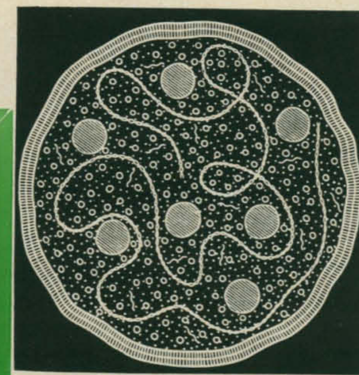
SCIENCE

29 May 1970

Vol. 168, No. 3935


KnifeMaker
Pyramitome pyramid maker
Ultrotome III
LKB
and
Ultramicrotomy
LKB provides complete ultramicrotomy laboratory equipment for electron and light microscopy.
Latest products include CryoKit for low temperature ultramicrotomy.
LKB
IN THE SERVICE OF SCIENCE
LKB INSTRUMENTS INC., 12221 PARKLAWN DRIVE, ROCKVILLE, MD. 20852 11744 WILSHIRE BOULEVARD, LOS ANGELES, CALIF. 90025
Ultrotome I
Micrograph of section prepared with CryoKit
Stereo microscope and section collectors
Convenient and easy sectioning with LKB ultramicrotomy accessories.
Ultrostable
CryoKit for Ultrotomes

New This Spring—
Ready for Fall Classes



De Robertis, Nowinski & Saez: **New 5th Edition**

CELL BIOLOGY

Here is a text which studies the cell at all levels of organization, including its sub-cellular macromolecular and molecular architecture. Major emphasis is placed on cytochemical and functional manifestations of cellular activity; these topics are integrated with recent concepts derived from molecular biology and genetics. New chapters on the *Ribosome Structure and Biogenesis, Ultrastructure of the Nucleus and Chromosomes,* and *Cell Differentiation and Cellular Interaction* are included in this thoroughly revised Fifth Edition.

By **Eduardo De Robertis,** M.D., Univ. of Buenos Aires, **Wiktor W. Nowinski,** Ph.D., Univ. of Texas Medical School, and **Francisco A. Saez,** Ph.D., Institute for Investigation in the Biological Sciences.
About 512 pp. About 333 figs. About $11.00. Ready September, 1970.

Hazen: **New 2nd Edition**

READINGS in POPULATION and COMMUNITY ECOLOGY

An excellent supplement to the standard text, this *New 2nd Edition* offers a superb collection of 23 significant papers on varied aspects of ecology. Here, in a single volume are most of the classic articles on this subject that the student should read. These papers explore many of the fascinating avenues that research in population and community ecology have taken. Among the topics emphasized are: *spatial distribution; population growth; competition; predation* and *ecosystems.* In some instances, these topics are discussed from different viewpoints by several different authors to give your students a balanced view of the subject. Discussions on the control of population size cast new light on this major area of ecology study.

Edited by **William E. Hazen,** Ph.D., San Diego State College.

421 pp. Soft Cover. $5.75. Published March, 1970.

McGilvery: **New**

BIOCHEMISTRY
A FUNCTIONAL APPROACH

Completely up-to-date with all current concepts, this new book stresses mammalian biochemistry. Here is a functional text for both medical and biochemistry students. The author's approach is fresh; his style is lucid. Each fact fits clearly into an integrated picture of the nature of biological compounds and the reactions they undergo during the course of their bodily activity. Enzyme kinetics and thermodynamics are discussed in a non-mathematical way. Step-by-step descriptions of the metabolic processes of carbohydrates and lipids are given. The student progresses gradually from discussions of why proteins are built as they are to the integration of information on total metabolic economy.

By **R. W. McGilvery,** Ph.D., Univ. of Virginia School of Medicine.

About 750 pp. About 465 figs. About $17.00. Just Ready.

Walker: **New 4th Edition**

VERTEBRATE DISSECTION

Designed to parallel the standard textbook and lecture course in comparative anatomy, this manual provides for simultaneous dissection of a dogfish, mudpuppy, cat and rabbit. Thus the undergraduate can visualize the major anatomical transformations that have occurred in the vertebrates during their evolution from the fish to the mammalian stage. Included in this revised edition are several new dissection approaches and new sections on the muscles of the forelimb and shank of mammals and on the structure of the mammalian eyeball. The manual is written in a way that facilitates selection of material for shorter courses, while still providing the student with a solid understanding of the most important topics and specimens.

By **Warren F. Walker, Jr.,** Ph.D., Oberlin College.

402 pp. with 154 figs. $5.00. Published April, 1970.

