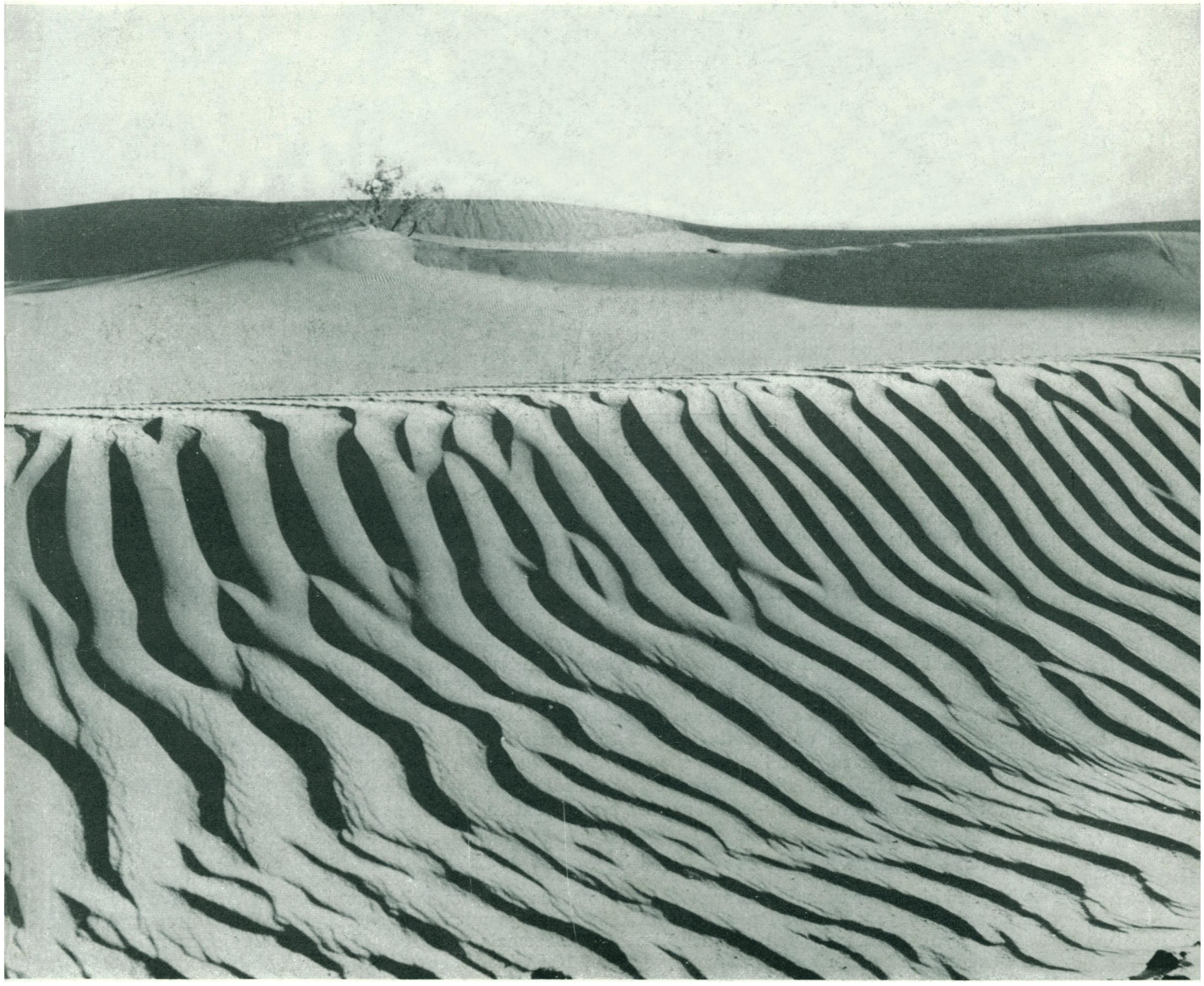
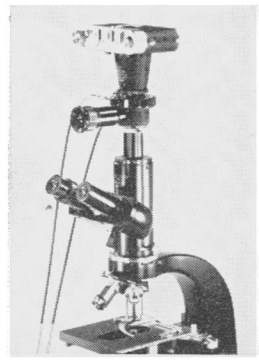
SCIENCE

