25 August 1978 • Vol. 201 • No. 4357

\$1.50

SCIENCE

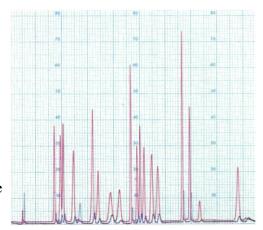
AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

AAAS Annual Elections

The sensible analyzer

The 119CL is the sensible amino acid analyzer that gives you fast, accurate results with simple programming and automatic operation—all at moderate cost. Beckman representatives install your analyzer, then thoroughly train you on your own instrument. Illustrated guides show you how to set up various runs. And the proven components of the Model 119CL assure you of reliable operation.

From a performance standpoint, the 119CL comes close to analyzers costing twice as much. For instance, its sensitivity of 0.5 nanomole means accurate analy-



sis of very small samples. Solid-trace recordings are linear with concentration for easy quantitation. Fast run times

give complete single-column hydrolyzate analyses in only 1½ hours (see chromatogram) and single-column physiological separations in only 4½ hours—times which include regeneration and equilibration. And, if you want to eliminate tedious manual calculations entirely, just add the companion Model 126 Data System.

Send for literature on the sensible 119CL: the best-selling analyzer in the world. Ask for SB-428 from Spinco Division, Beckman Instruments, Inc., 1117 California Ave., Palo Alto, CA 94304.



BECKMAN®

Circle No. 92 on Readers' Service Card

A page of information on flow cytometry from Ortho.

State-of-the-art cell sorting and analysis

Ortho announces the most powerful, precise, and versatile instrument for cell sorting and analysis ever available commercially: the Ortho CytofluorografTM System 50. It combines a rapid cell sorter (based on the electrostatic droplet deflection principle) with a flexible, wide-ranging analysis package in a single versatile unit.

Ortho System 50 for analysis.

Its dual-laser excitation system provides three modes

of excitation. There are two single individual-excitation sources for different purposes: a .8 milliwatt helium-neon laser for ultra-high-precision scatter measurements, and a 4-watt argon laser for fluorescence measurements.

There are four detectors: two are photomultiplier tubes for broad visible-range response, two are solid-state photo sensors for axial light loss and narrow forward-



with the Cytofluorograf System 50

angle scatter. A photomultiplier tube provides for measuring wide-angle scatter.

12 measurement parameters.

The System 50 Cyto-fluorograf permits for the first time the yielding of morphological information by a flow cytometric instrument. Because pulse height analysis, pulse area analysis, and pulse width analysis can be selected for every detector output, a total of 12 distinct measurement parameters is available with the

System 50. Other features of the system include two bidimensional regions of interest, dual histogram multichannel analyzer with cytogram mode, ultra-sensitive optics, and easy sample entry.

Complete details of System 50 are available in a new brochure available from your Ortho Instruments representative or direct from Ortho Instruments.

Protocols No. 25 describes discrimination of mitotic phases by cytofluorographic analysis.

We would like to bring your attention to an application note: Discrimination of G_0 , G_1 , S, G_2 and M phases by Cytofluorographic Analysis contributed by Z. Darzynkiewicz, Ph.D. of Memorial Sloan Kettering Cancer Center, New York, No. 25 in the Ortho Protocols series.

It includes some interesting computer-drawn histograms in its description of how to distinguish mitotic cells from cells in interphase based on differences in chromatin structure. Methods and results are described, with discussion and references.

For a copy of Protocols No. 25, write or call Ortho Instruments

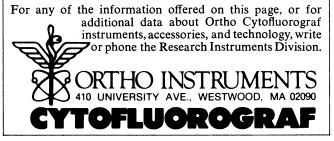
New brochure available on Ortho Cytofluorograf[™] systems for flow cytometry.

Complete details are given on Ortho Cytofluorograf systems in a new brochure. It lists and describes the different combinations of Cytofluorograf modules that permit

you to build a flow cytometry system that precisely meets your present needs and can be modified to suit any future requirements.

With both mercury-arc and dual-laser illumination measurement modules, the new Ortho Cytofluorograf systems offer resolution, sensitivity and versatility unmatched by any other commercially available flow cytometric equipment.

For a copy of this new brochure, phone or write Ortho Instruments.