For further information or 30-day approval copies write Education Dept.
W. B. SAUNDERS COMPANY • W. Washington Square, Philadelphia, Pa. 19105

29 May 1970
Vol. 168, No. 3935

SCIENCE

SCIENCE is published weekly on Friday and on the fourth Tuesday in September by the American Association for the Advancement of Science, 1515 Massachusetts Ave., NW, Washington, D.C. 20005. Now combined with **The Scientific Monthly®**. Second-class postage paid at Washington, D.C. Annual subscription $12; foreign postage: Americas $3; overseas $5; single copies, 50¢ (back issues, $1) except **Guide to Scientific Instruments** and the 30 January issue, which are $3 each. School year subscription: 9 months, $9; 10 months, $10. Provide 4 weeks notice for change of address, giving new and old address and zip codes. Send a recent address label. SCIENCE is indexed in the **Reader's Guide to Periodical Literature**.

COVER

Spring beauty *Claytonia virginica* L. (Caryophyllaceae), a common spring wildflower of woods, thickets, and clearings in eastern North America, may vary in chromosome number in a given population from year to year. See W. H. Lewis, page 1115. [Gary Laurish Photography, Washington, D.C.]

Some new developments are changing things for the better: the computer offers the scientist relief from the laboratory grind

To the laboratory scientist the promise of the computer is relief from a growing burden of seemingly endless tabulations and computations that reduce his effectiveness as an investigator. The computer's capacity for accumulating data, plotting graphs and making complex calculations can change the obstacle course of numbers into a clear path of discovery.

The first bright promise of the computer, however, has not been fulfilled overnight. Often the pioneering computer-using scientist found that he was exchanging one form of drudgery for another. Putting the computer to work meant complex programming, interfacing of instrument and computer, of man and machine. Again, precious laboratory hours seemed to be going down the drain.

Two recent developments make the computer more acceptable to the reticent scientist. The first is the small, instrument-oriented digital computer, a relatively low-cost machine with easy-to-use controls, often pre-programmed to do a specific job . . . as in the lunar sample analysis experiment described later. Second is the shared-time computer, which reduces the physical presence of the computer in the lab to nothing more complex than a typewriter-like keyboard. When coupled with packaged programs developed by instrument manufacturers for a specific analytical purpose—as in the simulated distillation article described next—shared-time computer leasing will satisfy increasingly larger numbers of scientists. In both cases, the scientist can capture the advantage of the computer without suffering its complications.

Shared-Time Computer Helps GC Simulate Distillation

A far cry from the alembic used by the 16th century alchemist, the artful glassware used by the modern oil chemist for True Boiling Point (TBP) distillation nevertheless employs the same basic technique: boil and condense. To this day, TBP distillation remains the only accepted way to establish the basic marketing specification of petroleum products . . . and it leaves a lot to be desired. Those who refine petroleum products don't like it because it takes so long: TBP distillation of a wide-boiling distillate can take as long as 100 hours, and the results are useless in controlling the operation of a refinery. Those who buy petroleum products don't like it because the method is not very reproducible, especially as it applies to the initial and final boiling points. Those who perform the distillation don't like it because the procedure itself is a long and boring task.

A group of scientists at HP's Avondale Division have devised a completely automatic method that employs gas chromatography (GC) to simulate distillation and produces boiling point distribution data more precisely and in much less time—about 40 minutes—than TBP distillation. The new method employs the HP 7600A Chromatograph System which is capable of automatic operation from sample measurement to analytical data.

The recipe for simulated distillation with the 7600A is relatively simple. Set the GC for a linear program of 6 to 10°C/minute starting at −20°C, load the sample tray with as many as 36 different calibration and analytical samples, even of widely diverse boiling ranges up to 1000°F . . . and push the *start* button: the rest is automatic.

The 7600A automatically injects the samples and prepares a punched tape record of the GC retention time and area measurements at precise time intervals. Complete sets of programs provided with the 7600A enable any of the principal time-sharing computer services (including the HP 2000A Time-Shared System) to read the punched tape data, determine the initial and final boiling points of each sample, assign boiling temperatures to each data point and print out the analysis report of boiling point distribution of each sample at 1% increments.

No knowledge of computer programming is required by the analyst. At each stage of the computer-performed calculations, the computer asks for the information it requires and the operator answers by typing the requested number or word on the time-share terminal keyboard.

