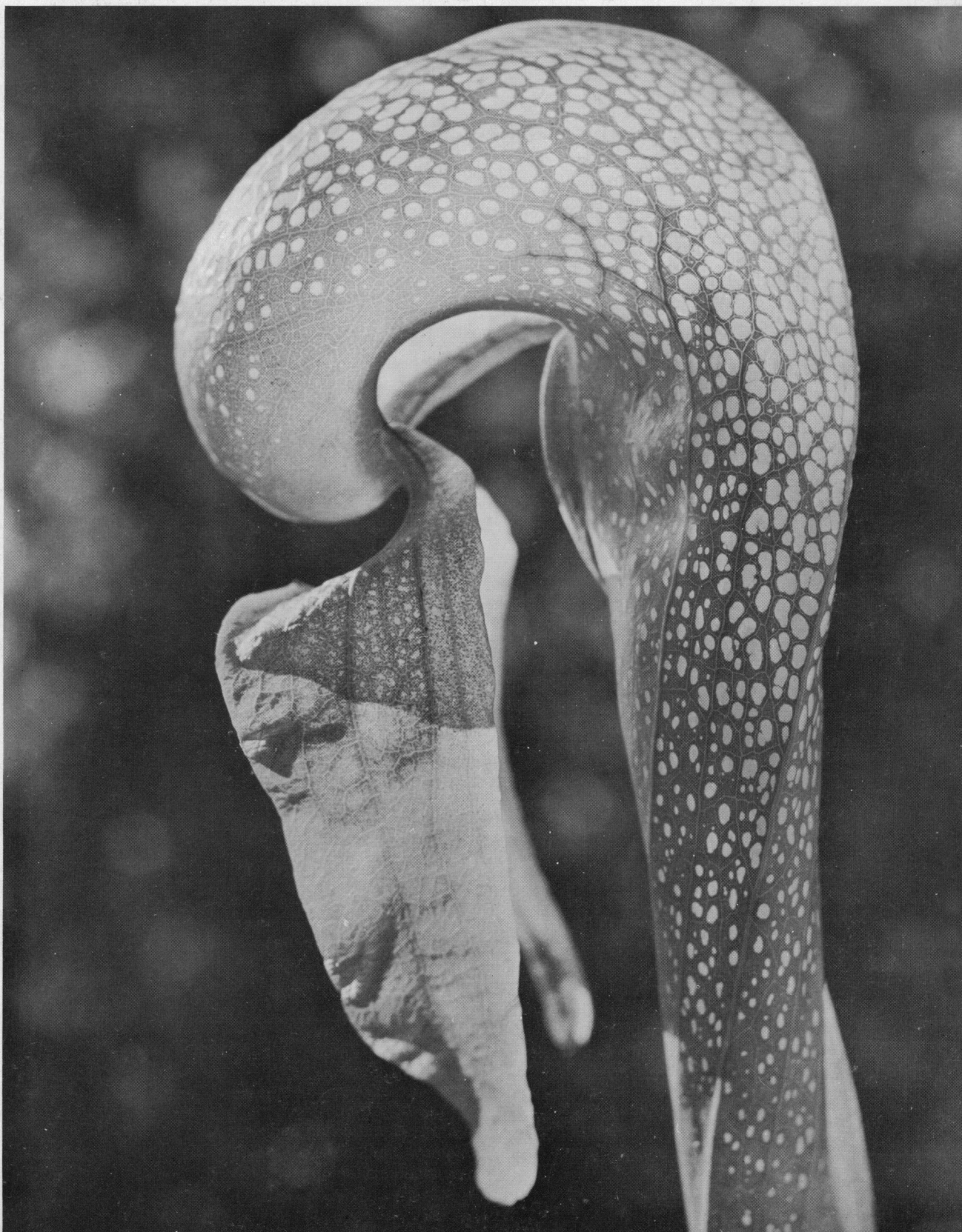


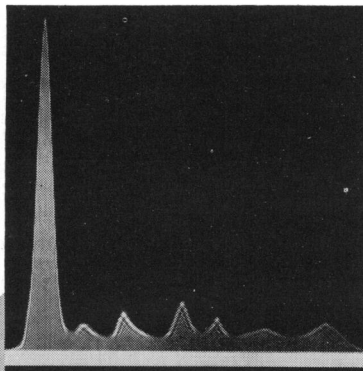
SCIENCE

25 August 1961

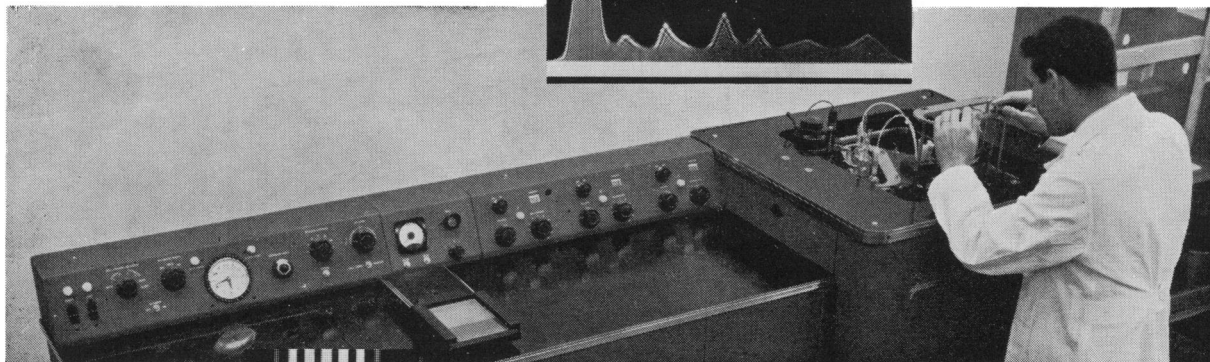
Vol. 134, No. 3478

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE





Electrophoresis of human plasma diluted 1:6; ascending boundaries. Inclined knife-edge schlieren.



ELECTROPHORESIS AND DIFFUSION

in one precision instrument

As protein research progresses, biochemists rely more and more upon instruments of high precision for diffusion and electrophoresis studies. Especially critical are the optical measurements needed to obtain accurate diffusion coefficients, absolute electrophoretic mobilities, and information on purity.

An exceptional optical system is one of the outstanding features which have made the Spinco Model H invaluable for exacting work in both electrophoresis and diffusion. Light passes through each operating cell twice, giving double sensitivity. Patterns are sharply defined and peak positions can be precisely determined. Reproducible measurements may be made to better than 1/25 of a fringe, which corresponds to approximately .00025 percent protein.

The optical system is flexible, too. It permits measurements by five different methods — ordinary and cylindrical lens schlieren, Rayleigh and Gouy fringes, and mechanical scanning.

Further versatility is achieved by a rotary cell turret which supports three operating cells. Any combination of diffusion and electrophoresis studies may be performed simultaneously with the three cells.

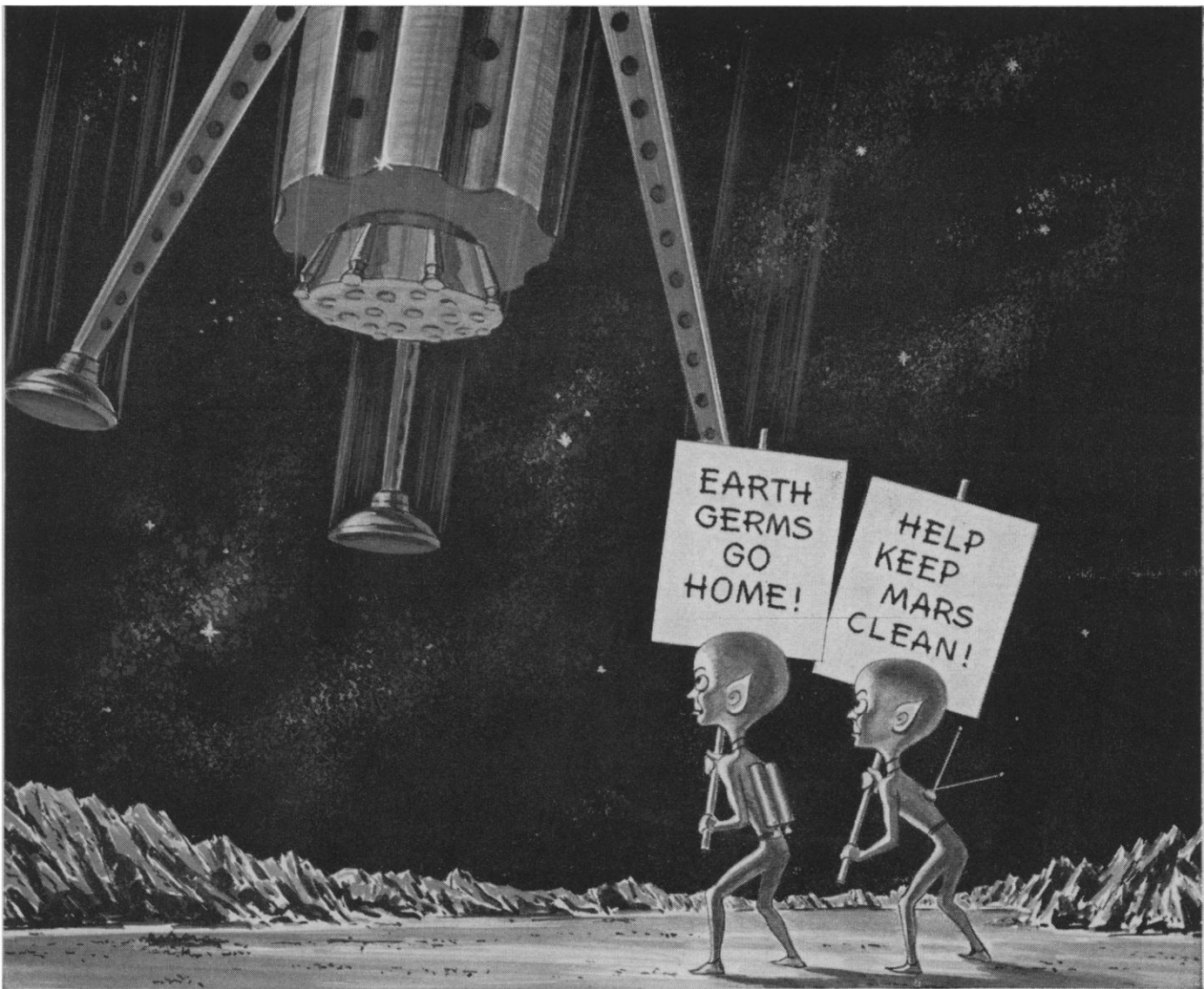
We'd like to tell you more about the Model H and how it can fit the requirements of your research program. For complete details, please write Spinco Division, Beckman Instruments, Inc., Stanford Industrial Park, Palo Alto, California, for information File H-5.

