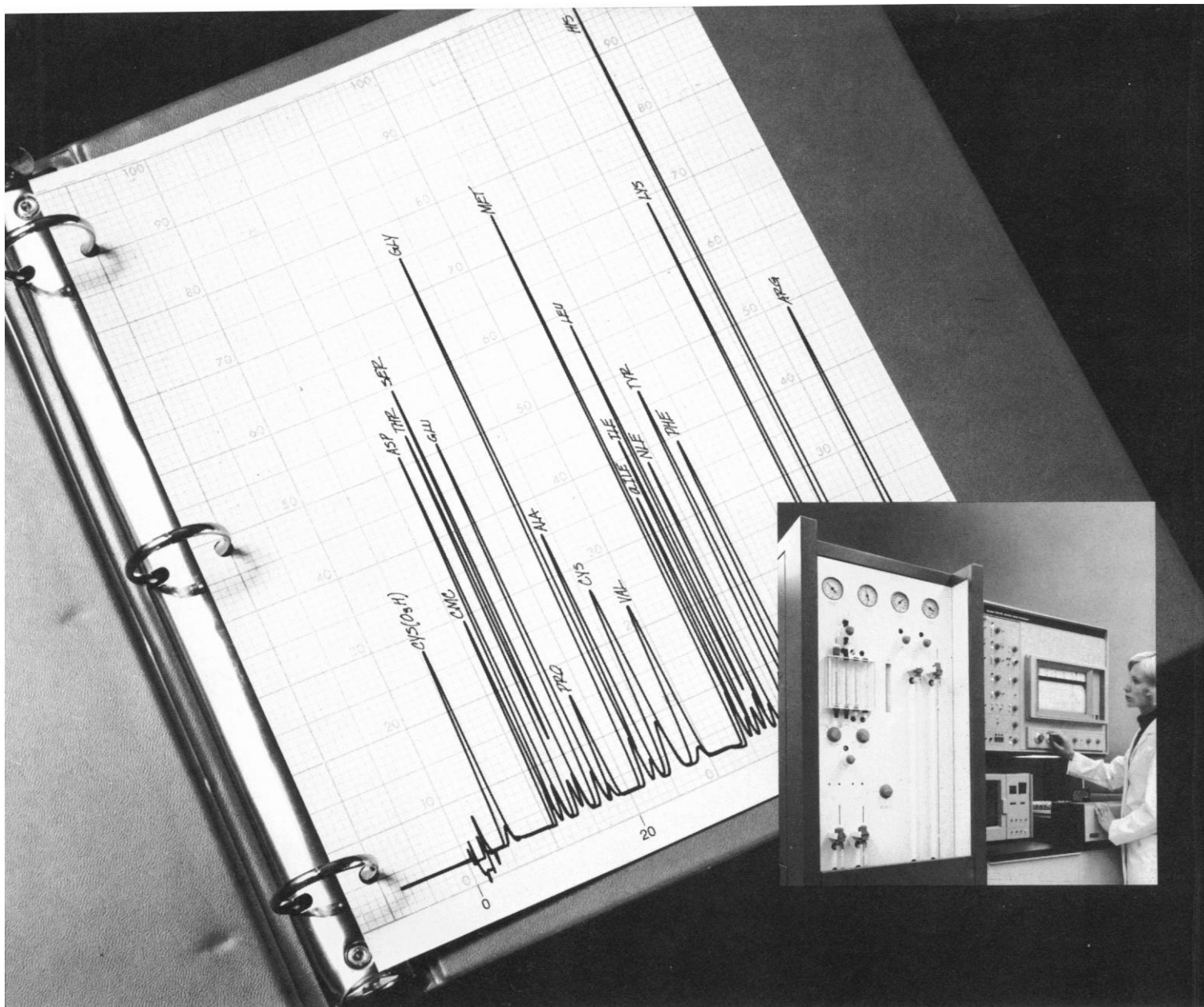
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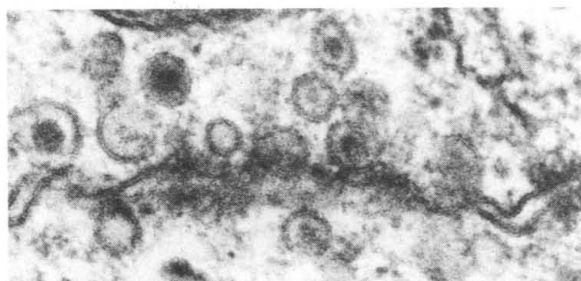
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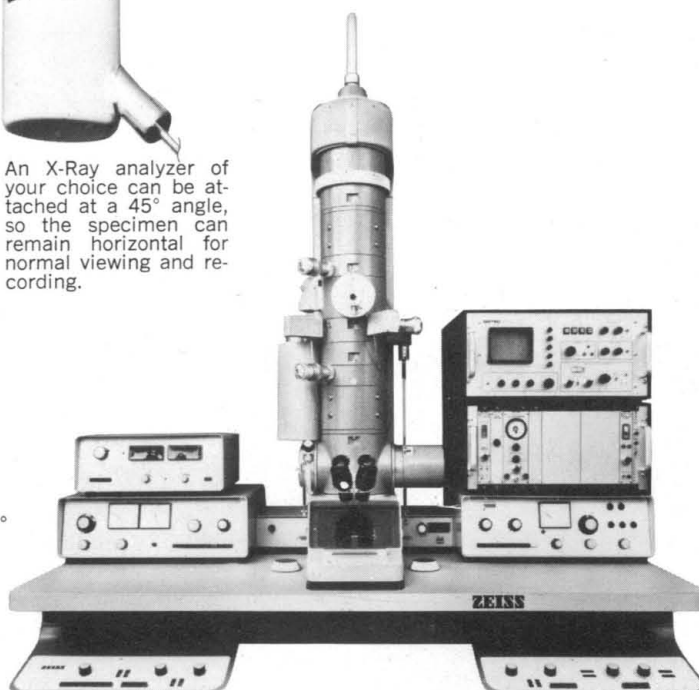
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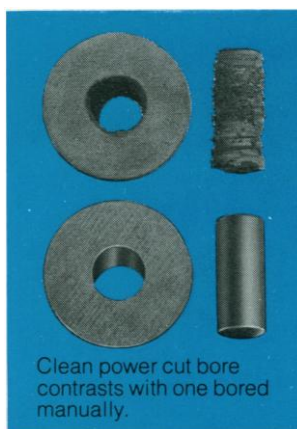
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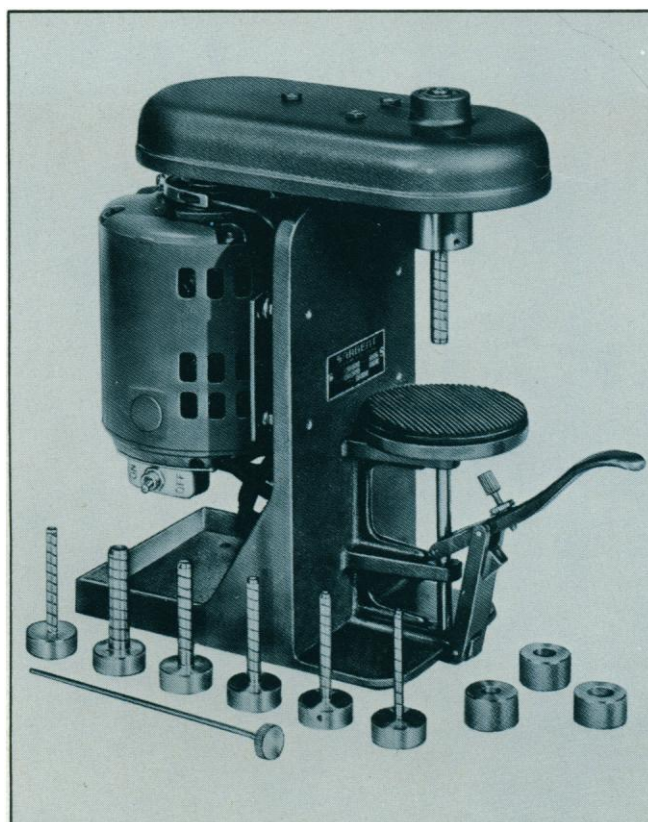
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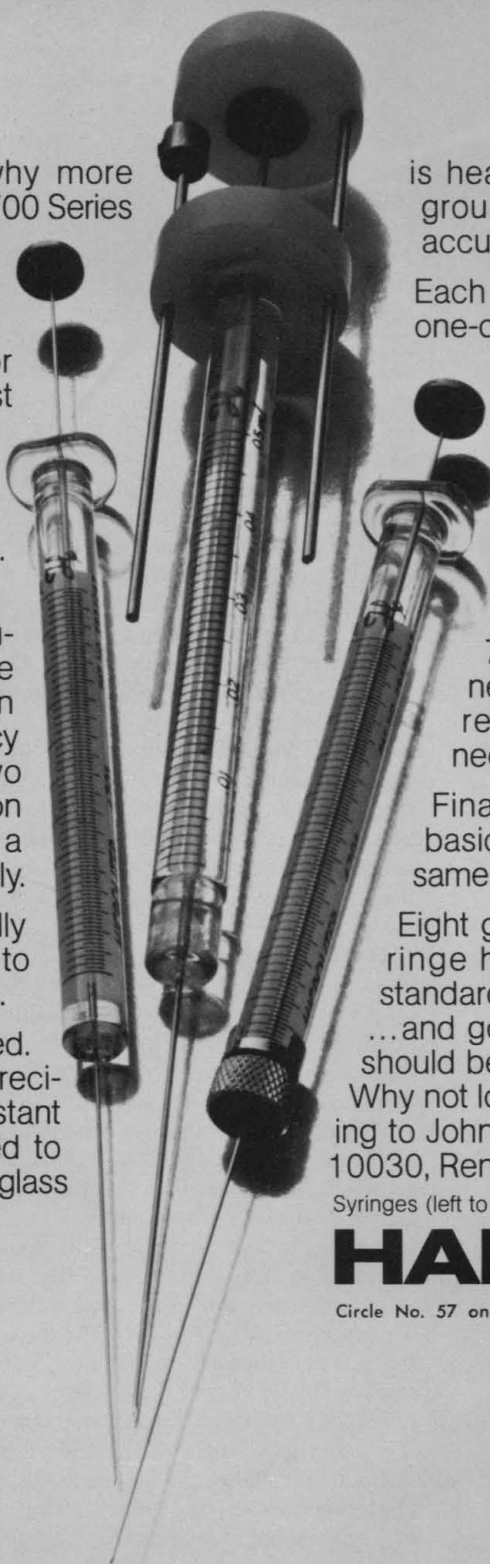
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## LETTERS