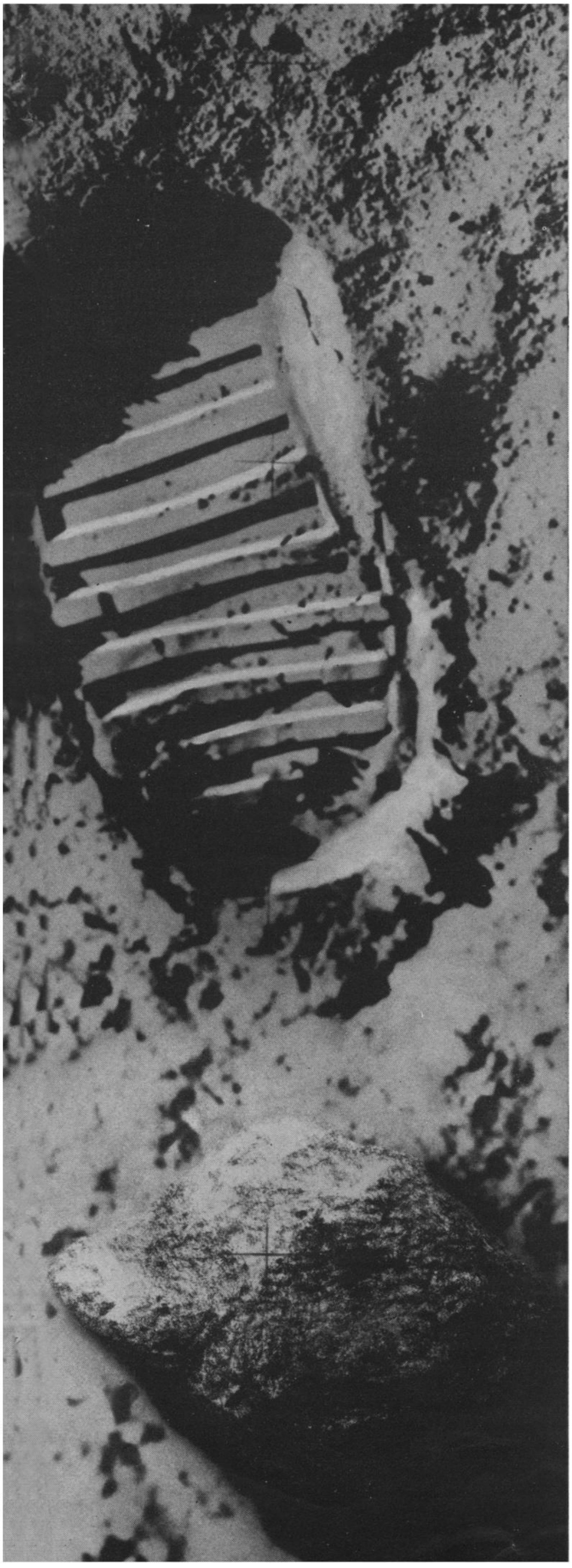
The precision of the 7600A Simulated Distillation method with wide boiling range samples is greater than is possible by any distillation method. Its speed—an average of 40 minutes per sample—completely outclasses distillation methods.

This new automated Simulated Distillation method is examined in much more meaningful detail in Vol. 2, No. 3 of *Analytical Advances.* Request your copy today.

Dedicated Computer Extracts hidden Information from Lunar sample

Some of the most respected scientific teams in the U.S. and eight foreign countries are performing analytical investigations on the lunar material returned to earth by the Apollo 11 crew. Among the 100-odd investigations scheduled by NASA, a nuclear magnetic resonance (NMR) analysis will be conducted by a Jet Propulsion Laboratory team headed by Dr. S. L. Manatt. Its goal is to characterize hydrogen nuclei in lunar material and attempt to establish whether any of it can be traced to free or crystalline water molecules presently on the moon's surface. The JPL scientists will also be on the lookout for heavy hydrogen whose presence will allow some conclusions about the history of the moon's surface and about the effect of the solar wind. A study of oxygen-17 may give them important clues about the current chemical environment of the moon (from surface samples) and about the presence of a lunar sea or ocean in the distant past (from core samples).

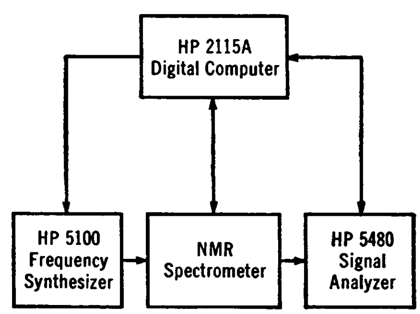
Present-day commercial NMR spectrometers are capable of accomplishing, unaided, the work assigned to the JPL team with



a creditable degree of success. But when you're analyzing samples that cost about a million dollars a gram to acquire, you're not satisfied with anything short of the best possible performance from your analytical instruments.