Portion of typical reference fringe pattern obtained from standard production model, magnified to show straightness and definition of entire pattern.

Sales and service facilities on the Model H are available on the same basis as for Spinco Ultracentrifuges, assuring prompt, efficient service for users here and abroad.

Beckman® Spinco Division

Beckman Instruments, Inc.



CES tackles one of the toughest sterilization jobs of all time

The problem is to keep our space probe vehicles completely free from earthly contamination—to keep our celestial neighbors pure for biological study. To this end, the National Aeronautics and Space Administration has awarded a research contract to the Castle Company for development of procedures for the sterilization of space craft components.

It's a complex problem. The thousands of components required contain all types of metals, plastics, fibers, synthetics—all different in composition and reaction to sterilization—all presenting different problems of accessibility.

But it's the challenging kind of problem that CES—the Castle Engineered Sterilization program—is uniquely qualified to tackle. Because whatever the product—from catheters to coconuts; whatever the sterilization method—steam, dry heat, gas, radiation, chemical—CES has the experience and the research facilities to provide the practical answer.

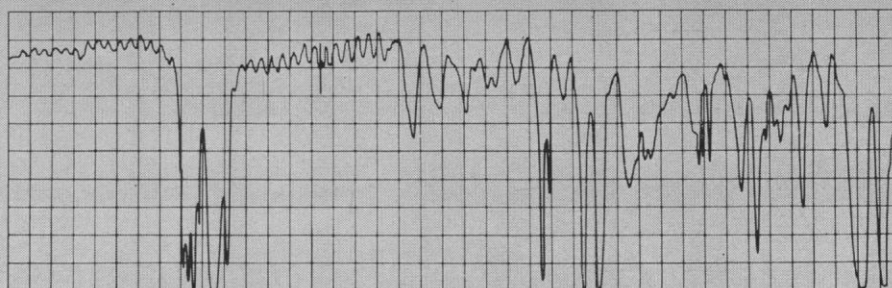
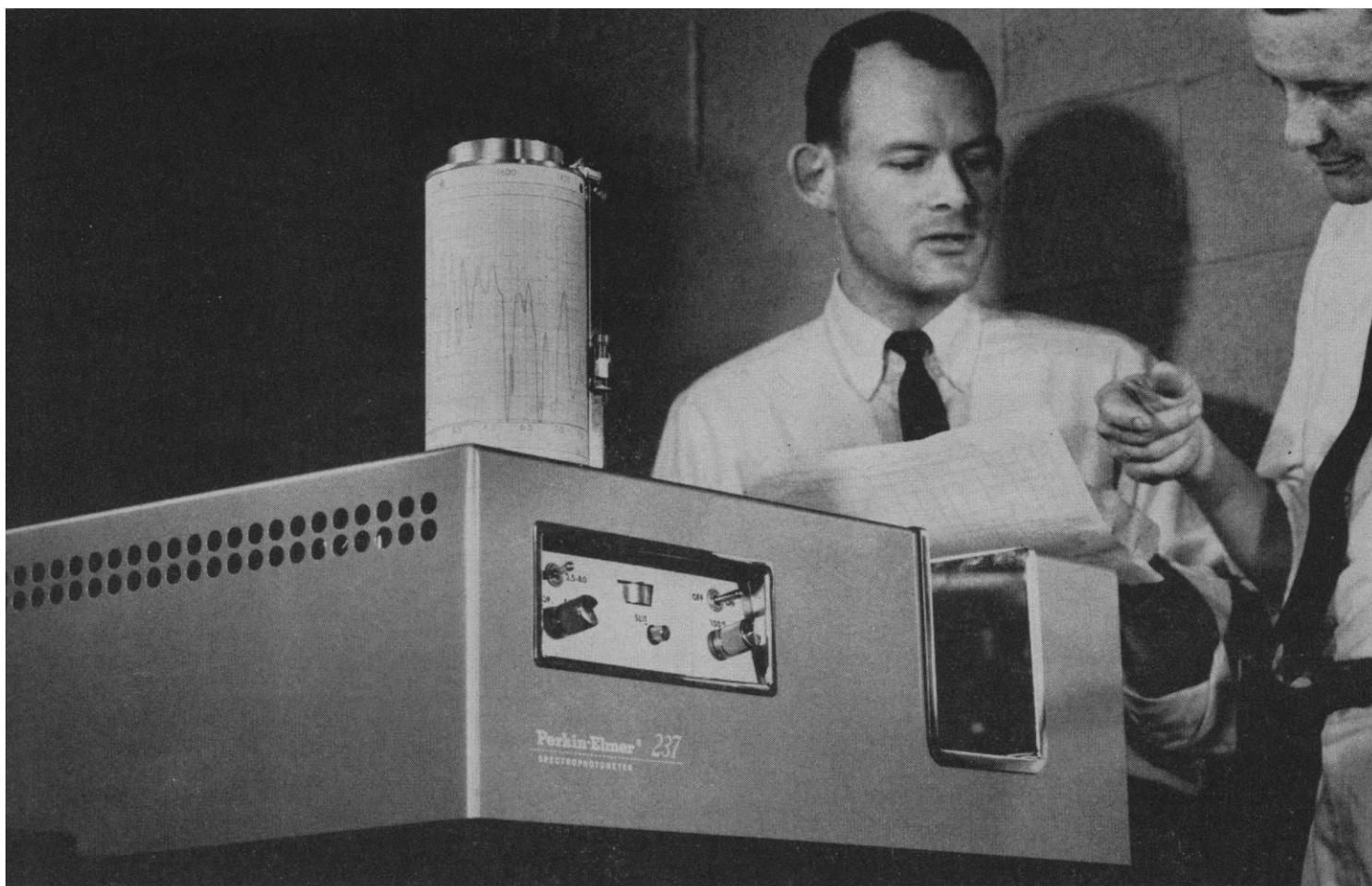
WRITE today for CES literature if yours is a problem of sterilization or disinfection. There's no obligation for preliminary research and planning.

Castle



WILMOT CASTLE COMPANY, 8008 E. Henrietta Rd., Rochester 18, N. Y.

Subsidiary of Ritter Company Inc.



Polystyrene spectrum using an auxiliary recorder.

NOW... GRATING RESOLUTION OVER FUNDAMENTAL IR RANGE WITH NEW MODEL 237 SPECTROPHOTOMETER

You now can have the advantages of high-resolution analysis over the entire infrared spectral range of fundamental analytical importance—4000 to 625 wavenumbers (2.5 to 16 microns)...even if your budget is limited. The new Perkin-Elmer Model 237 Double-Grating Spectrophotometer, latest in P-E's low-cost Infracord line, makes this possible.

Basic to this high performance at low cost is the Model 237's grating-filter design: the dispersing power of gratings, used only in their first orders, is complemented by filters to eliminate higher orders of radiation. The result is outstanding spectral purity achieved with simplicity and dependability of mechanical operation previously not available.

Flexible Presentation. You can specify a Model 237 recording in either linear wavelength or linear wavenumbers, as you prefer. Full wavelength coverage is divided into two

ranges—4000-1300 and 2000-625 wavenumbers; or 2.5-7.7 and 5.0-16 microns. The analyst selects the range he desires by the flick of a panel switch, thus assuring maximum legibility of fine structural detail.

Two scanning rates for each range are available: *fast* (8 minutes) rate for survey scans or spectra of materials with relatively few narrow spectral bands. *Slow* (24 minutes) rate provides details of very complex spectra. Here, too, a panel switch puts both speeds at the analyst's fingertips.

Optional auxiliary recorders, used above to show polystyrene spectrum, are available to give you continuous spectra at fixed wavelengths or to let you expand or compress ordinate or abscissa. The chart ordinate—a full 15 centimeters—provides maximum accuracy in recording band intensities.

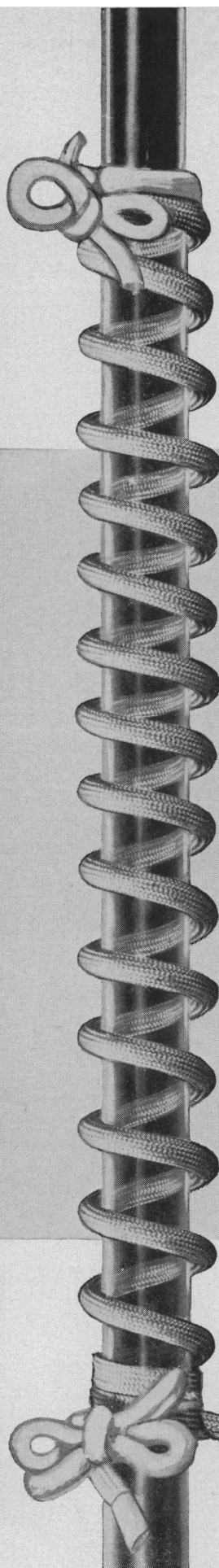
Write for complete information and sample spectra.

SEE PERKIN-ELMER AT ACS AND ISA

The terms Infracord and Perkin-Elmer are registered trademarks of the Perkin-Elmer Corporation.

