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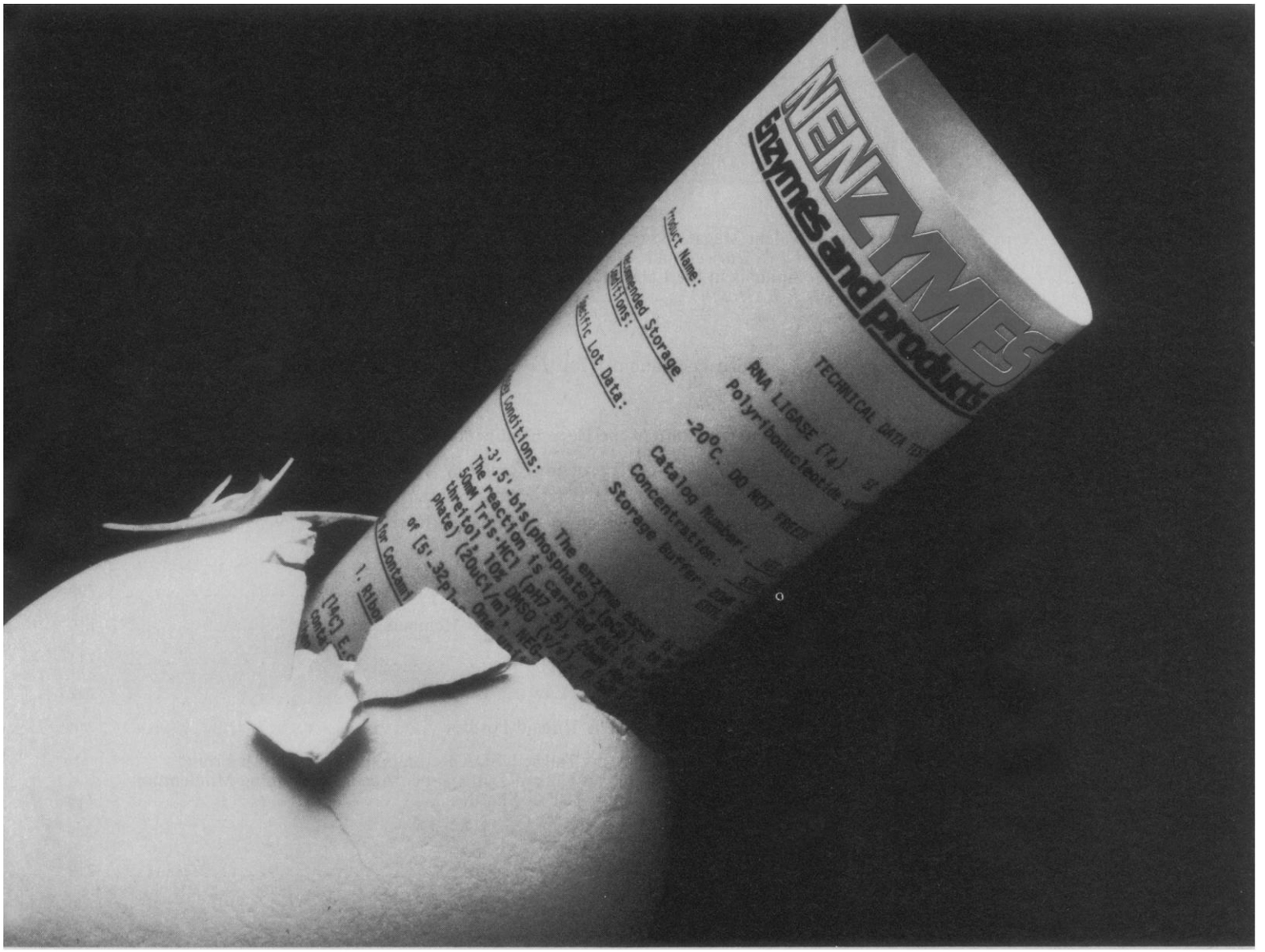