In the JPL team's quest for enhancing NMR sensitivity, they devised a system that combines the NMR spectrometer with a frequency synthesizer and signal analyzer under the control of a small digital computer, the HP 2115A, dedicated to this task alone.

The computer-controlled system extracts very weak NMR signals from heavy noise, enhancing instrument sensitivity as much as 100 times. It also performs fast Fourier Transforms of the NMR signal, converting it from time to frequency domain, for a further increase in sensitivity of another order of magnitude.



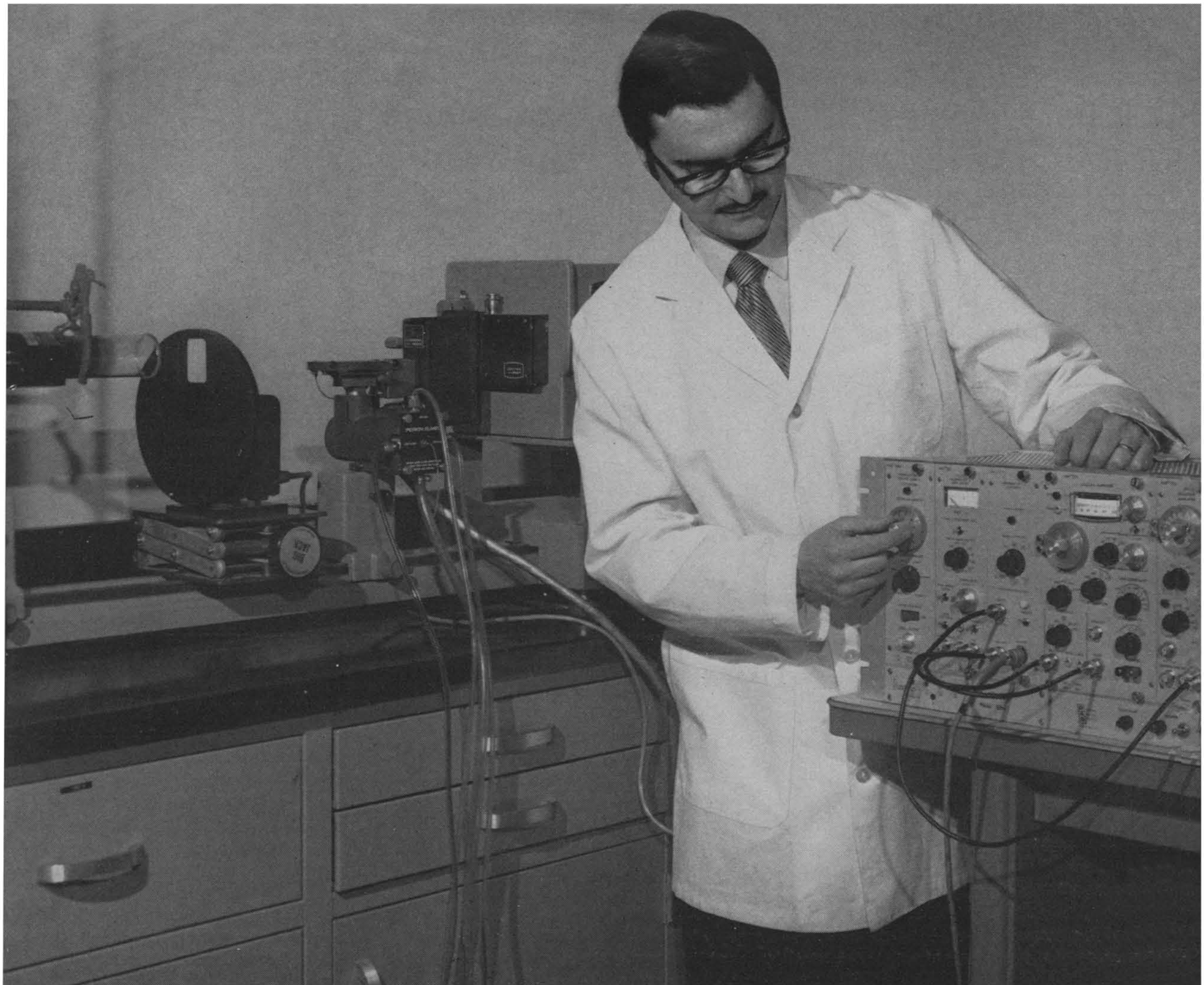
Here's how it works: the computer digitally sweeps both the frequency synthesizer and signal analyzer through programmed frequencies. Synthesizer output excites the NMR spectrometer which develops noise-covered resonance spikes for each nucleus in the lunar sample; under computer control, the frequency synthesizer also shifts NMR excitation between the resonance and transition frequencies of the nucleus under observation, thereby permitting measurement of relaxation or resonance decay times. The NMR output signal is fed to the signal analyzer which extracts the data from the noise and presents a calibrated display of the average signal at all times. The computer then processes the waveform, converts it from time to frequency domain by Fourier transformation and displays the result immediately in analog as well as digital form. End results of computer-controlled signal averaging and Fourier Transform is to increase spectrometer sensitivity as much as a thousand-fold. (Photo courtesy of NASA.)