ISSN 0036-8075

25 August 1978

Volume 201, No. 4357

SCIENCE

LETTER\$	Horatio Alger on Work: E. S. Rabkin; Moscow Genetics Congress: R. Adelstein et al	675
EDITORIAL	Renegotiating the Society-Academy Contract: B. C. Denny	677
ARTICLES	Geographical Trends in Numbers of Species: J. J. Schall and E. R. Pianka	679 687
NEWS AND COMMENT	Fuel Reprocessing Still the Focus of U.S. Nonproliferation Policy	692
	Cancel NASA's Moon Rock Money; Work at Seabrook Resumed	694 696 698
RESEARCH NEWS	Violently Active Galaxies: The Search for the Energy Machine	700
BOOK REVIEWS	A Festschrift for I. I. Rabi, reviewed by B. T. Feld; The Evolution of	702

BOARD OF DIRECTORS	EMILIO Q. DADDARIO Retiring President, Chairman	EDWARD E. DAVID, JF President	R. KENNE Preside	TH E. BOULDING nt-Elect	ELCISE E. CL MARTIN M. C		RENÉE C. FOX BERNARD GIFI	
CHAIRMEN AND SECRETARIES OF AAAS SECTIONS	MATHEMATICS (A) Mark Kac Ronald Graham	PHYSICS (B) D. Allan Broml Rolf M. Sinclai		CHEMISTRY William E. M William L. Jo	cÈwen	Paul V	ONOMY (D) V. Hodge G. Wentzel	
	PSYCHOLOGY (J) Brenda Milner Meredith P. Crawford	SOCIAL AND ECONOMIC Kurt W. Back Gillian Lindt	SCIENCES (K)	HISTORY AND PHILO Robert S. Cohen Diana L. Hall	DSOPHY OF SCIEN	Robert B	ERING (M) Beckmann Marlowe	
	EDUCATION (Q) Marjorie H. Gardner James T. Robinson	DENTISTRY (R) Sholom Pearlman John Termine	PHARMACEUTIC John G. Wagner Raymond Jang	AL SCIENCES (S)	INFORMATION, C Eugene Garfield Madeline M. Hend		COMMUNICATION	ON (T)
DIVISIONS	ALA	SKA DIVISION		PACIFIC DIVISION	s	OUTHWESTERN	AND ROCKY MO	UNTAIN DIVISIO
	Donald H. Rosenberg President	Keith B. Mather Executive Secretary	Glenn C. Lew President		Leviton tary-Treasurer	James W. O'L President		ra M. Shields ecutive Officer

Massachusetts Ave., NW, Washington, D.C. 2005. Now combined with The Science, 1515
Massachusetts Ave., NW, Washington, D.C., and additional entry. Copyright © 1978 by the American Association for the Advancement of Science. Member rates on request. Annual subscriptions \$85; foreign postage: Canada \$10; other surface \$13; air-surface via Amsterdam \$30. Single copies \$1.50; \$2 by mail (back issues \$3) except Guide to Scientific Instruments \$6. School year subscriptions: 9 months \$50; 10 months \$55. Provide 6 weeks' notice for change of address, giving new and old addresses and postal codes. Send a recent address label, including your 7-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.

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

	Carabid Beetles in Their Environments, G. E. Ball; Books Received and Book Order Service	703
ASSOCIATION AFFAIRS	AAAS Annual Elections	707
REPORTS	Cyclic Change in Late Triassic Lacustrine Communities: P. E. Olsen et al	7 2 9
	A Search for Ultra-Narrowband Signals of Extraterrestrial Origin: P. Horowitz	733
	Decomposition of Calcium Carbonate and Organic Carbon in Deep Oceans: CT. A. Chen	735
	Polychlorinated Biphenyls May Alter Marine Trophic Pathways by Reducing Phytoplankton Size and Production: H. B. O'Connors, Jr., et al	737
	Thermal Sensitivity in Lichens: J. D. MacFarlane and K. A. Kershaw	739
	Analysis of Melatonin in Human Plasma by Gas Chromatography Negative Chemical Ionization Mass Spectrometry: A. J. Lewy and S. P. Markey	741
	Cellulose to Sugars: New Path Gives Quantitative Yield: M. R. Ladisch, C. M. Ladisch, G. T. Tsao	743
	Plant Chemistry and the Evolution of Host Specificity: New Evidence from Heliconius and Passiflora: J. Smiley	745
	Airplane Accident Fatalities Increase Just After Newspaper Stories About Murder and Suicide: D. P. Phillips	748
	Sex Pheromone of the Tsetse Fly: Isolation, Identification, and Synthesis of Contact Aphrodisiacs: D. A. Carlson, P. A. Langley, P. Huyton	750
	Localization of Primate Calls by Old World Monkeys: C. H. Brown et al	753

