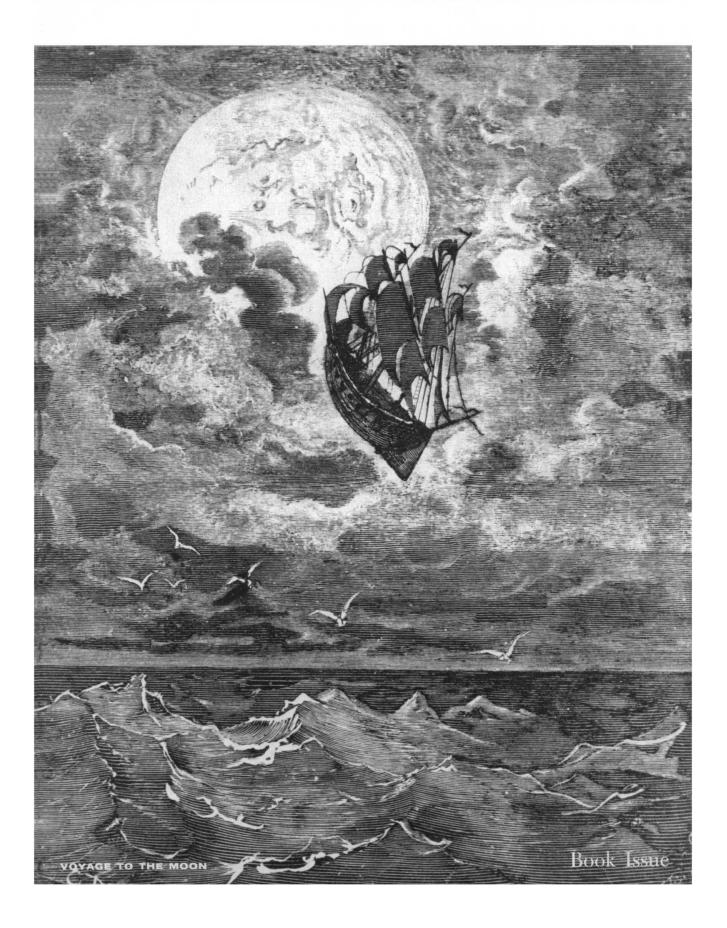


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COVER

A mid-19th century illustration, "A Voyage to the Moon," depicted man's dream of lifting himself off the earth and venturing out toward the moon, the sun, the planets, and even the stars. See review of *The New Ocean*: A History of Project Mercury, page 774. [Paul Gustave Dore (Bella Landauer Collection, Library of Congress)]



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TOPICS IN THE BIOLOGY OF AGING

Edited by P. L. KROHN, Professor of Endocrinology, University of Birmingham. The first of a scries of monographs from the Salk Institute for Biological Studies. Here are given the papers and discussions presented at a symposium held at the Institute in November 1965, at which specialists examined and evaluated some of the most recent work on the biology of aging. 1966. 177 pages. \$9.75.

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THE X-RAY DETERMINATION OF ELECTRON CHARGE DENSITY AND MOMENTUM DISTRIBUTION (Selected Topics in Solid State Physics, Volume 6)

By RICHARD J. WEISS, *Physicist, U. S. Army Materials Research Agency.* Provides the experimentalist with all the essential theoretical details necessary to make accurate and absolute X-ray scattering factor measurements. A North-Holland (Interscience) book. 1966. 196 pages. \$10.50.

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TRANSMISSION OF VIRUSES BY THE WATER ROUTE

By GERALD BERG, Robert A. Taft Sanitary Engineering Center, Cincinnati, Ohio. Comprises the papers presented at a symposium sponsored by the Research Branch of the Division of Water Supply and Pollution Control of the Public Health Service, U.S. Department of Health, Education, and Welfare (now the Federal Water Pollution Control Administration, U.S. Dept. of the Interior). The volume gives a thorough, well-rounded picture of current knowledge and thinking in important areas relating to the problem of virus transmission by water. Each of the volume's five parts corresponds to a session of the symposium, with each chapter devoted to a specific aspect of a particular area. However, the book *in toto* contains more material than was included at the symposium. 1967. 484 pages. \$15.00.

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By H. H. THEISSING and P. J. CAPLAN, both at the U.S. Army Electronics Command, Fort Monmouth, N. J. With the advent of quantum electronics, many scientists have felt the need to enlarge their knowledge of spectroscopic calculations—including calculation of energies, wave functions and transition probabilities in multielectron ions, and spin orbit and crystal-field interactions. Here is a book designed to guide the scientist in these new subject areas. 1967. 209 pages. \$10.00.

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Observation of molecular vibrations in tunneling

Physicists from the Scientific Research Staff at Ford Motor Company recently developed a device to demonstrate a new phenomenon in solid state physics.

The device, called a Solid State Spectrometer, represents a significant development in our ability to detect microscopic amounts of chemical materials.

The phenomenon, known as inelastic electron tunneling, is capable of seeing minute amounts of molecular material which are in the adsorbed state, having attached themselves to the surface of a thin, insulating film. Experiments have shown that less than a single layer of these impurities can be detected.

In the experiment, an electron current is passed through the thin film on which the impurities have been adsorbed. The ability of the film to pass current was measurably affected by the presence of the impurity molecules.

Tunneling electrons were found to interact with vibrational states of molecules included at a metaloxide interface. There were increases in the conductance G of the junction occurring at various characteristic voltages V. These voltages correspond to vibrational frequencies v of molecules contained in the junction, i.e., eV = hv.

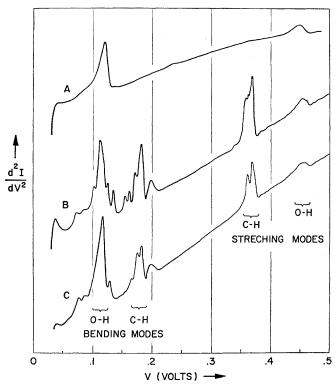
These increases represent changes in G of about 1% and correspond to the onset of new tunneling channels paralleling the bulk of the tunneling current. The characteristic voltages occur when molecular impurities are introduced in the junction, usually after formation of the oxide insulating barrier and before deposition of the top metal film. Coverage is estimated to be of the order of one monolayer.

A spectrum was obtained that was characteristic of the particular molecular species. The spectra reflect the internal molecular vibrations.

Traditional methods of obtaining this information have used infrared light of varying wave length to probe the sample. In this new method, electrons take the place of light waves and the voltage applied to drive current through the insulating film takes the place of wave length.

Compared to infrared absorption, electrons are effected more than a thousand times more efficiently in this method, which accounts for its high sensitivity.

Besides providing a new analytical tool, the Solid State Spectrometer permits experimentation on molecules in the adsorbed state, which will be of importance to the field of surface chemistry. It also represents an advance in understanding the basic processes related to electron tunneling in the solid state.



Recorder traces of d^{21}/dV^{2} versus applied voltage for three AI-AI oxide-Pb junctions taken at 4.2°K. The zero of the vertical scale is shifted for each curve and all three are normalized to the same arbitrary units. The largest peaks represent increases of 1% of G. Also indicated are intervals associated with the energy of IR active molecular vibrational modes. Curve A is obtained from a "cleam" junction. Curves B and C are obtained from junctions exposed to propionic acid (CH₃(COH) respectively. The spectra are independent of voltage polarity.

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1967. 152 pages. Illustrated. \$5.75.

DRUG AND TRACER KINETICS

Aldo Rescigno, The Australian National University Giorgio Segre, Università di Camerino, Italy

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1966. 209 pages. \$7.50.

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1967. 468 pages. In press.

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1967.	330 pages.	In press.



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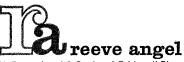


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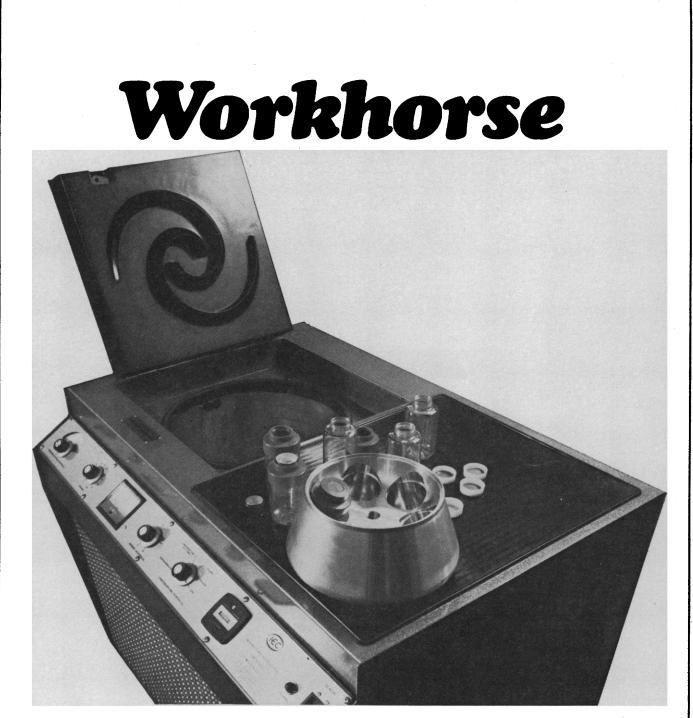
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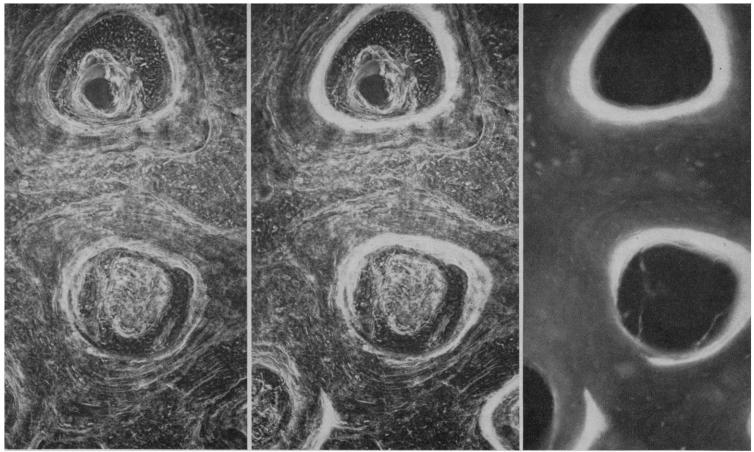


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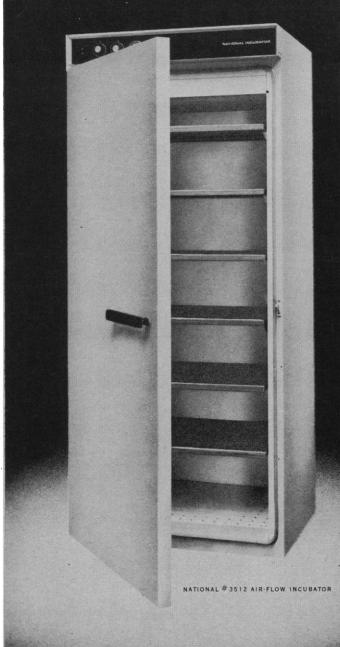
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SCIENCE, VOL. 156