20 November 1959

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE





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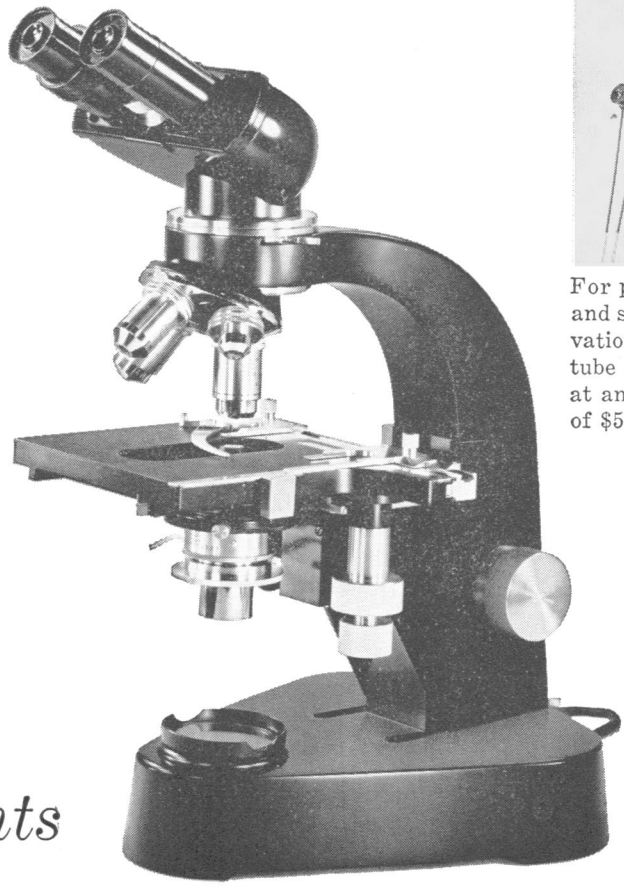