MIKE MC CORMACK
FREDERICK MOSTELLER

GEOLOGY AND GEOGRAPHY (E)
Gerald M. Friedman
Ramon E. Bisque

MEDICAL SCIENCES (N)
Leon O. Jacobson
Leah M. Lowenstein
STATISTICS (U)
Samuel W. Greenhouse
Ezra Glaser

MILLIAM T. GOLDEN
Treasurer

WILLIAM T. GOLDEN
WilLIAM T. GOLDEN
WilLIAM T. GOLDEN
Executive Officer

Executive Officer

Executive Officer

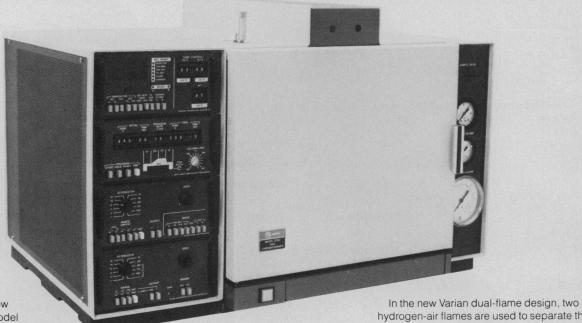
ANTHROPOLOGY (H)
June Helm
Priscilla Reining
NPISCIL REINING
NPISCIL

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 foster scientific freedom and responsibility, 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

Oldest known New World fly from the Late Triassic-age rocks of North Carolina. See page 729. [David Holbrook, Peabody Museum of Natural History, New Haven, Connecticut 06520] Model 3700, the greatest gas chromatograph, gets greater all the time.

Varian announces the first capillary system that is easy to use and the first dual-flame FPD for high selectivity



Both advances are now available on Varian Model 3700, the gas chromatograph that brings together all the major chromatographic breakthroughs and offers new applications capabilities in every component.

NEW CAPILLARY SYSTEM

The entire Model 3700 Chromatograph is optimized for capillary column chromatography: the all-glass injector-splitter; extra large 1350 cubic inch column oven; simple column installation; special thermostatted pneumatics; and full automation capability including the only single channel data system that can handle 0.5 sec peak

widths The new all-glass HEATED capillary injectorsplitter provides four sample-injection modes. It features a unique positive septum purge to prevent septum bleed problems and a buffer volume for more reproducible splits.

Easy capillary column installation.

In the past, only those with super dexterity and patience could install capillary columns. Now, the 3700 capillary system changes all that. Columns can be installed in a few minutes without straightening the ends and without

using a costly cage. Column ends slip directly into the fittings at the glass lined injector and detector inserts. All types of capillary columns can be used: WCOT, SCOT, PLOT, and others.

VARIABLE RESTRICTOR

Capillary

Injector Splitter

This new column installation design saves at least three hours everytime you install a new column.

Capillary and packed column chromatography in one instrument.

The 3700's large column oven, and widely separated and independently heated injectors, make it possible to do both capillary and dual packed column chromatography in the same chromatograph. This

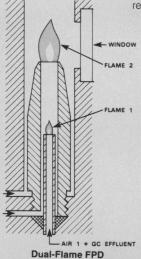
not only greatly increases the utility of the chromatograph for many labs; it also makes it easier to relate packed column methods to capillary methods. CAPILLARY COLUMN

NEW DUAL-FLAME FPD

The new flame photometric detector for the 3700 features a proprietary dual-flame design that overcomes many of the limitations of single-flame FPD's such as quenching and compound dependency, and provides high selectivity, linearity and detectivity.

hydrogen-air flames are used to separate the region of sample decomposition from the

region of emission. Since Flame 1 provides the energy to break down the large molecules in the effluent, Flame 2 can use all of its energy for S and P emission. Consequently, there is no quenching and much less compound dependency. An important benefit of the new design is the greatly improved selectivity of S and P with respect to hydrocarbons and with respect to each other. P/C*>105 S/C: 103 to 106.



