

Glen Canyon dam: diversion tunnel, left; construction site, right. [U.S. Bureau of Reclamation, by A. E. Turner]

128th Annual Meeting

There's still gold in Colorado's "shining mountains," but it's a kind of wealth the '59ers did not dream of. It took a scientist, indifferent to the lure of placer gold, to discern the source of Western economic growth. John Wesley Powell boated down the wild Colorado in 1869 and lived to spend the rest of his life reminding the nation that not gold or land but water is the real wealth of the West.

Water, land, and climate are major themes of the AAAS annual meeting in Denver in December. The interdisciplinary symposium in the social sciences, Water and Climate, convenes Thursday morning, 28 December, as one of the AAAS general sessions. Among other subjects, the symposium will take a look at the figures on whether cloud seeding has increased average rainfall, whether rainfall is related to meteor showers, and what the prospects are for hurricane control and man-made weather over large areas. Water Improvement, a general session symposium on Saturday, 30 December, will cover such subjects as electrochemical demineralization of water and new dimensions in pollution research.

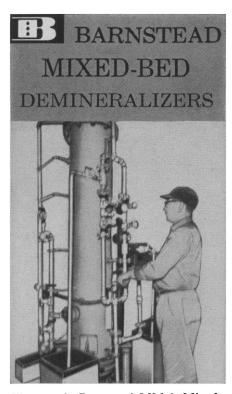
The Colorado River's Upper Basin is a giant laboratory backdrop for the symposium on Land and Water Use cosponsored by the Agriculture and Geology sections (27, 28, 29 December). Here, in the last U.S. wilderness, high scalers are blasting the red-rock canyon walls and contractors are pouring concrete for three great Bureau of Reclamation dams. Glen Canyon dam (photo, right) will add 3.6 billion kilowatt hours annually to the West's great wealth of low-cost hydroelectric power. With Flaming Gorge and Navajo dams, Glen Canyon will store water of the fluctuating Colorado for Upper Basin states and may help ease such clashes as Arizona vs. California, a bitter water dispute that has been before the Supreme Court since 1952 and brought the Arizona National Guard out in 1935 to halt construction of the Los Angeles aqueduct. The new Glen Canyon bridge, highest steel arch bridge in the U.S., is now a link in U.S. highway 89. Underneath, the "old red bull" churns through two half-mile diversion tunnels blasted through each side of the canyon (photo, *left*.)

You are likely to hear a good deal at the land and water symposium about what these dams will mean for industrial development in a wilderness that holds 90 percent of U.S. uranium deposits and 200 other minerals, for the poverty-stricken Navajos, and for the competing uses of western land. The reporters include W. I. Palmer, assistant commissioner, U.S. Bureau of Reclamation, and L. B. Leopold, chief hydraulic engineer, U.S. Geological Survey.

You may also hear something about how Denver is dropping a tunnel into the heart of a mountain to bring 14 billion gallons of Blue River water each day to its faucets, and about the plan to tunnel under the Continental Divide to bring water from Frying Pan and Roaring Fork rivers on the western slope to the dry Arkansas valley in eastern Colorado.

1533

10 NOVEMBER 1961



Illustrated: Barnstead MM-3, Mixed-Bed Demineralizer installed at General Dynamics Corporation's Electric Boat Division at Groton, Conn. Demineralized Water is used in atomic energy experimental work. Flow rate is 300 G.P.H.

UP TO 5000 G.P.H. BUILT TO LAST 30 YEARS OR MORE

Linking hands with America's dynamic industries to keep America strong, Barnstead research has pioneered standards of water purity to a degree not possible a decade ago . . not possible even three months ago. Nucleonics, Electronics, missiles, atomic energy, radar, chemicals, — the top names in our technological advancement look to Barnstead for mineral-free water required to make precision specifications a reality.

Barnstead engineers are specialists in PURE WATER. Barnstead is the only company that builds a complete line of both Stills and Demineralizers. Frequently, both systems of water purification, plus other specialized equipment, are combined to produce the kind of purity needed for a specific operation. Isn't this the kind of unbiased experience you would like to have "on call"? Why not contact Barnstead today!

FREE LITERATURE

- CATALOG 160 ON DEMINERALIZERS
- CATALOG "G" ON WATER STILLS

Barnstead

49 Lanesville Terrace, Boston 31, Mass.

1534

Program Summary

Geology and Geography

Tuesday 26 December

Ground Water Problems in the Rocky Mountains and Great Plains District, Part I. Joint symposium of AAAS Section E-Geology and Geography and the Geological Society of America, cosponsored by the American Geophysical Union. Arranged by Theodore R. Walker, University of Colorado. William G. Weist, Jr., U.S. Geological Survey, Denver, will preside. Ground water in Colorado-its importance during a national emergency, Paul T. Voegeli, Sr. How much do we know about ground water in the Colorado High Plains?, Harold E. McGovern and Donald L. Coffin. Artesian aquifers of the Denver Basin, Colorado, George H. Chase. Legal and management problems related to the development of an artesian ground water reservoir, Edward A. Moulder. Engineering and geology as an aid in solving ground water litigation, Edward D. Jenkins.