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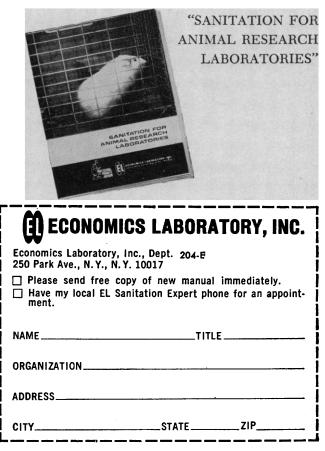
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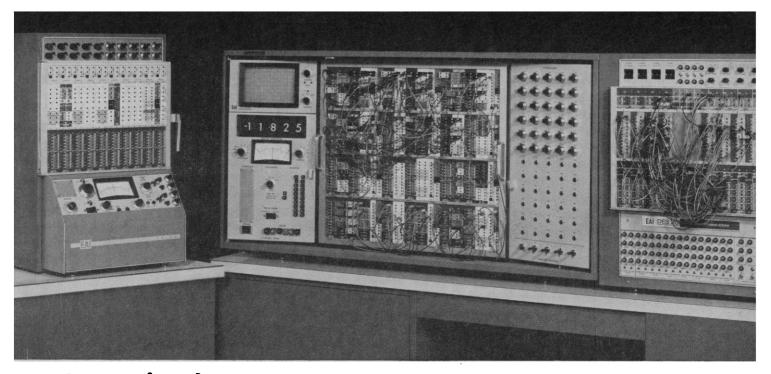
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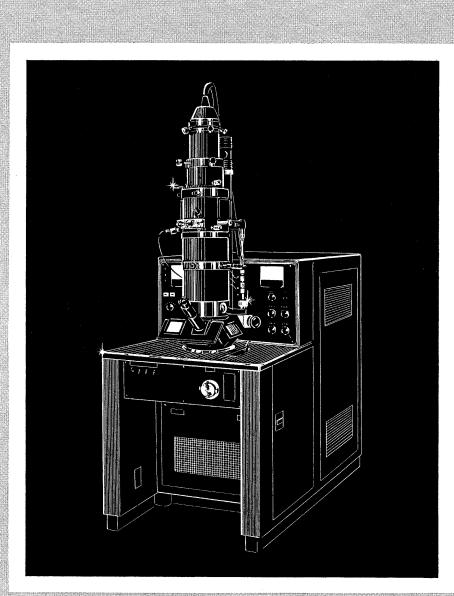
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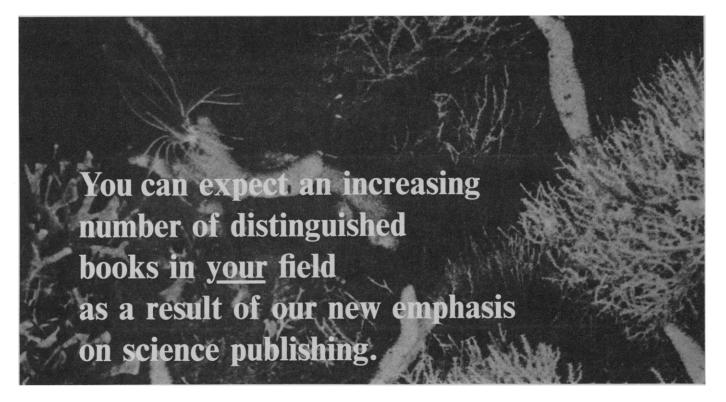
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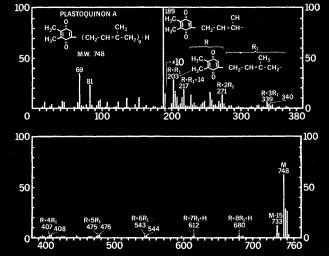
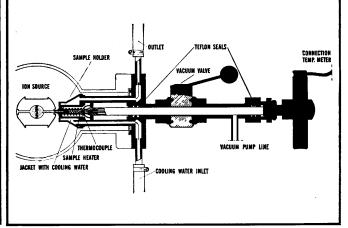


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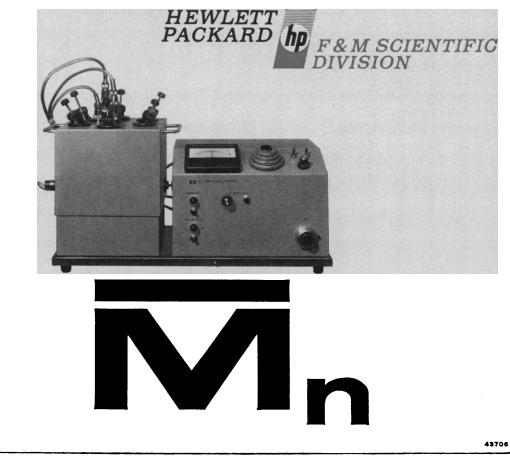
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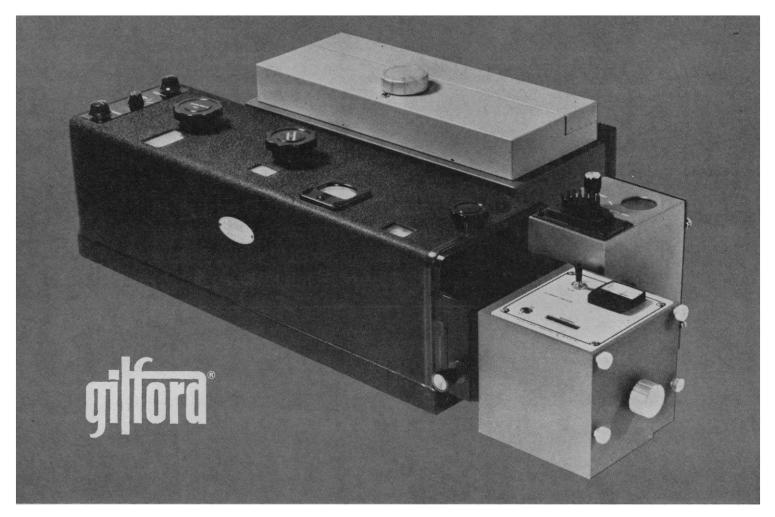
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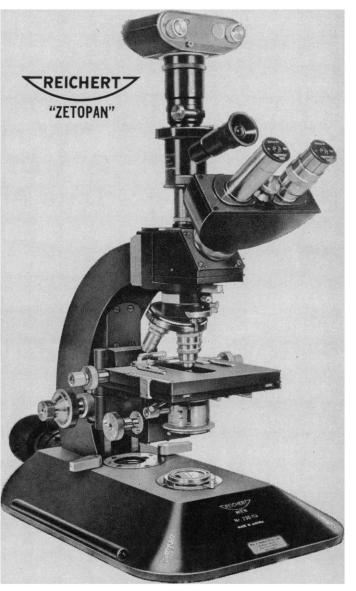
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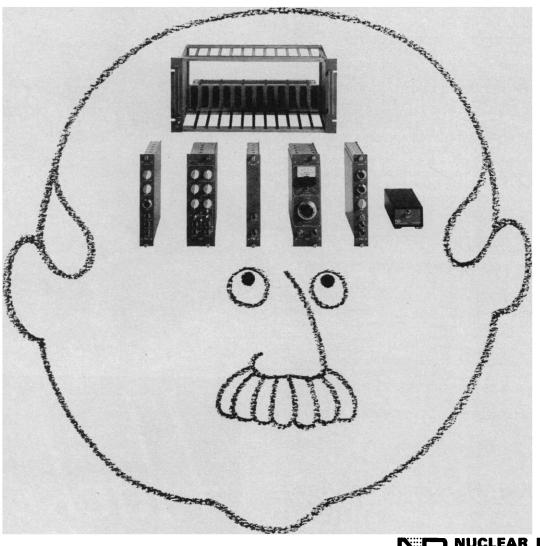
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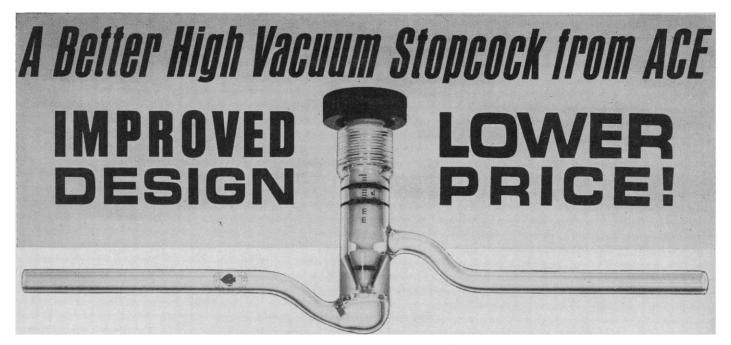
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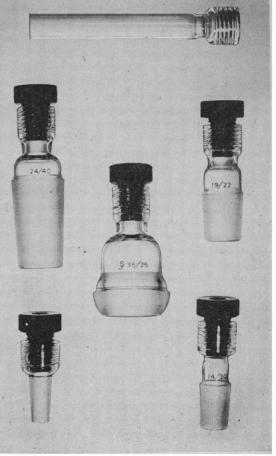
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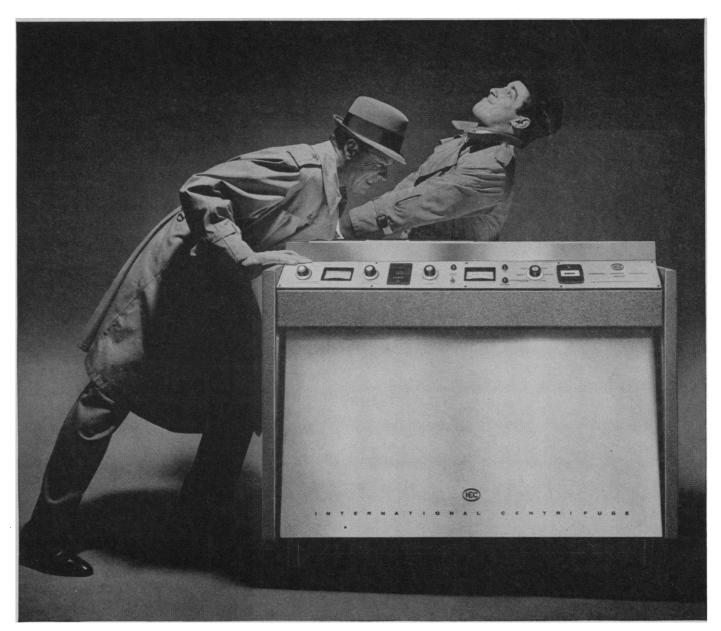
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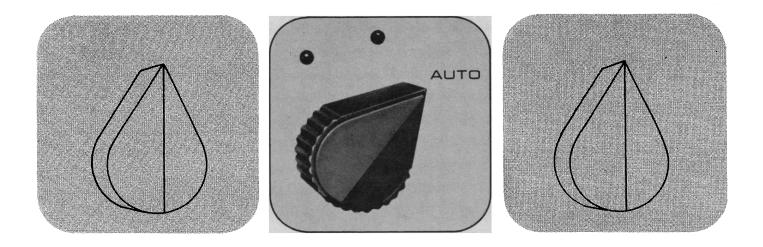
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DIVISION OF AMERICAN HOSPITAL SUPPLY CORPORATION GENERAL OFFICES: 1210 LEON PLACE, EVANSTON, ILLINOIS Springer-Verlag has decided to create an international journal in marine biology devoted to the publication of original research papers in the following fields:

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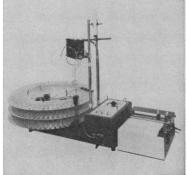
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■ single-wavelength operation gives optimum sensitivity for both proteins and nucleotides, eliminates filter and source changing:

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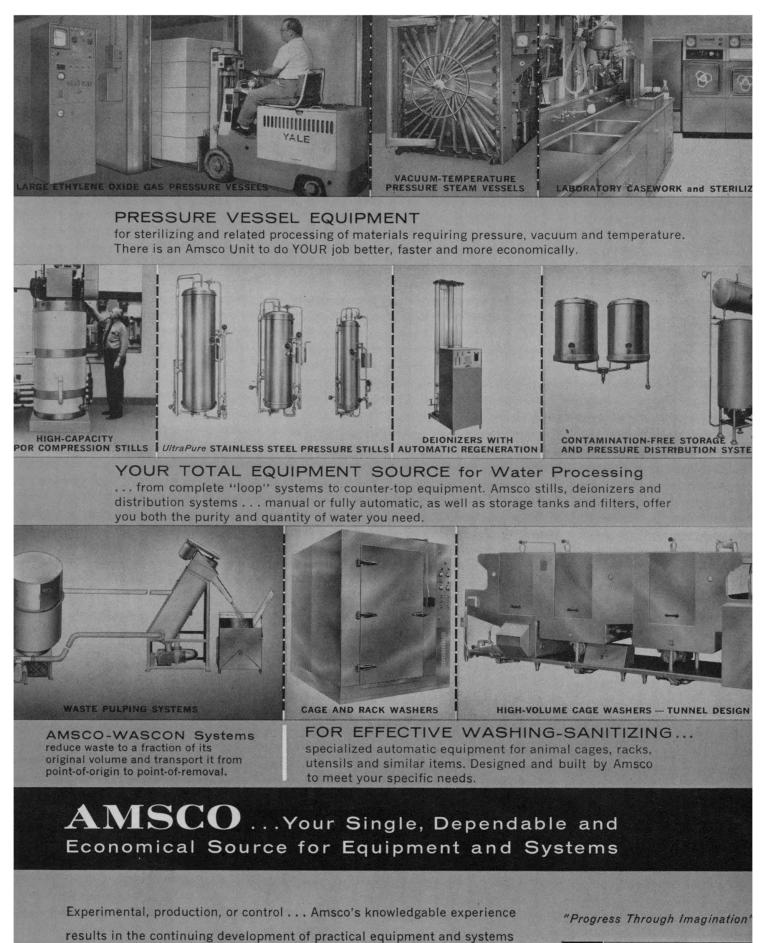


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SCIENCE, VOL. 156





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solve your specific needs.