Other major 3700 performance

features include: New ESP* monitor. New noncontaminating FID. New highest sensitivity TCD. New 63Ni ECD with a linear dynamic range > 104 and an MDQ < 0.1 pg of lindane. And new carrier gas flow stability because all critical flow control elements are isolated in an independently heated oven.



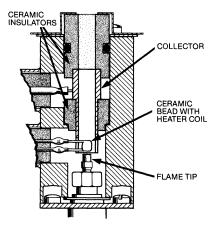
Electro Sensor Pane For full information on the greatest gas chromatograph ever made, circle Reader Service No. 195. To have a Varian representative call, circle Reader Service No. 196.

Varian Instrument Division, 611 Hansen Way, Box D-070, Palo Alto, California 94303

The 3700 gets greater all the time.

Now there's a nitrogen detector that is selective, sensitive, and stable.

The new Varian Thermionic Specific Detector (TSD) for Model 3700 gas chromatograph is highly selective for nitrogen: $>5 \times 10^4$ with respect to carbon. Minimum nitrogen detectivity is 1×10^{-13} _qN/sec and linearity is 10⁵. It's also excellent for phosphorus detection; selectivity with respect to carbon is >104.



In addition, this detector is stable and easy to operate. The alkali source is a durable ceramic bead with an alkali compound imbedded in the ceramic matrix. The ceramic bead permits operation over a wider temperature range than glass, is more stable and requires less adjustment of bead temperatures. Result: reliable, reproducible operation with long bead lifetime for minimum maintenance and lower cost. It's another reason why the greatest gas chromatograph is getting greater all the time. For details write Varian Instrument Division, 611 Hansen Way, Box D-070, Palo Alto, CA 94303, or circle the Reader Service Number.



Circle No. 197 on Readers' Service Card

LETTERS

Horatio Alger on Work

Carl N. Degler, in reviewing (7 July, p. 42) The Work Ethic in Industrial America, 1850-1920 by Daniel T. Rodgers, writes that "None of Alger's heroes was ever shown working," an observation that he has apparently drawn from Rodgers' book and that he finds both startling and crucial. Unfortunately, the observation is incorrect. The second scene of Alger's first novel (Ragged Dick, 1867) shows the title character hard at work shining shoes on a public street, a scene repeated a number of times in the novel. While it is true that adventure occupies more of the plot than does the graphic description of work, a more important observation than this concerns the shift of values Degler reports: in writing about the accommodation to the new technology that obviated much independent work, Alger consciously substituted a new kind of mental work, a fact neither Degler nor Rodgers seems to notice. Here, for example, are the words of Dick's patron-to-be recounting his own rise from poverty: " 'I entered a printing office as an apprentice, and worked some years. . . . But there was one thing I got while I was in the printing-office which I value more than money. . . . A taste for reading and study' '' (chapter 11). The shift from physical to mental work gives the plot its shape, Dick's final triumph in this first novel of the series being his successful writing of his proper name, Richard Hunter, in a "hand so free" that he is hired for indoor work as a trusted clerk. Throughout the book we see graphically depicted a sort of work that AAAS members must all recognize: late-night study.

ERIC S. RABKIN

Department of English Language and Literature, University of Michigan, Ann Arbor 48109

Moscow Genetics Congress

The freedom of science and of scientists is a matter of grave concern to researchers throughout the world. In recent months, the government of the U.S.S.R. has unleashed an unremitting attack against our Soviet colleagues. Shcharansky, Orlov, Begun, and Goldshtein have all been given harsh sentences of imprisonment and/or exile. Sadly, these trials are only one part of a large-scale campaign of intimidation.

In Shcharansky's trial, science itself

was used as a weapon by his prosecutors. He was accused of having arranged for the transmission to Western intelligence agencies of "secret information" pertaining to Soviet research in genetic engineering. This is a politicization of science which we cannot countenance. Such accusations do not provide an atmosphere conducive to holding an international conclave that will surely be focusing on recent advances in recombinant DNA research.