Detailed information on HP Signal Analyzers and Computers is available on request. Write to Hewlett-Packard, 1507 Page Mill Road, Palo Alto, California 94304. In Europe: 1217 Meyrin-Geneva, Switzerland.

HEWLETT PACKARD

Measurement, Analysis, Computation

00972



PHOTON COUNTING . . .
PHASE-SENSITIVE DETECTION . . .
DC . . .

No matter how you do it, measure light more accurately with a P.A.R. instrument system!

Our comprehensive line of light measurement instruments includes lock-in amplifiers, phototube housings, photon counting systems, dc measuring equipment, light choppers, preamplifiers and other accessories. To meet your particular requirements for an **optimum** light measurement system, P.A.R. offers a broad selection in each of these product areas.

For full information on P.A.R. instrumentation, write Princeton Applied Research Corporation, P.O. Box 565, Princeton, New Jersey 08540, or call (609) 924-6835.

P A R **PRINCETON APPLIED RESEARCH CORPORATION**

Table 1. Assets of private U.S. philanthropic foundations in relation to relevant economic aggregates.

Year	Foundation assets (estimated)		
	Market value ($ billions)	As percentage of U.S. debt and equity	As percentage of gross national product
1938	1.4	0.54	1.7
1943	1.8	0.46	0.9
1948	3.5	0.65	1.4
1953	6.5	0.85	1.8
1958	12.5	1.05	2.8
1963	17.5	1.05	3.0
1968	21.0	0.84	2.4

released by the Foundation Center last year.

In connection with the current Securities and Exchange Commission study of institutional investors in the stock market, the National Bureau of Economic Research has developed alternative data of the assets for all foundations from 1953 through 1968. These data, not yet published by NBER and the SEC, are expected to show a similar pattern: a moderate increase in foundation assets relative to U.S. economic aggregates until the early 1960's, but a moderate decline since then. Because the Tax Reform Act of 1969 materially discourages the establishment of new foundations, it is entirely possible that the relative withering of the foundations' economic role in American life will intensify in the years ahead. Incidentally, no longer is it appropriate to label private foundations as "tax exempt" since the Tax Reform Act of 1969 also imposes a federal levy on the investment income of private foundations.

F. LEE JACQUETTE
Carnegie Corporation of New York, 437 Madison Avenue, New York 10022
JOSEPH A. KERSHAW
Ford Foundation, 320 East 43 Street, New York 10017

Ganges Plain: Irrigation Potential

At first glance, India's Ganges Plain does appear to be a suitable area for the "technological fix" suggested by Weinberg ("In defense of science," 9 Jan., p. 141). It is underlain by a tremendous groundwater reservoir—perhaps the largest on earth, and the plain is the site of increasing pumpage from irrigation wells. Because electric power production has not kept up with demand, power lines are often powerless and burned out motors on irrigation wells are commonplace. Certainly there is room for improvement, but to say that the missing element is energy—to be provided by a "network of large power plants, probably nuclear, to supply electricity for the pumps . . ." is to promote a single quick "fix" rather than a comprehensive program for optimum utilization of the water resources available to the Ganges Plain.

The current pumpage in the Ganges Plain is probably as great as that in the Central Valley of California, which has the largest groundwater development in the United States. The two areas are similar in several respects: each year there is a rainy season of 3 or 4 months, a freshet from melting snow in mountain headwaters, and a long dry season when stream flow dwindles to the minimum for the year; each has large underground storage but no natural surface storage of water. In the Central Valley "technological fixes" have been undertaken for placer mining, navigation, irrigation, surface storage and regulation, hydropower, municipal supply, salinity control, groundwater depletion, transport to areas of deficiency, and artificial recharge. Some of these have been countermeasures to others.

The Ganges River has an annual flow nearly ten times as great as the streams of the Central Valley. Its flow varies greatly from season to season, and many of its tributaries dwindle to very low flows in the dry season; but even so, as much as 15 million acres may be irrigated in a good year. The groundwater reservoir beneath the plain is recharged by seepage from streams, canals, and irrigated lands, and any sustained pumping must be matched by equivalent recharge, sooner or later, to avoid progressive depletion of supplies. To provide irrigation water for three-crop agriculture on a major part of the plain will require development of all the water resources to the point of optimum sustainable yield. This may require major stream diversions, flow allocations, regulation, and long-distance transport of surface water, disproportionate local withdrawal and transport of groundwater, and conjunctive use of surface and groundwater supplies. Commitment to a single "technological fix" to the exclusion of other alternatives should be avoided.