INSTRUMENT DIVISION
Perkin-Elmer Corporation
NORWALK, CONNECTICUT

Editorial	A Machineless Teaching Machine	531
Articles	Molecular Basis for Action of Ionizing Radiations: <i>F. Hutchinson</i>	533
	A simple method describes the inactivation by ionizing radiations of molecules in the living cell.	
	Report on Russia: Geochemistry and Politics: <i>K. B. Krauskopf</i>	539
	Soviet geologists are busy with a host of projects, but in their off-hours they enjoy talking politics.	
Science and the News	Grand Strategy: The Views of the Administration and the War College Do Not Seem To Coincide	543
Book Reviews	The "Two Cultures" within Biology: <i>G. Hardin</i>	548
	The Virus Laboratory makes a notable effort to contact biologists and laymen outside the walls.	
	J. Rostand's <i>Human Heredity</i> , reviewed by <i>V. A. McKusick</i> ; other reviews	549
Reports	Natural Tritium Measurements by Ethane Counting: <i>A. E. Bainbridge, P. Sandoval, H. E. Suess</i>	552
	"Hypersexuality" in Male Cats without Brain Damage: <i>R. P. Michael</i>	553
	Spontaneous Occurrence of Chromosome Abnormality in Cats: <i>H. C. Thuline and D. E. Norby</i>	554
	Simian Malaria in the Philippines: <i>L. M. Howard and B. D. Cabrera</i>	555
	Effect of Actinomycin D on Cellular Nucleic Acid Synthesis and Virus Production: <i>E. Reich et al.</i>	556
	Rapid Development of Drug-Resistant Mutants of Poliovirus: <i>J. L. Melnick, D. Crowther, J. Barrera-Oro</i>	557
	Antiviral Effect of Guanidine: <i>W. A. Richtsel et al.</i>	558
	Foliar Retention of Strontium-90 by Wheat: <i>R. G. Menzel, D. L. Myhre, H. Roberts, Jr.</i>	559
	Single Unit Activity of Anterior Hypothalamus during Local Heating: <i>T. Nakayama, J. S. Eisenman, J. D. Hardy</i>	560
	Authigenic Dolomite in Modern Carbonate Sediments along the Southern Coast of Florida: <i>W. H. Taft</i>	561
	Mass Culture of Phytoplankton as Foods for Metazoans: <i>H. C. Davis and R. Ukeles</i> ...	562
	Blood Flow Measured by Doppler Frequency Shift of Back-Scattered Ultrasound: <i>D. L. Franklin, W. Schlegel, R. F. Rushmer</i>	564
	Eastern Equine Encephalomyelitis Vaccine Prepared in Cell Cultures: <i>J. P. Lowenthal, S. Berman, E. W. Grogan</i>	565
	Calcification of the Permanent First Mandibular Molar in Rhesus Monkeys: <i>D. R. Swindler</i>	566
Departments	Letters from <i>L. Burton and F. Friedman; J. R. Pierce; A. B. Lees and H. H. Goldstine; N. B. Colthup and W. M. Sinton</i>	527
	International Andean Year; Forthcoming Events; New Products	568
Cover	Leaf of the unusual <i>Darlingtonia californica</i> , or western pitcher plant, a native of northern California and adjacent Oregon. Like other carnivorous plants of this group, the tubular base constitutes a liquid-filled trap; at the top the leaf is strikingly translucent. The general resemblance to a snake's head has suggested another common name—cobra plant. [W. H. Hodge, Kennett Square, Pa.]	



High temperature in a hurry with CAL-CORD* for the lab

Just wrap it and plug it in...

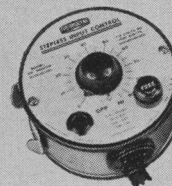
This reliable, cord-type heating unit was developed specifically for laboratory work. Easy-to-use Cal-Cord is as flexible as an appliance cord. Delivers uniform temperatures up to fabric limits of 400°C for glass fabric, or 600°C for quartz fabric. Paralleled ribbon-type heating elements terminate at one end into a single twistlock connection for joining to supply cord. No troublesome, unsafe loose terminals on the ends. Cal-Cord comes complete with power supply cord and plug. Eight new sizes now available.

Cal-Cord Specifications

400°C Medium Cal-Cord Made of glass fabric material	Cat. No.	Length	Wattage	Price
	C-C 2	2 ft.	80W, 115V	\$ 6.50
	C-C 3	3 ft.	120W, 115V	9.00
	C-C 4	4 ft.	160W, 115V	11.00
	C-C 6	6 ft.	240W, 115V	15.00
	C-C 8	8 ft.	340W, 115V	19.00
	C-C 10	10 ft.	400W, 120V	23.00
	C-C 12	12 ft.	480W, 220V	27.00
	C-C 14	14 ft.	560W, 220V	31.00
600°C Super Cal-Cord Made of quartz fabric material	C-C 16	16 ft.	640W, 220V	35.00
	Cat. No.	Length	Wattage	Price
	SC-C 2	2 ft.	200W, 115V	\$ 8.00
	SC-C 3	3 ft.	300W, 115V	13.75
	SC-C 4	4 ft.	400W, 115V	16.75
	SC-C 6	6 ft.	600W, 230V	19.50
	SC-C 8	8 ft.	800W, 230V	25.50

Cal-Cord Temperature Control

Thermolyne Stepless Type 800 temperature controller is ideally suited for use with any Cal-Cord. Specifications: 1500W, 115V; maximum amps, 13. Price \$15.75.



For additional information, please write to . . .

Glas-Col Apparatus Company / Dept. SC, 711 Hulman St.,
Terre Haute, Indiana

World's largest manufacturer of heating mantles for laboratory, pilot plant, and chemical process heating applications

*U.S. Patent: 2,989,613

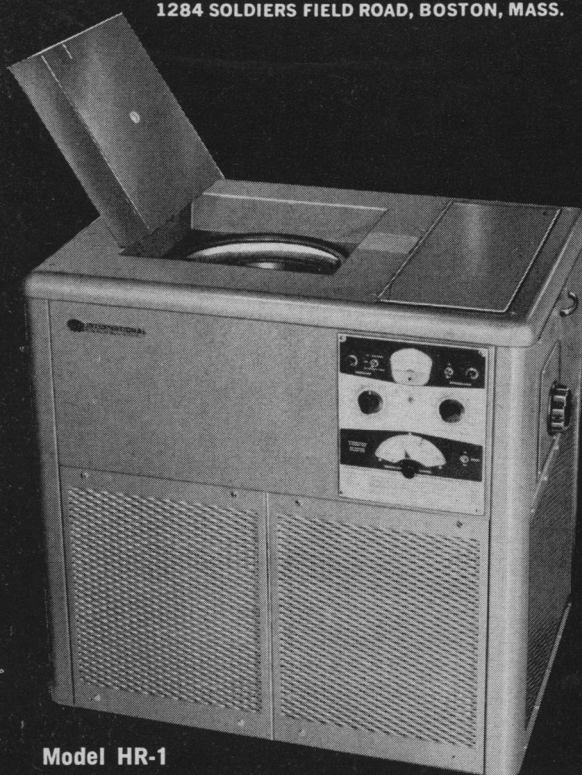
UNEQUALLED PERFORMANCE! Ronnie Robertson can spin faster on ice skates than anyone in the world. 420 rpm to be exact. So fast, military scientists have studied him for the biological effects of centrifugal force.

In refrigerated centrifuges IEC's HR-1 spins faster (18,500 rpm) while developing more gravities (41,320 x G) than ever before available in the standard price range. This gives you the dependable force that means faster, better separation under fully controlled temperature, hour after hour through the entire lab day.

You can increase your work potential with the HR-1 . . . send for Bulletin O-61.

INTERNATIONAL IEC EQUIPMENT CO.

1284 SOLDIERS FIELD ROAD, BOSTON, MASS.



Model HR-1

World Champion Ronnie Robertson, star of the 22nd Edition of Ice Capades

APPLICATION FOR HOTEL RESERVATIONS

128th AAAS MEETING

Denver, 26-31 December 1961

The hotels for the AAAS Denver meeting have established special, low rates and have reserved appropriately large blocks of rooms for this meeting. Thus everyone making room reservations for the AAAS meeting is assured substantial savings.

The list of hotels and the reservation coupons below are for your convenience in making your hotel reservation in Denver. Please send your application, *not* to any hotel directly, but to the AAAS Housing Bureau in Denver and thereby avoid delay and confusion. The experienced Housing Bureau will make assignments promptly; a confirmation will be sent you in two weeks or less.

If requested, the hotels will add a comfortable rollaway bed to any room, at \$3.00 per night. Mail your application now to secure your first choice of desired accommodations. All requests for reservations must give a definite date and estimated hour of arrival, and also probable date of departure.

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

For a list of the headquarters of each participating society and section, see page 197, *Science*, 21 July. The Hilton is the AAAS headquarters hotel.

Rates for Rooms with Bath*

Hotel	Single for one	Double for one	Double for two	Twin Beds for one	Twin Beds for two	Studio Twins	Suites
Hilton	\$8.50	\$10.00	\$14.00		\$14.00	\$15.00	\$27.00 to \$55.50
Brown Palace	8.00	9.00	13.00	\$10.00	15.00		24.00 to 65.00
Cosmopolitan	8.50	9.00	13.00	10.00	14.00		25.00 to 60.00
Shirley Savoy		7.50	10.00	9.00	12.00		25.00 to 40.00

* All rooms are subject to a 2% Colorado State sales tax.

----- THIS IS YOUR HOUSING RESERVATION COUPON -----

AAAS Housing Bureau
225 West Colfax Avenue
Denver 2, Colorado

Date of Application

Please reserve the following accommodations for the 128th Meeting of the AAAS in Denver, 26-31 December 1961:

TYPE OF ACCOMMODATION DESIRED

Single Room Double-Bedded Room Twin-Bedded Room Studio Twins

Suite Desired Rate Maximum Rate

Number in party Sharing this room will be:

(Attach list if this space is insufficient. The name and address of each person, including yourself, must be listed.)

First Choice Hotel Second Choice Hotel Third Choice Hotel

DATE OF ARRIVAL DEPARTURE DATE

(These must be indicated—add approximate hour, A.M. or P.M.)

NAME
(Individual requesting reservation) (Please print or type)

ADDRESS
(Street) (City and Zone) (State)

Mail this now to the Housing Bureau. Rooms will be assigned and confirmed in order of receipt of reservation.

HARSHAW CRYSTALS are

1728

TIMES LARGER

than 25 years ago

*with "Harshaw Quality"
inherent in each crystal*

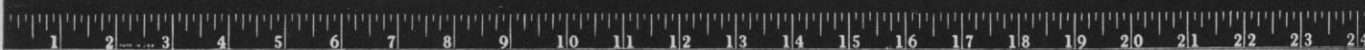
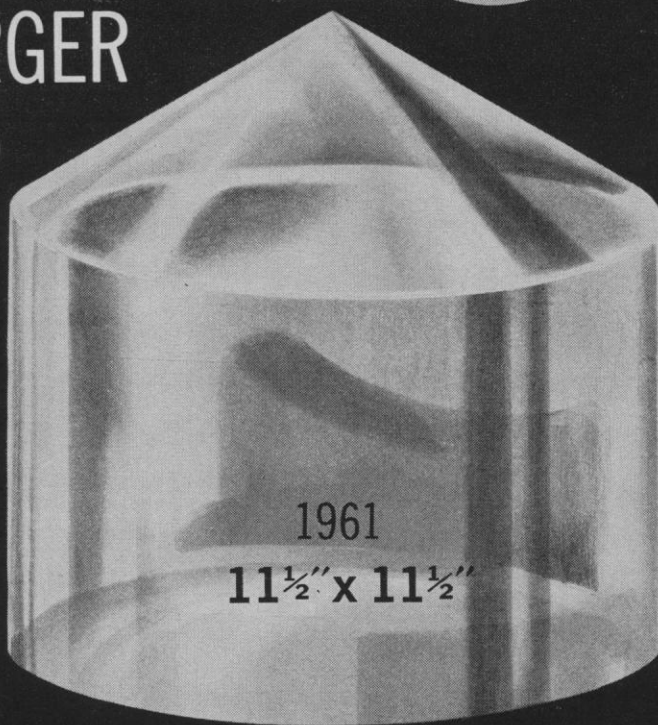
1936
1" x 1"



1955
5" x 5"



1961
11½" x 11½"



This year Harshaw's Crystal Division celebrates its Silver Anniversary. In these 25 years the "art" of growing crystals has given way to scientific procedures. With expanded crystal research and development laboratories, and recently doubled production facilities, Harshaw stands ready to produce your crystals—regardless of technical nature or production magnitude. Our physics, chemistry, and engineering departments enjoy the challenge of increasingly stringent demands from scientists and instrument manufacturers for infrared and ultraviolet optical crystals, and scintillation phosphors.