We are convinced that at this time the most effective means by which Western geneticists can demonstrate the depth of their concern over these circumstances is to refrain from participating in the 14th International Congress of Genetics. Among the leading dissidents and refuseniks who concur with this view are Academicians Sakharov and Levich.

We therefore urge Western geneticists not to participate in this Congress, which is being held in Moscow so soon after these trials.

Having said that, we recognize that Western scientists are a heterogeneous group. Some geneticists will choose, for various reasons, to attend the conference. We hope that they will express their concern, both by discussing the issues with our Soviet colleagues and by visiting with the ostracized dissident and refusenik scientists.

ROBERT S. ADELSTEIN*

National Institutes of Health,

Bethesda, Maryland 20014

PETER S. PERSHAN,* MARK PTASHNE Harvard University,

Cambridge, Massachusetts 02138

GERALD FINK

Cornell University,

Ithaca, New York 14853

HOWARD M. TEMIN University of Wisconsin, Madison 53706

ALFRED D. HERSHEY

Syosset, New York 11791

ERNST CASPARI

University of Rochester,

Rochester, New York 14627

CHARLES YANOFSKY

Stanford University,

Stanford, California 94305

MARCUS M. RHOADES

Indiana University, Bloomington 47401 RAY D. OWEN

California Institute of Technology, Pasadena 91125

Princeton University,

Princeton, New Jersey 08540

ANN S. HENDERSON

JACQUES FRESCO

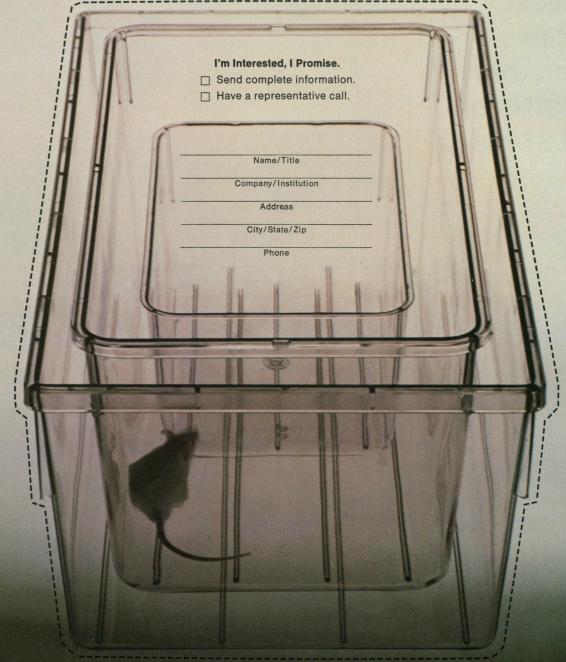
Columbia College of Physicians and Surgeons, New York 10032

*Cochairmen, Committee of Concerned Scientists.

Hazleton Systems presents



plastic caging at a price you can afford.



Hazleton Systems promises you plastic animal caging and plastic animal caging accessories at a price you can afford.

That means you have a new first choice for economical laboratory animal housing that features high quality plastic construction and meets all I.L.A.R. specs. Hazleton plastic caging features heavier gauge, clearer plastic construction which results in longer cage life. All you will miss is the high price you have been paying for plastic caging.

When the study calls for see-through polypropylene or polycarbonate animal caging and easy animal care and handling, call Hazleton Systems. You'll find the complete system at Hazleton...cages, lids, bottles, feeders and a choice of stationary or portable racks, all from a single manufacturing source.

HSP-100 — Contemporary size mice housing . . . 11½" by 7½" by 5" deep • HSP-200 — Contemporary size rat housing . . . 19" by 10½" by 8" deep • HSP-300 — New mice size cage meets I.L.A.R. specs for five mice . . . 9½" by 12¼" by 6¼" deep, 75 sq. in. floor area • HSP-400 — New rat size cage meets I.L.A.R. specs for five rats . . . 21½" by 12¼" by 8½" deep, 200 sq. in. floor area.