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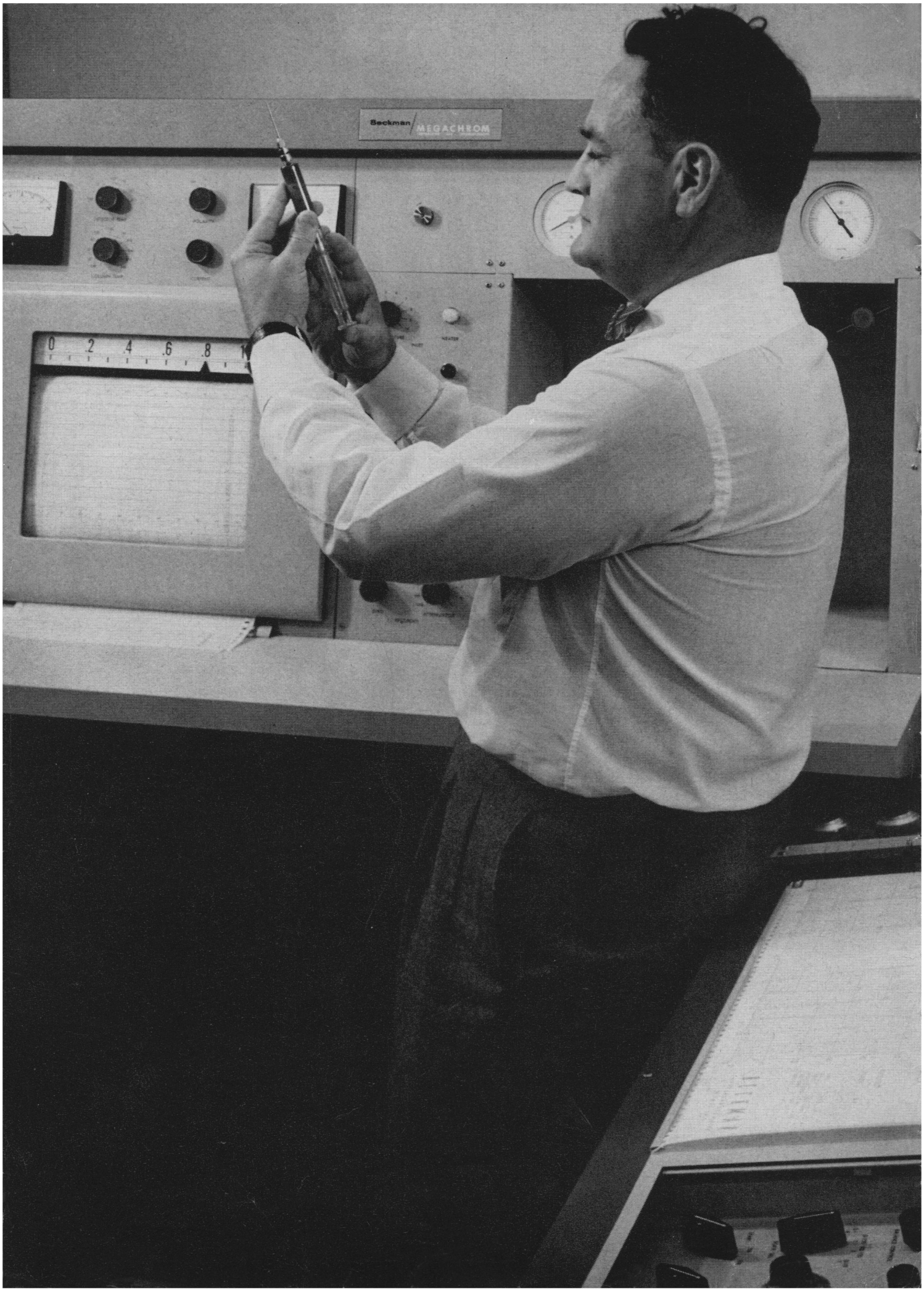
20 November 1959, Volume 130, Number 3386

SCIENCE

Cover These dunes, sculptured by the wind, are near Sebha, Libya (population 1702), a town in a Saharan oasis. The picture is from *Africa*, a book of photographs by Emil Schulthess, published by Simon and Schuster, New York. See review on page 1402.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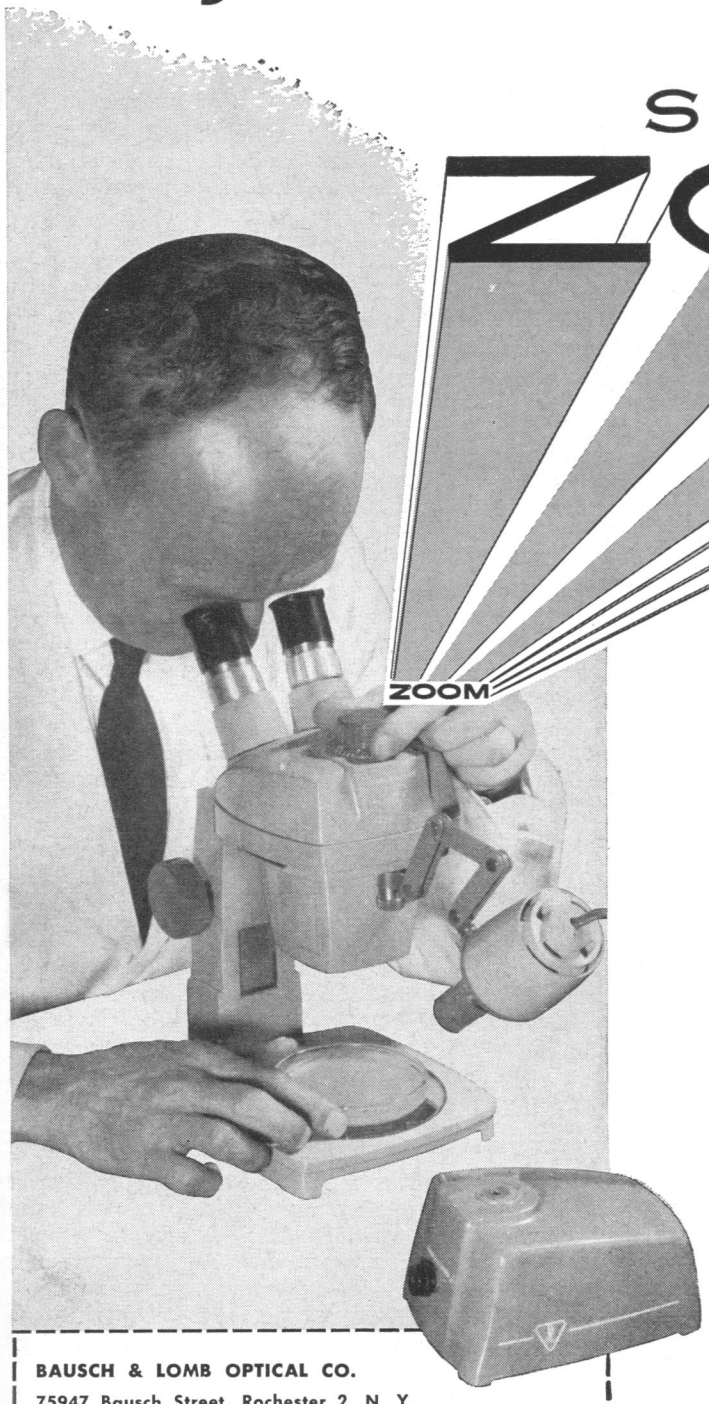