OPTICAL CRYSTALS

*For Infrared and
Ultra Violet
Transmitting Optics*

- Sodium Chloride
- Sodium Chloride Monochromator Plates
- Potassium Bromide
- Potassium Bromide Pellet Powder (through 200 on 325 mesh).
- Potassium Chloride
- Optical Silver Chloride
- Thallium Bromide Iodide
- Lithium Fluoride
- Lithium Fluoride Monochromator Plates
- Calcium Fluoride
- Barium Fluoride
- Cesium Bromide
- Cesium Iodide

SCINTILLATION

Mounted NaI (TI) Crystals

Crystal detectors designed for your most sophisticated counting problems. Our physics and engineering groups are available to assist you.

- Other Phosphors—Rough Cut Thallium Activated Sodium Iodide Crystal Blanks
- Europium Activated Lithium Iodide (Normal)
- Europium Activated Lithium Iodide (96% Li⁺ Enriched)
- Thallium Activated Cesium Iodide
- Thallium Activated Potassium Iodide
- Anthracene
- Plastic Phosphors

*Write for our 36-page booklet "Synthetic Optical Crystals"
or our 44-page booklet "Scintillation Phosphors"*

The Harshaw Chemical Company

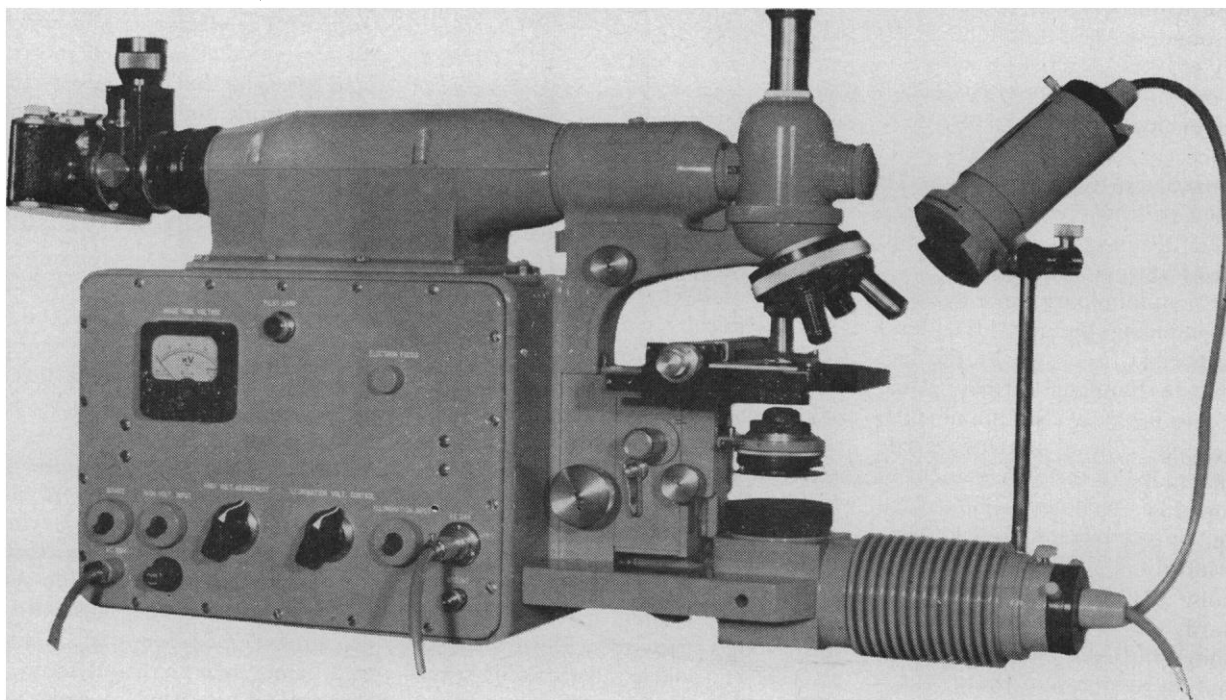
1945 East 97th Street • Cleveland 6, Ohio
Utrecht, Netherlands — Contact Harshaw-Van Der Hoorn N. V., Juffaseweg 186



Crystal Division

Introducing . . .

the new NEC INFRARED Microscope



Erb & Gray Scientific is proud to present, as exclusive United States distributor, the new NEC type NV-11 Infrared Microscope. It was designed to fulfill a need for a microscope for carrying out investigations impossible with visible light microscopy. The NEC NV-11 has proven its value in crystallography research, with an emphasis on single crystals of silicon, as well as magnetic materials such as yttrium iron garnet and others. It has also proven invaluable in the fields of biology, physics, chemistry and medicine.

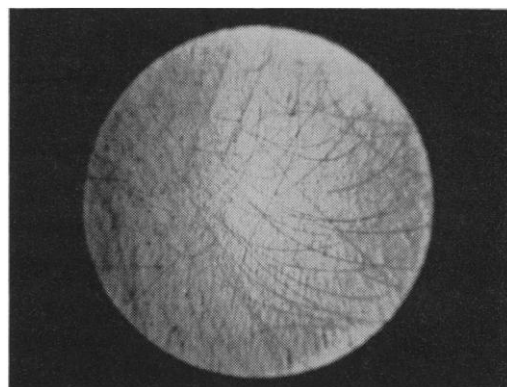
The NEC type NV-11 Infrared Microscope provides a magnification range of 50x through 1500x, visual, and 5x through 150x photographically, using standard film. Untrained personnel can easily operate this versatile new instrument, utilizing this versatile new instrument, utilizing not only infrared, but visible light. Please call or write for additional information.

ERB & GRAY SCIENTIFIC, Inc.

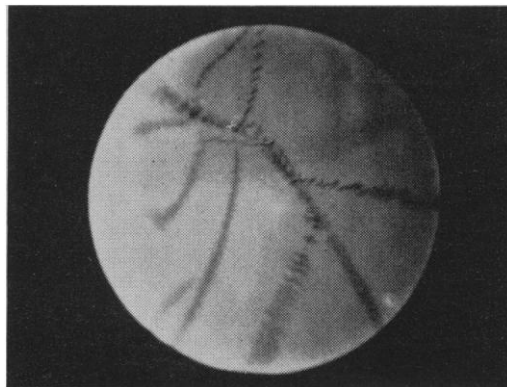
5927 Riverdale Ave.,
New York 71, N.Y.

1103 Westgate Ave.,
Oak Park, Ill.

854 South Figueroa St., Los Angeles 17, Calif.

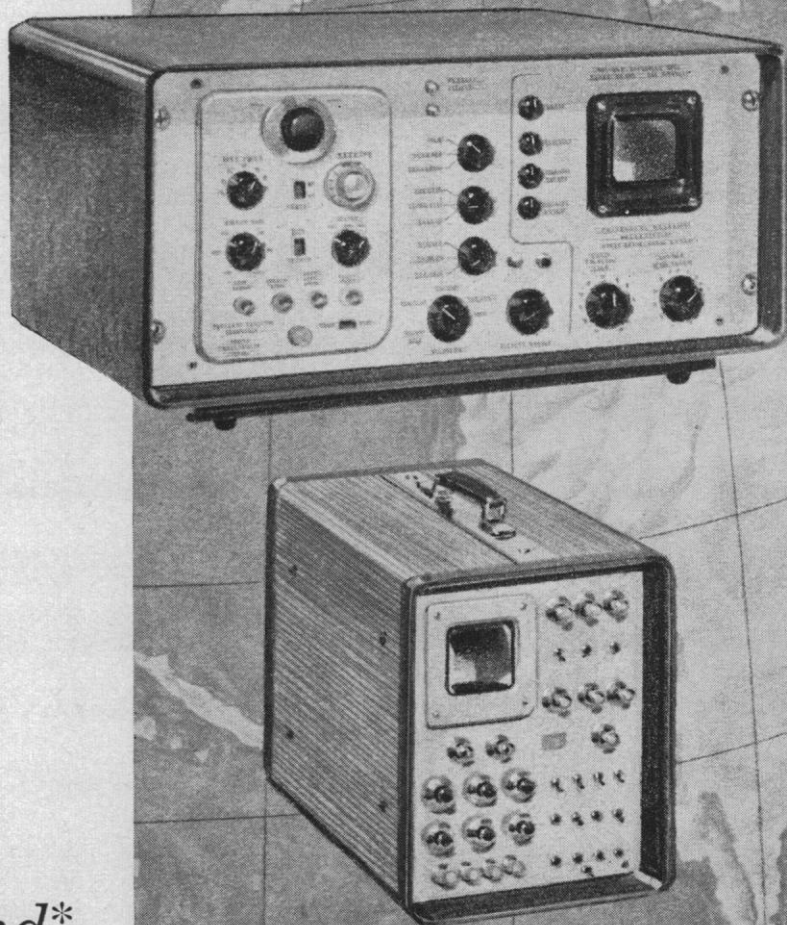


Silicon crystal at 11x



Silicon crystal at 77x

*What's
good
for
nuclides
in
New
Haven
is
good
for
those
in
New Zealand**



We think the reason people all over the world buy TMC pulse analyzers is pretty much the same reason they're widely purchased and used here: competently designed, bug-free circuits . . . straightforward operation with the same performance and stability today as yesterday . . . easy access to sub-assemblies and uncomplicated servicing if needed. Another way of putting it is the instruments give the user the information he wants in *his* work — with predictable behavior—regardless of where his site, lab or plant may be located. Here are two current examples:

The TMC CN-110 256 channel analyzer offers 7 interchangeable plug-in logics, including pulse height, time of flight, pulsed neutron, multiscaler, mass spectrometer, and coincidence pair. This widely used and thoroughly proven analyzer (over 100 units have been delivered) employs all-transistorized circuitry. Analog, binary, octal and decimal readout may be used.

Data can be recorded on strip chart or X-Y recorders, printed paper tape, punched paper tape, or punched cards.

The Model 404 is a compact, 400-channel analyzer you can use anywhere there's a wall outlet and one square foot to put it down. It has a magnetic core memory that can be used in sub groups of two or four; four separate inputs and associated amplifiers; internal pulse routing circuitry; pushbutton data transfer and display overlap; power requirement of *only 25 watts*, and many "system" advantages. While its versatility is a little less than the CN-110's, so are its size, price and purpose quite different from the 110's. Each does its *own* job well.