HAZLETON SYSTEMS



AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

Science serves its readers as a forum for the presentation and discussion of important issues related to the advancement of science, including the presentation of minority or conflicting points of view, rather than by publishing only material on which a consensus has been reached. Accordingly, all articles published in Science including editorials, news and comment, and book reviews—are signed and reflect the individual views of the authors and not official points of view adopted by the AAAS or the institutions with which the authors are af-

Editorial Board

1978: RICHARD E. BALZHISER, JAMES F. CROW, HANS LANDSBERG, EDWARD NEY, FRANK W. PUTNAM, MAXINE SINGER, PAUL E. WAGGONER, F. KARL WIL-

1979: E. Peter Geiduschek, Ward Goodenough, N. Bruce Hannay, Martin J. Klein, Franklin A. Long, Neal E. Miller, Jeffrey J. Wine

Publisher

WILLIAM D. CAREY

Editor

PHILIP H. ABELSON

Editorial Staff

Managing Editor ROBERT V. ORMES Assistant Managing Editor JOHN E. RINGLE

Business Manager Hans Nussbaum Production Editor

News and Comment: BARBARA J. CULLITON, Editor; LUTHER J. CARTER, CONSTANCE HOLDEN, DEBORAH SHAPLEY, R. JEFFREY SMITH, NICHOLAS WADE, JOHN WALSH. Editorial Assistant, SCHERRAINE MACK

Research News: ALLEN L. HAMMOND, Editor; RICH-ARD A. KERR, GINA BARI KOLATA, JEAN L. MARX, THOMAS H. MAUGH II, WILLIAM D. METZ, ARTHUR L. ROBINSON. Editorial Assistant, FANNIE GROOM

Associate Editors: Eleanore Butz, Mary Dorfman, Sylvia Eberhart, Judith Gottlieb

Assistant Editors: Caltilin Gordon, Ruth Kul-STAD, LOIS SCHMITT, DIANE TURKIN

Book Reviews: Katherine Livingston, Editor; Linda Heiserman, Janet Kegg

Letters: CHRISTINE KARLIK

Copy Editors: ISABELLA BOULDIN, OLIVER HEAT-

Production: Nancy Hartnagel, John Baker, Ya Li Swigart, Eleanor Warner, Jean Rockwood, LEAH RYAN, SHARON RYAN

Covers, Reprints, and Permissions: GRAYCE FINGER, Editor; CORRINE HARRIS, MARGARET LLOYD

Guide to Scientific Instruments: RICHARD SOMMER Assistant to the Editors: RICHARD SEMIKLOSE

Membership Recruitment: GWENDOLYN HUDDLE

Member and Subscription Records: ANN RAGLAND Member and Subscription Records: ANN RAGLAND EDITORIAL CORRESPONDENCE: 1515 Massachusetts Ave., NW, Washington, D.C. 20005. Area code 202. General Editorial Office, 467-4350; Book Reviews, 467-4367; Guide to Scientific Instruments, 467-4480; News and Comment, 467-4430; Reprints and Permissions, 467-4483; Research News, 467-4321; Cable: Advancesci, Washington. For "Instructions for Contributors," write the editorial office or see page xi, Science, 30 June 1978. 30 June 1978.

BUSINESS CORRESPONDENCE: Area Code 202. Business Office, 467-4411; Circulation, 467-4417.

Advertising Representatives

Director: EARL J. SCHERAGO Production Manager: MARGARET STERLING
Advertising Sales Manager: RICHARD L. CHARLES Marketing Manager: HERBERT L. BURKLUND

Sales: New York, N.Y. 10036: Steve Hamburger, 1515 Broadway (212-730-1050); Scotch Plains, N.J. 07076: C. Richard Callis, 12 Unami Lane (201-889-4873); CHICAGO, ILL. 60611: Jack Ryan, Room 2107, 919 N. Michigan Ave. (312-DE-7-4973); BEVERLY HILLS, CALIF. 90211: Winn Nance, 111 N. La Cienega Blvd. (213-657-2772); DORSET, VT. 05251: Fred W. Dieffenbach, Kent Hill Rd. (802-867-5581)

ADVERTISING CORRESPONDENCE: Tenth floor, 1515 Broadway, New York, N.Y. 10036. Phone: 212-