### Technical Issues and the Adversary Process

The proposal for a science court seems congruent with other initiatives taken in the past several years to throw a variety of controversies into the mode of quasi-judicial resolution.

These initiatives generally come from those whose experience with the law is limited. Trends within the law itself are moving in other directions, particularly with regard to the involvement of psychiatrists and other expert witnesses in legal proceedings. The bruises and misunderstandings of the adversary process have led many experts either to shun the courts entirely, or else to seek to have expert witnesses made the auxiliaries of, paid by, and even interrogated by, the court itself—not the parties to the controversy or their representatives.

The proposal for a science court is an attempt to inject institutional adversary argument into the resolution of conflict on technical issues while avoiding the hazards of regular legal procedures. To borrow a phrase from earlier battles, we might say that the objectives are admirable but the methods misguided.

First, the proposal overestimates the power and efficacy of the adversary process as a means of finding a truth—even current, provisional, working, technical truth—that the “loser” will concede to be truth.

Second, it underestimates the difficulty of framing questions in such a way that they will be appropriate for resolution by adversary proceedings. The main contest, one may predict, will shift from the stage of evidence to the stage of the pleadings.

Third, it underestimates the difficulty of wording decisions in such a way that they will both respond to the questions finally framed and help in furthering the discussion of the issues of policy. Practice might develop ways of deferring, modifying, narrowing, or broadening; but acquiring those skills takes time, and exercising them uses time that the political process may not tolerate.

Fourth, it rests upon a distinction—rendered no more persuasive by frequent repetition—between facts and values. The sponsors hope to couch the important issues in such a form that they can be resolved by findings of fact, with no contamination by decisions on value. Even if it were appropriate theoretically, the distinction would not be attained in practice. Findings in the purely technical sense would have and deserve no greater

authority than the latest qualified professional contributions would; their special position as answers to questions posed in the context of a current controversy would make them implicitly value-laden—no matter how dryly numerical their language—if they were to be relevant to the further stages in the larger processes of decision.

The proposal, in sum, rests upon the wistful hope that conflict conducted in the public view on difficult technical and scientific aspects of controversial issues can be leached of its political juices. Do we have to spend years, and millions, to relearn the folly of such a hope? Over the last few years, experts and laymen have found other and better ways of communicating with one another, in a variety of official and unofficial forums. The proposal for a science court appears to be not so much a useful addition to the spectrum of working devices as a quaint fantasy of technical closure in circumstances of disagreement over policies.

LEON LIPSON

*Yale Law School,  
Yale University,  
New Haven, Connecticut 06511*

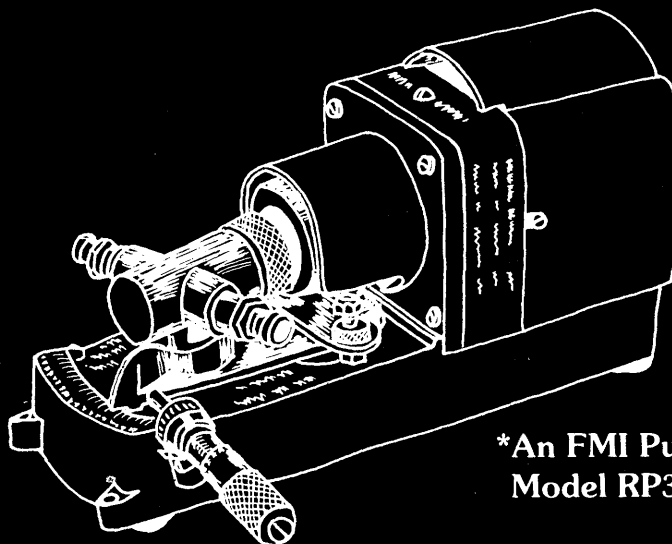
### The Attraction of Minicomputers

Tad Pinkerton and Larry Travis raise some valid points in their response (Letters, 15 Oct., p. 257) to Arthur L. Robinson's article (Research News, 6 Aug., p. 470) on the increasing use of minicomputers for large-scale scientific computation. However, their conclusion that the apparent economies of the minis are due primarily to inadequate cost accounting is not entirely justified. It is true that a certain proportion of the true costs of running a minicomputer never appear explicitly in the budget, and that use is made (at universities) of cheap or unpaid student labor to run these machines; but it is also true that a significant fraction of the costs of using a central computer facility do not reflect the needs of the researcher who carries out large-scale, mostly numerical calculations.