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Hanson); discussant, Edward L. Hill, (University of Minnesota); quantum physics and relativity theory (Edward L. Hill); discussant, Paul K. Feyerabend.

Symposium: "Methodological Problems of Psychology and the Social Sciences"; cosponsored by the American Philosophical Association and the Philosophy of Science Association; 30 Dec.; arranged by Herbert Feigl; Wilfrid Sellars, presiding. Papers on methodological issues of the social sciences (Paul F. Lazarsfeld, Columbia University); discussant, Roger Buck (Oberlin College); the role of intervening variables in psychological theory (Herbert Hochberg, Northwestern University); discussant, Grover Maxwell; verbal utterances as data (Alex Buchwald, Indiana University); discussant, Roger Buck; formal analysis and the language of behavior theory (William Rozeboom); discussant, Alex Buchwald.

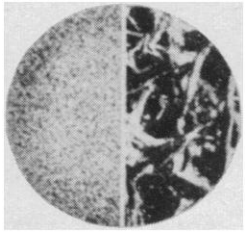
Philosophy of Science Association. Symposium: "The Theory of the Public Interest"; 28 Dec.; arranged by Wayne A. R. Leys, Roosevelt College. The discussants will be Lewis K. Zerby, Michigan State University, and Wayne A. R. Leys.

Society for General Systems Research. Business meeting and symposium: "The Synthesis of Organization"; 29 Dec.; arranged by Richard L. Meier, University of Michigan, with Anatol Rapoport, University of Michigan, presiding. Papers will be presented on self-organizing phenomena and the first life (Sidney W. Fox, Florida State University); the theory of plans and human behavior (Eugene Galanter, University of Pennsylvania); self-organizing systems (Heinz Von Foerster, University of Illinois).

There will be a session for contributed papers; 30 Dec.; Charles A. McClelland, San Francisco State College, chairman.