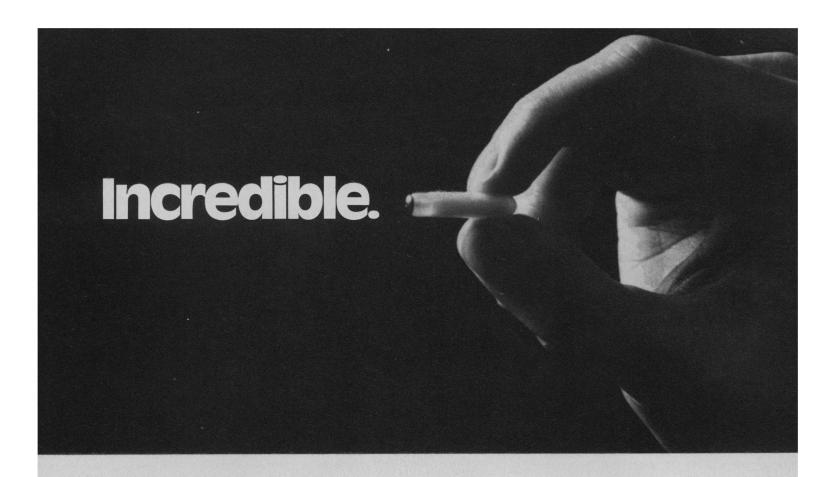
Renegotiating the Society-Academy Contract

The contract between society at large and the academy—the learned professions and the institutions in which they work—is being rewritten. The stakes in renegotiation are high.

The original contract—made in Europe, where the modern research university was born—was simple and well understood. Society would give support and independence to the learned professions because learning, like art and music, was intrinsically good. To that end the academy would teach, seek the truth, and stay out of politics. But this relatively simple exchange was not enough for American society. The America of Franklin and Jefferson early recognized the practical value of learning for business and industrial activity and the growth of a continental nation. Furthermore, education would ensure an enlightened citizenry to bear the responsibility for governance. Thus two new features were added to the simple contract between professors and princes. First, from the Northwest Ordinance of 1787 and the Morrill Act to the National Science Foundation and the National Institutes of Health, American society supported the university as—to borrow Dael Wolfle's phrase—the home of science. Second, egalitarian elitism, an American invention, expanded access to higher education beyond Jefferson's dreams. Society, science, industry, and such central public purposes as national security and public health all prospered. Above all, an educated citizenry proved to be a better repository for sovereignty than kings or priests.

But the old bargain is coming unstuck, largely because of the success of the American additions to the original European contract. Higher education, like government and health care, has become big business, and the general distrust of large institutions has reached the campus as well. The signs of deterioration of support and erosion of the contract are visible to all: the steady decline in support of the premier research and teaching institutions in the state-supported systems of higher education; the end of low or even free tuition in public institutions; severe budget problems in private colleges and universities; the declining use of merit pay for faculty; increasing government restrictions on and new disincentives to philanthropic support of the arts and education; the attack on peer review; politicization of boards of regents in public institutions; the invasion of institutional responsibility for priority setting; direct intrusion into university decisions by federal, state, and local government; and efforts to make university endowments and properties subject to direct political control.

To date, the university response has been little more than a cry that our ox is being gored too. Our claim that we are different from big labor, big welfare, big business, and big government is obscured by our affluence and our success. While recognizing that the contract will never be the same again, we must nevertheless try to renegotiate it on better terms than those now being proposed. In this effort, university presidents, regents, faculty leaders, students, and concerned alumni have an immense task, perhaps the most important in the modern history of higher education. For the terms of the new contract will be hard fought, and some of them have already been traded away. The new contract must include as much recognition of the autonomy of the academy as possible, not because the administration and faculties want it, but because the university's contribution to society depends on it. In return, the academy must prove that its autonomy will be exercised with a new sense of accountability for the resources made available by society and with a demonstrated capacity to use these resources wisely. The public demands performance, not public relations. For this task neither timid hand-wringers nor above-the-battle elitists need apply. We must drive a hard and responsible bargain in the face of hard fiscal and political realities.—Brewster C. Denny, Dean, Graduate School of Public Affairs, University of Washington, Seattle 98195



This tiny, completely self-contained pump provides continuous, unattended delivery of test solutions for up to one week.

It's called the Alzet® osmotic minipump.

It is a self-contained pump that is implanted subcutaneously in animals as small as mice or rats and that delivers your test solution to the animal at a controlled, continuous rate of 1 μ l/hr for up to one week.