May, 1967 **FISHER PRODUCT REPORT** News about instruments, apparatus and reagent chemicals that make your work guicker, surer, safer and easier.

At its price (\$325), you can't beat the new Fisher Vacuum Oven for usable sample space (313 sq. in.). Besides, it's lined with stainless steel.

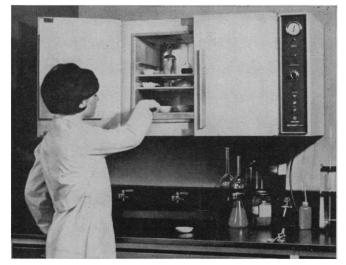


And if this isn't enough, the new Model 48 can be operated under vacuums down to 30" Hg, responds to temperature changes of $\pm 1.0^{\circ}$ over a range of 40°C to 200°C. You can use this compact unit efficiently as a vacuum-drying oven; as a controlled-atmosphere or ordinary air-filled chamber for static drying; and as a purged-atmosphere chamber.

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If you are hankering after a multipurpose vacuum oven, our free product bulletin will convince you the new Fisher Model 48 is the most for your money. (a) \Box

Newest Fisher Isotemp Oven hangs on useless wall space to free useful counter space.



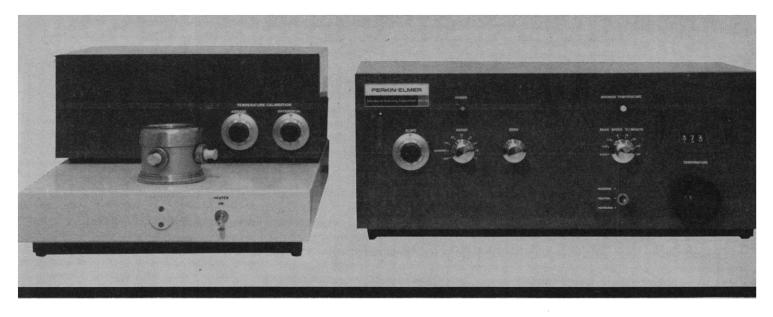
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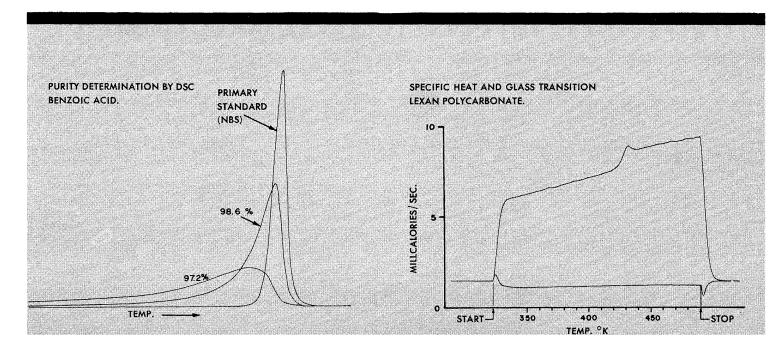
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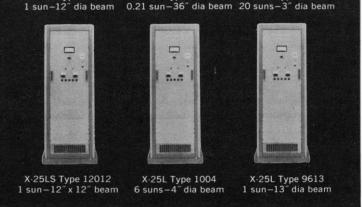


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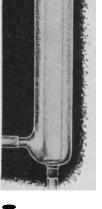
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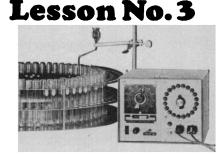
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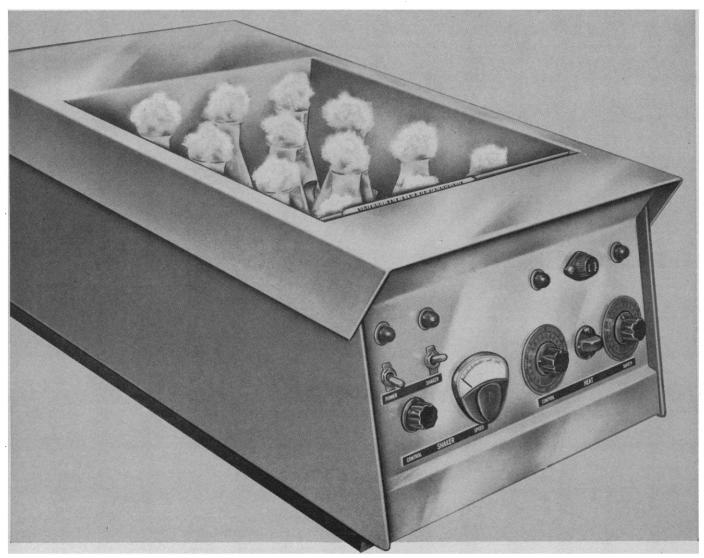
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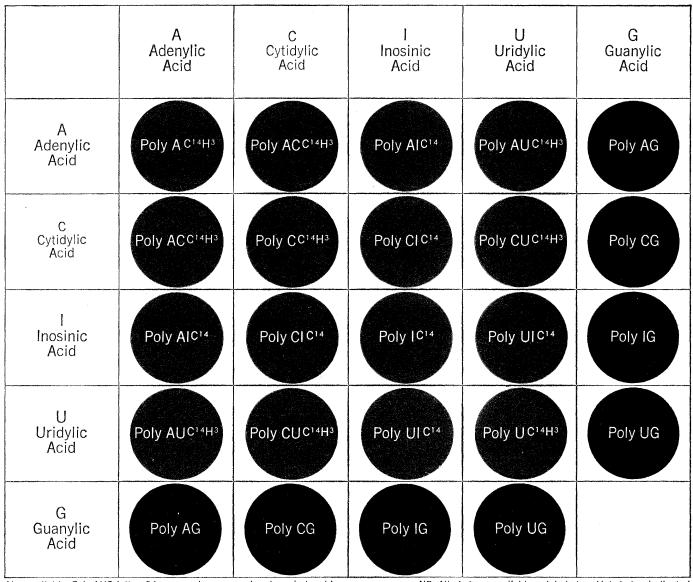
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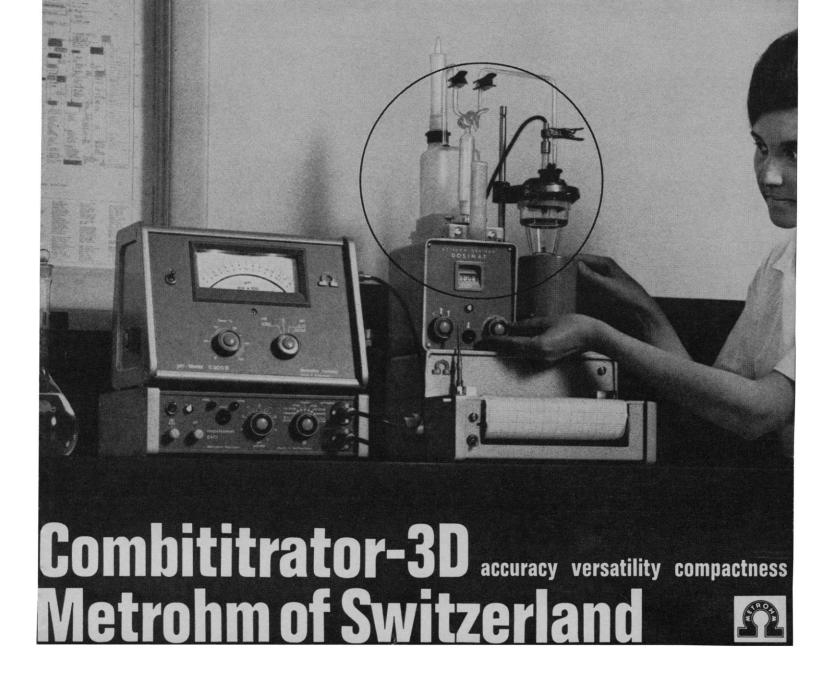
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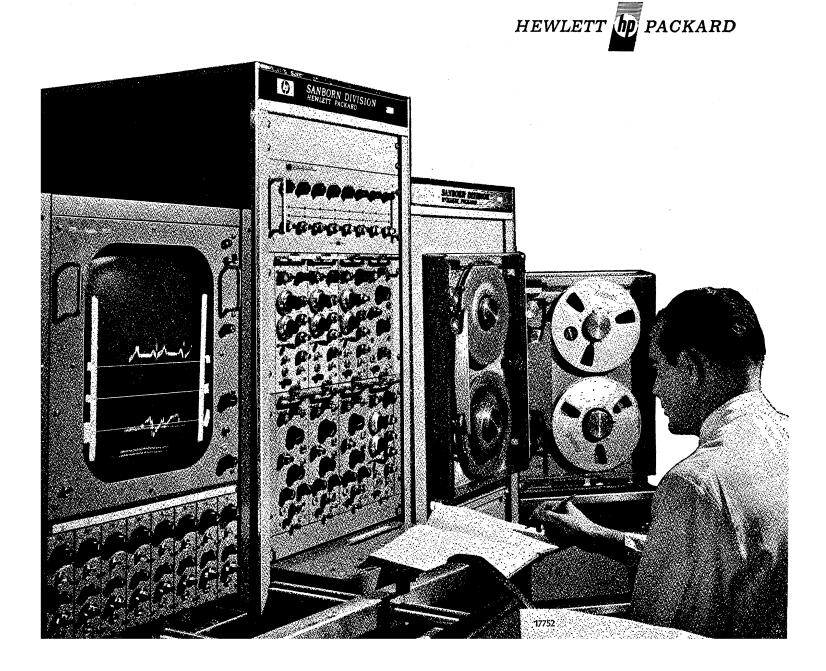
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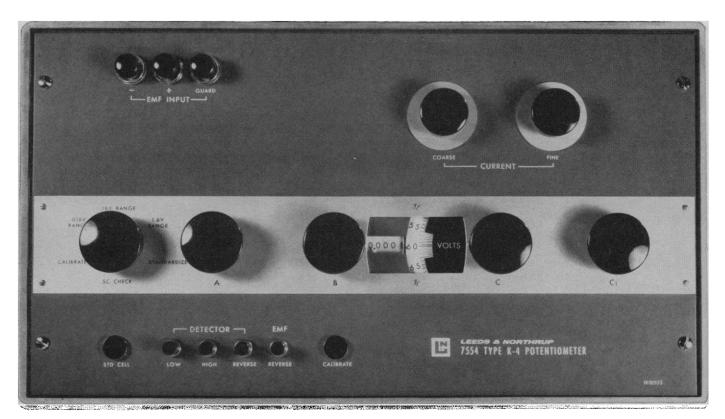
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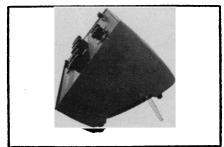
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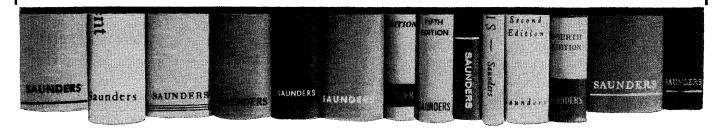
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Alexander M. Mood Murray Spitzer David S. Stoller Frederic D. Weinfeld

National Center for Educational Statistics, Department of Health, Education, and Welfare, Washington, D.C. 20202

. . . Nichols contends in his review (i) that no inferences can be drawn from the USOE data regarding the effects of desegregation on Negro achievement, and (ii) that the data show differences in educational opportunity (that is, quality of schooling) to be of no importance as a factor in racial differences in achievement. I think his conclusions are unwarranted in both instances.

Regarding the first point: It is true that the USOE data consists entirely of correlations between measurements at a single point in time, and that only a longitudinal study of achievement, involving repeated measurements of pupils who were randomly assigned to different types of schools, could provide a definitive test of the effects of desegregation. However, when longitudinal studies are not feasible, carefully designed ex post facto research can and should be used as a basis for drawing qualified inferences about causality. To deny this would be to discard muchperhaps most-of the accumulated empirical knowledge of the social sciences.

In the USOE survey, cross-tabulations on indicators of socioeconomic status showed that differences in Negro achievement associated with extent of desegregated schooling were not accounted for by measured family-background factors. Admittedly, there may have been important background factors that were not measured. But such assumed differences among families of similar socioeconomic status would have to account for the following obtained trends:

1) The earlier the grade during which

the child first experiences desegregation, the stronger the apparent gain in achievement.

2) The greater the proportion of white classmates at the time of testing, the stronger the apparent gain in achievement.

3) The higher the grade in school, the closer the relationship between proportion of whites in a school and Negro achievement.