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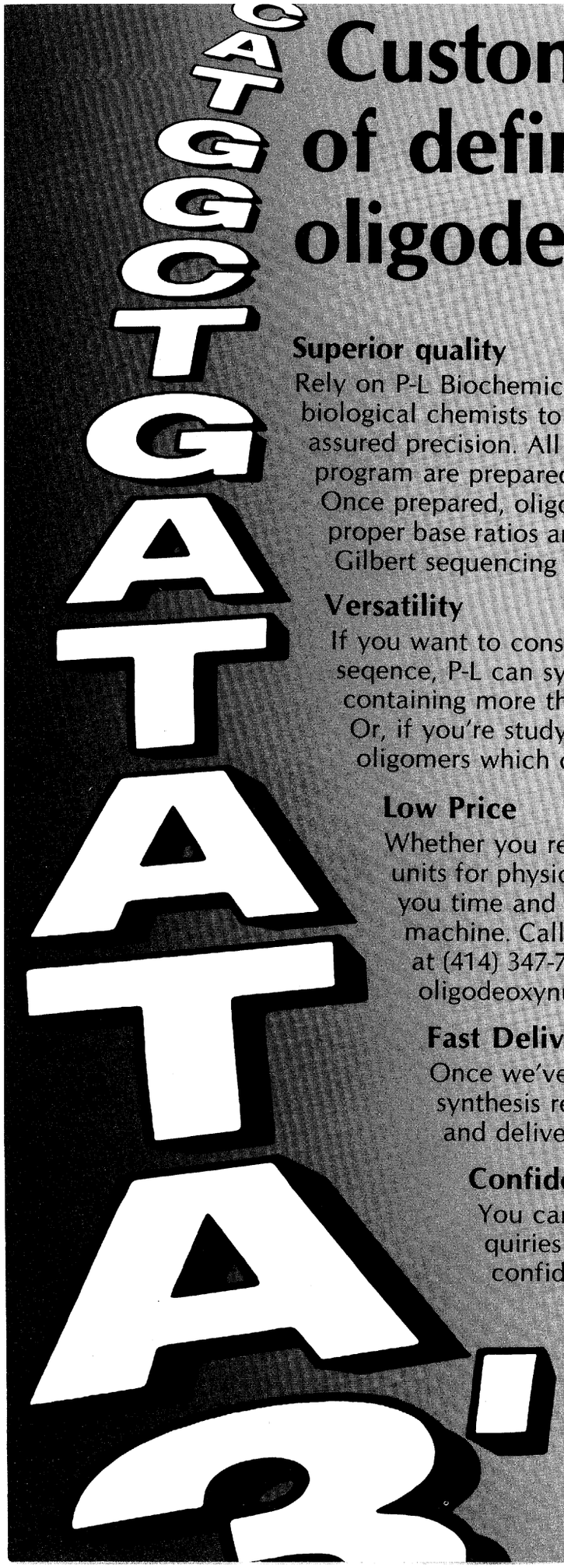

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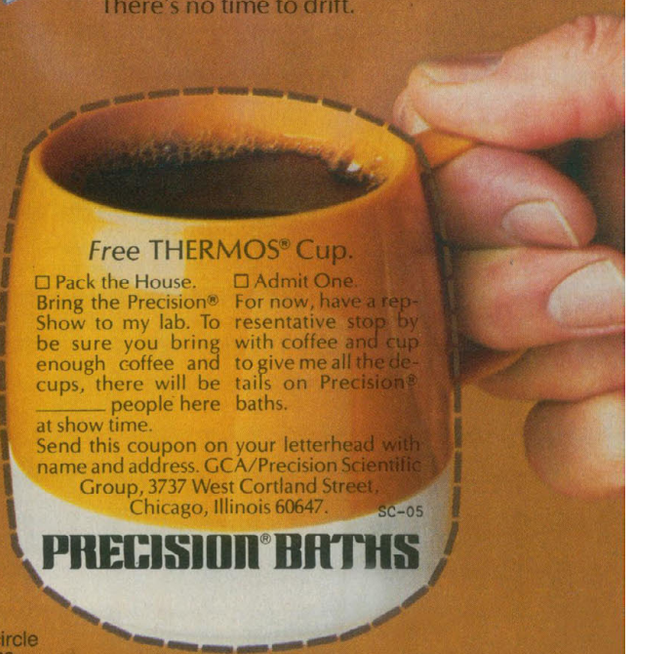

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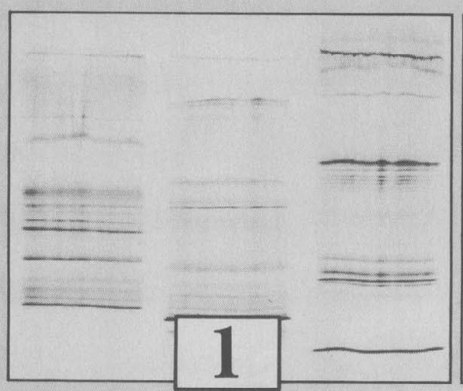