**Also wherever TMC Pulse Analyzers are used... in Canada, Brazil, Australia, Japan, Yugoslavia, France, Italy, Germany, Belgium, Sweden, Denmark, Switzerland, Israel, Formosa . . . as well as the United States.*

WRITE FOR LITERATURE.



TECHNICAL MEASUREMENT CORPORATION
441 WASHINGTON AVE., NORTH HAVEN, CONN. • CE 9-2501

AMERICAN ASSOCIATION
FOR THE
ADVANCEMENT OF SCIENCE

Board of Directors

CHAUNCEY D. LEAKE, *Retiring President, Chairman*
THOMAS PARK, *President*
PAUL M. GROSS, *President Elect*
HARRISON BROWN DON K. PRICE
HENRY EYRING ALFRED S. ROMER
H. BENTLEY GLASS WILLIAM W. RUBEY
MARGARET MEAD ALAN T. WATERMAN
PAUL A. SCHERER, *Treasurer*
DAEL WOLFLE, *Executive Officer*

Editorial Board

KONRAD B. KRAUSKOPF H. BURR STEINBACH
EDWIN M. LERNER WILLIAM L. STRAUS, JR.
PHILIP M. MORSE EDWARD L. TATUM

Editorial Staff

DAEL WOLFLE HANS NUSSBAUM
Publisher Business Manager

GRAHAM DUSHANE
Editor

JOSEPH TURNER ROBERT V. ORMES
Associate Editor Managing Editor

ELLEN E. MURPHY, *Assistant Editor*

NANCY TEIMOURIAN, *Assistant to the Editor*

News: HOWARD MARGOLIS, PATRICIA D. PADDOCK
Book Reviews: SARAH S. DEES

Editorial Assistants: NANCY S. HAMILTON, OLIVER W. HEATWOLE, EDGAR C. RICH, JOHN E. RINGLE, KONRAD YUNG-KWAI

Staff Assistants: GENEVIEVE M. KIRBY, JEAN P. D. PIEKNIK

Advertising Staff

EARL J. SCHERAGO, *Director*

BERNICE SCHWARTZ, *Production Manager*

Sales: RICHARD L. CHARLES (New York, N.Y., PE 6-1858); C. RICHARD CALLIS (Old Bridge, N.J., CL 4-3680); HERBERT BURKLUND (Chicago, Ill., DE 7-4973); DILLENBECK-GALAVAN (Los Angeles, Calif., DU 5-3991)

SCIENCE, now combined with THE SCIENTIFIC MONTHLY, is published each Friday by the American Association for the Advancement of Science at National Publishing Company, Washington, D.C. SCIENCE is indexed in the *Reader's Guide to Periodical Literature*.

Editorial correspondence should be addressed to SCIENCE, 1515 Massachusetts Ave., NW, Washington 5, D.C. Manuscripts should be typed with double spacing and submitted in duplicate. The AAAS assumes no responsibility for the safety of manuscripts. Opinions expressed by authors are their own and do not necessarily reflect the opinions of the AAAS or the institutions with which the authors are affiliated. For detailed suggestions on the preparation of manuscripts, see *Science* 125, 16 (4 Jan. 1957).

Advertising correspondence should be addressed to SCIENCE, Room 1740, 11 West 42 St., New York 36, N.Y.

Change of address notification should be sent to 1515 Massachusetts Ave., NW, Washington 5, D.C., 4 weeks in advance. Furnish an address label from a recent issue. Give both old and new addresses, including zone numbers.

Annual subscriptions: \$8.50; foreign postage, \$1.50; Canadian postage, 75¢. Single copies, 35¢. Cable address: Advancesci, Washington.

Copyright © 1961 by the American Association for the Advancement of Science.

A Machineless Teaching Machine

Instructions: Cover the items below with a piece of paper, lowering the paper item by item as you read. For each item fill in the blank spaces. The words in parentheses that preface the *next* item give the correct response. Use reasonable judgment in deciding whether your response is synonymous with the printed response. Now, read the items.

To determine whether a student has understood a point, a teacher may _____ him a question.

(ask) If the student gives an incorrect answer, the teacher may tell him the _____ answer.

(correct) Sometimes a teacher will _____ a student a question and then, if necessary, tell him the _____ answer.

(ask, correct) Confirmation of success is also a part of pedagogy. If the student gives the correct answer, then he receives _____ of success.

(confirmation) If the student answers correctly, his success is _____; if he answers incorrectly, the teacher tells him the _____ answer.

(confirmed, correct) A fast learner likes to advance rapidly, while a slower learner is happier at a slower rate, each student advancing best at his own _____.

(rate) It would require an individual tutor for each student to insure that each student advanced exactly at his _____ rate.

(own) The teacher of a classroom is not able to insure that each student advances exactly at his _____.

(own rate) A teaching machine presents a sequence of statements, one at a time, to the student. The student writes his responses on a strip of paper accessible through an opening in the machine. Each statement, in effect, _____ the student a question.

(asks) The student then operates the machine to make his written response inaccessible, but visible through a window, and to reveal the correct response for comparison. If the student is correct, his success is _____; if he is incorrect he is told the _____ answer.

(confirmed, correct) A teaching machine is like a teacher in that the student is _____ questions, his successes are _____, and his mistakes are _____.

(asked, confirmed, corrected) A teaching machine has the advantage of an individual tutor in that each student proceeds at exactly his _____.

(own rate) An ordinary textbook also allows each student to proceed at his _____, insofar as he is able to proceed by himself.

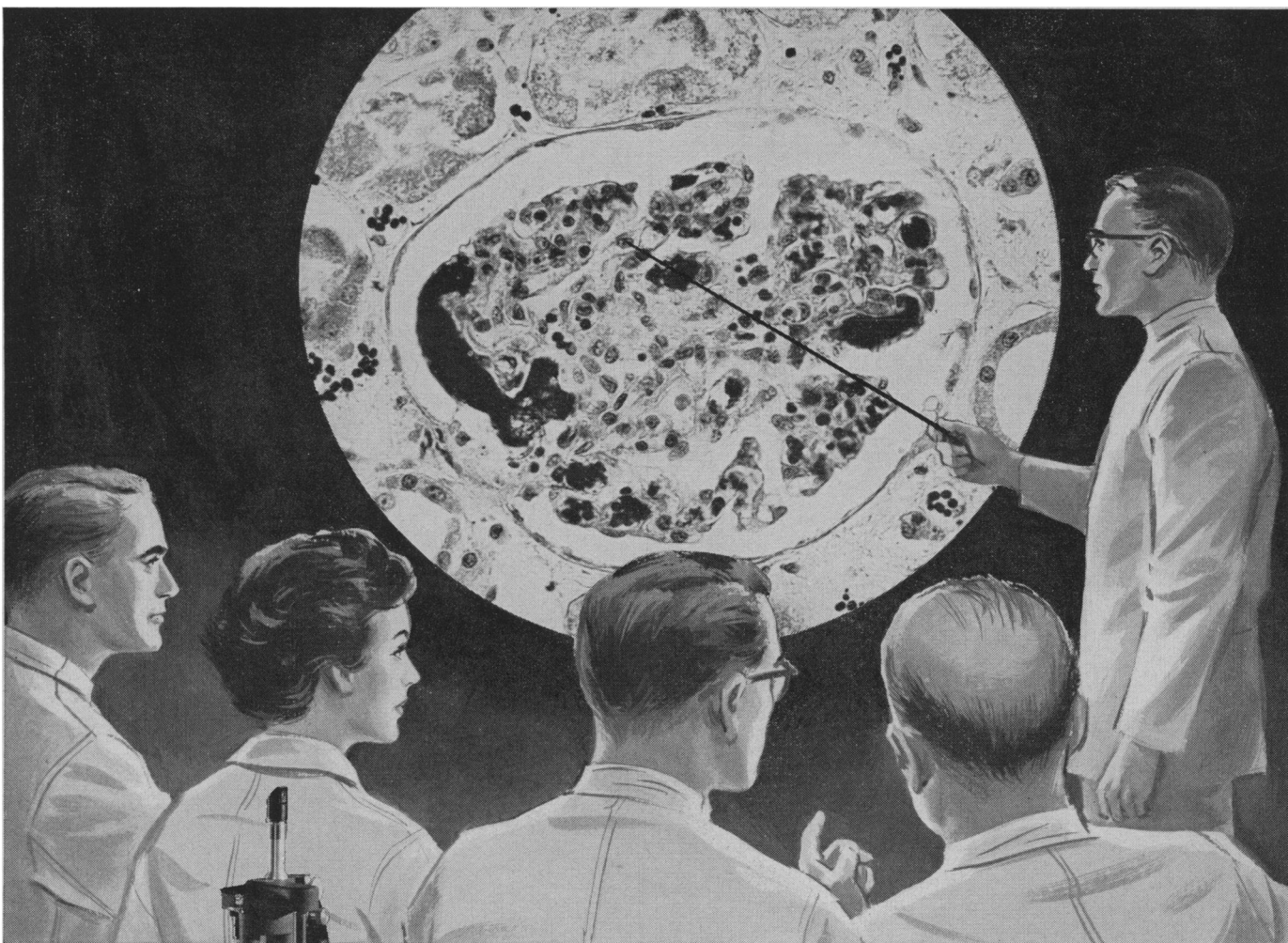
(own rate) But in an ordinary textbook the student is not _____ questions, nor are his successes _____, nor are his mistakes _____.

(asked, confirmed, corrected) James G. Holland and B. F. Skinner in their *The Analysis of Behavior*, published by McGraw-Hill, now offer a new kind of textbook that does offer these features. The book is, in effect, a machineless _____.

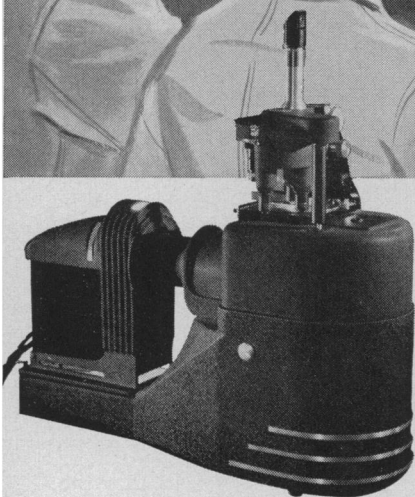
(teaching machine) The sequence of items that you are now reading is an example of the technique used in either a real teaching machine or in a _____ teaching machine.

(machineless) The new book makes for truly unforgettable reading, and we recommend that you _____ it.

(read).—J.T.



Kidney, 300X (Rochester General Hospital)



Consultation needs this BETTER, BRIGHTER VIEW


This Bausch & Lomb SpeedMatic Microprojector fills the screen with the sharpest consultation-size images you've ever seen of microscope slide detail. You can fit the magnification to the specimen—from 75X to 3000X at a projection distance of only 12 feet. Superior optics plus a color-free glass heat-absorbing filter project the specimen image in its true colors. Only with extremely heat-sensitive materials is additional absorption required.