A major part of this extra cost is simply the cost of complexity. As large computers evolved to provide simultaneous service to a varied community of users with differing and often conflicting needs, both the hardware and the software, and particularly the operating system, became extremely complex. The high price of modern maxis is largely attributable to this complexity, and so is the high cost of running a computer center, maintaining the complex operating



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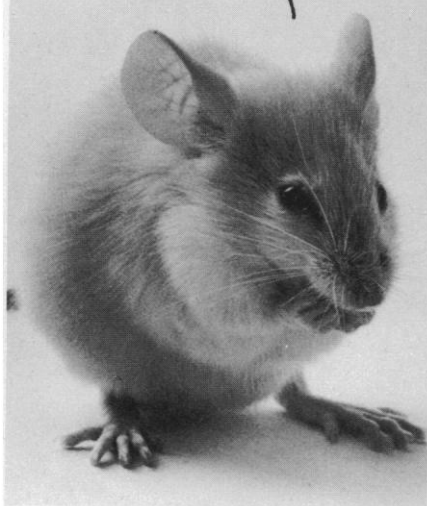
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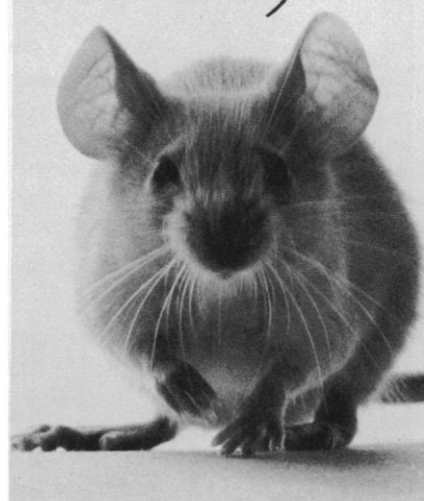
system, and providing the required services to the numerous, often unsophisticated users. As noted by Pinkerton and Travis, this complexity is also the reason for the long lead time in the development of new maxis, resulting in high development costs as well as a serious lag in the use of up-to-date technology (and thus a further increase in costs). The extent of these costs was largely unforeseen when the trend to large time-shared and interactive systems began. If research scientists can avoid this extremely expensive mode of operation, there should be no reason to discourage them.

Pinkerton and Travis question the use of research scientists' time in procuring, operating, and repairing computer equipment; but are such situations all that different from experimental researchers having to take care of their equipment? The time normally spent on this type of activity should be offset by the time (and frustration) involved in coping with the operating system and with the sometimes irrational operating policies of centrally administered computer facilities. Such policies are often determined on the basis of considerations which have little to do with getting the maximum use out of the expensive facility and often result in a lot of computer power remaining unutilized, while many large-scale computing needs cannot be satisfied because of high costs. Apportioning service and other costs in proportion to the time it takes the computer to run the program penalizes the experienced large-scale user who rarely utilizes such services extensively. Many such users would probably be quite willing to accept super-low priority service, at suitably reduced rates, to take advantage of unused capacity (mainly at night and on weekends) in order to carry out projects that otherwise could not be afforded.

Having control of their own facility and thus being able to choose optimal configurations and set operating policies to satisfy their own needs is another important attraction of owning a mini. The software limitations discussed by Pinkerton and Travis are usually not very severe, at least for the intended applications. In many cases a good Fortran compiler, an assembler, a text editor, and a file handling system are all that is really necessary.

This is not to say that the use of the big central computers is not often appropriate, or even essential. In many cases only the biggest available machines will enable a satisfactory solution of a scientific problem, and this is the principal reason for the National Resource for Computation in Chemistry. (Another important reason is the accumulation of

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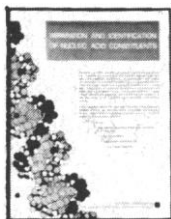
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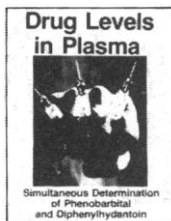
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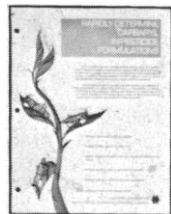
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specialized software and applications programs and the expertise needed to develop, use, and improve them.) The principal issue, however, is money. With today's tight budgets it is often impossible to carry out much large-scale scientific computation at a central facility, even though the computer center can offer software facilities such as RPG, Cobol, PL/I, and centralized billing.

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## A Neglected Literature

Konrad B. Krauskopf's appeal for information on radioactive waste disposal (Letters, 8 Oct., p. 134) indirectly draws attention to a problem of long-standing and increasing magnitude. Although Krauskopf seeks knowledge of unpublished reports, it is my observation that some *published* reports are not readily available. One of the reasons for this problem is that national and international concern about energy, pollution, and other important scientific issues is generating a voluminous amount of literature in the form of monographs, journal articles, reports, and so forth. Reports tend to be poorly covered by the traditional abstracting and indexing services, which still emphasize coverage of journals. In turn, these services are the bases for the so-called "on-line" computer services. Unless measures are taken to increase the visibility of this literature, its potential value to society may not be realized.

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## Dating the Deluge

*Science* has published comments by five geologists (Technical Comments, 24 Sept., p. 1268) criticizing Emiliani's correlation (Reports, 26 Sept. 1975, p. 1083) of a sudden rise in sea level 11,600 years ago with the deluge dated by Plato as having occurred 9000 years before Plato's own work on the subject. The accuracy with which Plato's geochronological studies were carried out is clearly a question of substantial scientific interest.

I assume that Plato's deluge is the same event as that described in the Old Testament. I am therefore in the process

of forming an organization to finance expeditions in search of Noah's Ark, in order that we may get to the heart of this matter with radiocarbon dating. The response to Emiliani's correlation gives me great hope that generous financial backing for the organization can be found within my own profession. I invite the writers of these comments and all others who take their work so seriously to join with me as founding fathers, mothers, and stockholders in a venture guaranteed to return profits and glory as well as a scientific solution to the problem of Plato's flood.

H. CRAIG

Scripps Institution of Oceanography,  
University of California, San Diego,  
La Jolla, California 92093

## Peer Review: Preventing "Nepotism"

In my previous position, I was a scientist at a large midwestern university in a section composed of seven staff members charged with the study of cancer biology. The section is supported by about 50 percent of the funds allocated to a cancer center grant from the National Cancer Institute. The yearly budget of the center is more than \$1 million. During my last year, the center was "site-visited" in order that a request for a 5-year renewal of the grant could be considered. On the site-visit team were four or five members responsible for evaluating the section. Of these, one had been the doctoral thesis adviser of two staff members in the section, and a third staff member had done postdoctoral work with a second member of the site-visit team. I question whether these site-visitors could possibly judge the scientific merit of the work in the section without bias. Some of the projects carried on by the section had actually been spawned in the laboratories of the two site-visitors. One may ask why these site-visitors did not disqualify themselves. Serving on a site-visit team carries considerable prestige; furthermore, academic salaries are frequently barely adequate and consultants' fees are attractive. Obviously, we are all human, and so, too, are potential site-visitors. Criteria should, therefore, be established by the granting agencies to disqualify scientific "fathers, mothers, and other close relatives" from site-visit teams, study sections, and other peer review groups.