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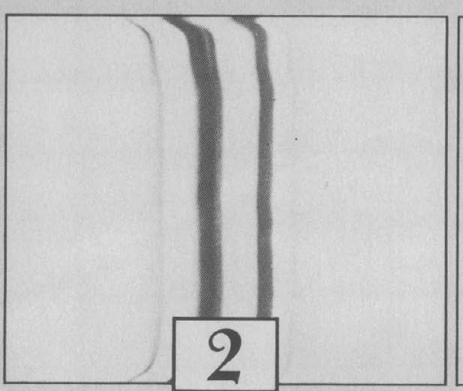

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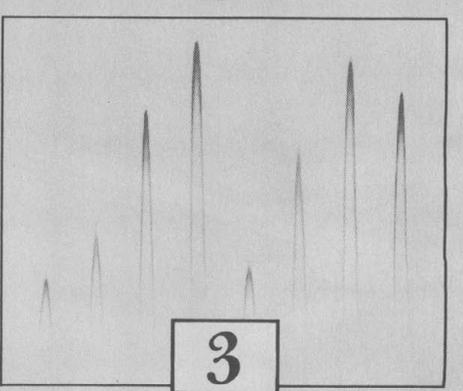
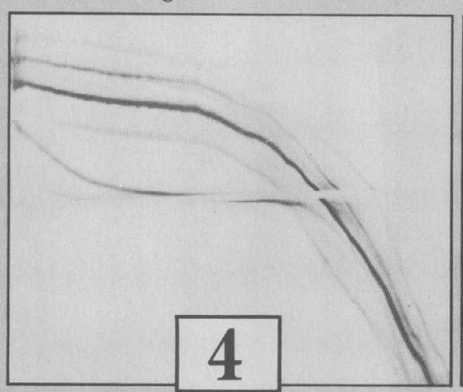
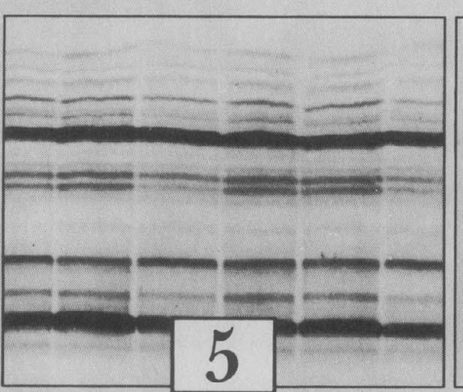


Quantitate proteins by Laurell rockets or run any popular immunoelectrophoretic technique. The new Mini Electrophoresis Kit costs only half the price of the original kits yet gives you everything you need to get started with agarose and immunoelectrophoresis.



Produce titration curves of your sample mixtures to gain information about stability, heterogeneity, interactions, pI, and the best pH for purification. Simultaneously display the electrophoretic mobility versus pH of every component in a single experiment with the new Titration Curve Kit.



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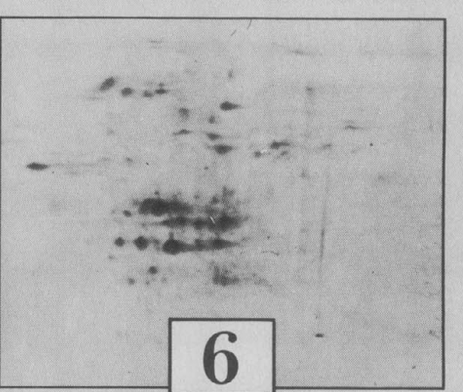

Map complex protein and peptide mixtures with two-dimensional electrophoresis. Combine high performance electrofocusing in the first dimension with ultrathin-layer gradient gel electrophoresis in the second, using the latest procedure developed by Görg et. al. and the new 2-D and Gradient Gel Kit.

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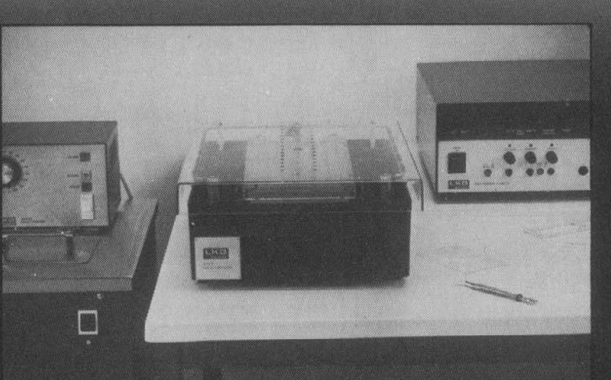