You get today's most vivid views, for consultation, group discussion, instruction—with the easiest-to-use projector on the market! So much of it

is automatic—like the synchronization of the *right* condenser with the objective you select; and like the self-adjusting carbons that burn evenly for an hour or more without attention from you. See for yourself!

Made in America, to the world's highest standards.

BAUSCH & LOMB

SINCE  1853

BAUSCH & LOMB INCORPORATED
77420 Bausch Street, Rochester 2, N. Y.

- ☐ Please demonstrate SpeedMatic.
☐ Please send Catalog E-246.

Name

Title

Professional Address

Examples of Current Projects at Two Institutes of the National Academy of Sciences in Moscow

Vernadsky Institute

A. P. Vinogradov: radiocarbon dating; sulfur isotopes; geochemistry of tungsten; titanium content of bauxites; chemical evolution of the earth.

N. I. Khitarov: reactions at high temperatures under hydrothermal conditions; solubility of water and carbon dioxide in silicate melts; pressure-volume-temperature relations in the system H_2O-CO_2 ; conditions of formation of zeolites.

A. I. Tugarinov: geochronology; lead isotopes; ratios of rare-earth metals and hafnium-zirconium in minerals and rocks.

G. P. Malyuga: geochemical and biogeochemical prospecting.

A. B. Ronov: distribution of rare metals in sedimentary rocks of the Russian platform; paleochemical maps; geochemical history of atmosphere and hydrosphere.

V. V. Scherbina: behavior of trace metals in the weathering zone; concept of acidity in silicate melts.

V. L. Barsukov: geochemistry of tin and boron.

Institute of the Geology of Ore Deposits

F. V. Chukhrov: occurrence and mineralogy of clay deposits.

D. S. Korzhinsky: theoretical thermodynamics, especially thermodynamics of open systems; thermodynamics applied to magmatic processes, metamorphism, and ore deposits.

I. I. Ginzburg: geochemistry of weathering; origin of laterites and bauxites; geochemical prospecting.

A. A. Saukov: geochemistry of mercury; prospecting for metals and oil.

G. D. Afanasiev: geochronology, igneous rocks, and ore deposits of the Caucasus.

A. A. Ostrovsky: solid-state phase relations at high temperatures and pressures.

G. S. Gorshkov: geochemistry of volcanic exhalations in Kamchatka and the Kuril Islands off the coast of Japan.

L. N. Ovchinnikov: ore deposits of the Urals; hydrology of northeast Siberia.

onous food, the inadequate housing, the crowded stores with dull show-window displays—is remarked by every tourist from the West. There was no argument on this point by my geologist friends; they know enough of the West, either through personal visits or through conversations with foreigners, to realize how low the Russian standard of living is by comparison. Their reaction was simply that a low living standard is not important as long as conditions are improving. "Look at the primitive conditions we started from," they insist. "Remember that only recently we fought a disastrous war in which much of our land was overrun by the enemy. We have made great strides already, and now progress is visible from month to month, almost from day to day." The feeling of steady improvement, the joy of seeing more and more goods available in stores, the satisfaction of watching apartment houses materialize almost overnight, are enough to nurture enthusiasm despite present scarcities.

An important ingredient in the world outlook of Russian scientists is the idea that their government has given them freedom in large and increasing measure. This attitude came as a shock to my Western ears, so long accustomed to hearing the West

described as the "free world," in contrast to the "slave world" of the Communists. Far from acting like slaves, my Russian acquaintances boasted of their freedom, maintaining even that in some respects freedom under communism is superior to that in the West. They seemed genuinely puzzled by the assurance of Westerners that true freedom exists only outside the Soviet world. The confusion arises in large part from a difference in usage of the word *freedom*—or more precisely, a difference in the kinds of freedom that seem particularly important on the two sides of the Iron Curtain.

Perhaps uppermost in the minds of my Russian acquaintances when they speak of freedom is freedom of opportunity—opportunity to get an education and then to work at a job and in a place of one's own choosing. Every Russian, I was repeatedly told, as part of his elemental rights is guaranteed a free education up to the limit of his abilities—and the opportunity does not depend on the size of his father's fortune or the color of his skin. If a Russian is trained in a profession he is expected to work for a few years in that profession (this seems reasonable inasmuch as the state has paid for his schooling), but sub-

sequently he can change employment as he wishes. His opportunity to move to another job in another city is limited only by the scarcity of housing, which in some parts of the country is still acute.

Freedom from fear of arbitrary arrest is another blessing that my friends rated very high, perhaps especially high because it is a freedom that has come to the Soviet Union only recently. Political prisoners have been released from the notorious Siberian camps, I was told by two geologists who have worked in Siberia, and the camps are now used only for common criminals. Two geologists went so far as to maintain that Soviet law ensures greater protection for individual rights than do the laws of Western nations. What measure of truth there is in these assertions I will not here attempt to judge, but they are articles of belief among Russian scientists.

Freedom from another kind of fear, the fear of economic insecurity, has been very largely attained in Russia, I was told, for the government guarantees employment, medical care, and old-age support. So accustomed are my friends to regarding continuous employment as a basic right of every citizen that they find unemployment in Western states hard to comprehend.

NO lost experiments with

MICROSCOPIC SLIDE LABELING



Eliminate guesswork . . . greasemark mistakes. Get positive identification. Simply pull tab and a fresh, clean label "pops" out. Fast, self-sticking labels dispensed one at a time. Available in standard or "tissue-high" thickness. They accept pen, pencil, ball point pen or typewriter marking. 1000 labels per carton.



Write for detailed information and the name of your nearest TIME distributor.

PROFESSIONAL TAPE CO., INC.
360 Burlington Ave. • Riverside, Ill.

Significant Books

SPORES II

edited by H. Orin Halvorson
University of Illinois

This new book is a collection of papers presented at the Second Allerton Spore Conference held by the University of Illinois in the fall of 1960. All the papers contain hereto unpublished data. Microbiologists concerned with food canning, spore research and the physiology of bacterial spores will find the book valuable.

Available August; about 300 pages; \$5.00

PERSPECTIVES IN VIROLOGY, Volume II

edited by Morris Pollard
University of Texas—Medical Branch

This new book presents the papers and discussions given at the 1960 Gustav Stern Symposium of over 75 internationally recognized specialists in many facets of virology. The book explains developments in a specialized field to non-specialists. This volume will be of interest and importance to public health personnel, students, and investigators in schools of public health, departments of microbiology and research institutes.

1961; 230 pages; \$8.00

order from

BURGESS

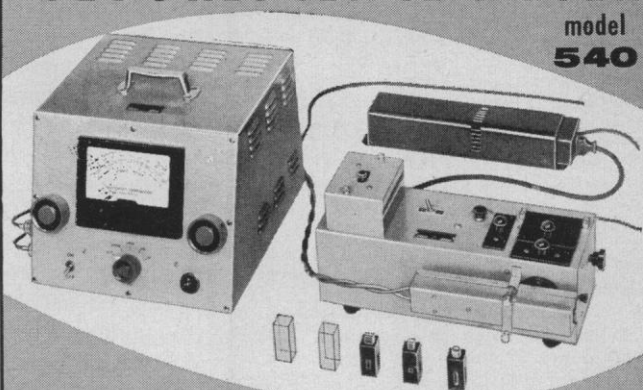
PUBLISHING
COMPANY



426 South Sixth Street • Minneapolis 15, Minn.

PHOTOVOLT LINE-OPERATED MULTIPLIER FLUORESCENCE METER

model
540



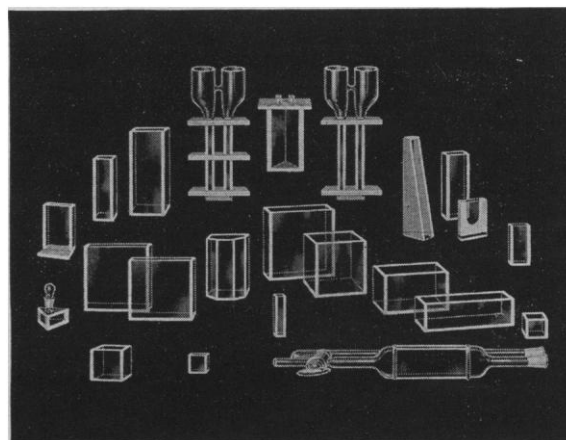
- High sensitivity . . . full scale for 0.001 microgram quinine sulphate
- Micro-fluorimetry . . . liquid volumes down to 1 ml
- Low blank readings . . . linear instrument response
- High sensitivity nephelometry . . . minute turbidities
- Fluorescence evaluation of powders, pastes, and solids; also for spot-tests on filter paper without elution
- Selection of filters, interference filters, and sample holders

Write for Bulletin No. 392 to:

PHOTOVOLT CORP.
1115 Broadway • New York 10, N. Y.

Also: pH Meters, Colorimeters, Densitometers

GLASS ABSORPTION CELLS made by KLETT



SCIENTIFIC APPARATUS

Klett-Summerson Photoelectric Colorimeters—
Colorimeters—Nephelometers—Fluorimeters—
Bio-Colorimeters—Comparators—Glass Stand-
ards—Klett Reagents.

Klett Manufacturing Co.

179 East 87 Street, New York, New York

New, 1961 AAAS Symposium Volumes

SCIENCES

in Communist China

Editor: Sidney H. Gould. 884 pages. 23 illustrations. Author, subject and geographical index. Cloth. June, 1961.

Price: \$14.00*

\$12.00 prepaid, for AAAS members

OCEANOGRAPHY

Editor: Mary Sears. 665 pages. 146 illustrations. Index. Cloth. May, 1961.

Price: \$14.75*

\$12.50 prepaid, for AAAS members

GERM PLASM RESOURCES

Editor: Ralph E. Hodgson. 394 pages. 59 illustrations. Index. Cloth. April, 1961.

Price: \$9.75*

\$8.50 prepaid, for AAAS members

* If you are not a member of the AAAS, you may join now, and order any of these volumes at the special member price. Enclose \$8.50 dues for your first year of membership, along with payment for the volumes you want.

Membership in the AAAS offers many benefits in addition to savings on AAAS volumes. It includes *Science* and the quarterly *AAAS Bulletin*.

Order Today From

American Association for the
Advancement of Science
1515 Mass. Ave., NW Washington 5, D.C.

Try UNITRON'S new POLARIZING MICROSCOPE

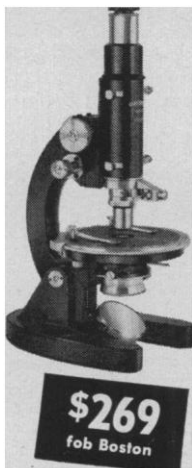
The Model MPS is a precision instrument designed to meet the exacting requirements of science, education and industry. Ideal for work in chemistry, crystallography, biology, as well as the technology of paper, glass, textiles and petroleum.