Wednesday 27 December

General Session for Contributed Papers in Geology.

Ground Water Problems in the Rocky Mountains and Great Plains District, Part II. James H. Irwen, U.S. Geological Survey, Denver, will preside. Management of radioactive waste in a basalt terrane, Idaho, Raymond L. Nace. Geological aspects of the Rocky Mountain Arsenal disposal well, Louis J. Scopel. The measurement of geohydrologic features affecting waste movement at Hanford, Washington, Randall E. Brown and John R. Raymond. Artificial ground water recharge: an aid to better water management, Dean O. Gregg. Pond water for domestic use, R. W. Stallman. Hydrologic significance of six core holes in carbonate rocks, Nevada test site, Stuart L. Schoff and Isaac J. Winograd.

Section E Dinner. John M. Parker, Kirby Petroleum Company, Denver, arranger.

Retiring Vice President's Address, Section E. Richard J. Russell, director, Coastal Studies Institute, Louisiana State University, and vice president for Section E, will preside. Some attributes of numerical data in geology, William C. Krumbein, professor of geology, Northwestern University, retiring vice president for Section E.

Thursday 28 December Section E Committee Meeting.

Association of American Geographers, Great Plains-Rocky Mountain Division

Program chairman: M. John Loef-fler, University of Colorado.

Tuesday 26 December

Contributed and Invited Papers in Geography, I. Program of the Association of American Geographers, Great Plains-Rocky Mountain Division, cosponsored by Section E. Arranged by Karl Stacey, Kansas State University. Alan D. Tweedie, Newcastle University College, New South Wales, Australia, and University of Colorado, will preside. Cascade Alp slopes and Gipfelfluren as clima-geomorphic phenomena, Will F. Thompson. Agricultural frontier in northern Alberta: a preliminary look, Thomas M. Griffiths and Clark N. Crain. The proportional relief landform map, Merrill K. Ridd. Water balance and the history of ancient Lake Bonneville, Vasyl M. Gvodetsky and H. Bowman Hawkes.

Wednesday 27 December

Contributed and Invited Papers in Geography, II. Arranged by M. John Loeffler and the department of geography, University of Colorado. Col. Joseph P. Hereford, U.S. Air Force Academy, Colorado Springs, will preside. Population growth in California: a problem in distribution, Howard F. Gregor. Population change, resource use, and income distribution, Calvin Patton Blair. Recognizing and meeting the map requirements of the population explosion in the western United States, John C. Sherman. Colorado oil shale: an undeveloped strategic resource, Harold A. Hoffmeister.

Contributed and Invited Papers in Geography, III. Arranged by M. John Loeffler and the department of geography, University of Colorado. John C. Sherman, department of geography, University of Washington, will preside. Modern Los Angeles, creature of the population explosion, Howard J. Nelson. The impact of an exploding population on a semideveloped state: the case of Arizona, Andrew W. Wilson. The changing pattern of population distribution in Texas, Stanley A. Argingast. Implications of land inventory

programs in Chile, Donald D. Mac-Phail.

Geographers' Dinner. Arranged by M. John Loeffler, University of Colorado.

Thursday 28 December

Contributed and Invited Papers in Geography, IV. Arranged by M. John Loeffler and the department of geography, University of Colorado. Karl Stacey, Kansas State University, will preside. The impact of growing metropolitan areas on water resources planning, Robert S. Collins. The Piedmont: Colorado's expanding core, M. John Loeffler and Albert W. Smith. Area and people in political geography, Joseph Velinkonja. Water problems in eastern Australia, Alan D. Tweedie.

National Geographic Society

Saturday 30 December

Annual Lecture and Color Film of the National Geographic Society. Margaret Mead, member AAAS board of directors, will preside. The sacred well of Chichén Itzá, Matthew W. Sterling, research associate, Smithsonian Institution; Committee for Research and Exploration, National Geographic Society.

National Speleological Society

Program chairman: Brother G. Nicholas, F.S.C., University of Notre Dame.

Friday 29 December

Speleogenesis. Program of the National Speleological Society, cosponsored by AAAS Section E-Geology and Geography, and the Geological Society of America. Opportunities for geological research in caves, William E. Davis. Speleogenesis in the Marble Mountain area, Colorado, Donald Davis. Geology and speleogenesis of Porcupine Cave, Utah, Jon Haman. Crystal wedging as

Program summaries for the chemistry and mathematics sections appeared in the 27 October issue of *Science*, and for the physics and astronomy sections, in the 3 November issue. Program summaries for other sections will appear in subsequent issues.

a factor in cavern breakdown, William B. White and Elizabeth L. White.