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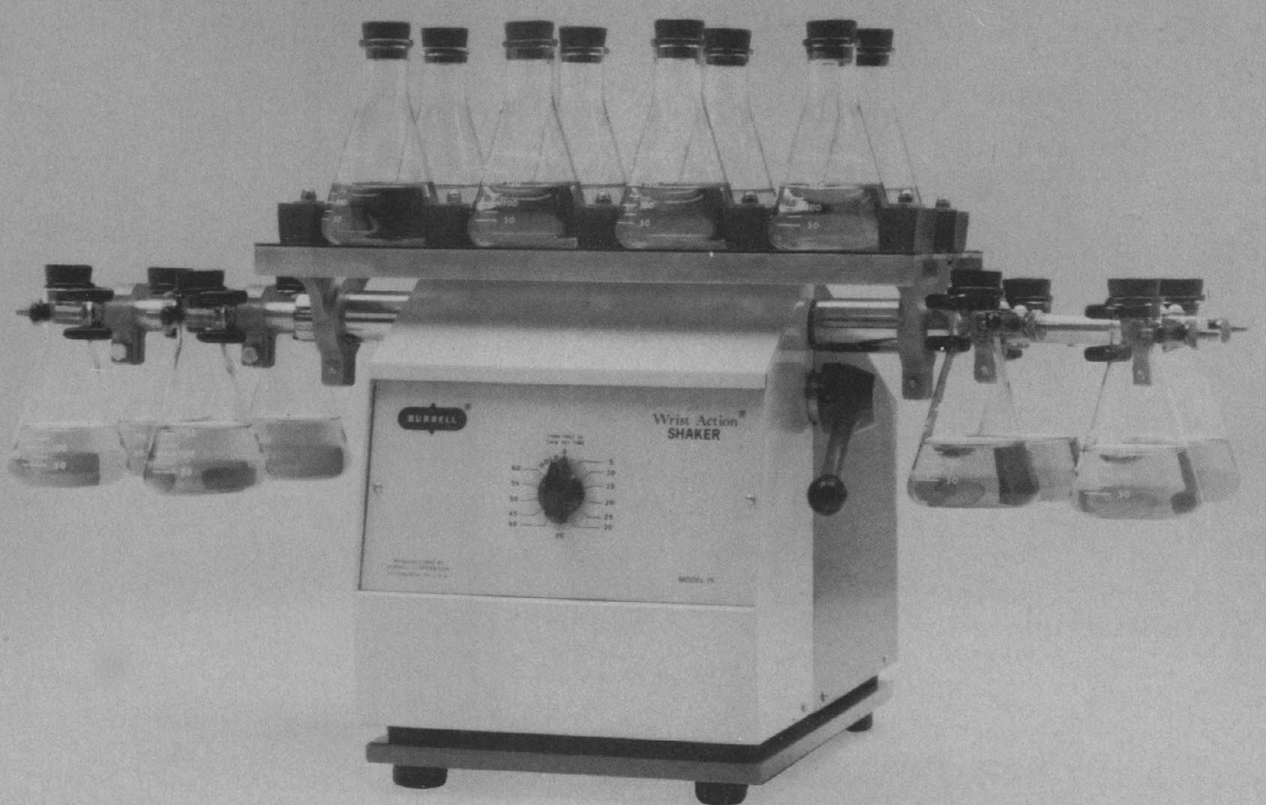

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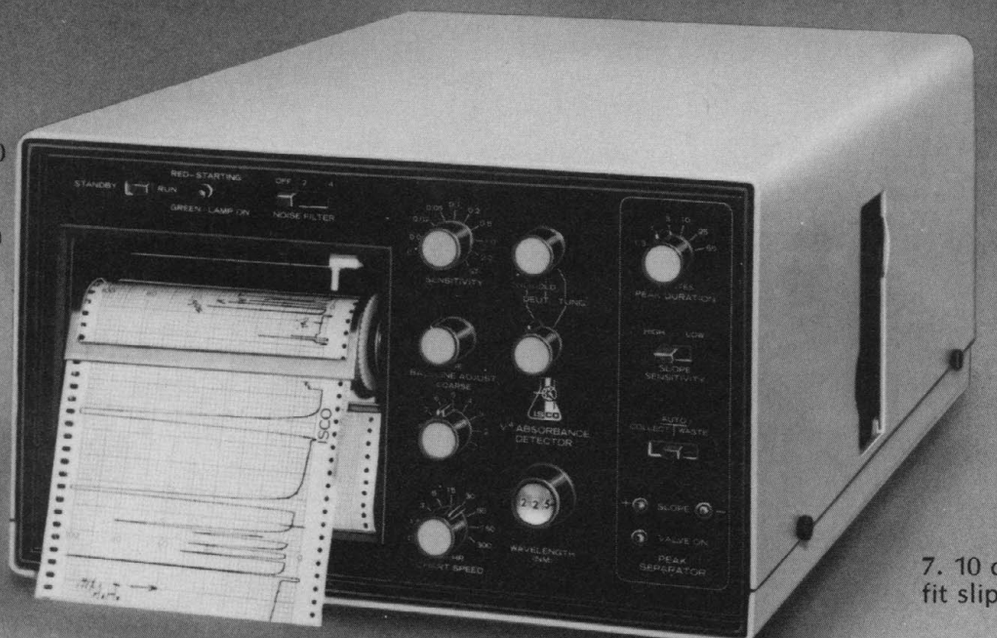