H. E. THOMAS
1339 Portola Road, Woodside, California 94062

See your specimens in a "better" light

29 May 1970, Volume 168, Number 3935

SCIENCE

Cry Alarm!

In the Harvard University commencement address of 1957, Erwin Panofsky spoke "in defense of the Ivory Tower." He traced back to the "Song of Songs" the origin of that currently quaint-sounding simile, justified the scholar's normal aloofness from the turmoil of current events, yet concluded that times arise when he must cry alarm over what he sees from his ivory watchtower.

The past few weeks have been such a time, and have heard such a cry. Faculty members and college presidents have joined students in telling President Nixon, congressmen, and other government officials of their desperate dismay over the invasion of Cambodia, the shooting of students in Ohio and Mississippi, the failure of national leadership, and the disruption of national priorities. The cry of alarm is spreading. Congressmen and Cabinet officers are being implored by friends, acquaintances, their staff members, and their own sons and daughters to restore harmony at home and to withdraw us from a faraway war. So many resolutions have been adopted that a new one is no longer newsworthy. *The New Yorker* has charged the President with overt and unconstitutional usurpation of power. In all of this, the nation's intellectual community has found unity that, for the time being, has overriden its own internal differences.

What will follow this climax of concern? How can the effort to prevent national disintegration be sustained? In the speech the Illinois Constitutional Convention did not permit John Gardner to deliver, he asked the moderates to consider more closely their own responsibility for our national dissension, and for its repair. He accused moderates of "a secret complicity in the activities of the extremists," and then went on to say, "The moderate conservative does not explicitly approve of police brutality, but something in him is not displeased when the billy club comes down on the head of a long-haired student. The liberal does not endorse violence by the extreme left; but he may take extreme pleasure in such action when it discomfits those in authority." The restoration of unity requires the withdrawal of even tacit approval of extremists of either fringe; the repudiation of wanton destruction by students and of shooting by police; the protection of individual rights against invasion by either group; and the eradication of the social ills that have given rise to so much dissension.

These are the objectives. As for the means, thousands of students who came to Washington to plead and protest went home to work within the political system. The academic community can have greater political clout than it realizes. Over 3 million students are of voting age. Many must send absentee ballots home because they cannot vote in their college communities, but this limitation may be removed, as law students at the University of Michigan have demonstrated. In addition to students, there are 800,000 professional staff members, plus their wives, husbands, and nonprofessional campus associates, some of whom can be influenced by faculty and student supporters of favored candidates. All told, the potential academic vote exceeds 5 million, and those voters can influence others. There are ideological differences within the 5 million, and on some issues the academic majority will disagree with the general majority. Nevertheless, in some of the approximately 1000 small cities in which higher education is the principal business, the academic vote can be controlling. In national elections this year and in 1972 it can be powerful. All over the country, students are setting to work to make it so. Voting with ballots, instead of with brickbats and bullets, brings hope. If this effort can be sustained, we may be able to reverse the national disintegration that has called forth so many shouts of alarm.

—DAEL WOLFLE

Nalge gives you 12 new ways to keep broken glass out of your lab...

Just a dozen examples of what's currently new—and unbreakable—in Nalgene Labware:

New Teflon FEP Labware. 125, 250 and 500 ml transparent separatory funnels (Cat. No. 4301); 1 and 2 oz. bottles (Cat. No. 1600); 50 and 250 ml Erlenmeyer flasks (Cat. No. 4106). All Nalgene Labware of Teflon is unbreakable, autoclavable, inert to virtually every chemical, non-stick and non-wetting, withstands temperatures from $-270°$ C to $+205°$ C. This is practically indestructible labware!

150 mm "Personal" Desiccator. Every bench chemist and student should have his own desiccator. And here's one that's priced to make this possible in most laboratories. Unbreakable, transparent TPX cover, blue polypropylene body that no desiccant can affect. With aluminum plate or use any 140 mm plate. Only $8.95. (Cat. No. 5315).

New Dropping Bottles. The *only* unbreakable bottles that always deliver just one drop at a time—never a stream—no matter how hard you squeeze. Drops are precise, about 0.04 ml. Two styles: the Drop-Dispenser Bottle in 15 to 250 ml sizes (Cat. No. 2411). Or for those who prefer to hold the bottle in an upright position, the Unitary design in 125 and 250 ml sizes. (Cat. No. 2410). Both are polyethylene.