It seems to me unreasonable to argue that these relationships merely reflect undetected differences in the family backgrounds of Negro pupils. I am informed that in further cross-tabulations of the data, done for the U.S. Civil Rights Commission, Negro pupils were divided into two groups according to educational level of their own families, and into three according to educational level of their classmates' families, and that for virtually all combinations of categories there were linear trends toward higher Negro achievement as (i) proportion of white classmates increased and (ii) the grade in which desegregation was first experienced was lowered.

For his opinion that the data show the differences in average performance of racial groups not to be the result of differences in educational opportunity, Nichols cites two lines of evidence: (i) the racial gap in achievement, as measured by standard scores on tests, remains quite constant in the Northeast at different grade levels; (ii) the proportions of total variance in achievement accounted for by between-school differences and within-school differences remain constant at different grade levels.

First of all, it should be noted that in the South the racial gap does grow larger at higher grade levels, a showing consistent with the notion of a cumulative effect of inferior educational services. Why in the South, but not in the Northeast? One regional difference is obvious. In the South, racial comparison is tantamount to comparing Negro schools and white schools, since over 90 percent of Negro children in the South are in de facto segregated schools. But in the North almost 50 percent of all Negro pupils are in predominantly white schools. Therefore, the data cited by Nichols (racial averages in test scores) are not relevant to the question of the effects of school quality on racial differences in the North. The relevant data would have to compare performance through time of Negro children in predominantly

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Negro schools with white performance in predominantly white schools, and of course, for the sake of completeness, Negro children in white schools, and white children in Negro schools. (As I indicated above, the effect on Negro pupils of attendance in white schools does appear from the USOE report to be cumulative. Moreover, an additional tabulation by the Civil Rights Commission shows that in the 12th grade the average northern Negro child of low socioeconomic background in a school with a predominantly low-status Negro enrollment is reading at the 7thgrade level, whereas the comparable Negro child in a high-status white school is reading at the 11th-grade level.) Note also that the percentage of Negroes in predominantly white schools in the North increases greatly (about doubles) in the higher grades. If the white schools are better schools (and they clearly are in at least one important respect-the verbal ability of teachers), this factor could easily wash out any tendency toward enlargement of the racial gap at higher grades.

Nichols' second argument is that if differences in school quality contribute to racial differences in average achievement, between-school differences in average performance, relative to withinschool differences in individual performance, should increase with increasing grade level. This assumes there are no factors within schools that have a cumulative effect on differences between pupils. If differences within schools were also increasing with grade level, increasing differences between schools would not be apparent, since the relative contributions to total variance would tend to remain unchanged.

There is one likely candidate as a within-school factor having cumulative effects on performance—ability grouping. Over 60 percent of white and Negro children in the Northeast (80 percent of Negro children in the South) are in schools that practice some form of ability grouping. There is enough evidence of a "self-fulfilling prophecy" phenomenon associated with ability grouping to warrant rejecting the comparison of within-school and betweenschool variance as a test of whether differences in educational opportunity affect achievement.

In short, I find Nichols' conclusion that variations in educational opportunity (including the opportunity to go to school with children of different backgrounds) have no material effect on Negro achievement—unwarranted on the basis of the evidence he presents. On the contrary, the Coleman data suggest the opposite.

IRWIN KATZ Center for Research on Conflict Resolution, University of Michigan, Ann Arbor 48104

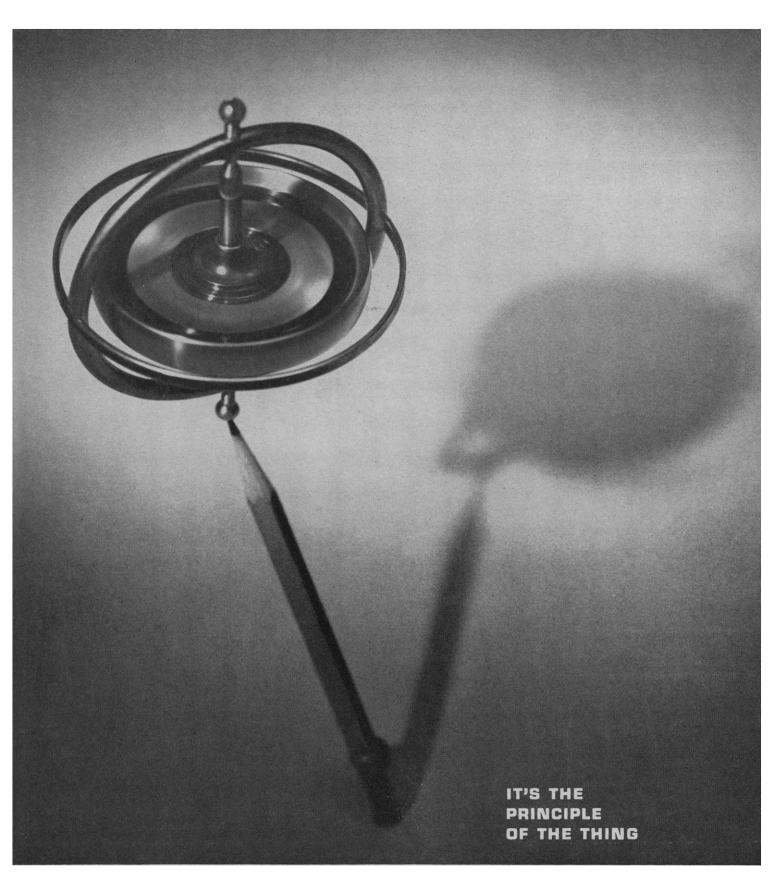
The two foregoing letters support the major conclusion of my review, which was that available data are inadequate to answer the important questions asked of them.

Mood, Spitzer, Stoller, and Weinfeld rightly emphasize the difficulty of isolating the role of differences among schools in bringing about individual differences in ability among students. However, they seem overly to minimize significance of their regresthe sion analysis in which little relationship was found between student achievement and school quality when family background was statistically controlled. The conclusion of the report, "that schools bring little influence to bear on a child's achievement that is independent of his background and general social context" (p. 325), can be contested on methodological grounds, but I know of no better evidence that would suggest the opposite conclusion.

The increasing racial gap and increasing between-school variance with increasing grade level that might be expected if school differences were a major source of individual differences in student performance were not observed in the Coleman study. Katz and Mood et al. have indicated several reasons why this is not conclusive evidence for the absence of school effects. Student migration and dropout and differential test validity at the different age levels are additional sources of error that could obscure the evidence of school effects. But simply explaining away the negative evidence does not establish a strong case for the existence of substantial school effects.

Katz points out that "differences in Negro achievement associated with extent of desegregated schooling were not accounted for by measured familybackground factors," but neither were they accounted for by measures of school quality or of racial balance. They could be accounted for either by the higher socioeconomic level of the other students in integrated schools (the conclusion of the USOE report) or by incomplete control of family background (a possibility mentioned in my review).

I agree with Katz that the data do SCIENCE, VOL. 156





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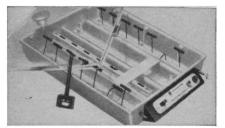
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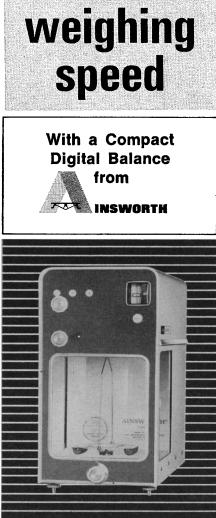
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not warrant the conclusion "that variations in educational opportunity . . . have no material effect on Negro achievement," but neither do they warrant the opposite conclusion.

The question of the extent to which differences among schools are responsible for differences in student performance is too important to rest on quibblings over inadequate evidence. At a time when we talk matter-offactly about sending men to the moon, I find it hard to accept Katz's statement that "longitudinal studies (of educational effects) are not feasible." The Equality of Educational Opportunity survey has demonstrated that wellfinanced, large-scale studies can provide data relevant to important questions concerning educational effects; but, as a first attempt organized on a crash basis, it has raised more questions than it has answered. Much more research on a similar scale is needed. particularly studies incorporating longitudinal data. The great variation in educational practices in the U.S. provides a vast and continuing natural experiment. Analyses to isolate the effects of the many variables involved can be done at a relatively low cost. We can no longer afford to pass up such a research bargain.

In addition to evaluating the effects of existing differences in educational programs, promising new ideas should receive a fair trial. The educational establishment is so conservative, however, that it is extremely difficult to introduce changes. To get an innovation accepted, such a strong emotional argument for it must be advanced that it then becomes impossible to deny it to anyone who wants it. Thus, the effects of changes in the educational system are never evaluated. Proposed changes in educational programs should be tried in the natural setting, on an adequate scale, on an experimental basis with the control groups and measurements that are necessary to assess the effects of the change. Then a rational decision could be made either to expand or to abandon the program.

As Mood *et al.* point out, we have been questioning the differential effects of schools, not the absolute value of education. As a whole the schools have undoubtedly improved in effectiveness over the years. However, we may be nearing the upper limit on improvement that can be achieved by common sense and experience alone. Future enhancement of the effects of education will increasingly depend on the objective



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evaluation of the effects of educational programs, so that the effective can be expanded and the ineffective abandoned.

ROBERT C. NICHOLS National Merit Scholarship Corporation, 990 Grove Street, Evanston, Illinois 60201

Christian Impact on Ecology

In "The historical roots of our ecological crisis" (10 Mar., p. 1203) White helpfully pointed out that "Since the roots of our trouble are so largely religious, the remedy must also be essentially religious, whether we call it that or not. We must rethink and refeel our nature and destiny." Fine! A better general conclusion has rarely been formulated even though his handling of the historical data of Christianity and Scripture leaves much to be desired. He seems to feel that what Christians have said and done adequately represents Christianity. To speak of "orthodox Christian arrogance toward nature" is to miss the heresy and blasphemy and label it normative. Not everything Christians do is Christian in character. . . . The most undeveloped and misunderstood teaching of Scripture relevant here is the cultural mandate given Adam by God. White described some of the data of the mandate but missed the thrust, as have most Christians over the centuries. The cultural mandate makes man the responsible steward of the universe, not its spoiler and looter. Responsible stewardship, not exploitation, is the keynote. As steward of the universe, man is challenged to develop natural resources to benefit all creatures, aesthetically and materially, and by so doing to honor his Creator and Redeemer. Such Christian stewardship of natural resources does not include exploitation for selfish gain at the expense of society, nor pollution of land, air or water.

ERNEST S. FEENSTRA Department of Pathology, Upjohn Company, Kalamazoo, Michigan

The historical impact of Christianity upon ecology has depended not on what we, individually, at present, may think that Christianity should have been, but rather upon what the vast "orthodox" majority of people who called themselves Christians have in fact thought it was. Feenstra, like St. Francis, is trying to reform Christianity. 12 MAY 1967

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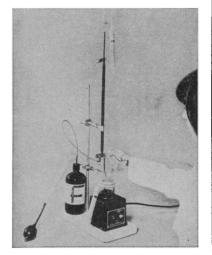




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But his proposal is far less radical than that of St. Francis. He seems to suggest an enlightened despotism of man over the rest of nature instead of St. Francis' democracy of all creatures.

LYNN WHITE, JR. Department of History, University of California, Los Angeles 90024

... My only objection to White's presentation concerns the Sister Fire which he attributes to St. Francis of Assisi. Fire, for Francis, was Brother Fire, not Sister, at least in his *Cantico delle Creature*:

Laudato si', mi Signore, per frate focu per lo quale ennallumini la nocte, et ello e' bellu, et iucundu, et robustoso e forte.

While I embrace wholeheartedly Lynn White's proposal to set up a democracy of all God's creatures, I still favor the separation of the sexes.

Renato Baserga

562 Manor Road, Wynnewood, Pennsylvania

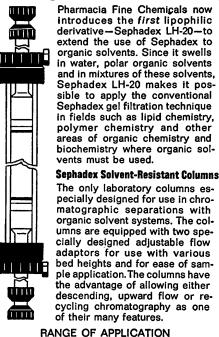
White's stringent demonstration that today's ecological catastrophe results directly from the Judeo-Christian tradition can be expanded to include other catastrophies of similar or greater magnitude which occurred earlier in time. Martin [Nature 212, 339 (1966)] has discussed at some length the early overkills which destroyed 40 percent of the mammalian fauna in Africa and 70 percent in North America. These overkills, which took place, respectively, 50,000 and 12,000 years ago, clearly demonstrate that the Judeo-Christian tradition is considerably older than generally assumed.