8. Top specs: 190-700 nm range, 6 nm bandwidth, 0.002 AUFS sensitivity, $5x10^{-5}$ A noise

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4. Choose built-in 10 cm chart recorder or LED readout

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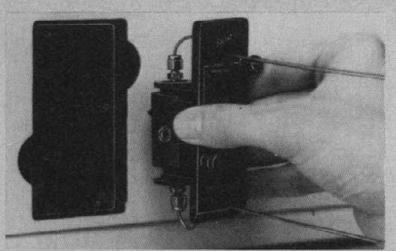

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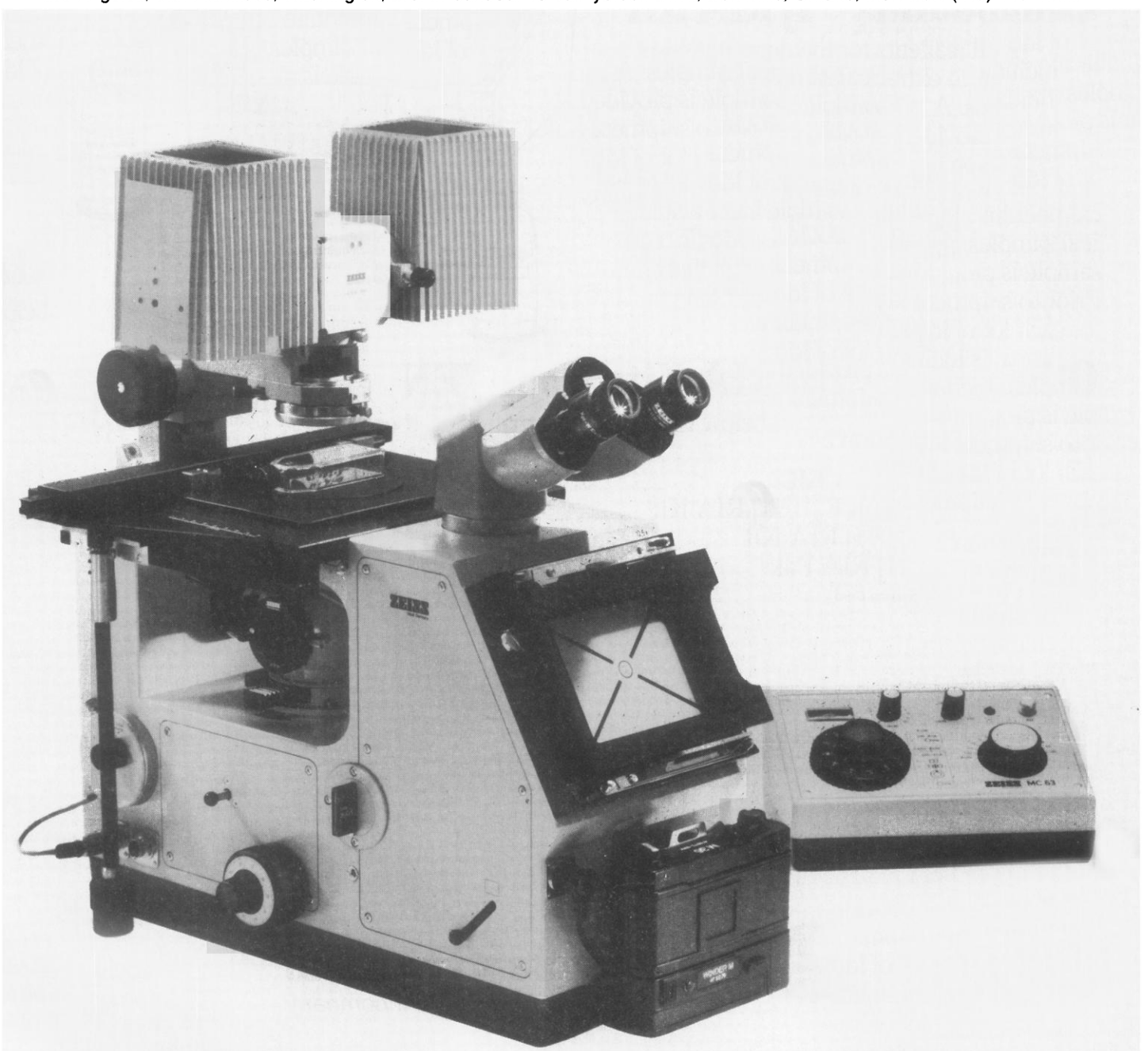