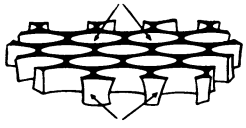
Society for the History of Technology. There will be two sessions of invited papers, cosponsored by AAAS Section L; 29 Dec.; arranged by Robert P. Multhauf, Smithsonian Institution. Session I; Carl W. Condit, Northwestern University, presiding. Papers on the social consequences of occupational specialization (Raymond Mack, Northwestern University); individualism and technological change (Homer Barnett, Oregon State College); commentator, Otis D. Duncan (University of Chicago). Session II; Robert Carlson, University of Pittsburgh, presiding. Papers on the Niagara power project (Harold Sharlin, Brooklyn Polytechnic Institute); medieval technology as reflected in the *Treatise on Divers Arts* of Theophilis (Cyril Stanley Smith, University of Chicago); the legend of Eli Whitney and interchangeable parts (Robert S. Woodbury, Massachusetts Institute of Technology).

This is the *Millipore* FILTER

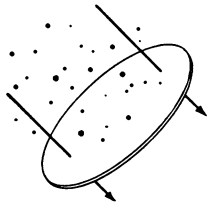


Left: Millipore Filter
Right: "Dense" analytical filter paper
(Photomicrograph at 100X)

Pore Volume 80%



Solid (Matrix) Volume 20%



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Type Code	Pore Size (microns)	Pore Dia. Variation	Rate of Flow* Water	Air
VF	10 mμ	±2 mμ	1.1	100
VM	50 mμ	±3 mμ	2.7	200
VC	100 mμ	±8 mμ	3.6	600
PH	0.30μ	±.02μ	40	4200
HA	0.45μ	±.02μ	80	9600
DA	0.65μ	±.03μ	175	28000
AA	0.80μ	±.05μ	220	33000
RA	1.2μ	±.3μ	300	38000
SS	3.0μ	±.9μ	400	45000
SM	5.0μ	±1.2μ	560	70000

*Mean Flow rates in cc/min/cm² filter area @ 25°C and 70 cm Hg △ p

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Forthcoming Events

December

16–18. American Soc. of Agricultural Engineers, Chicago, Ill. (J. L. Butt, P.O. Box 229, St. Joseph, Mich.)

25–27. Indian Mathematical Soc., 25th conf., Allahabad, India. (B. N. Prasad, Allahabad Univ., Lakshmi Niwas, George Town, Allahabad 2.)

26–30. American Assoc. for the Advancement of Science, annual, Chicago, Ill. (R. L. Taylor, AAAS, 1515 Massachusetts Ave., NW, Washington 5.)

27–30. American Anthropological Assoc., Mexico City. (W. S. Godfrey, Jr., Logan Museum, Beloit College, Beloit, Wisc.)

27–30. American Astronomical Soc., Cleveland, Ohio. (J. A. Hynek, Smithsonian Astrophysical Observatory, 60 Garden St., Cambridge 38, Mass.)

27–30. American Folklore Soc., Mexico City. (MacE. Leach, 110 Bennett Hall, Univ. of Pennsylvania, Philadelphia 4.)

27–30. American Statistical Assoc., Washington, D.C. (D. C. Riley, 1757 K St., NW, Washington 6.)

27–30. Institute of Mathematical Statistics (weather control), Washington, D.C. (J. Neyman, Statistical Lab., Univ. of California, Berkeley 4.)

28–29. American Chemical Soc. (Div. of Industrial and Engineering Chemistry),

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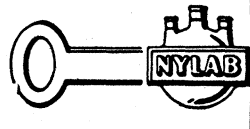

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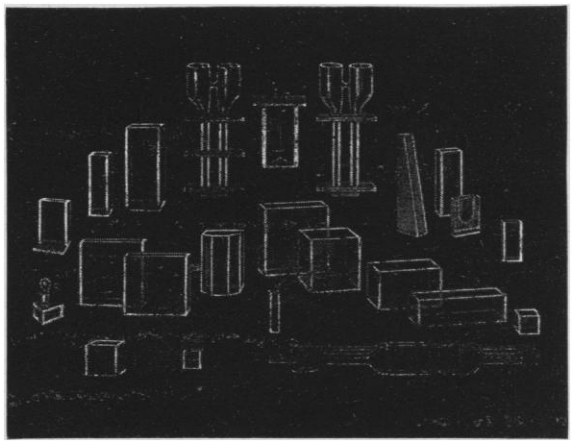