Quick-Action Spigot. This new design eliminates all the old plastic spigot bugaboos. Flow control is positive. Unbreakable polypropylene body won't turn when valve is opened. Furnished on all new Nalgene aspirator bottles, easily installed by you to update older models. (Cat. No. 6422).

Volumetric Flasks. The first plastic volumetric flasks—as accurate as glass, will do anything a glass flask can do except break. Autoclavable. New 50 and 200 ml sizes provide a size range from 50 to 1000 ml. Polypropylene. (Cat. No. 4000).

Rectangular Bottles. Just great if you're cramped for storage space because these versatile wide mouth bottles use ⅓ less shelf space. Unbreakable linear polyethylene, leakproof closures. From 4 to 32 oz. (Cat. No. 2007).

5-Gallon Amber Polyethylene Bottle. We have made it easier to handle and store larger volumes of light-sensitive materials. This new bottle has two carrying handles, leakproof closure. Other amber bottles in 1 oz. to 2 gal. sizes. (Cat. No. 2204).

Fernbach Culture Flask. Saves valuable cultures because this transparent, autoclavable polycarbonate flask won't break or shatter if accidentally knocked over. Wide surface area for culture growth, 2800 ml capacity. Use as a super-size Erlenmeyer flask, too. (Cat. No. 4105).

Polycarbonate Erlenmeyer Flasks. These transparent flasks have extra rigidity and strength. Autoclavable and particularly useful in clinical work. With the new 25 ml size, there are now 6 sizes from 25 to 1000 ml. (Cat. No. 4103).

Squibb Pear Shape Separatory Funnels. A new 1000 ml size for larger separations has been added to this popular line of *unbreakable* funnels. They show separation lines right down to the stopcock housing. TFE plugs eliminate the need for lubrication. Polypropylene construction resists virtually all chemicals, even HF. All models are autoclavable. From 125 to 1000 ml. (Cat. No. 4300).

Polypropylene Erlenmeyer Flasks. This popular autoclavable flask is a handy receptacle for many color change titrations and precipitations. Sizes range from new 25 ml size to 2000 ml, which is graduated in 200 ml increments. (Cat. No. 4102).

Evaporating and Titrating Dish. Unbreakable polypropylene with opaque white color that provides an excellent background for color titrations. Resists fluoride solutions and HF, can be used with infrared heat to 135° C. Spout designed for easy pouring, even into tiny openings. (Cat. No. 5520).

Order Nalgene Labware from your Laboratory Supply Dealer. Ask him for our Catalog or write Dept. 85172, Nalgene Labware Division, Nalge Company, Rochester, N.Y. 14602.

Nalgene® Labware... better all the time

NALGE
SYBRON CORPORATION

were interviewed for 445 positions listed by 25 corporations. Candidates for graduate school appointments could obtain information from university representatives. Half the registrants were seniors and recent graduates; the remainder were women scientists, newcomers to the area or recently out of a job, and "science dropouts," women who had been raising a family for 10 or 15 years and who wanted advice and aid to return to scientific pursuits. Job listings were sought in the fields of biology, chemistry, engineering, mathematics, physics, and statistics. Salaries ranged from $450 for literature research to $1833 for an adhesive chemist in the Bay area, and $2417 for an immunopharmacologist in an eastern city. Employers included the major research establishments of the Bay area, the medical schools in San Francisco and Palo Alto, electronic and computer industries of the Peninsula and San Jose, construction engineers in Oakland, and petrochemical and biological laboratories of the East Bay and Livermore.

In spite of the Endicott tabulations (*1*) showing that nationwide, the average starting salaries for women in 1969 were equal to the starting salaries of their male colleagues in 1968, employers at the job mart stated that the women would receive the same salaries as men.

Only a small percent of the jobs listed were filled. The poor success rate was due in large part to the economic squeeze referred to earlier. For example, three research jobs and a faculty appointment listed in August by a marine station had disappeared by November. Second, the jobs and job seekers were not well matched. Thirty-five percent of the listings called for physicists and mathematicians, 30 percent for engineers, computer specialists and programers, 29 percent for chemists and biochemists, and 5 percent for biologists. The mix of specialists seeking jobs included chemists and biochemists (45 percent), botanists, biologists, and zoologists (40 percent), and the remainder trained in nutrition, medicine, or nursing. There were no mathematicians, physicists, or statisticians. Employers stated that many application blanks were not returned, but one job seeker explained that it seemed useless to spend 1 to 2 hours filling out a form when there was no commitment from the employer.