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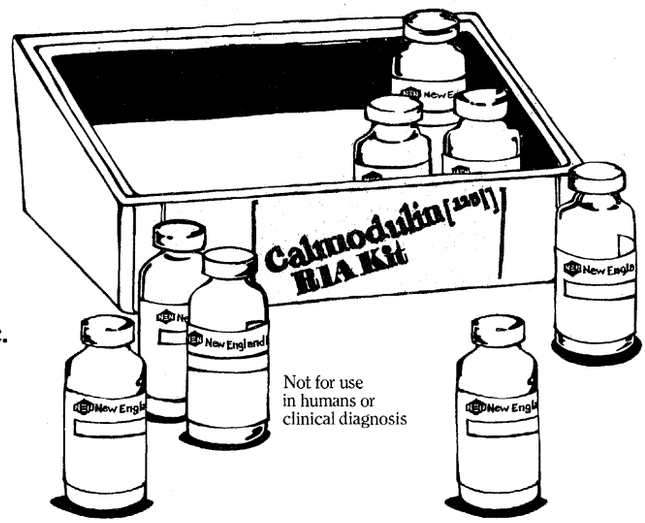

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HONORING A.D. BANGHAM, F.R.S.

SEPTEMBER 22-24, 1982 SCANTICON CONFERENCE CENTER

PRINCETON, NEW JERSEY

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SYMPOSIA AND SPEAKERS

SYMPOSIUM I: PHYSICAL CHEMISTRY OF LIPOSOMES

Dr. Donald Small (Boston University)
Dr. Pieter Cullis (University of British Columbia)
Dr. Thomas E. Thompson (University of Virginia)
Dr. Adrian Parsegian (National Institutes of Health)

SYMPOSIUM II: INSERTION OF PROTEINS INTO LIPOSOME MEMBRANES

Dr. Efraim Racker (Cornell University)
Dr. David Deamer (University of California at Davis)
Dr. Jack Strominger (Harvard)
Dr. Jacqueline Reynolds (Duke University)

SYMPOSIUM III: TRANSFER OF LIPIDS AND SOLUTES TO CELLS VIA LIPOSOMES

Dr. Richard E. Pagano (Carnegie Institution)
Dr. John N. Weinstein (National Institues of Health)
Dr. Gerald Weissman (New York University)
Dr. Rudolph L. Juliano (University of Texas Health Science Center at Houston)

SYMPOSIUM IV: TRANSFER OF MACROMOLECULES INTO CELLS VIA LIPOSOMES

Dr. Demetrios Papahadjopoulos (University of Calif. at S.F.)
Dr. Marc J. Ostro (Liposome Company)
Dr. George Poste (Smith, Kline & French)
Dr. Ari Helenius (Yale University)

SYMPOSIUM V: USE OF LIPOSOMES IN IMMUNOLOGICAL STUDIES

Dr. Carl Alving (Walter Reed Army Institute of Research)
Dr. Hans Muller-Eberhard (Scripps Clinic & Research Foundation)
Dr. Harden McConnell (Stanford University)

CONFERENCE SUMMARY:

Dr. Malcolm S. Steinberg (Princeton University)

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have declined from 52 percent in 1979 to 27 percent in 1983. To continue deliberating whether the biomedical research community should devote $45 million to the self-resolving "problem" of animal use (as legislation currently under congressional consideration would do) is to fiddle while Rome burns.