CESARE EMILIANI SHALE NISKIN Institute of Marine Science, University of Miami, Miami, Florida 33149

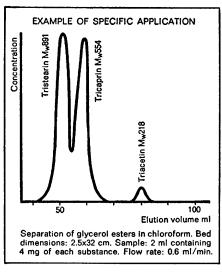
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I would like to answer the question posed by Mary E. Clark of the University of Newcastle in her letter, "Reprints unlimited" (17 Feb.). She wondered, "How does one identify those who are really interested when no information comes on the [reprint request] card?" The answer is simple: Have your institution pay for as many reprints as you consider necessary. Don't be too modest—if you feel that 2000 or 3000 would be a convenient number—

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MIGUEL MOTA Department of Genetics, Estação Agronómica Nacional, Oeiras, Portugal

The Imperturbable Feline

Doty and Jones's report on learningset formation in various mammals (24 Mar., p. 1579) reminds me of a paper prepared for Science by W. A. Rhoads and F. Turner of the UCLA School of Nuclear Medicine and me on learning in cats. The paper was never submitted because, like UFO and Grant Swinger reports, it might have been misconstrued as trivial.

Three cats were observed for 12 months in three widely separate areas of Los Angeles. The cats were two American shorthairs and a cross-eyed pedigreed Siamese. Specifically, eartwitching was observed while the cats were dozing. Sounds which did or, more important, did not cause ear-twitching were noted. None of the three cats ever twitched to the following sounds: (i) wife shouting in kitchen, (ii) champagne cork popping, (iii) people falling into swimming pool, and (iv) approaching police sirens.

I have been unable to persuade my co-authors that we were walking in the footsteps of Pavlov.

H. W. PITTENGER Planning Research Corporation, Los Angeles, California 90024

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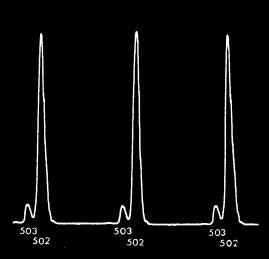
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Excessive Educational Pressures

Emotional shock waves following the launching of Sputnik in 1957 have been dissipated. Nevertheless, sequelae linger—notably in American education. During the late 1950's strenuous efforts were directed at improving all aspects of instruction and especially the teaching of science in the secondary schools. To achieve this a number of steps were taken. Summer institutes for science teachers were fostered. Efforts such as the Physics Secondary School Curriculum Project were launched. Campaigns to induce more students to enroll in science courses were conducted. Higher standards of performance were established. An increasing amount of homework was required. At the time, these steps generally met with enthusiastic response. However, today questions are being raised concerning the overall results of the efforts.

The most recent statistics show that campaigns to increase interest in science and engineering have not been very successful. From 1960 to 1965, the number of college juniors majoring in physics dropped by about 15 percent, while overall college enrollment was up over 50 percent. During the same period undergraduate enrollment in engineering increased only slightly. In 1965 more baccalaureate degrees were granted to English majors than to all students in the branches of engineering. Nearly five times as many baccalaureate degrees were granted in the social sciences as in the physical sciences.

To what extent is the current student unrest chargeable to the more stringent secondary school curricula? We do not know. However, there is growing concern that too much is being asked of the young. A recent poll conducted by *School Management* showed that 88 percent of the respondents believed that, in their own school districts, pressure on college-bound students had increased during the last 5 years. A substantial majority felt that pressure had become too intense.

In a speech reported in *Chemical and Engineering News* (20 February 1967), L. Carroll King, a professor of chemistry at Northwestern University, is critical of present-day education. He feels that secondary school students are being asked to do "too much, too fast, too soon." He suggests that some students are enduring 17 hours a day of activity in high school. King charges that "we have committed a crime against a generation." These are strong words, but soundings in various areas of this nation have elicited similar sentiments.

King's concern was aroused by observations on chemistry majors entering his university. He found that too many very good high-school students fail outright or do poorly in college. King believes that the poor performance is a sequel to excessive work in high school. The students quit rather than face seemingly endless years of 17-hour days.

Responsibility for excessive pressure on secondary school students is shared by many. College admission offices, parents, new curricula, teachers, and the students themselves are involved. Results of the excessive pressure seem to be especially evident in the physical sciences and engineering.

In the decade since Sputnik, scientists and others have participated in notable experiments in education. Some of the results are unexpected. Evaluation, looking toward prompt changes, is in order.

-PHILIP H. ABELSON

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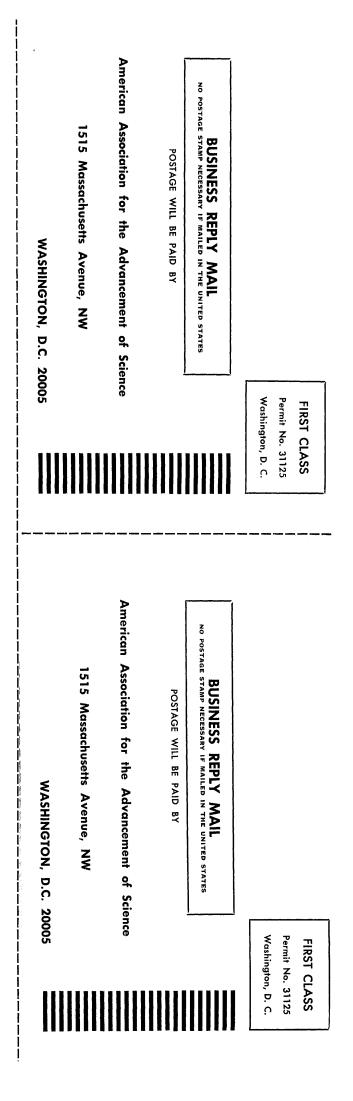
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AN INVITATION TO JOIN THE AAAS

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One of the major scientific events of each year is the annual AAAS meeting, which provides a review of major advances in the various scientific fields. The 1967 annual meeting will be in New York City, from 26-31 December.

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AAAS also sponsors the Gordon Research Conferences, informal week-long seminars that bring together active research workers from laboratories in the U.S. and abroad for consideration of new directions in chemical research.

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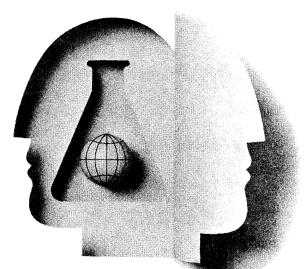
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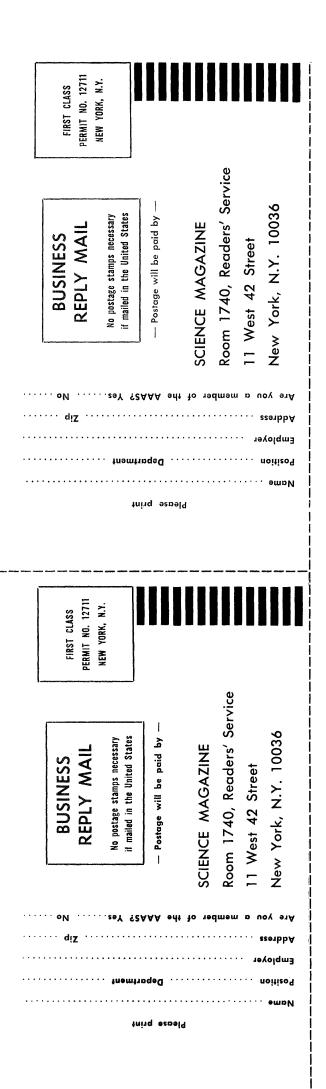
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isotope production has been operating at Orsay since April 1965.

J. Kooi of Euratom discussed their production program centered on Am irradiated in the BR-2 reactor at Mol. After gross processing at Karlsruhe, the transcurium elements will be purified in laboratories placed at Euratom's disposal in the Institute for Nuclear Physics Research at Amsterdam. Studies in nuclear physics and inorganic chemistry include decay scheme studies, extraction chromatographic separation procedures, and electrochemical studies of actinides in molten salts.

C. H. Ice of the Savannah River Laboratory reported on research aimed toward large-scale production of transplutonium elements. Using chemical technology developed in the transplutonium program and a newly-developed high flux mode of production reactor operation, the production of 4.5 kg of ²⁴⁴Cm was undertaken in 1963. This program should also yield 9.2 kg of ²⁴²Pu and 3.0 kg of ²⁴³Am. If additional ²⁴⁴Cm is produced by irradiating the 242 Pu and 243 Am intermediates, 5 to 10 mg of ²⁵²Cf per kilogram of ²⁴⁴Cm would be produced as a byproduct. In the high-flux mode, one of the large reactors at SRL was operated at fluxes up to 6×10^{15} neutrons/cm². During the program, 520 grams of ²⁴²Pu was irradiated to produce about 2 mg of ²⁵²Cf and the associated transplutonium elements. SRL experiments are designed to measure cross sections of ²⁵²Cf precursors. Calculations indicate that the production of ²⁵²Cf in a resonance reactor may be increased 100-fold over that in a highly thermalized flux. From this, one can project the possibility of producing hundreds of grams of ²⁵²Cf per year at a cost that would make a variety of applications attractive. The pioneering work in Mössbauer spectroscopy of the actinides has been carried out at SRL with the first observations of the effect in ²³⁷Np and ²³¹Pa.

D. Cohen discussed the transplutonium chemistry program at Argonne National Laboratory, mentioning reduction of actinide oxides in fused chlorides to the metals; Mössbauer studies on neptunium compounds; absorption spectroscopy; extraction chromatography with a quaternary amine of Am-Cm and Es-Cf; electrical resistivity and Hall effect studies on neptunium and americium metal; and the curiumoxygen system.

A. M. Friedman reported the following topics under study in nuclear physics at Argonne National Laboratory: fission kinetics in the ²⁴⁰Pu (α, α' fission) and ²³⁹Pu (d,p fission) reactions, alpha-particle spectra of ²⁵⁴Es and ²⁵⁵Es, production of ²⁵³Md and ²⁴³Cf in (³He,*xn*) reactions, extensive studies of states in odd-A nuclei between ²²⁹Th and ²⁴⁹Cm as observed in (d,p) and (d,t) reactions.

M. Givon of the Israeli Transuranium group reported a comparison of the spectrophotometric and thermodynamic complex constants for the systems Np, Pu, Am-halide, and nitrate.

The Symposium was sponsored by the Oak Ridge National Laboratory. D. E. Ferguson served as program chairman.

O. L. Keller, Jr.

Chemistry Division, Oak Ridge National Laboratory,* Oak Ridge, Tennessee 37831

Note

* Operated by Union Carbide Corporation for the U.S. Atomic Energy Commission.

Calendar of Events

Courses

Actinomycetes and Mycology. Indiana State Univ., 12–16 June. Oriented towards industrial problems. Limited enrollment. Fee, \$125. (F. M. Rothwell, Dept. of Life Sciences, Indiana State Univ., Terre Haute 47809)

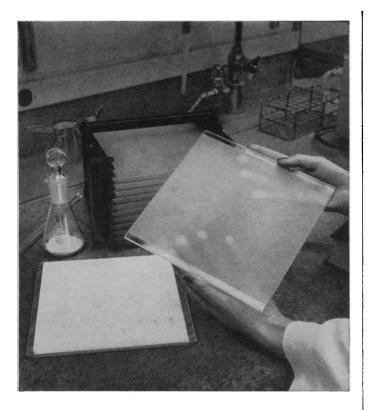
Bacteriology and Virology. Indiana State Univ., 5–9 June. Oriented towards industrial problems. Limited enrollment. Fee, \$125. (F. M. Rothwell, Dept. of Life Sciences, Indiana State Univ., Terre Haute 47809)

Basic Infrared Spectroscopy. Fisk Univ., 14–19 Aug. Designed to introduce beginners to theory and applications of subject. Enrollment limited to 50 participants. Fee, \$150. Partial tuition fellowships available for academic personnel. (Director, Fisk Inst., Box 8, Fisk Univ., Nashville, Tenn. 37203)

Behavior of Liquid Propellants in Space Vehicles 805.9. Univ. of California, Los Angeles, 19-30 June. Designed for control system and propulsion system design engineers concerned with design of advanced launch vehicles and missiles. Prerequisite: Bachelor's degree or equivalent in science or engineering. *Deadline: 12 June*. Fee, \$300. (Engineering Extension, Room 6266, Boelter Hall, Univ. of California, Los Angeles 90024)

Gas Chromatography. Fisk Univ., 14-18 Aug. Enrollment limited to 50 participants. Fee, \$150. Partial tuition fellowships available for academic personnel. (Director, Fisk Inst., Box 8, Fisk Univ., Nashville, Tenn. 37203)

Immuno-serological Methods. Mississippi State Univ., 1–7 June. Orientation towards industral problems. Enrollment limited to 20 participants. Fee, \$125. (J.