HELENE Z. HILL

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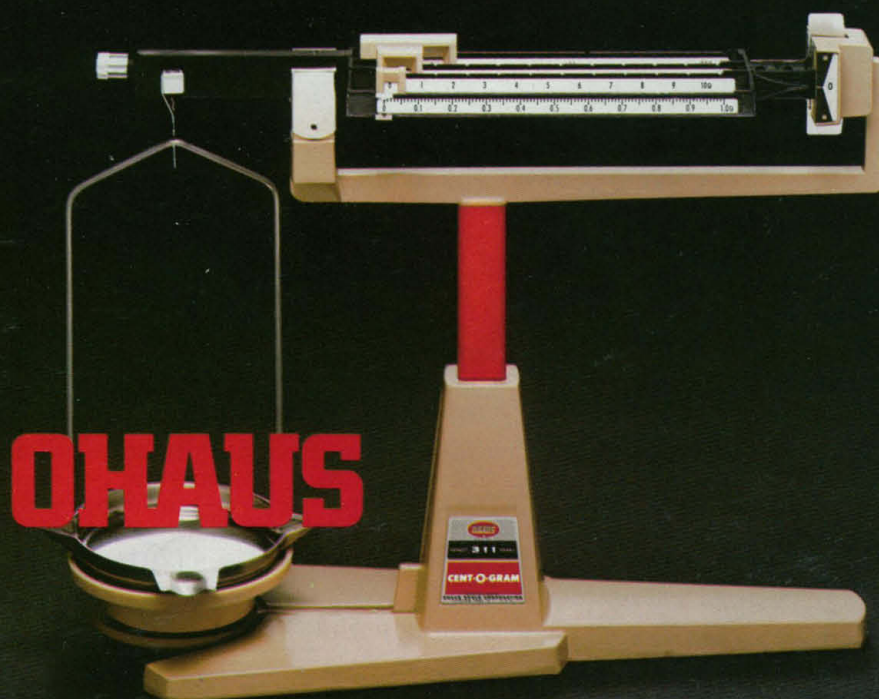
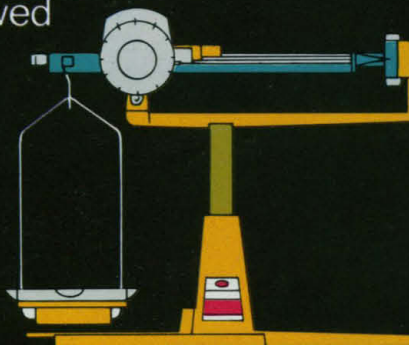
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## Unesco's Tarnished Image

The United Nations Educational, Scientific and Cultural Organization (Unesco) was formed in 1946 amid high optimism and with excellent sponsorship. Eleanor Roosevelt was a key figure in the early years, and Archibald MacLeish voiced the hopes of many when he said, "Since wars begin in the minds of men, it is in the minds of men that the defenses of peace must be constructed. . . ."

With the passage of years Unesco's image began to tarnish. Although its financial support was derived from the advanced countries, its biennial General Conference came to be dominated by politicians from the Third World, who have little knowledge of what science is all about and who have taken political steps injurious to Unesco's objectives. Illustrative of these were actions taken 2 years ago designed to diminish the status of Israel.

During the current General Conference at Nairobi there has been a softening of the stand toward Israel. However, there has been a new ugly manifestation of politics.

The General Conference has adopted a resolution designed to intimidate the nongovernmental organizations (NGO's) such as the International Council of Scientific Unions. The resolution that has been adopted

requests all the international nongovernmental organizations which maintain relations with Unesco and retain bodies or elements linked with the Chiang clique and having illegally usurped the name of China or using any other names, to take measures to exclude these bodies or elements immediately and to break off all relations with them.

Also implicit in the resolution is the threat to withdraw intellectual cooperation and financial support from the NGO's. Thus Unesco attempts to dictate the countries or geographical areas from which the NGO's may obtain their experts or members.

These latter organizations generally eschew intergovernmental politics, recognizing their divisive nature and their tendency to destroy other types of human pursuits—such as science and culture—which draw people together rather than drive them apart. Such nonpolitical activities are conducive to transnational cooperation in fields which promote international amity and which enrich the quality of life.

Since Unesco is in process of destroying its own usefulness, those who are interested in advancing science, culture, and education should now explore alternative avenues.

For example, in the sciences there are many nongovernmental organizations dedicated to international cooperation. One complex of such bodies, the International Council of Scientific Unions, recently met at the National Academy of Sciences (*Science*, 5 November, p. 587). Part of the support for ICSU comes from the advanced countries via Unesco. Such support should now be furnished directly.

In addition to ICSU there are new instrumentalities which deserve trial and greater public awareness. One is the International Institute for Applied Systems Analysis, the multinational, nongovernmental, East-West research center outside Vienna, Austria, which only 4 years after its inception is showing substantial promise in multidisciplinary exploration of problems to mankind. Still newer is the European Science Foundation, which is composed of representatives of some 45 scientific institutions—research councils, academies, and so forth—from 16 Western European countries. Apart from these existing bodies, thought should be given to the creation of new organizations to perform the tasks which Unesco is abandoning for politics. Further, governments that now contribute large amounts of funds to Unesco would do well to examine whether such funds would not go further in advancing international cooperation in education, science, and culture if invested elsewhere.

The Third World should be made aware that it risks losing both financial support and, more important, intellectual cooperation.

—PHILIP H. ABELSON

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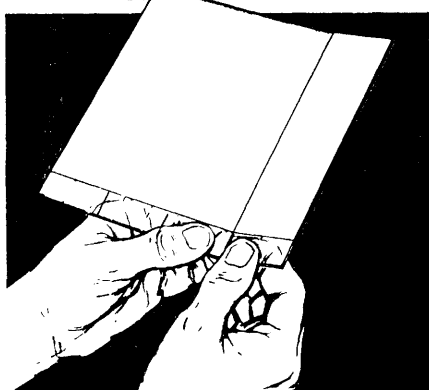
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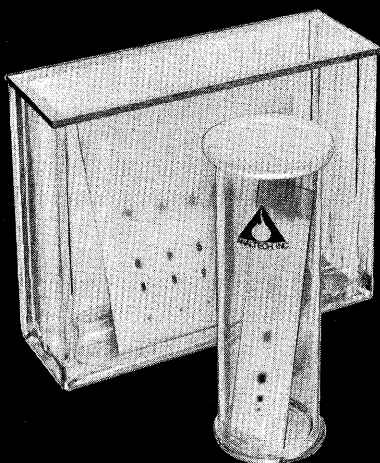
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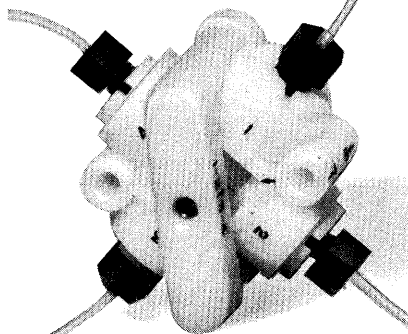
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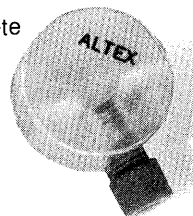
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# KMX-6 APPLICATION..#1.