And, while the Alzet® osmotic minipump frees you and your staff from the burden of dosing the animal several times a day, it can free the animal from the trauma of multiple injections.

With this pump, you can expect to produce sustained biological effects, more reproducible than with injections. The animals are unrestrained and do not undergo the continual stress of being externally catheterized.

678

The Alzet® osmotic minipump is ideal

for compounds with short half-lives, since its constant infusion maintains steady state plasma levels of the agents. And the constant, continuous delivery assures you that there are no missed or late doses.

Steady state biological effects in unrestrained animals...that's what the incredible Alzet® osmotic minipump can offer you.

For technical information, call (415) 494-5323. To order, call (800) 227-9953 or write to Alza, Dept. V, 3170 Porter Drive, Palo Alto, California 94304.





SCIENCE, VOL. 201



We've gotta be crazy.

Crazy like a fox.

Because at Revco we know that the work you're doing is far too important to be taken lightly.

We also know that if you've got the assurance of dependability in writing, you can get on with your work with greater peace of mind.

So, we've put into writing the industry's first five-year limited no-nonsense warranty, and it's a genuinely good deal, all the way down through the fine print.

You get a full one-year warranty, plus an additional four-year warranty on

sealed system parts and labor, from our 200 Revco service centers coast-to-coast.

It's the *number one*warranty in the entire
freezer industry, and it's
precisely what you'd expect from
the *number one company* in the
entire scientific freezer industry.

Because if we didn't build our freezers to last longer, we couldn't guarantee them to last longer.

And every Revco freezer is

listed by Underwriters Laboratories, Inc. - not just the components but the entire freezer.

We've been doing business that way for 40 years.
And we expect to keep on doing it the same way.

For more information and a copy of our new full-color catalog, call or write us at 1100 Memorial Drive, W. Columbia, South Carolina 29169. Area Code 803/796-1700.

TWX: 810-666-2103. Cable: Revco.

REVCO

The world's leader in ULTra-Low® temperature equipment.

Revco Regional Offices Northeast: (215) 547-0150 Midwest: (414) 781-3639 Western: (714) 661-6588

Circle No. 137 on Readers' Service Card



First the deoxys.

Now the **hottest** $\left[\alpha-^{32}\mathbf{P}\right]$ **Ribonucleotides** available!

-~2000-3000Ci/mmol —available monthly

For RNA polymerase and other nucleic acid studies

 $[\alpha - ^{32}P]ATP$

 $[\alpha - ^{32}P]GTP$

 $\alpha - 32$ PICTP

 $[\alpha - ^{32}P]UTP$

- the hottest available for greater sensitivity
- all four prepared and available at the same time each monthfor greater reliability
- · high purity analyses by High Performance Liquid Chromatography (HPLC)

Write or call Customer Service for further details and your copy of our ³²P Nucleotide Availability Schedule.



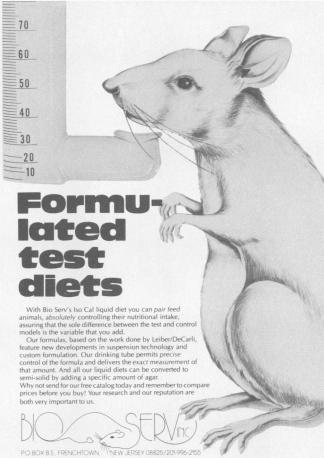
AMERSHAM CORPORATION:
A SUBSIDIARY OF THE RADIOCHEMICAL CENTRE

2636 S. Clearbrook Dr., Arlington Heights, IL 60005 312/364-7100 or 800/323-9750 (Toll-free)

In Canada

505 Iroquois Shore Rd., Oakville, ONT L6H 2R3 416/842-2720 or 800/261-5061 (Toll free)

Circle No. 136 on Readers' Service Card



Circle No. 126 on Readers' Service Card

SOLUTION CALORIMETER





For:

Heats of Reaction

Heats of Solution Heats of Dilution Heats of Mixing Heats of Wetting

Enthalpy changes in solution ranging from 2 to 1000 calories can be measured in this new, moderately priced calorimeter with a precision of 1% or better. All operations are straightforward and simple with results plotted on a strip chart for easy analysis. For details, write or phone: Parr Instrument Company, Moline, Illinois 61265. Telephone: 309/762-7716