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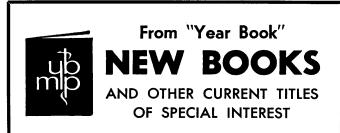
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Infrared Spectroscopy, 2nd session. Fisk Univ., 21–25 Aug. Enrollment limited to 50 participants. Fee, \$150. Partial tuition fellowships available for academic personnel. (Director, Fisk Inst., Box 8, Fisk Univ., Nashville, Tenn. 37203)

Infrared Spectroscopy. Univ. of California, Los Angeles, 10–21 July. Intended for chemists, biochemists, biologists, and engineers. Fee, \$300. (R. E. Garrels, Physical Sciences Extension, Room 6532, Boelter Hall, Univ. of California, Los Angeles 90024)

Interactive Time-sharing Systems: Hardware and Software. Univ. of California, Los Angeles, 19–30 June. Intended for managers of time-sharing installations, systems programmers, and system users. Fee, \$300. (R. E. Garrels, Physical Science Extension, Room 6532, Boelter Hall, Univ. of California, Los Angeles 90024)

of California, Los Angeles 90024) **On-Line Computer Control Systems.** Univ. of California, Los Angeles, 10–21 July. Designed for engineers engaged in development and application of on-line computer control systems. *Deadline: 3* July. (Engineering Extension, Room 6266, Boelter Hall, Univ. of California, Los Angeles 90024)

Practical Astrodynamics. Univ. of California, Los Angeles, 10–21 July. Designed for persons interested in new approaches to astrodynamics including concepts and methods for solving current and future problems. Fee, \$300. (R. E. Garrels, Physical Sciences Extension, Room 6532, Boelter Hall, Univ. of California, Los Angeles 90024)

Probability and Statistics. Univ. of California, Los Angeles, 19–30 June. Includes basic concepts of probability, recognition of probabilistic and statistical problems and translation into probabilistic language, hypothesis concerning parameters, and statistics. Fee, \$300. (R. E. Garrels, Physical Science Extension, Room 6532, Boelter Hall, Univ. of California, Los Angeles)

Seminar for Managers of Technical Information. Univ. of Iowa, 4–8 June. Designed for editors or supervisors of technical writers; consultants of information storage, retrieval, processing, and transmission; problem solving experts in information and communication. Fee, \$250. (C. A. Andrews, The Seminar, 207 Engineering Bldg., Univ. of Iowa, Iowa City 52240)

Seventh Annual Summer Institute in Dynamical Astronomy. Purdue Univ., 19 June-7 July. Intended for science faculty and graduate students. Enrollment limited to 80 participants. (H. Pollard, Div. of Mathematical Sciences, Purdue Univ., Lafayette, Ind. 47907)

Theory and Applications of Modern Optics. Univ. of California, Los Angeles, 17–28 July. Designed for those in research, development, or education related to modern optics. Fee, \$300. (R. E. Garrels, Physical Sciences Extension, Room 6532, Boelter Hall, Univ. of California, Los Angeles 90024)

Ultra-violet-Visible Spectroscopy. Fisk Univ., 21-25 Aug. Enrollment limited to 50 participants. Fee, \$150. Partial tuition fellowships available for academic personnel. (Director, Fisk Inst., Box 8, Fisk Univ., Nashville, Tenn. 37203)



Variational Theory and Optimal Control Theory. Univ. of California, Los Angeles, 19–30 June. Designed for engineers, physical scientists, mathematicians, and those interested in optimization. Fee, \$300. (R. E. Garrels, Physical Sciences Extension, Room 6532, Boelter Hall, Univ. of California, Los Angeles 90024)

National Meetings

May

22-25. Institute of Electrical and Electronics Engineers, joint technical conf., Cleveland, Ohio. (Office of Technical Activities Board, The Institute, 345 E. 47 St., New York 10017)

22–25. New Aids for Management Decision Making, Washington, D.C. (Director, Center for Technology and Administration, American Univ., 2000 G St., NW, Washington, D.C.)

22-25. URSI-IEEE, spring mtg., Ottawa, Ont., Canada. (R. S. Rettle, Natl. Research Council, Ottawa 2)

Research Council, Ottawa 2) 22-26. Drug Metabolism, 2nd workshop, George Washington Univ., Washington, D.C. (Dept. of Pharmacology, School of Medicine, George Washington Univ., 1337 H St., NW, Washington, D.C. 20005)

23-25. National **Tuberculosis** Assoc. and American **Thoracic** Soc., annual mtg., Pittsburgh, Pa. (NTA, 1740 Broadway, New York 10019)

24–27. Teratology Soc., 7th annual mtg., Estes Park, Colo. (M. D. Runner, Inst. for Developmental Biology, Univ. of Colorado, Boulder 80302)

25-26. **Drug Information** Assoc., 3rd annual, Philadelphia, Pa. (P. de-Haen, The Association, 11 W. 42 St., New York 10036)

26-27. Surface Physics, 5th annual symp., Washington State Univ., Pullman. (E. E. Donaldson, Dept. of Physics, Washington State Univ., Pullman 99163) 29-1. Special Libraries Assoc., New York, NY (P. M. Wasda, The Associa

York, N.Y. (B. M. Woods, The Association, 31 E. 10 St., New York 10003) 29-2. Congress of Canadian Engineers,

Montreal, P.Q., Canada. (Office of Technical Activities Board, Inst. of Electrical and Electronic Engineers, 345 E. 47 St., New York 10017)

31-2. American Soc. for Quality Control, 21st annual technical conf. and exhibit, Chicago, Ill. (R. W. Shearman, The Society, 161 W. Wisconsin Ave., Milwaukee, Wis. 53203)

31-2. Instrument Soc. of America, 13th natl. analysis instrumentation symp., Los Angeles, Calif. (The Society, 530 William Penn Pl., Pittsburgh, Pa. 15219)

June

1-2. Computer Applications in the Earth Sciences, 2nd colloquium, Lawrence, Kan. (R. F. Treece, University Extension, Univ. of Kansas, Lawrence 66044)

1-2. Industrial Water and Waste, 7th conf., Austin, Tex. (J. F. Malina, Jr., 305 Engineering Lab. Bldg., Univ. of Texas, Austin 78712)

1-3. Applied Diving Physiology, Univ. of California, San Francisco Extension

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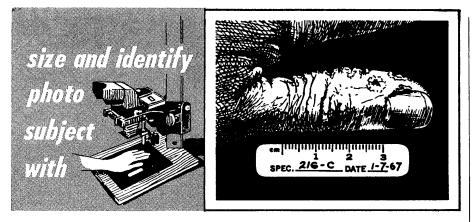
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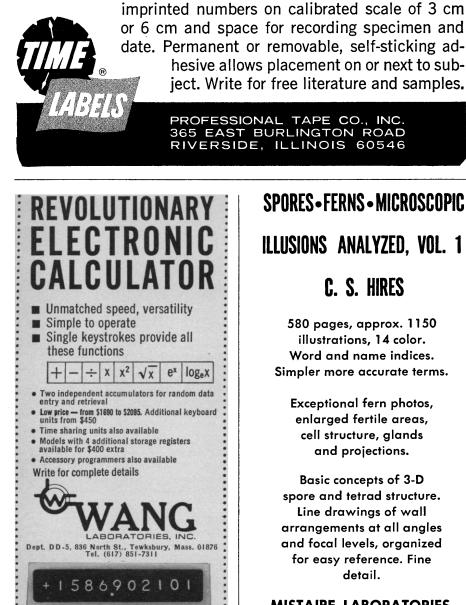


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Center. (Letters and Science Extension, Univ. of California, Berkeley 94720)

2-3. Equine Bone and Joint Diseases, symp., Ithaca, N.Y. (H. F. Schryver, Dept. of Large Animal Medicine, New York State Veterinary College, Cornell Univ., Ithaca 14850)

4-7. Tissue Culture Assoc., annual mtg., Philadelphia, Pa. (L. Hayflick, Wistar Inst., 36th and Spruce Sts., Philadelphia 19104)

4-9. American Water Works Assoc., annual conf., Atlantic City, N.J. (R. J. Faust, The Association, 2 Park Ave., New York 10017)

4-9. Underwater Acoustics, seminar, Pennsylvania State Univ., University Park. (Conf. Center, J. Orvis Keller Bldg., Pennsylvania State Univ., University Park 16802)

4-11. Lubrication in Nuclear Applications, symp., American Soc. of Mechanical Engineers, Miami Beach, Fla. (Meetings Manager, The Society, 345 E. 47 St., New York 10017)

5. Integrated Circuit Manufacturing, symp., New York, N.Y. (Miss B. S. Hines, Registration Coordinator, 7830 7830 Hasbrook Ave., Philadelphia, Pa. 19111)

5-7. The New Thrust Seaward, Marine Technology Soc., annual conf. and exhibit, San Diego, Calif. (Conference Manage-ment Organization, Inc., Colonial Bldg., 105 N. Virginia Ave., Falls Church, Va. 22046)

5-7. Recovery and Repair Mechanisms in Radiobiology, Brookhaven Natl. Lab., Upton, N.Y. (D. G. Baker, Dept. of Biology, Brookhaven Natl. Lab., Upton 11973)

5-8. Society for Economic Botany, 8th annual, Coral Gables, Fla. (Miss J. F. Morton, The Society, Morton Collectanea, Univ. of Miami, Box 8204, Coral Gables)

6-7. Deposition of Thin Films by Sputtering, 2nd symp., Rochester, N.Y. (R. D'Aprix, Sputtering Program, CVC, Dept. T, 1775 Mt. Read Blvd., Rochester 14603)

6-9. Laser Engineering and Applica-tions, conf., Washington, D.C. (L. Winner, 152 W. 42 St., New York 10036)

8-9. Post Irradiation Recovery Kinetics, symp., Bethesda, Md. (M. F. Canning, Information Div., Technical Information and Services Dept., Armed Forces Radiobiology Research Inst., Defense Atomic Support Agency, Bethesda 20014) 8-10. Fourth Pacific Northwest Plastics

Workshop, Spokane, Wash. (R. Raff, Research Div., College of Engineering, Washington State Univ., Pullman 99163)

11-14. Apollo and Beyond, American Astronautical Soc., Huntsville, Ala. (S. S. Hu, Northrop Space Labs., P.O. Box 1484, Huntsville)

11-15. American Nuclear Soc., 12th annual, San Diego, Calif. (J. E. Wilkins, Jr., General Atomic, P.O. Box 608, San Diego 92112)

11-15. Industrial Pharmaceutical Research, 9th annual natl. conf., Land O' Lakes, Wis. (A. P. Lemberger, Extension Services in Pharmacy, 190 Pharmacy Bldg., Univ. of Wisconsin, Madison 53706) 11-16. Air Pollution Control Assoc., 60th annual mtg., Cleveland, Ohio. (Seward Covert & Associates, 1059 Leader Bldg., Cleveland 44114)

11-16. Medical Library Assoc., annual mtg., Miami, Fla. (The Association, 919 N. Michigan Ave., Chicago, Ill.)

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12-14. American Neurological Assoc., 92nd annual mtg., Atlantic City, N.J. (M. D. Yahr, The Association, 710 W. 168 St., New York 10032)

12-15. Society for Industrial and Applied Mathematics, Washington, D.C. (W. J. Jameson, Jr., Collins Radio Co., 120-09, Cedar Rapids, Iowa 52406)

13-14. Electroexplosive Devices, 5th symp., Philadelphia, Pa. (G. Cohn, Senior Staff Engineer, Franklin Inst. Research Lab., Philadelphia 19103)

13-15. American Astronomical Soc., Yerkes Observatory, Williams Bay, Wis. (G. C. McVittie, Univ. of Illinois Ob-servatory, Urbana 61803)

13-16. Conjugate Point Symp., Boulder, Colo. (Aeronomy Lab. 540.03, Environmental Science Services Administration, Inst. for Telecommunication Sciences and

Aeronomy, Boulder 80302) 13-16. Vacuum Metallurgical Conf., 10th annual, New York, N.Y. (E. L. Foster, Materials Engineering Dept., Battelle Memorial Inst., 505 King Ave., Columbus, Ohio)

14-16. **Densitometry**, seminar, Chicago, Ill. (B. Kettinger, News Service Office, P.O. Box 3404, Rochester Inst. of Technology, Rochester, N.Y. 14614)

14-17. Modern Computer Analysis of Complex Social Science Data Bases, Council of Social Science Data Archives, annual mtg., Los Angeles, Calif. (W. A. Glaser, Bureau of Applied Social Research, 605 W. 115 St., New York 10025)

14-17. Speech-Analyzing Aids for the Deaf, conf., Washington, D.C. (J. M. Pickett, Hearing and Speech Center, Gallaudet College, Washington, D.C.)

15-16. American Rheumatism Assoc., New York, N.Y. (Miss M. Walsh, The Association, 1212 Ave. of the Americas, New York)

15-16. Soil, Water and Suburbia, Dept. of Agriculture and Dept. of Housing and Urban Development, Washington, D.C. (S. Kasper, Room 1201, Dept. of Housing and Urban Development, 1430 K St., NW, Washington, D.C.)