## Molecular Weight of DNA.

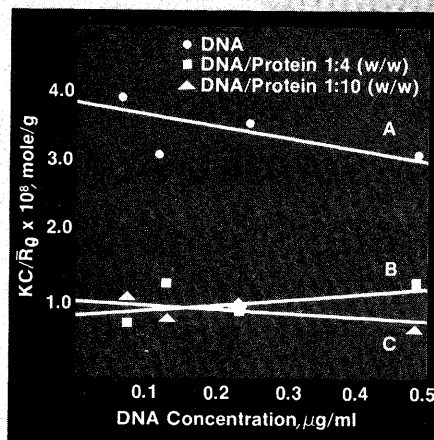
In this application, the KMX-6 Low-angle Laser Light Scattering Photometer was employed to determine the molecular weight of bacteriophage T7 DNA, plus complexes of the DNA and a non-histone chromosomal protein. Both samples were provided by Dr. K.V. Shooter, Chester Beatty Research Institute, Institute of Cancer Research, Royal Cancer Hospital, London.

In the accompanying figure, the reciprocal y-intercept of line A yields a molecular weight for the DNA alone of  $25.9 \times 10^6$ , as compared to  $25.5 (\pm 1.0) \times 10^6$  obtained by lengthy sedimentation techniques.<sup>1</sup> The weight-average molecular weights obtained for the DNA: protein solutions, lines B and C, allow calculation of protein: DNA binding ratios in excellent agreement with those obtained by sedimentation equilibrium.<sup>2,3</sup>

It should be noted that the KMX-6 overcomes the classical problems formerly associated with light scattering measurements by capitalizing on the spatial characteristics of laser illumination. In particular, it allows the use of small, dilute samples, and minimizes the requirements for sample clarification due to the extremely small volume illuminated by the laser. The measurements reported above were all made in a time period of only two hours. A major benefit of the new KMX-6 laser photometer is its ability to perform rapid, absolute measurements of molecular weight over a wide range.

The new KMX-6: A unique instrument with absolute calibration that permits for the first time the rapid direct measurement of molecular weight.

A detailed application note describing the results reported here is currently in preparation. To obtain a copy of this and related KMX-6 application information, call or write Chromatix today.



Plot of  $KC/R_{90}$  vs  $C$  at  $\theta$  equal to  $4.9^\circ$  for T7 DNA and DNA: protein solutions.

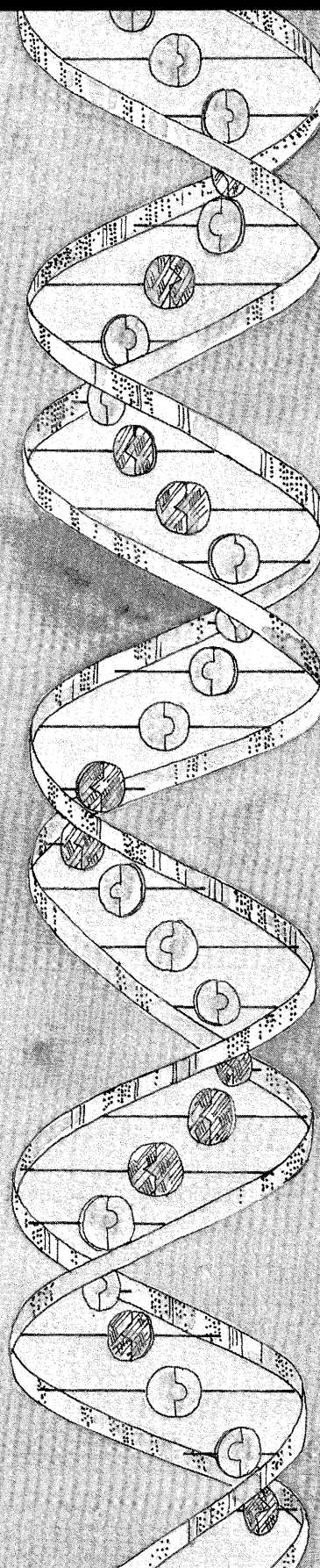
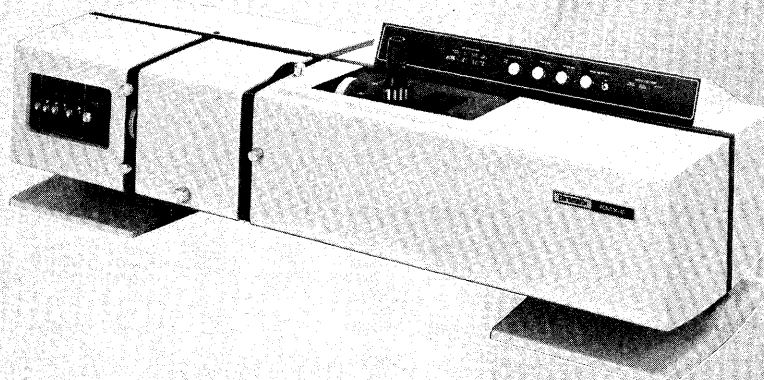
1. D. Freifelder, *J. Mol. Biol.* **54**, 567 (1970).
2. K.V. Shooter, G.H. Goodwin, and E.W. Johns, *Eur. J. Biochem.* **47**, 263 (1974).
3. G.H. Goodwin, K.V. Shooter, and E.W. Johns, *Eur. J. Biochem.* **54**, 427 (1975).

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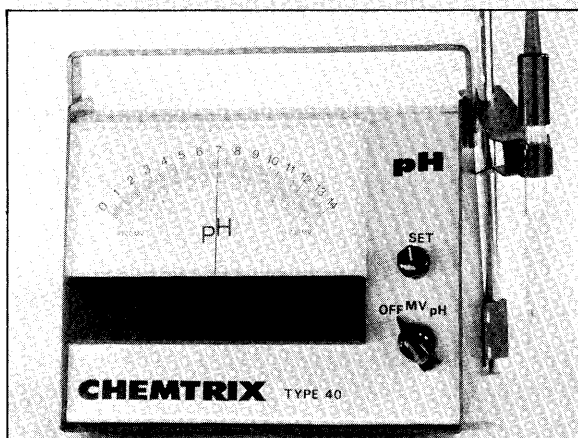
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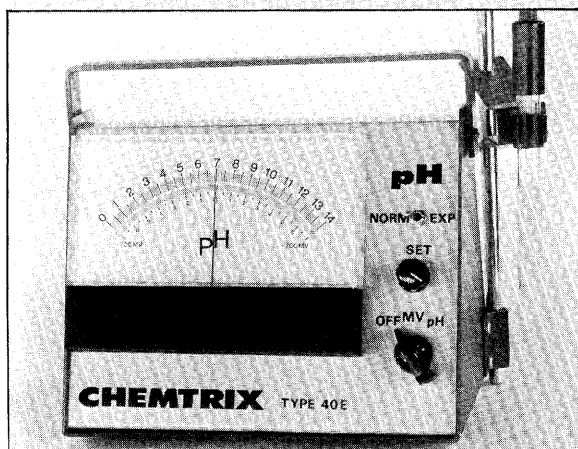
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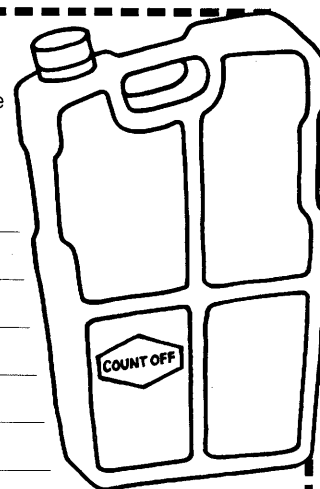
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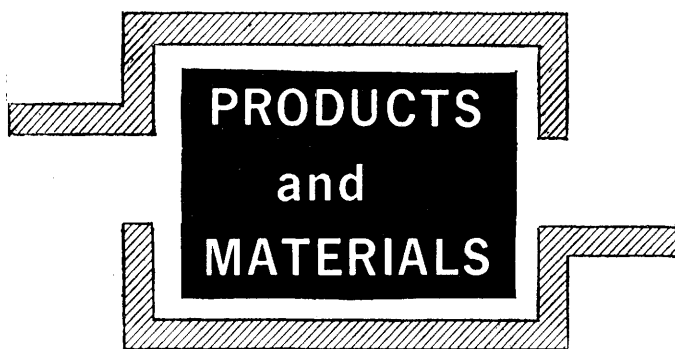
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### Literature