DOUGLAS M. BOWDEN
Department of Psychiatry and Behavioral Sciences, School of Medicine, University of Washington, Seattle 98195

References

1. Committee on Laboratory Animal Facilities and Resources, Institute of Laboratory Animal Resources, National Academy of Sciences, *National Survey of Laboratory Animal Facilities and Resources* (National Institutes of Health, Bethesda, Md., 1980), pp. 20–21.
2. *Primate Rep.* (No. 8) (1981), p. 31.
3. *Fed. Am. Soc. Exp. Biol. Newsl.* **15**, 1 (1982).

Cost of New Journals

I write to seek discussion of a growing problem for our university and institutional libraries. Many of these libraries, caught between increasingly restrictive budgets and an uncontrolled growth of primary literature sources, are turning to both conventional and user-oriented fund-raising campaigns. This tactic may only exacerbate the problem.

The new sources are largely proprietary, for-profit ventures that depend upon the free, goodwill services of the very universities that must pay inflated rates for the final product, a journal or symposium. Journals are a particular concern because subscription implies a long-term investment. All of these journals carry heavy page charges for the authors as well.

Printers ("publishers" is hardly accurate in these cases) exploit universities for editors, charge for publication costs, and distribute thin volumes at exceedingly high cost to university and institutional libraries. Hard-pressed libraries in turn are soliciting students, alumni, and faculty for funds to maintain and expand the market for these profitable ventures. The scholarly community should seek to limit the growth and profitability of these ventures.

In some cases new journals truly fill a much-needed gap. Editors of both reputable society-based and university press journals must compete for manuscripts with the new journals. The more rigorous journals, proprietary or not, impose high standards that lead to accompanying delays for revision. When challenged by the 4-months-to-publication cycle of quickie, nearly unrefereed proprietary journals, editorial boards may compromise standards to attract sufficient manuscripts. A general dilution of quality in published research is certain. As scholars and scientists, we must protect the integrity of our disciplines and our libraries. I propose the following.

1) Universities and other scholarly institutions should impose a nominal fee for the services of editors and associate editors of proprietary journals. After all, the time and services of these persons is already paid by the institutions. The concept of public service is stretched when those services provide a healthy margin of profitability to a private company. These fees would be accumulated into a fund to support library acquisitions. This procedure would restrict the prospect of profitability to the printers and assist libraries in keeping up with the new journal flood. I suggest $2000 to $5000 per year for primary editors and $1000 per year for associate editors and board members. Society, university, and not-for-profit publishers would be exempt from a fee. Those printers who currently pay honoraria for editorial services could shift the payment from the editor to the institution.

2) Committees of evaluators could simply discount publications in proprietary journals in much the same way popular publications are discounted in scholarly evaluations. This would be in lieu of actually reading and evaluating the publications of candidates for appointment or promotion, which seems distasteful and has led to counting papers rather than evaluating them.

3) Some scholars refuse to referee manuscripts for proprietary journals because they see a conflict between the free dissemination of knowledge and the economics of proprietary publication. More scholars could consider taking this position as a means of both pressuring journal publishers to reduce the cost of journals to libraries and inhibiting the start-up of unnecessary new journals.

4) Journals of major circulation, like *Science* and *Nature*, could encourage publication of reviews of new journals a year or two after they are founded. The reviews would focus on the quality of the published papers and include an evaluation of the need for the new journal.

JAMES E. HEATH
Department of Physiology and Biophysics, University of Illinois at Urbana-Champaign, Urbana 61801

Erratum: Arthur Schawlow should have been identified as a Nobel laureate in physics, not chemistry, in Eliot Marshall's article "Gould advances inventor's claim on the laser" (News and Comment, 23 Apr., p. 392).

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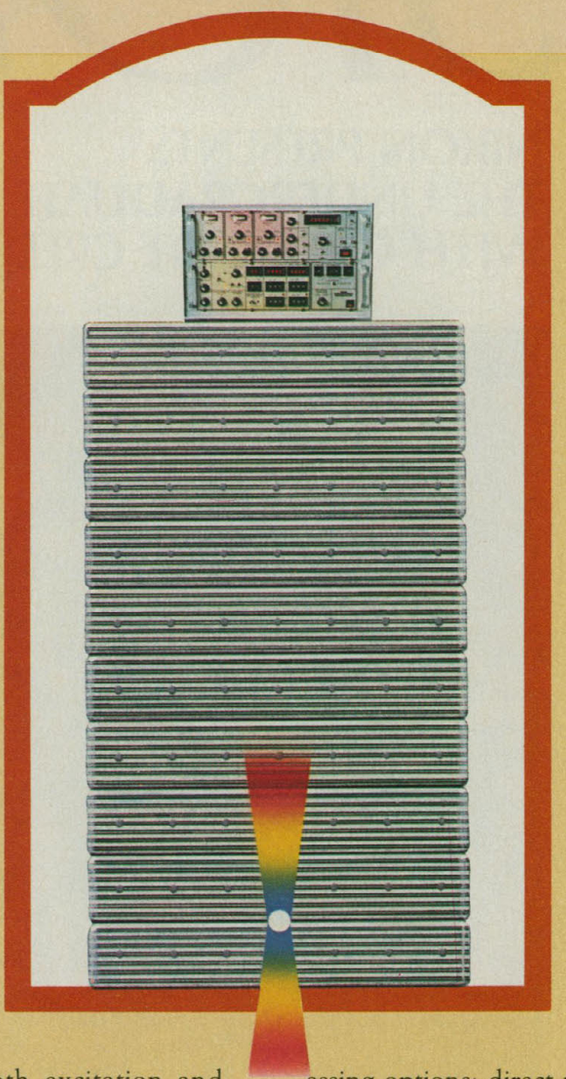