- Eyepieces: 5X (micro), 10X (cross)
- Objectives: 4X, 10X, 40X, achromatic, strain-free, centerable
- Nosepiece: quick-change type
- Substage condenser: focusable, 3-lens, swing-out top mount, iris diaphragm
- Polaroid polarizer: rotatable 360°
- Polaroid analyzer: in sliding mount
- Bertrand lens: centerable
- Stage: 115mm diameter, revolves 360°, reads to 6" with vernier
- 2 Compensators: quarter-wave plate and first order red plate
- Focusing: both coarse and fine

FREE TEN-DAY TRIAL

Quantity prices on three or more

Accessory mechanical stage \$14.75



UNITRON

INSTRUMENT COMPANY • MICROSCOPE SALES DIV.
66 NEEDHAM ST. NEWTON HIGHLANDS 61, MASS.

Please rush UNITRON's Microscope Catalog 4-S-4

Name _____

Company _____

Address _____

City _____

State _____

Meetings

International Andean Year

On the initiative of UNESCO and by invitation of Angel Establier (head of the organization's Scientific Office in Latin America, located in Montevideo), who was interested in this project from its very beginning, a meeting was held in Buenos Aires on 3 and 4 April 1961 to discuss the planning of an International Andean Year, during which an intensive study would be carried out on the range of mountains known as the Cordillera de los Andes, which extends from Panama to the southern part of the Continent.

Scientists from various interested countries participated in the meeting—H. O'Reilly Sternberg (Brazil); Guillermo Mann (Chile); Tobias Lasser (Venezuela); Ovidio Suarez (Bolivia); and Eduardo Baglietto, M. Olascoaga, F. Bonorino Udaondo, J. Roederer, Angel Cabrera, M. Sadosky, B. A. Houssay, and V. Deulofeu, all from Argentina. Unfortunately, A. Hurtado, from Peru, could not attend the meeting. Angel Establier represented UNESCO, and his office will be the center for the various groups in preparing the project.

After a few words of welcome by M. Sadosky, vice-dean of the faculty of exact and natural sciences, University of Buenos Aires, Venancio Deulofeu was elected chairman; Establier acted as advisory secretary. Four sessions were held in all.

All present agreed that the project to institute an International Andean Year was of great importance, not only because of its extent and because of the scientific results which could be obtained but also because of the number of scientists involved and the expected participation by countries outside South America. It was also felt that a project of this magnitude would have a favorable impact on the progress of science and the future scientific development of most of the South American countries.

Discussions dealt with the fields in which it would be desirable to have activities during the International Andean Year. It was tentatively decided that it would be possible and convenient to work in the following subject areas: geology; botany; geophysics; human biology; zoology; human ecology; geomorphology, including glaciology; high-altitude physics;

soil sciences; geography; agronomic sciences (in collaboration with the U.N.'s Food and Agriculture Organization); sociology and ethnography (both in collaboration with the Social Sciences Institutes); archeology; anthropology; and economics [in collaboration with the Economic Commission for Latin America (CEPAL)].

In each of these fields some subdivisions were outlined, and, as examples of the type of work which would be involved, some specific projects were mentioned. For instance, it was suggested that in studying the geology of the Andes it would be desirable to concentrate on the evolution of the Andean range, especially the tectonic and magmatic cycles of the Andean syncline; on tertiary and quaternary vulcanism; and on magmatic provinces in the Andes.

A larger meeting was planned for December 1961. This will be held in Santiago de Chile, to consider some reports to be presented by the scientists participating in the meeting in Buenos Aires and to elaborate and develop the specific projects in each scientific field.

In the meantime, the UNESCO Scientific Office in Montevideo will start compiling a bibliography on research done on the Andes and collecting the names of scientists who have been active in that field, or who, because of their training, will be able to participate in the activities planned for the International Andean Year.

Further information on this project can be obtained from Dr. A. Establier, Centro de Cooperación Científica de la UNESCO para América Latina, Boulevard Artigas 1320, Montevideo, Uruguay.

V. DEULOFEU

Parera 77, Buenos Aires, Argentina

Forthcoming Events

September

11-15. Radioecology, symp., Fort Collins, Colo. (Miss A. Barker, American Inst. of Biological Sciences, 2000 P St., NW, Washington 6)

11-16. International Union for the Scientific Study of Population, 12th congr., New York, N.Y. (C. V. Kiser, Milbank Memorial Fund, 20 Wall St., New York 5)

11-16. University of Hong Kong, intern. scientific congr., Hong Kong. (University of Hong Kong, Hong Kong)

11-19. International Congr. of Navigation, 20th, Baltimore, Md. (E. W. Adams, Jr., 22 Light St., Baltimore 2)

11-21. International Cloud Physics Conf., Canberra and Sydney, Australia. (E. G. Bowen, Commonwealth Scientific and Industrial Research Organization, University Grounds, Sydney)

12-13. International Federation of Surgical Colleges and Societies, 4th annual Oslo, Norway. (K. Cassels, IFSC Office, Royal College of Surgeons of England, Lincoln's Inn Fields, London, W.C.2)

12-15. International Pharmaceutical Federation, 19th general assembly, Athens, Greece. (J. H. M. Winters, Alexanderstraat 11, The Hague, Netherlands)

12-15. Mass Spectrometry, conf., Oxford, England. (W. J. Brown, Instrumentation Div., A.E.I. (Manchester) Ltd., Trafford Park, Manchester 17, England)

13-16. European Congr., of Gerontology, 3rd, Amsterdam, Netherlands. (A. J. S. Douma, Haanplein 8, The Hague, Netherlands)

14-17. Chemotherapy, 2nd intern. symp., Naples, Italy. (P. Preziosi, Casella postale 266, Naples)

14-20. High Energy Physics, intern., Aix-en-Provence, France. (E. W. D. Steel, European Organization for Nuclear Research, Geneva 23, Switzerland)

15-20. World Medical Assoc., 15th general assembly, Rio de Janeiro, Brazil. (L. H. Bauer, 10 Columbus Circle, New York 19)

16-20. German Soc. for the History of Medicine, Physical Science and Technology, Augsburg, Germany. (G. Mann, Secretary, Wilhelmplatz 7, Bonn, Germany)

16-27. International Scientific Film Assoc., 15th congr., Rabat, Morocco. (M. Affi, 85 Ibn Toumert, Rabat)

18-2. World Meteorological Organization, Commission for Aerology, 3rd session, Rome, Italy. (WMO, 1 Avenue de la Paix, Geneva, Switzerland)

18-20. Applied Spectroscopy, 8th symp., Ottawa, Canada. (R. Lauzon, Div. of Pure Chemistry, National Research Council, Ottawa, Ont.)

18-21. Embryological Conf., 5th intern., London, England. (L. Brent, Dept. of Zoology, University College, London, Grover St., London, W.C.1)

18-22. International Congr. of Neuro-radiology, 6th Rome, Italy. (E. Valentino, CIT, Ufficio Congressi, Piazza Colonna 193, Rome)

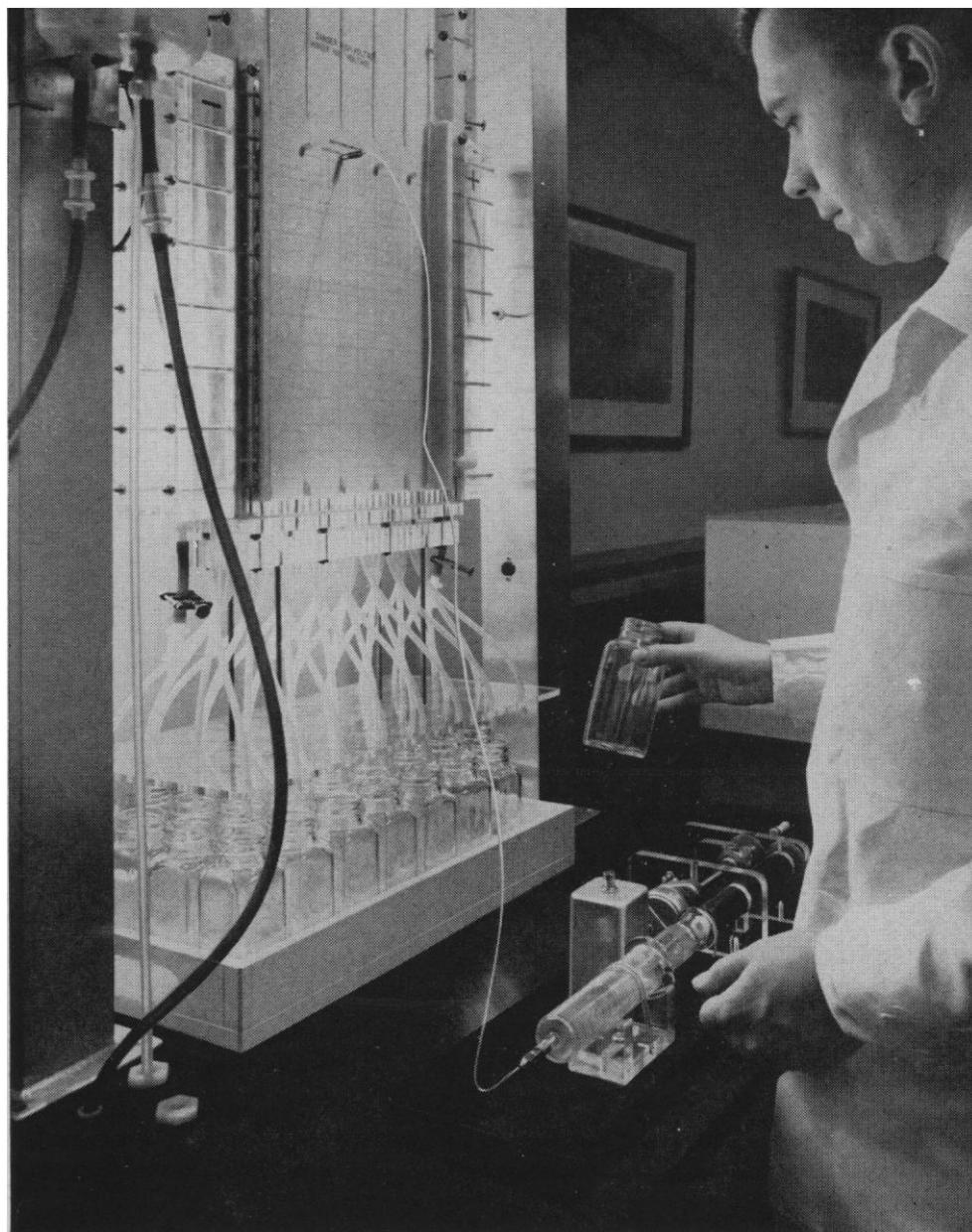
18-23. Speleology, 3rd intern. congr., Vienna, Austria. (Generalsekretariat des 3rd Internationalen Kongresses für Speläologie, Obere Donaustr. 99/7/1/3, Vienna 2)

18-25. International Seaweed Symp., 4th, Biarritz, France. (M. Barriety, Centre Scientifique, B. P. 28, Biarritz.)