*Membrane Filter Technology* is devoted to a line of products including filter holders, support plates and screens, and filters. Johns-Manville. Circle 691.

*Chromatography Columns* describes glass capillary columns for gas chromatography. Shimadzu Scientific Instruments. Circle 692.


*Marine Aquarium Laboratory Manual* includes 21 activities that use a closed marine system. The manuals are available for \$4.95 each. Jewel Industries. Circle 693.

*Quantum Chemistry Program Exchange* lists computer programs applicable to the science of chemistry. Indiana University, Department of Chemistry. Circle 694.

*Disposable Filter Assembly Guide* describes a line of products for the removal of particulate matter from fluids. Pall Trinity Micro. Circle 696.

*T<sub>3</sub> and T<sub>4</sub> Radioimmunoassays* are described in a 4-page pamphlet. Oxford Laboratories. Circle 697.

*Biooxidation of Sewage and Industrial Wastes* is an extensive bibliography of recent articles. Pope Scientific. Circle 698.



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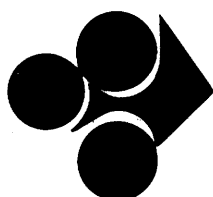
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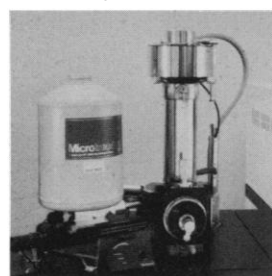
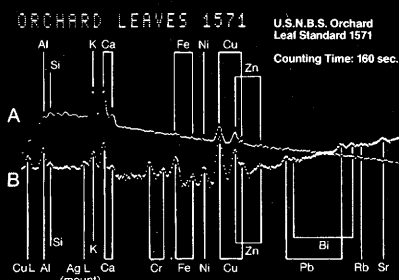
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## NEWS AND COMMENT

(Continued from page 923)

federal Food and Drug Administration (FDA), had nevertheless recommended that tolerances be reduced to 1 part per billion—the lowest detectable level.

“No matter which decision [the governor] made,” Taylor added, “he was vulnerable to criticism from the opponents of that position, based on the report and recommendations of his advisory panel.” In his view, science advisers should adopt “more of an advocacy position.” As it turned out, Milliken followed the advisory panel’s advice in recommending a drastic lowering of the tolerance level, but the FDA and the state agriculture department refused to change it.

In an interview with *Science*, Taylor said that an ad hoc panel is more likely to render useful advice if it is chaired by the governor’s science adviser, as has been the case with the panels on Seafarer and nuclear wastes (but not with the one on PBB). The Seafarer panel could find no environmental reason why the state should oppose the project out of hand. Accordingly, no final state decision will be made until a final environmental impact statement has been prepared, a National Academy of Sciences report has been completed, and a regional referendum has been held. Milliken has said that his decision whether to oppose the project will be determined by the results of the referendum—a political commitment Taylor now regards as unfortunate.

Since late last winter, Taylor has presided over four meetings of a group of 10 to 20 people—top research administrators and medical and business school deans from Michigan’s major public universities—which may eventually be formally ordained by the governor as his science advisory committee. The committee might play a triple role: validating the competence of the persons to be selected for ad hoc panels, reviewing or commenting on reports from such panels, and advising the governor on long-term problems.

In its initial meetings, this group has tried to identify several problems that can be addressed in a “proactive” (as opposed to a “reactive”) mode. As a result, the Environmental Research Institute of Michigan is taking the lead in preparing a proposal for ERDA to support a project whereby electricity could be generated as a by-product of steam produced to heat a complex of new state buildings outside Lansing. Also, plans are being made for a number of public and private health agencies to investigate the reason for the varying incidence of

cancer among Michigan counties. The committee also hopes to define useful inquiries bearing on the problems of economic diversification and of farm production in an era of increasing energy scarcity.

However promising, the Michigan experience cannot yet be said to conclusively demonstrate the value of science advice. “Like a lot of things, it has not been flexed enough to show how useful it will be,” says John Cantlon, vice president for research at Michigan State University and a member of the science advisory committee. Nevertheless, lessons learned in Michigan and a small number of other states may figure importantly in the next few years, as state governments across the nation, with NSF’s help, try to overcome the present absence of institutionalized science advice at the statehouse.

—LUTHER J. CARTER

## RECENT DEATHS

**Ada H. Arlitt**, 86; professor emeritus of child care and training and psychology, University of Cincinnati; 13 September.

**Merriss Cornell**, 64; professor of social work, Ohio State University; 17 April.

**Savino A. D’Angelo**, 66; professor of histology and embryology, Jefferson Medical College, Thomas Jefferson University; 18 August.

**Walter J. Gale**, 62; former president, Pembroke State University; 9 September.

**Martin E. Hanke**, 78; professor emeritus of biochemistry, University of Chicago; 18 September.

**Mordecai W. Johnson**, 86; former president, Howard University; 10 September.

**Alexander Joseph**, 69; former chairman of science and mathematics, John Jay College, City University of New York; 3 September.

**Walter Riese**, 86; associate professor emeritus of neurology, psychiatry, and the history of medicine, Medical College of Virginia; 9 September.

**Leopold Ruzicka**, 89; retired professor of organic chemistry, Federal Institute of Technology, Zurich; 26 September.

**William M. Sweeney**, 55; director of medical research, Lederle Laboratories, American Cyanamid Company; 6 September.

**Moddie D. Taylor**, 64; former chairman of chemistry, Howard University; 15 September.



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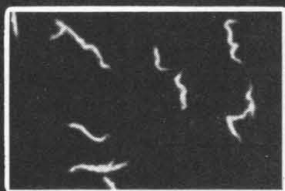