15-17. American Assoc. of Physics Teachers, summer mtg., Canton, N.Y. (A. B. Arons, Physics Dept., Amherst College, Amherst, Mass.)

15-17. Symposium on High Energy Radiation Therapy Dosimetry, American Assoc. of Physicists in Medicine, New York, N.Y. (L. H. Lanzl, Dept. of Radi-ology, Univ. of Chicago, 950 E. 59 St., Chicago, Ill. 60637) 17-18. Academy of Psychosomatic

Medicine, 4th symp. on anxiety and de-pression, Atlantic City, N.J. (E. Dunlop, 150 Emory St., Attleboro, Mass. 02703)

17-18. American Diabetes Assoc., Atlantic City, N.J. (J. R. Connelly, The Associaton, 18 E. 48 St., New York 10017) 18-21. Botanical Soc. of America,

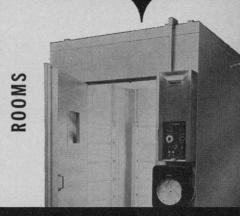
Northeastern Section, summer field mtg., Tuxedo, N.Y. (R. K. Zuck, Dept. of Botany, Drew Univ., Madsion, N.J.)

18-22. American Medical Assoc., 116th annual conv., Atlantic City, N.J. (The Association, 535 N. Dearborn St., Chicago, III. 60610)

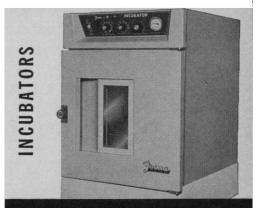
18-22. Health Physics Soc., 12th annual mtg., Washington, D.C. (J. C. Villforth, Radiological Health Lab., 1901

Chapman Blvd., Rockville, Md.) 18-22. Society for Investigative Derma-

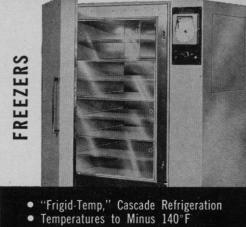




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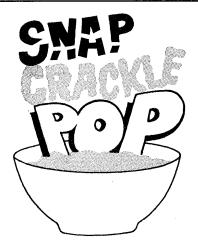
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tology, Atlantic City, N.J. (G. W. Hambrick, Jr., The Society, Johns Hopkins Hospital, 601 N. Broadway, Baltimore, Md. 21205)

18-23. American Soc. of Ichthyologists and Herpetologists, annual mtg., San Francisco, Calif. (W. I. Follett, California Acad. of Sciences, Golden Gate Park, San Francisco 94118)

19. Scombroid Phylogeny: Ideas and Approaches, symp. of American Soc. of Ichthyologists and Herpetologists, San Francisco, Calif. (B. J. Rothschild, Tuna Ecology Program, Bureau of Commercial Fisheries, P.O. Box 3830, Honolulu, Hawaii 96812)

19-21. Automatic Data Processing Systems in Local Government, 3rd annual conf., New York, N.Y. (H. Sellin, School of Continuing Education, New York Univ., New York 10003)

19-21. Colloid, 41st natl. symp., Buffalo, N.Y. (P. Becher, Chemical Research Dept., Atlas Chemical Industries, Wilmington, Del. 19899)

19-21. Heat Transfer and Fluid Mechanics Inst., La Jolla, Calif. (D. B. Olfe, Dept. of Aerospace and Mechanical Engineering Sciences, Univ. of California at San Diego, La Jolla)

19-21. Microelectronics, symp., St. Louis, Mo. (R. Pellin, Inorganic Chemicals Div., Monsanto Co., 800 N. Lindbergh Blvd., St. Louis 63166)

19-22. American Soc. for Engineering Education, 75th annual mtg., East Lansing, Mich. (L. Winner, 152 W. 42 St., New York 10036)

21–23. Modern Titrimetry, 20th annual summer symp. on analytical chemistry, Claremont, Calif. (A. L. Beilby, The Symposium, Dept. of Chemistry, Pomona College, Claremont 91713)

21-25. Society of Women Engineers, 17th annual conv., Washington, D.C. (Mrs. J. R. Fisher, 12501 Connecticut Ave., Silver Spring, Md. 20906)

21-30. Combustion-Generated Air Pollution, mtg., Berkeley, Calif. (Engineering Extension, 2223 Fulton St., Berkeley 94720)

22-23. Animal Reproduction, 8th symp., Urbana, Ill. (Short Courses and Conferences, 116 Illini Hall, Champaign, Ill. 61820)

22–24. American Soc. of Enologists, annual mtg., Santa Barbara, Calif. (The Society, Box 411, Davis, Calif.)

22-25. American Assoc. of **Bioanalysts**, mtg., Detroit, Mich. (D. Birenbaum, The Association, 805 Ambassador Bldg., St. Louis, Mo. 63101)

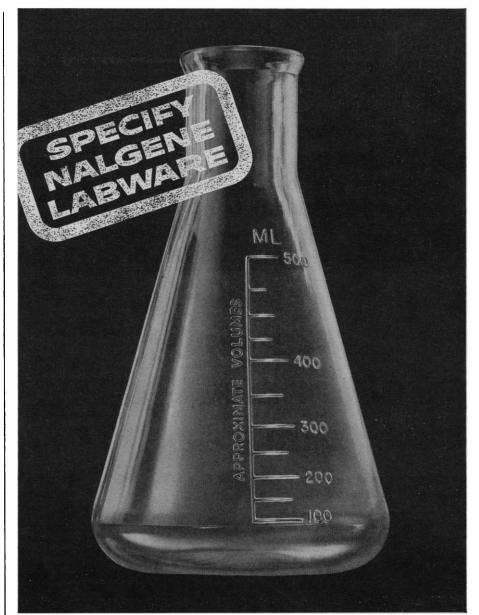
25-28. American Dairy Science Assoc., Ithaca, N.Y. (C. Cruse, The Association, 903 Fairview Ave., Urbana, Ill. 61801)

25-28. American Leather Chemists Assoc., Lake Placid, N.Y. (W. T. Roddy, Executive Secretary, The Association, Univ. of Cincinnati, Cincinnati, Ohio 45221)

25-30. American Soc. for **Testing and Materials**, 70th annual mtg., Boston, Mass. (H. H. Hamilton, Public Relations, The Society, 1916 Race St., Philadelphia, Pa. 19103)

26-27. American Soc. of **Pharmacog**nosy, annual mtg., Ann Arbor, Mich. (A. G. Paul, College of Pharmacy, Univ. of Michigan, Ann Arbor)

26-30. Workshop on Graduate Training

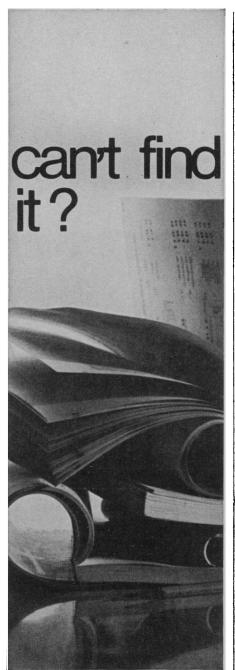


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in Scientific Writing, Rockefeller Univ., New York, N.Y. (F. P. Woodford, Rockefeller Univ., New York 10021)

26-8. Immunology, summer course. Lake Forest, Ill. (S. Dray, Univ. of Illinois at Medical Center, P.O. Box 6998, Chicago 60680)

28-30. American Scientific Glassblowers Soc., 12th annual symp., Atlanta, Ga. (R. W. Poole, 100 Cedar Lane, Oak Ridge, Tenn. 37832)

28-30. Joint Automatic Control Conf., 8th annual mtg., Philadelphia, Pa. (L. Winner, 152 W. 42 St., New York 10036) 28-30. Society of **Protozoologists**, To-

ronto, Ont., Canada. (R. W. Hull, Dept. of Biological Sciences, Florida State Univ., Tallahassee, 32306)

29-1. Navigation in the Last Third of the 20th Century: Where Do We Stand; What Needs to be Done, Inst. of Naviga-tion, 23rd annual mtg., Washington, D.C. (The Institute, 711 14th St., NW, Suite 912, Washington 20005)

International and Foreign Meetings June

2-4. Plasticity, intern. mtg., Palermo, Italy. (Instituto di Scienze delle Construzioni, Univ. of Palermo, Via Maqueda, Palermo)

4-7. Chemical Inst. of Canada, 50th natl. conf., Toronto, Ont., Canada. (General Manager, The Institute, 151 Slater St., Ottawa, Ont.)

5-9. International Commission of Sugar Technology, 13th general assembly, Falsterbo, Sweden. (J. Henry, 1, rue Aendoren, Tirlemont, Belguim)

5-10. Northwest Atlantic Fisheries, intern. commission mtg., Boston, Mass. (L. R. Day, Bedford Inst. of Oceanography, P.O. Box 638, Dartmouth, Nova Scotia, Canada)

6-8. Building Materials, intern. conf., Warsaw, Poland. (Secretary, The Conference, Ministry of Building Construction and Materials, Warsaw, Wspolna 2) 7-9. Industrial Physics—The Contribu-

tion of Government Sponsored Laboratories, Harrogate, England. (Meetings Officer, Inst. of Physics and Physical Soc., 47 Belgrave Sq., London, S.W.1, England)

7-10. Transplantation Soc., 1st intern. congr., Paris, France. (J. Dausset, Hopital Saint Louis, Place du Dr. Fournier, Paris 10°)

9-10. Transfer of Genetic Information in Protein Synthesis, intern. symp., New York, N.Y. (D. J. Quinn, Public Relations, Miles Laboratories, Elkhart, Ind.)

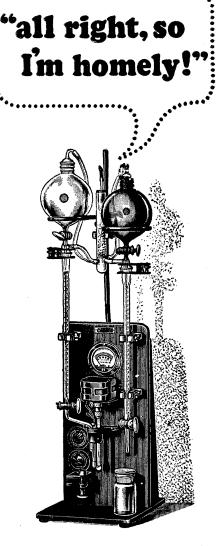
11-16. Eutrophication, intern. symp., Madison, Wis. (G. A. Rohlich, Univ. of Wisconsin, 602 State St., Madison 53706)

11-14. Smoking and Health, 1st intern. congr., New York, N.Y. (J. W. Muckell, Congr. Manager, 54 W. 40 St., New York 10018)

11-14. Society of Professional Well Log Analysts, 8th intern. symp., Denver, Colo. (Executive Secretary, The Society, 13507 Tosca, Houston, Tex. 77024)

12-14. Communications, intern. conf., Minneapolis, Minn. (R. J. Collins, Dept. of Electrical Engineering, Univ. of Minnesota, Minneapolis 55455)

12-14. Drug Research, 1st intern. symp.,



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Montreal, Canada. (Chemical Inst. of Canada, 151 Slater St., Ottawa 4, Ont.)

12-16. Macromolecular Chemistry, intern. symp., Brussels, Belgium. (Secretariat, The Symposium, 49, Sq. Marie-Louise, Brussels)

12-17. Problem of Identification in Automatic Control Systems, symp., Prague, Czechoslovakia. (V. Strejc, Ustav Teorie Informace a Automatizace, Ceskoslovenska Akademie Ved, Vysehradska 49, Prague 2)

14-15. Light and Vision, intern. symp., Columbus, Ohio. (G. A. Fry, Ohio State Univ., Columbus 43210)

14-16. Catalysis, 2nd symp., Hamilton, Ont., Canada. (R. B. Anderson, Dept. of Chemical Engineering, McMaster Univ., Hamilton)

14-16. Systematic Biology, intern. conf., Ann Arbor, Mich. (A. G. Kluge, The Conference, Dept. of Zoology, Univ. of Michigan, Ann Arbor 48104)

14-17. Mechanized Information Storage, Retrieval and Dissemination, conf., Rome, Italy. (British Computer Soc., 23, Dorset Sq., London, N.W.1, England)

18-24. Oral Education of the Deaf, intern. conf., Northampton, Mass. and New York, N.Y. (G. T. Pratt, Clark School for Deaf, Northampton 01060)

18-30. Algae, Man and the Environment, intern. symp., Syracuse, N.Y. (D. F. Jackson, Dept. of Civil Engineering, Syracuse Univ., Syracuse 13210)

19-23. Electronics, 14th intern. scientific congr., Rome, Italy. (Rassegna Internazionale Elettronica Nucleare e Teleradiocinematografica, Via Crescenzio 9, Rome)

19-23. Spectroscopy, 13th intern. colloquium, Ottawa, Ont., Canada. (Secretary, The Colloquium, Natl. Research Council, Ottawa 7)

19–28. International Commission on Illumination, Washington, D.C. (L. E. Barbrow, Secretary, USNC, c/o National Bureau of Standards, Washington, D.C.)