19-21. International Mechanical Pulp- ing Conf., 4th, Chicago, Ill. (J. H. Perry, Norton Co., Worcester, Mass.)

19-22. Australian Conf. on Food Technology, Homebush (near Sydney), Australia. (T. B. Partridge, Australian Scientific Liaison Office, 1907 K St., NW, Washington 6)

19-22. International Office of Documentation of Military Medicine, 23rd session, Athens, Greece. (Intern. Committee of Military Medicine and Pharmacy, Hôpital Militaire, 79 rue Saint Laurent, Liège, Belgium)



SEPARATE UP TO 30 ML PER HOUR WITH NEW JKM-STUBBINGS ELECTROPHORESIS APPARATUS

Now available from Fisher Scientific, this compact apparatus gives biochemical labs a preparative unit with unparalleled capacity. Results are completely reproducible. Optimum results are obtained over entire electrophoresis "spectrum" — from separating enzymes to desalting. All variables fully controlled. Voltage: 250-1000 volts; buffer flow rate: 200-3000 ml/hr; automatic sample feed: .06-30 ml/hr. Precise, large-volume separations made possible by bed of long-lasting, uniform, microscopic glass spheres. **For your free copy of Bulletin FS-236, call your Fisher branch or write Fisher Scientific, 139 Fisher Building, Pittsburgh 19, Pa.**

J-173



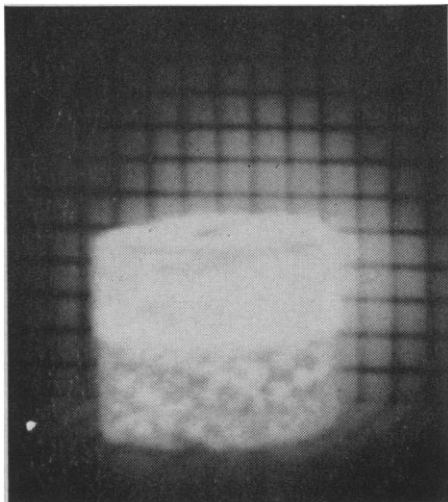
FISHER SCIENTIFIC

World's Largest Manufacturer-Distributor of Laboratory Appliances & Reagent Chemicals

Boston • Chicago • Fort Worth • Houston • New York • Odessa, Texas
Philadelphia • Pittsburgh • St. Louis • Washington • Montreal • Toronto

ISOTOPES

for Your Development Work



Oak Ridge National Laboratory offers more than 300 radioactive and stable isotope products.

RADIOISOTOPES

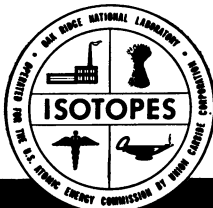
Processed Solutions—90 processed radioisotopes may be obtained, including many carrier-free and high specific activity products.

Now Available—Scandium-46 at \$150 a curie; sulfite-free I-131 at \$2 per mc.; technetium (as element or ammonium pertechnetate) \$100 a gram; calcium-47, with less than 5% Ca-45, \$200 per mc.; I-125 in research quantities.

STABLE ISOTOPES

More than 200 stable isotopes available from 50 elements.... Chemical processing and target fabrication services also offered.... Ultra-high isotopic purity in a number of isotopes.

For information or literature, write to: Isotopes Division, Oak Ridge National Laboratory, P. O. Box X, Oak Ridge, Tennessee.



**OAK RIDGE
NATIONAL LABORATORY**

Operated by
UNION CARBIDE CORPORATION
for the
U.S. ATOMIC ENERGY COMMISSION



19-29. International Conf. on Fish Nutrition, Washington, D.C. (FAO. Intern. Agency Liaison Branch, Office of the Director General, Viale delle Terme di Caracalla, Rome, Italy)

20-21. Industrial Electronics, symp., Boston, Mass. (W. M. Trenholme, General Electric Co., West Lynn, Mass.)

21-22. Air Pollution Control Assoc., annual, Louisville, Ky. (R. Bourne, APCA, Room 2, City Hall, Louisville)

21-22. Conference on Radiofrequency Spectroscopy in Solids, Bangor, Wales. (Physical Soc., 1 Lowther Gardens, Prince Consort Rd., London, S.W.7, England)

21-23. French Medical Congr., 33rd, Paris. (C. Laroche, 34 rue de Bassano, Paris 8)

24-27. American Inst. of Chemical Engineers, Lake Placid, N.Y. (E. R. Smoley, 30 School Lane, Scarsdale, N.Y.)

25-29. European Committee of Liaison for Cellulose and Paper, symp., Oxford, England. (British Paper and Board Makers' Assoc., Technical Section, St. Winifred's, Welcomes Rd., Kenley, Surrey, England)

25-30. Magnetism and Crystallography, intern. conf., Kyoto, Japan. (Science Council of Japan, Ueno Park, Tokyo)

26-30. European Congr. of Aviation Medicine, 6th, Paris, France. (CERMA, 5 bis Avenue de la Porte de Sèvres, Paris)

27-3. International Union of Theoretical and Applied Mechanics, Kiev, U.S.S.R. (Y. A. Mitropolsky, Scientific Committee, Kalinin pl. 6, Mathematical Inst., Kiev)

28-29. European Conf. of Chemical Engineers, Toulouse, France. (Soc. of Industrial Chemistry, 28 rue Saint-Dominique, Paris 7, France)

October

1-3. Council for Intern. Organizations of Medical Sciences, Paris, France. (CIOMS, 6 rue Franklin, Paris 16)

1-4. Process Engineers, annual, Vienna, Austria. (Osterreichischer Ingenieur- und Architektenverein, Eschenbachgasse 9, Vienna 1)

1-5. Electrochemical Soc., Detroit, Mich. (Electrochemical Soc., Inc., 1860 Broadway, New York 23)

1-7. International Special Committee on Radio Interference, plenary session, Philadelphia, Pa. (S. D. Hoffman, American Standards Assoc., 10 E. 40 St., New York 16)

1-8. International Congr. of Industrial Chemistry, 33rd, Bordeaux, France. (Société de Chimie Industrielle, 28 rue Saint-Dominique, Paris 7, France)

2-4. Communications Symp., 7th natl., Utica, N.Y. (R. K. Walker, 34 Bolton Rd., New Hartford, N.Y.)

2-7. International Astronautical Federation, 12th congr., Washington, D.C. (American Rocket Soc., 500 Fifth Ave., New York 36)

2-7. Inter-Regional Leprosy Conf., Istanbul, Turkey. (WHO, Regional Office for Europe and Regional Office for the Eastern Mediterranean, 8 Scherfigsvej, Copenhagen Ø, Denmark)

2-7. Climatic Change, symp., Rome, Italy. (UNESCO, Place de Fontenoy, Paris 7, France)

2-11. International Council for the Exploration of the Sea, 49th annual, Copen-

hagen, Denmark. (Charlottenlund Slot, Charlottenlund, Denmark)

3-5. Physics and Nondestructive Testing, symp., Argonne, Ill. (W. J. McGonagle, Argonne Natl. Laboratory, 9700 S. Cass Ave., Argonne)

3-8. Aerosol Congr., 3rd intern., Lucerne, Switzerland. (Federation of European Aerosol Assocs., Waisenhausstrasse 2, Zurich, Switzerland)

4-10. Latin American Congr. of Electroencephalography, 5th, Mexico, D.F. (J. Hernandez Paniche, Instituto Mexicano de Seguro Social, Hospital La Raza, Mexico, D.F.)

4-10. Latin American Congr. of Neurosurgery, 9th, Mexico, D.F. (J. H. Mateos, Tonalá No. 15, Mexico 7, D.F.)

6-7. American Medical Writers' Assoc., New York, N.Y. (S. O. Waife, P.O. Box 1796, Indianapolis 6, Ind.)

6-8. Therapeutics, 7th intern. congr., Geneva, Switzerland. (P. Rentchnick, Case Postale 229, Geneva 2)

8-10. Zooplankton Production, symp., Copenhagen, Denmark. (J. H. Frazer, Marine Laboratory, P.O. Box 101, Victoria Rd., Aberdeen, Scotland)

8-11. Society of American Foresters, Minneapolis, Minn. (H. Clepper, SAF, 425 Mills Bldg., Washington 6)

8-13. American Acad. of Ophthalmology and Otolaryngology, Chicago, Ill. (W. L. Benedict, 15 Second St., SW, Rochester, Minn.)

9-11. National Electronics Conference and Exhibition, 17th annual, Chicago, Ill. (NEC, 228 N. La Salle St., Chicago, 1)

9-12. Instrument Symp. and Research Equipment Exhibit, 11th annual, Bethesda, Md. (J. B. Davis, Natl. Institutes of Health, Bethesda 14)

9-12. Water Pollution Control Federation, 34th annual, Milwaukee, Wis. (R. E. Fuhrman, 4435 Wisconsin Ave., NW, Washington 16)

9-13. American Rocket Soc., space flight meeting, New York, N.Y. (ARS, 500 Fifth Ave., New York 36)

9-13. Luminescence of Inorganic and Organic Systems, intern. conf., New York, N.Y. (Miss G. M. Spruch, New York Univ., Washington Sq., New York 3)

10-12. Nuclear Reactor Chemistry, 2nd conf., and Analytical Chemistry in Nuclear Reactor Technology, 5th conf., Gatlinburg, Tenn. (Oak Ridge Natl. Laboratory, P.O. Box X, Oak Ridge, Tenn.)

10-20. International Committee for Biological Control, Tunis. [P. Grison, Laboratoire de Biocenotique et de Lutte Biologique, La Minière, par Versailles (S.-et.-O.), France]

11-13. Gaseous Electronics Conf., American Physical Soc., Schenectady, N.Y. (C. J. Gallagher, General Electric Research Laboratories, Schenectady, N.Y.)

11-14. Tau Beta Pi Assoc., Cincinnati, Ohio. (R. H. Nagel, Univ. of Tennessee, Knoxville)

11-14. Western Inst. on Epilepsy, 13th annual conf., San Antonio, Tex. (F. Risch, 3097 Manning Ave., Los Angeles, Calif.)

12-13. Congress of Neurological Surgeons, New York, N.Y. (E. Weiford, 4706 Broadway, Kansas City 12, Mo.)

12-29. Pacific Intern. Trade Fair, 2nd, technical meetings, Lima, Peru. (PITF, P.O. Box 4900, Lima)

(See issue of 18 August for comprehensive list)