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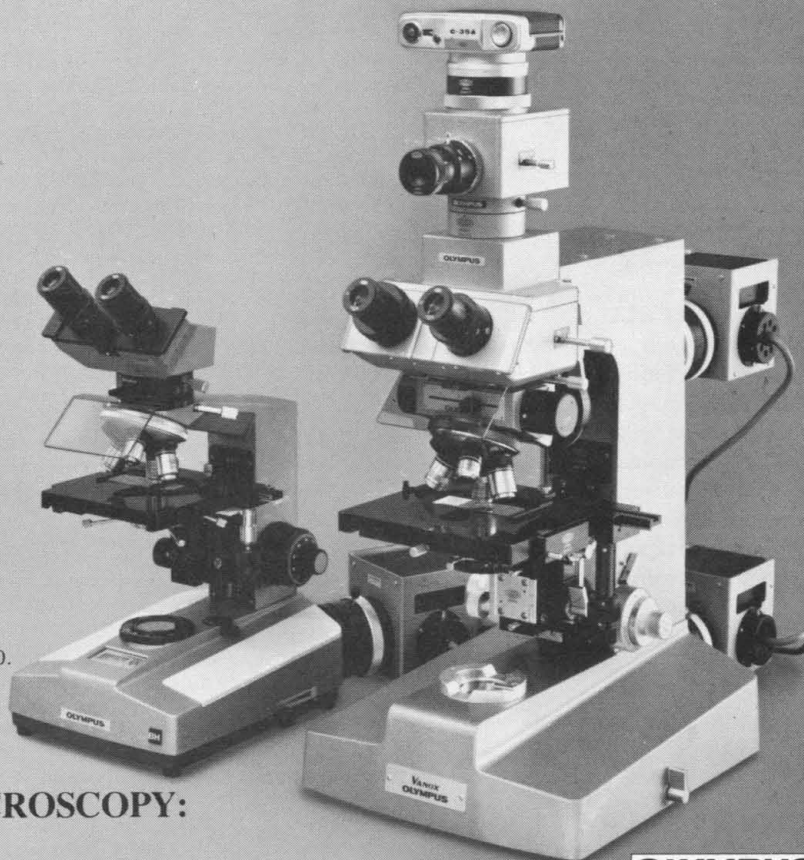
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**EPIDEMIOLOGY FOR THE HEALTH SCIENCES: A Primer on Epidemiologic Concepts and Their Uses (2nd Ptg.)** by Donald F. Austin and S. Benson Werner, *both of the Univ. of California, Berkeley*. Students in all the health sciences are provided with an easy and rapid understanding of epidemiologic concepts not possible with standard textbooks. Selected topics include distinctions between incidence and prevalence; determination of risk factors such as age or sex; distinctions between associated and causal relationships of risk factors to disease; and the uses of epidemic curves, graphs and other pictorial representations in demonstrating disease patterns. '76, 84 pp., 10 il., 3 tables, cloth \$6.75, paper \$3.95

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Forest Grove, Ore.). vi, 186 pp., illus. \$22.50.

**Hormones and Brain Differentiation.** G. Dörner. Elsevier, New York, 1976. viii, 272 pp., illus. \$36.50.

**Humoral Aspects of Transplantation.** Proceedings of a symposium, New York, Sept. 1975. Albert L. Rubin and Kurt H. Stenzel, Eds. Grune and Stratton, New York, 1976. viii, 152 pp., illus. \$15.50. Reprinted from *Transplantation Proceedings*, vol. 8, No. 2.

**The Hunger of Eve.** A Woman's Odyssey toward the Future. Barbara Marx Hubbard. Stackpole Books, Harrisburg, Pa., 1976. 224 pp. \$8.95.

**Hypnosis.** Trance as a Coping Mechanism. Fred H. Frankel. Plenum, New York, 1976. xii, 186 pp. \$14.95. Topics in General Psychiatry.

**Infrared and Raman Spectroscopy.** Part A. Edward G. Brame, Jr., and Jeanette G. Grasselli, Eds. Dekker, New York, 1976. xii, 346 pp., illus. \$33.75. Practical Spectroscopy, vol. 1.

**The Initial Interview in Psychotherapy.** Hermann Argelander. Translated from the German edition by Hela Freud Bernays. Human Sciences Press, New York, 1976. 150 pp. \$13.95. Psychotherapy Series.

**Insect Clocks.** D. S. Saunders. Pergamon, New York, 1976. viii, 280 pp., illus. \$18.50. International Series in Pure and Applied Biology (Zoology Division), vol. 54.

**The Insect Integument.** H. R. Hepburn, Ed. Elsevier, New York, 1976. xx, 572 pp., illus. \$63.50.

**Instrumental Liquid Chromatography.** A Practical Manual on High-Performance Liquid Chromatographic Methods. N. A. Parris. Elsevier, New York, 1976. x, 330 pp., illus. \$38.50.

**Islamic Patterns.** An Analytical and Cosmological Approach. Keith Critchlow. Schocken, New York, 1976. 192 pp., illus. \$24.95.

**Loose Boundary Hydraulics.** A. J. Raudkivi. Pergamon, New York, ed. 2, 1976. xii, 398 pp., illus. Cloth, \$20; paper, \$12.50. Pergamon International Library.

**Man and the Boreal Forest.** Proceedings of a meeting, Stockholm, Oct. 1975. C. O. Tamm, Ed. Swedish Natural Science Research Council (NFR), Stockholm, 1976. 154 pp., illus. Paper, 35 SKr. Ecological Bulletins, No. 21.

**Medical Education and the State.** The Changing Pattern in Ten Countries. Ronald V. Christie. National Institutes of Health, Bethesda, Md., 1976 (available from the Superintendent of Documents, Washington, D.C.). xiv, 142 pp. \$4.40. Fogarty International Center Proceedings No. 31. DHEW Publication no. (NIH) 76-943.

**Microbiology of Aerial Plant Surfaces.** Papers from a meeting, Leeds, England, Sept. 1975. C. H. Dickinson and T. F. Preece, Eds. Academic Press, New York, 1976. x, 670 pp., illus. \$28.

**Molecular Endocrinology of the Steroid Hormones.** Dennis Schulster, Summer Burstein, and Brian A. Cooke. Wiley, New York, 1976. xvi, 322 pp., illus. Cloth, \$21.50; paper, \$10.95.

**Molybdenum in the Environment.** Vol. 1, The Biology of Molybdenum. Proceedings of a symposium, Denver, June 1975. Willard R. Chappell and Kathy Kellogg Petersen, Eds. Dekker, New York, 1976. xii, 316 pp., illus. \$29.50.

**Mosquito Ecology.** Field Sampling Methods. M. W. Service. Halsted (Wiley), New York, 1976. xii, 584 pp., illus. \$75.

**The Nature of Maps.** Essays toward Understanding Maps and Mapping. Arthur H. Robinson and Barbara Bartz Petchenik. University of Chicago Press, Chicago, 1976. xii, 138 pp., illus. \$8.95.

**The New Elements of Mathematics.** Vol. 2, Algebra and Geometry. Charles S. Peirce. Carolyn Eisele, Ed. Mouton, The Hague, and Humanities Press, Atlantic Highlands, N.J., 1976. xxxii, 672 pp., illus. \$76.

**Nonlinear Programming.** Analysis and Methods. Mordecai Avriel. Prentice-Hall, Englewood Cliffs, N.J., 1976. xvi, 512 pp. \$24.95. Prentice-Hall Series in Automatic Computation.

**100 Numerical Games.** Pierre Berloquin. Translated from the French edition (Paris, 1973). Scribner, New York, 1976. viii, 152 pp., illus. \$7.95.

**Photonuclear Reactions.** Everett G. Fuller and Evans Hayward, Eds. Dowden, Hutchinson and Ross, Stroudsburg, Pa., 1976 (distributor, Halsted [Wiley], New York). xx, 428 pp., illus. \$30.

**Physiologic Disposition of Drugs of Abuse.** Louis Lemberger and Alan Rubin. Spectrum, New York, 1976 (distributor, Halsted [Wiley], New York). xiv, 402 pp., illus. \$29.50.