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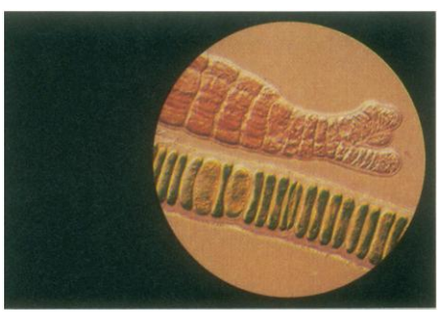

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14 May 1982, Volume 216, Number 4547 **SCIENCE**

Scientific Instrumentation

Prior to 1965, owing to generous support, university research laboratories were well equipped. But with the growing pressure on available funds that began at that time, a pattern of postponing equipment purchases emerged. By 1970, a problem was widely recognized: university scientists were working with obsolescent equipment.

A National Research Council report commissioned by the National Science Board in the early 1970's gave the cost of updating the laboratories as $200 million at that time. With the inflation of the ensuing decade, compounded by the growing complexity and sophistication of instrumentation, that figure has grown to a conservatively estimated $1 billion.

At a recent meeting of an ad hoc Working Group on Scientific Instrumentation convened by the National Research Council, one participant observed: "The problem of instrumentation in our research universities has implications for the whole country. . . . [W]e are educating a generation of scientists who, when they leave the university, suffer the disadvantages that many people from less developed countries feel when they come to work in a technologically advanced country. This hurts us in a broad range of our activities, both in the defense establishment and in our industrial establishment." He went on to point out that existing scientific and engineering manpower in the universities has outstripped the dollars available for equipment.

But it would not be realistic to try to solve the problem solely by a large infusion of federal funds. The Working Group therefore turned its attention to ways of promoting more effective use of existing resources. A number of leaders of corporate research laboratories participating in the group outlined their procedures for ensuring a balance between manpower and capital expenditures. This stimulated a reassessment by academic participants of institutional arrangements that promote similar rational planning in the academic environment, such as organizing experimental scientists in closely allied areas into research groups with block funding.

The Working Group recommended that several tutorial workshops be organized on a regional level under the auspices of the National Research Council. These workshops would have two objectives: (i) to achieve a more balanced emphasis on provision of modern research instrumentation by revising the policies, mechanisms, and procedures of research support, management, and financing, and (ii) to reduce the current deficit of modern research equipment. Efforts in this direction will be more productive if the research-producing system shows determination to use its resources more effectively. The work of the Interagency Task Force on Instrumentation led by the National Science Foundation, highlighted by the $30-million initiative from the Department of Defense, was enthusiastically supported. Nevertheless, whatever improvements are accomplished in the management of research, there will still be a substantial backlog of need that can only be addressed by the federal government.

The overall purpose of the workshops, then, would be to inform the university community (researchers, administrators, and trustees) of new approaches to providing and using instrumentation. An exchange of practical experience would be sought, with the hope that the universities could respond to the problem with new initiatives and practices. The regional workshops would form the basis for preparing a policy statement and a call to action that could provide some stability for a decade or longer.

Our country's scientific enterprise is a unique combination of individuals from universities, industrial research laboratories, and government research laboratories. The meeting adjourned with a clear sense that discussions among these three elements of the U.S. scientific enterprise could work to the mutual benefit of all three sectors in the solution of this fundamental problem in experimental science.—WILLIAM A. FOWLER *and* DONALD C. SHAPERO, *Office of Physical Sciences, National Research Council, Washington, D.C. 20418*

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