20-23. International **Data Processing**, conf. and business exhibition, Boston, Mass. (Data Processing Management Assoc., 524 Busse Hgwy., Park Ridge, Ill. 60068)

21–29. ACHEMA 1967, 15th chemical engineering congr. and exhibition, Frankfurt-am-Main, West Germany. (Deutsche Gesellschaft fur chemisches Apparatewesen, Postfach 7746, 6000 Frankfurt (Main), 7)

21-1. International **Plastics** Exhibition and Convention, London, England. (British Plastics, Interplas 67, Dorset House, Stamford St., London, S.E.1)

25-2. Chemotherapy, 5th intern. congr., Vienna, Austria. (Sekretariat, Wiener Medizinische Akademie, Alser Strasse 4, 1090 Wienn, Austria)

26-30. Carbonium Ions, 1st intern. symp. on physical organic chemistry, Athens, Greece. (The Symposium, Dept. of Chemistry, Michigan State Univ., East Lansing 48823; or G. Gregoriou, Nuclear Research Center "Democritos," Aghia Paraskevi, Athens, Greece)

27-4. Protein Foods and Concentrates, intern. symp., Mysore, India. (B. L. Amla or T. N. R. Rao, The Symposium, Central Food Technological Research Inst., Mysore 2)

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- About Plants: Topics in Plant Biology, F. C. Steward, A. D. Krikorian, R. D. Holsten, 19 Aug. 1966, 855
- About Sharks and Shark Attack, D. H. Davies, 4 Nov. 1966, 641
- About Vectors, B. Hoffman, 2 Dec. 1966, 1159
- The Actions of Chemicals on Dividing Cells, B. A. Kihlman, 27 Jan. 1967, 443
- Adaptation and Natural Selection: A Critique of Some Current Evolutionary Thought, G. C. Williams, 15 Apr. 1966, 338
- Advanced Physical Chemistry: Molecules, Structure, and Spectra, J. C. Davis, Jr., 9 Sept. 1966, 1232
- Advances in Botanical Research, R. D. Preston, Ed., 30 Sept. 1966, 1632
- Advances in Chromatography, J. C. Giddings and R. A. Keller, Eds., 29 July 1966. 517
- Advances in Earth Science, P. M. Hurley, Ed., 3 June 1966, 1364
- Advances in Oxytocin Research, J. H. M. Pinkerton, Ed., 26 Aug. 1966, 968
- Adventures in Living Plants, E. B. Kurtz, Jr., and C. Allen, 13 May 1966, 923 Advances in Marine Biology, Vol. 3,
- F. Russell, Ed., 17 June 1966, 1613 Alaska, A Challenge in Conservation,
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- The Anatomy of Plants: With an Idea of a Philosophical History of Plants and Several Other Lectures Read Before the Royal Society, N. Grew, 13 May 1966, 918
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- Ancient Oaxaca: Discoveries in Mexican Archeology and History, J. Paddock, Ed., 1 Sept. 1966, 1370
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- Annual Review of Information Science and Technology, C. A. Cuadra, Ed., 5 May 1967, 635
- Anorganische und allgemeine chemie in flüssigem Ammoniak, J. Jander, 10 Mar. 1967, 1237
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- Atlas and Keys of Fruits and Seeds Occurring in the Quaternary Deposits of the U.S.S.R., N. Ja. Katz, S. V. Katz, M. G. Kipiani, 13 May 1966, 942
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- and E. C. Banfield, 2 Sept. 1966, 1092 Brain and Conscious Experience, J. C.
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- The Chemistry of Open-Chain Organic Nitrogen Compounds. Vols. 1 and 2, P. A. S. Smith, 28 Oct. 1966, 499
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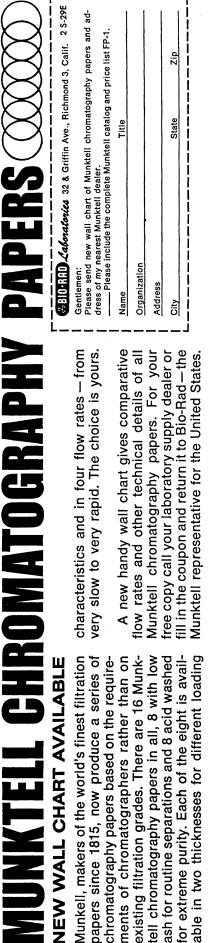


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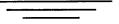
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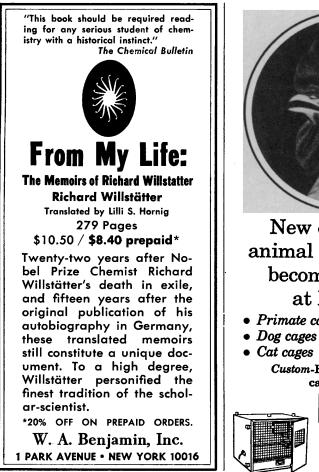
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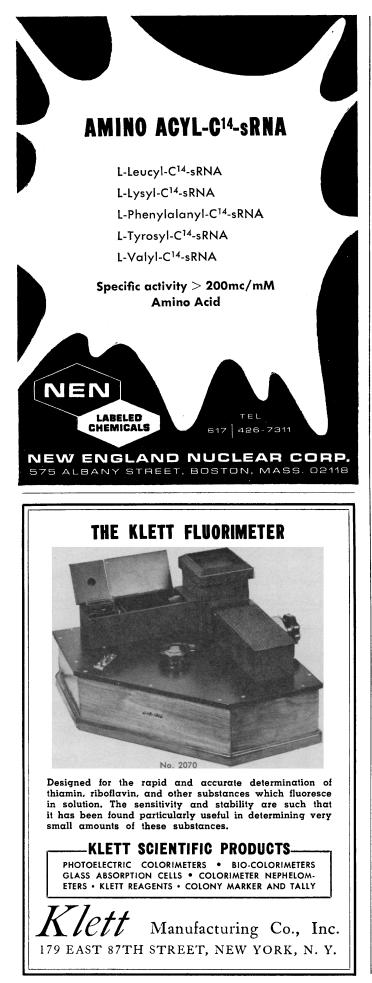
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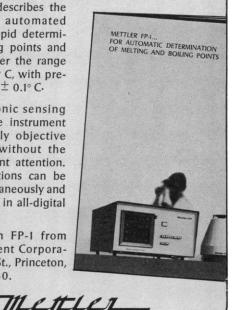


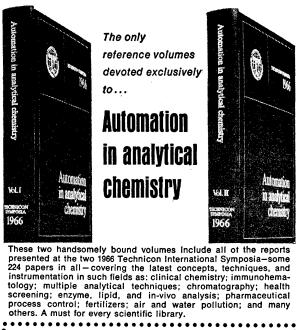
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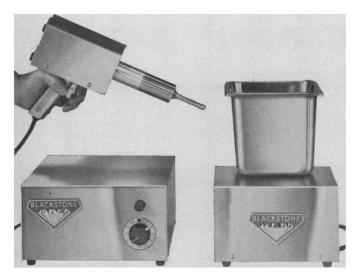
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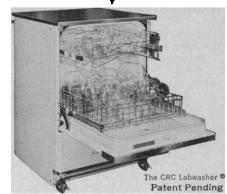
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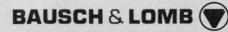
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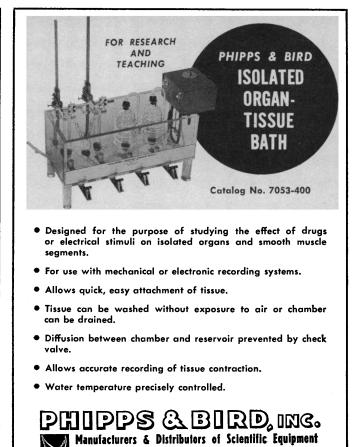
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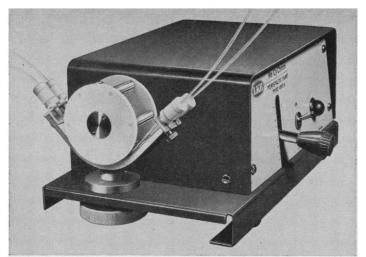
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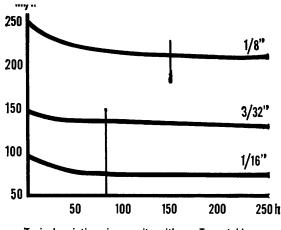
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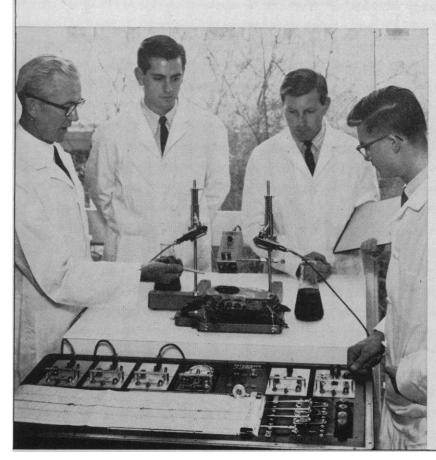
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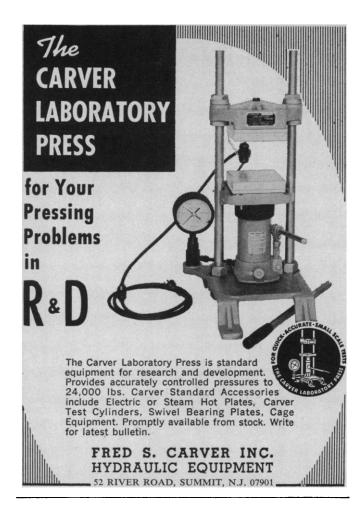
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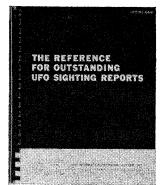
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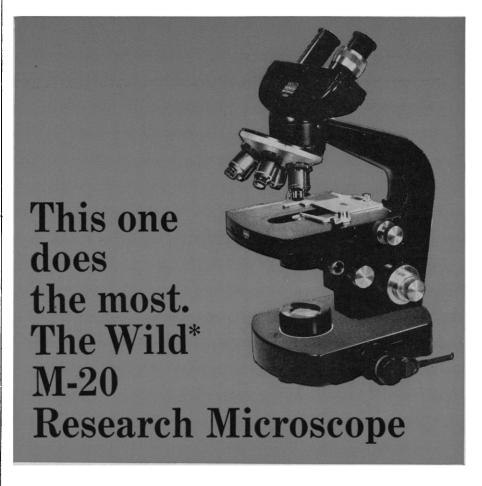
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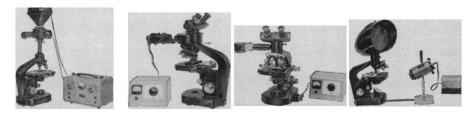


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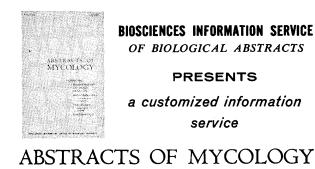
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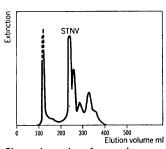
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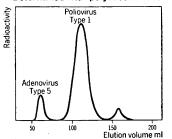
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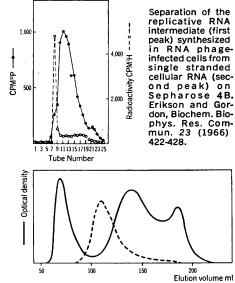


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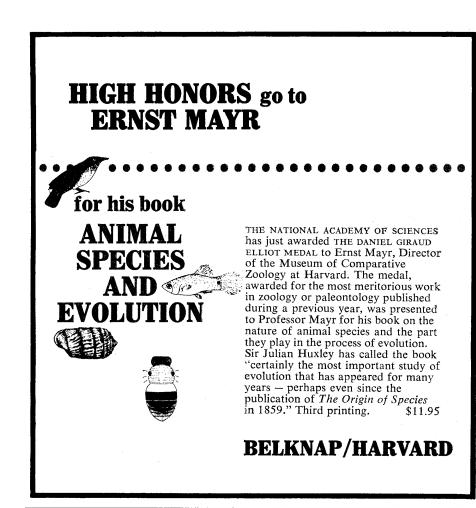


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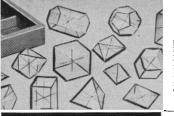
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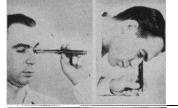


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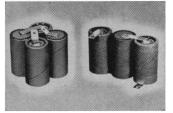
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