The job roundup during a time of restricted opportunities was an obvious benefit to the job seeker, but the employers also recommended that the mart be repeated since there is now no continuing local mechanism by which they can fill employment vacancies. In California, employment agencies charge placement fees up to one-half of the first month's salary. In many cases, the employer pays the fee, but this has not protected him against rapid turnover in low-paying jobs. State and private employment agencies and the university placement services offer partial solutions. For the small industrial employer with a local job that suddenly becomes vacant, for the job candidate who cannot attend the national meetings, for the graduate of a small college, or for the newcomer without a car in a region where the jobs may be 60 miles apart, for all of these, the establishment of a regional employment center by the specialty organizations or honorary scientific societies would help to solve a problem that threatens to get worse before it gets better.

NAOMI F. GOLDSMITH
Iota Sigma Pi–Hydrogen Chapter,
280 West MacArthur Boulevard,
Oakland, California 94611

Reference

1. F. S. Endicott, *Trends in Employment of College and University Graduates in Business and Industry* (Professional Development Committee, American Society for Personnel Administration, Berea, Ohio, 1968).

Courses

Electron Microscopy in the Biological Sciences, Boston, Mass., 14–26 June 1970 and 18–29 January 1971. An intensive program in the preparation of biological materials as electron microscope specimens, electron microscopy, and interpretation of the results. Designed for doctoral-level investigators who wish to use the electron microscope in their research, but who have little or no experience in the field. Advanced graduate students will be considered. Limited to 12 students. (Prof. Clifford F. Youse, Center for Continuing Education, Northeastern University, 360 Huntington Ave., Boston, Mass. 02115)

Drug Problems, Portland, Ore., 17–21 Aug. Fundamental aspects of drug problems will be reviewed and will include the historical, socio-cultural, medical, and economic aspects of the drug problem. Interdisciplinary sessions will stimulate exchange and exploration of information and techniques between interest groups concerning drugs and drug-related problems. Group sessions will provide an opportunity for individuals with special interests, backgrounds, and/or professional training to discuss drug use, misuse, and abuse as it pertains to their career activities. Credit is offered. *Fee*: $55. (Registration Service, Western Institute of Drug

Science Reprints

Reprints of the following selected articles from *Science* are for sale to our readers. They may be ordered from AAAS Reprints, 1515 Massachusetts Ave., NW, Washington, D.C. 20005.

Copies Ordered

G. Hardin, "The Tragedy of the Commons" (13 Dec. 1968), 8 pages ____

B. L. Crowe, "The Tragedy of the Commons Revisited" (28 Nov. 1969), 8 pages ____

J. Platt, "What We Must Do" (28 Nov. 1969), 8 pages ____

W. W. Cooley and R. Glaser, "The Computer and Individualized Instruction" (31 Oct. 1969), 12 pages ____

D. Alpert and D. L. Bitzer, "Advances in Computer-based Education" (20 March 1970), 12 pages ____

P. Suppes and M. Morningstar, "Computer-Assisted Instruction" (17 Oct. 1969), 12 pages ____

S. D. Carroll, "Science and the City: The Question of Authority" (28 Feb. 1969), 12 pages ____

C. A. Doxiadis, "Man's Movement and His City" (18 Oct. 1968), 8 pages ____

S. Milgram, "The Experience of Living in Cities" (13 March 1970), 8 pages ____

B. Berelson, "Beyond Family Planning" (7 Feb. 1969), 12 pages ____

C. Djerassi, "Prognosis for the Development of New Chemical Birth-Control Agents" (24 Oct. 1969), 8 pages ____

A. Crancer, Jr., *et al.*, "Comparison of the Effects of Marijuana and Alcohol on Simulated Driving Performance" (16 May 1969), 4 pages ____

F. E. Cheek, S. Newell, and M. Joffe, "Deceptions in the Illicit Drug Market" (27 Feb. 1970), 1 page ____

R. E. Schultes, "Hallucinogens of Plant Origin" (17 Jan. 1969), 8 pages ____

A. T. Weil, N. Zinberg, and J. M. Nelson, "Clinical and Psychological Effects of Marihuana in Man" (13 Dec. 1968), 12 pages ____

When ordering, identify each article by author, title, page numbers, and issue date. Enclose payment with order; do not send currency.

Prices and Terms

One reprint—$1.00 Two to nine reprints—60¢ each

	10 reprints	25 reprints	50 reprints	100 reprints
4 pages	$4.00	$ 8.00	$15.00	$25.00
8 pages	$5.00	$11.00	$20.00	$35.00
12 pages	$5.50	$13.00	$25.00	$45.00