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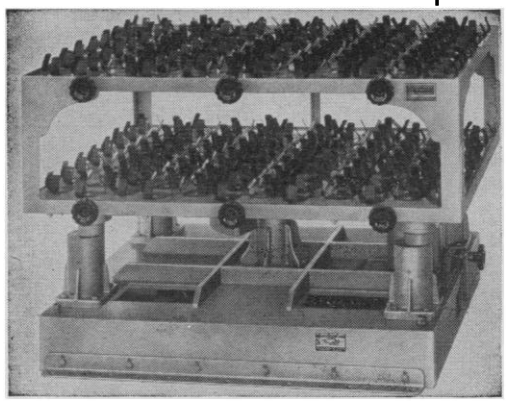

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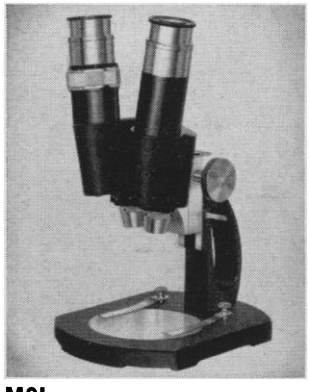

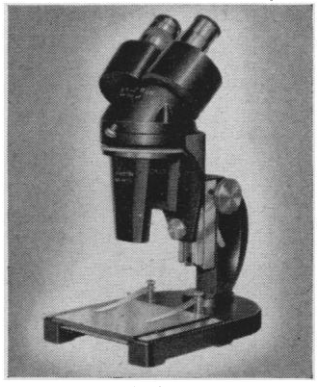

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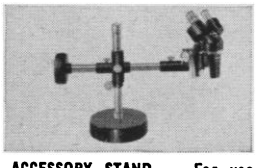

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symp., Baltimore, Md. (M. A. H. Emery, ACS, 18 and K Sts., NW, Washington D.C.)

28–29. Industrial Relations Research Assoc., Washington, D.C. (E. Young, Sterling Hall, Univ. of Wisconsin, Madison.

28–29 Mechanism of Interfacial Reaction, American Chemical Soc., annual symp, Baltimore, Md. (H. E. Hoelscher, Chemical Engineering Dept., Johns Hopkins Univ., Baltimore, Md.)

28–29. Lepidopterists' Soc., 10th annual, Ann Arbor, Mich. (E. G. Voss or W. H. Wagner, Dept. of Botany, Univ. of Michigan, Ann Arbor.)

28–29. Northwest Scientific Assoc., Spokane, Wash. (W. B. Merriam, Dept. of Geography, State College of Washington, Pullman.)

28–30. American Economic Assoc., Washington, D.C. (J. W. Bell, Northwestern Univ., 629 Noyes St., Evanston, Ill.)

28–30. American Philosophical Assoc. (eastern div.), New York, N.Y. (L. Garvin, Dept. of Philosophy, Univ of Maryland, College Park.)

28–30. American Physical Soc., Pasadena, Calif. (K. Darrow, APS, Columbia Univ., 116 St. and Broadway, New York, N.Y.)

28–30. Econometric Soc., Washington, D.C. (R. Ruggles, Dept. of Economics, Yale Univ., New Haven, Conn.)

28–30. Western Soc. of Naturalists, Los Angeles, Calif. (Y. U. Amrein, Dept. of Zoology, Pomona College, Claremont, Calif.)

28–31. Phi Delta Kappa, Columbia, Mo. (A. G. Clark, 316 Dalzell Ave., Ben Avon, Pittsburgh 2, Pa.)

28–16. Bahamas Surgical Conf., Nassau. (B. L. Frank, P.O. Box 4037, Fort Lauderdale, Fla.)

January

1–5. Electrochemical Soc., Chicago, Ill. (Electrochemical Soc., Inc., 216 W. 102 St., New York 25.)

1–5. Institute of Geographers, annual conf., Southampton, England. (A. E. Smailes, Queen Mary College, Univ. of London, Mile End Rd., London, E.1.)