**Pills, Profits, and Politics.** Milton Silverman and Philip R. Lee. University of California Press, Berkeley, 1976. xviii, 404 pp., illus. Paper, \$4.95. Reprint of the 1974 edition.

**Policy Analysts in the Bureaucracy.** Arnold J. Meltsner. University of California Press, Berkeley, 1976. x, 310 pp. \$10.

**A Primer on PASCAL.** Richard Conway, David Gries, and E. C. Zimmerman. Winthrop, Cambridge, Mass., 1976. xiv, 434 pp. Paper, \$9.95. Winthrop Computer Systems Series.

**Der Wert des Wissens und die Verantwortung des Wissenschaftlers.** Untersuchungen am Beispiel der modernen Biologie. Reinhart Schneider. Verlag Anton Hain, Meisenheim, Germany, 1976. vi, 186 pp. Paper, DM 36.

**Die Wettervorhersage.** Einführung in die Theorie und Praxis. Heinz Reuter. Springer-Verlag, New York, 1976. xiv, 208 pp., illus. \$48.80.

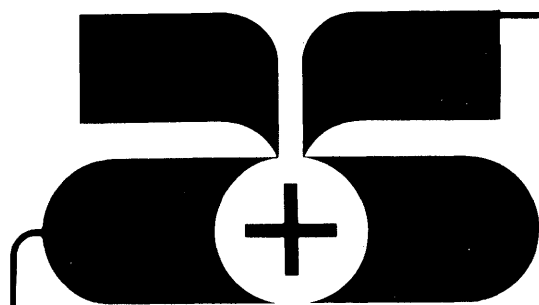
**World Mineral Supplies.** Assessment and Perspective. G. J. S. Govett and M. H. Govett, Eds. Elsevier, New York, 1976. xx, 472 pp., illus. \$34.75. Developments in Economic Geology, 3.

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**Ceramic Fabrication Processes.** Franklin F. Y. Wang, Ed. Academic Press, New York, 1976. xx, 380 pp., illus. \$39.50. Treatise on



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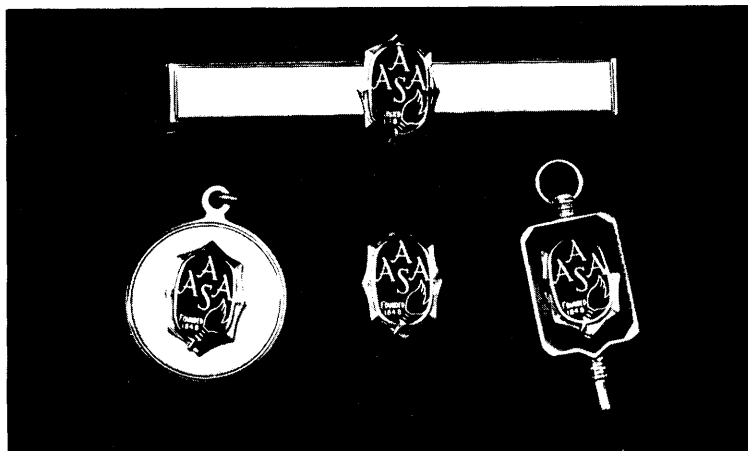
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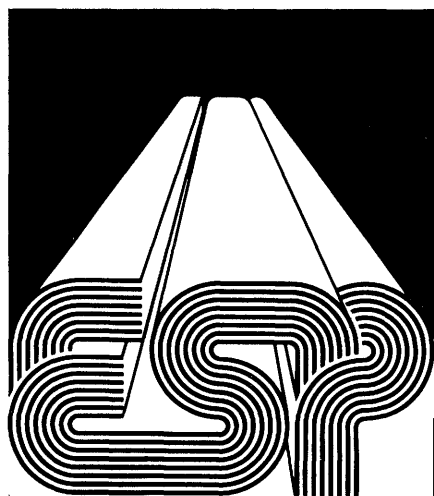
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**Computational Methods and Problems in Aeronautical Fluid Dynamics.** Proceedings of a conference, Manchester, Sept. 1974. B. L. Hewitt and six others, Eds. Academic Press, New York, 1976. xiv, 526 pp., illus. \$26.25. *To order this book circle No. 395 on Readers' Service Card*

**Consciousness and Self-Regulation.** Advances in Research. Vol. 1. Gary E. Schwartz and David Shapiro, Eds. Plenum, New York, 1976. xxii, 400 pp. \$18.95. *To order this book circle No. 396 on Readers' Service Card*

**Digital Picture Processing.** Azriel Rosenfeld and Avinash C. Kak. Academic Press, New York, 1976. xii, 458 pp., illus. \$28.50. Computer Science and Applied Mathematics. *To order this book circle No. 397 on Readers' Service Card*

**Fossil Vertebrates of Africa.** Vol. 4. R. J. G. Savage and Shirley C. Coryndon, Ed. Academic Press, New York, 1976. xii, 338 pp., illus. + plates. \$46.25. *To order this book circle No. 370 on Readers' Service Card*

**Function and Metabolism of Phospholipids in the Central and Peripheral Nervous Systems.** Proceedings of a meeting, Cortona, Italy, Aug. 1975. Giuseppe Porcellati, Luigi Amaducci, and Claudio Galli, Eds. Plenum, New York, 1976. xii, 412 pp., illus. \$37.50. Advances in Experimental Medicine and Biology, vol. 72. *To order this book circle No. 398 on Readers' Service Card*

**Industrial Microbiology.** Brinton M. Miller and Warren Litsky. McGraw-Hill, New York, 1976. xiv, 466 pp., illus. \$19. *To order this book circle No. 399 on Readers' Service Card*

**Methodicum Chemicum.** A Critical Survey of Proven Methods and Their Application in Chemistry, Natural Science, and Medicine. Friedhelm Korte, Ed. Vol. 8, Preparation of Transition Metal Derivatives. Kurt Niedenzu and Hans Zimmer, Eds. Translated from the German edition (1973). Academic Press, New York, and Thieme, Stuttgart, 1976. x, 580 pp., illus. \$110. *To order this book circle No. 369 on Readers' Service Card*

**Modern Fluorescence Spectroscopy.** Vol. 2. E. L. Wehry, Ed. Plenum, New York, 1976. xx, 460 pp., illus. \$29.50. Modern Analytical Chemistry. *To order this book circle No. 385 on Readers' Service Card*

**Nonemissive Electrooptic Displays.** Proceedings of a symposium, Baden, Switzerland, Sept. 1975. A. R. Kmetz and F. K. von Willisen, Eds. Plenum, New York, 1976. xxii, 360 pp., illus. \$35. *To order this book circle No. 400 on Readers' Service Card*

**Plastics Engineering Handbook of the Society of the Plastics Industry, Inc.** Joel Frados, Ed. Van Nostrand Reinhold, New York, ed. 4, 1976. xviii, 910 pp., illus. \$39.95. *To order this book circle No. 401 on Readers' Service Card*

**Tropical Trees.** Variation, Breeding and Conservation. Papers from a symposium, Oxford, England, Apr. 1975. J. Burley and B. T. Styles, Eds. Published for the Linnean Society of London by Academic Press, New York, 1976. xvi, 244 pp., illus. \$20.25. Linnean Society Symposium Series, No. 2. *To order this book circle No. 402 on Readers' Service Card*

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