3–9. Indian Science Cong. Assoc., 4th, Bombay. (B. W. Prasad, ISCA, Lakshmi Niwas, Georgetown, Allahabad 2, India.)

5–7. Recent Mechanical Engineering Developments in Automatic Control, symp., London, England. (Institution of Mechanical Engineers, 1 Birdcage Walk, London, S.W.1.)

6–8. Northeastern Weed Control Conf., 14th annual, New York, N.Y. (M. G. Wiltse, Chairman, Public Relations Committee, Dow Chemical Co., 916 Shoreham Bldg., 15 and H Sts., NW, Washington 5.)

7–10. Radioactive Isotopes, 4th intern. symp., Bad Gastein, Austria. (R. Hofer, Isotopen-Laboratorium, II. Medizinische Universitäts Klinik, 13, Garnisongasse, Vienna 9, Austria.)

8–11. Sanitary Engineering Conf., ASCE, Cincinnati, Ohio. (E. S. Kirkpatrick, ASCE, 33 W. 39 St., New York 18.)

11–13. American Acad. of Allergy, Hollywood-by-the-Sea, Fla. (J. O. Kelley, 756 N. Milwaukee St., Milwaukee 2, Wisc.)

(See issue of 13 November for comprehensive list)

New Products

The information reported here is obtained from manufacturers and from other sources considered to be reliable. Neither Science *nor the writer assumes responsibility for the accuracy of the information. All inquiries concerning items listed should be addressed to the manufacturer. Include the department number in your inquiry.*

■ SLIDE RULE, for teaching, is 8 feet long and is mounted on trundles that permit complete 360-deg turning without lifting. Scale arrangement and slide movement are the same as those of the manufacturer's standard 10-in. Log Log Duplex Decitrig slide rule. (Keuffel & Esser, Dept. Sci210, Adams and Third Sts., Hoboken, N.J.)

■ LABORATORY HYDRAULIC PRESS of 50-ton capacity has electrically heated platens measuring 12 by 15 in. Temperature of either platen can be read independently, measured by thermocouples and pyrometer. Controls are located at eye level. (Wabash Metal Products Co., Dept. Sci223, 1576 Morris St., Wabash, Ind.)

■ PULSE GENERATOR produces current pulses with output rise time variable to 35 mμsec and peak amplitudes 50 ma to 2.5 amp. Variable width, amplitude, and rise times are produced from external triggers at rates to 3 Mcy/sec. The device may also be operated as an amplifier with output widths controlled by input signal durations. (Electro-Pulse Inc., Dept. Sci224, 11861 Teale St., Culver City, Calif.)

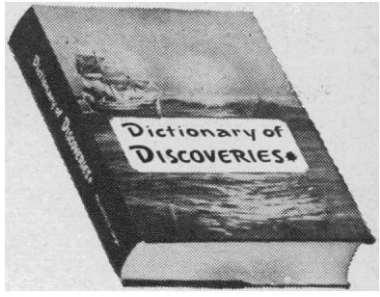
■ CONTROLLED-TEMPERATURE BATH for 12 standard cells maintains 35°C within $\pm 0.01°$ corresponding to cell-output variation of 0.5 μv. Connection of positive sides of cells to individual binding posts permits each cell to be checked by changing one external connection. All wire and binding posts are made of copper to avoid thermal voltages. Approximately 4 gal of oil are required. (Daystrom, Inc., Dept. Sci226, 614 Frelinghuysen Ave., Newark 12, N.J.)

■ HIGH-VOLTAGE PROBE for oscilloscope is rated at 12 kv d-c or r.m.s., 25 kv peak. Attenuation ratio is 1000/1. Rise time is 12 mμsec and frequency response is d-c to 30 Mcy/sec. Input impedance is 2.5 pf paralleled by 100 megohm. A compensating network permits adjustment to oscilloscope input capacitances from 20 to 47 pf. (Tektronix, Inc., Dept. Sci227, P.O. Box 831, Portland 7, Ore.)

■ MICROWAVE STABILITY TESTER measures long-term drift and short-term deviation from 1100 to 10,000 Mcy/sec. Short-term accuracy is said to be $1/10^9$ and long-term accuracy $1/10^6$. Short-

DICTIONARY OF DISCOVERIES

by I. A. Langnas



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Cambridge 38, Mass.

term stability disturbance waveform can be observed on an oscilloscope or spectrum analyzer. (Pitometer Log Corp., Dept. Sci228, 237 Lafayette St., New York 12, N.Y.)

■ OSMOMETER determines the vapor-pressure lowering of dissolved solutes by comparison of rates of evaporation of unknown and reference solutions. Small drops of solutions are placed in small loops formed by thermocouples. The assembly is placed in a chamber humidified by an aliquot of the reference material, and temperature difference is observed when steady state has been reached (about 15 min). (Rosemount Engineering Co., Dept. Sci229, Minneapolis, Minn.)

■ AUDIO RESPONSE PLOTTER provides a continuous single-sweep 20- to 20,000-cy/sec test signal and records test-system output on a 40 db-range logarithmic chart of a pen recorder. The oscillator is directly connected to the recording drum. Sensitivity is sufficient to record signals 40 db down from 10 mv. (Southwestern Industrial Electronics, Inc., Dept. Sci232, 10201 Westheimer Rd., Houston 19, Tex.)

■ HARDNESS TESTER is adapted to measurement of radioactive metals by mechanical linkages that extend control functions through the wall of a test cell. Seals on each coupler permit the cell to be isolated from outside atmosphere. Both Knoop and 136-deg diamond pyramid indenters are used with a dual system of weights from 1-to-3000 and 1-to-10,000 gm. Images from the viewing microscope are brought to an eyepiece outside the test cell. A mechanical stage carrying a turntable vise provides accurate traverses in two directions. Vise jaws can accommodate specimens up to 1¼ in. in diameter. The latter must be placed in the vise by mechanical hands or other accessory systems. (American Chair and Cable Co., Dept. Sci236, 929 Connecticut Ave., Bridgeport 2, Conn.)

■ CLEANLINESS TESTER assigns numerical values to surface cleanliness where nonbonded soils are involved. Soil is removed from the surface under test by pressure-sensitive tape and the latter is fixed to a microscope slide. Optical density of the composite is measured by the tester which is a densitometer specifically designed for that purpose. Reading is provided by a linear 0-to-1000 scale with accuracy said to be $1/10^3$. Branson Ultrasonic Corp., Dept. Sci237, 40 Brown House Rd., Stamford, Conn.)

JOSHUA STERN

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Letters

Support of Science by College Student Body

Associated student bodies of American colleges and universities have yearly budgets for student activities which may include hundreds of thousands of dollars. Monies generally come from the sale of student-body tickets, from admissions, and from publications. Expenditures include the support of athletics, music and arts, publications, publicity, administrative salaries, and general activities. In so far as is known by us, no student body has budgeted funds for the support of scientific research.

The Associated Student Body of Long Beach State College established a research board composed of students and faculty to further basic research on the campus. The purposes are (i) to provide increased opportunity for students to engage in scientific research; (ii) to increase scientific knowledge; (iii) to provide an activity which is a source of interest, pride, and prestige for the student body as a whole, and for the college; and (iv) to emphasize the need for acquainting the public with the goals and values of basic research.

The primary function of the research board, consisting of four students and three faculty members from the various areas of science, is to approve deserving research proposals submitted by student-faculty teams. Funds may be used for equipment, supplies, or salaries. Projects will be supported for a 1-year period; however, additional funds may be requested.

While the amount budgeted the first year is small ($1000, representing about 0.6 percent of the total student-body budget), it demonstrates that the undergraduate student realizes the value and the importance of supporting basic research.

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High-Altitude Observation

I have recently read with great interest the article by R. C. Staley "High-altitude observation techniques" [*Science* **130**, 845 (2 Oct. 1959)]. I would like to make the following comments relative to some recent developments.

1) The altitude limit of the rocket-grenade experiment for temperature