General Session. Brother G. Nicholas, presiding. Notes on Colorado cave insects, Robert Ayre. Origin and development of lava tubes, William R. Halliday. Recent progress in Montana speleology, Howard McDonald. Preview of 1962 Black Hills meeting of NSS, John Streich.

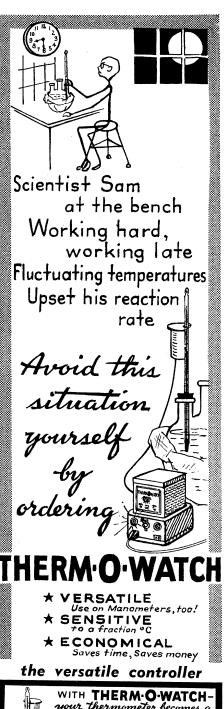
Agriculture

Land and Water Use with Special Reference to Mountain and Plains Regions. Symposium in four sessions, arranged by D. Wynne Thorne, Utah State University. One session jointly arranged by Terah L. Smiley, University of Arizona, and D. Wynne Thorne, Utah State University. Program of AAAS Section O-Agriculture, cosponsored by AAAS Section E-Geology and Geography, and the Committee on Desert and Arid Zones of the Southwestern and Rocky Mountain Division, and by the following societies: American Dairy Science Association, American Farm Economic Association, American Geophysical Union, American Society of Agricultural Engineers, American Society of Agronomy, American Society of Animal Production, American Society of Range Management, Ecological Society of America, Gamma Sigma Delta, Society of American Foresters, Soil Conservation Society of America, Wilderness Society, Wildlife Management Institute, Wildlife Society.

Wednesday 27 December

Part I: Land and Water Resources. Roland Renne, president, Montana State University, will preside. Population demands for land and water resources of the western hinterland, S. C. Smith. Land resources and potential use, R. D. Hockensmith. Water resources, development and uses, W. I. Palmer. Public grazing lands in the economy of the West, M. L. Upchurch.

Part II. Optimum Uses for Resources. E. F. Frolik, dean, College of Agriculture, University of Nebraska, will preside. Criteria and planning for optimum use, E. N. Castle. Economic priorities on water use in arid regions, Nathaniel Wollman. Agriculture as a competitive segment of multiple use, B. Delworth Gardner. Recreation as a competitive segment of multiple use, Marion Clawson.





versatility pays off



in the laboratory



New colloid mill for 25 to 75 ml batches

MINI-MILL macerates, homogenizes, emulsifies . . . for research in cosmetics, pharmaceuticals, paint, resins, coatings, polish, ink, soap . . . also bacteria, tissues, cells.

MINI-MILL provides intense mechanical shear by blades on the bottom of the rotor (see drawing) and cutting edges of serrations on rotor and stator, also hydraulic shear as material is forced through a fine gap, 3 to 125 mils, adjustable while running. Self circulating. Also used with 120 µ diam. glass beads for further breakdown.

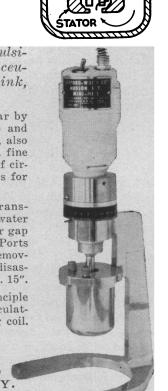
Rotor speed: 0 to 22000 rpm with variable transformer. Mixing cups are immersed in cooling water in a steel container (not illustrated). Micrometer gap adjustment. Contact surfaces are stainless steel. Ports for introducing or removing material without removing cup . . . also for steam or inert gas. Quickly disassembled for sterilization. Overall height-approx. 15".

MICRO-MILL for 150 ml to 2 liters. Same principle as MINI-MILL but with 1 gal. hopper with recirculating pipe, jacket and removable internal cooling coil.

> Send for free catalogs FFORD-WOOD CO

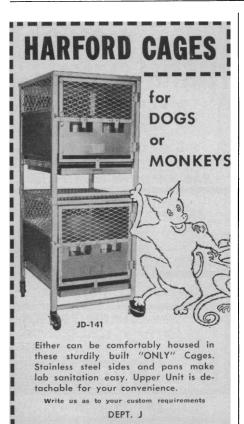
Dept. S11 . Eppenbach Division . Hudson, N. Y.

Eppenbach colloid mills, homogenizers, homogenizer-mixers ... for laboratory, pilot-plant and large-scale production.



ROTOR &

CUP



HARFORD METAL PRODUCTS

ABERDEEN, MD.

CRYOBIOLOGY

LONG TERM PRESERVATION OF BIOLOGICAL SPECIMENS IN LIQUID N2 AT -320° F.



Today, liquid nitrogen is used for storage of viruses, bacteria, cancer cells, tissue, sperm and blood. CRYENCO specializes in providing equipment for your low temperature investigation and work.

Now, we are producing a complete line of low temperature biological storage dewars (Biostats)—from 325 cu. in. to 17.5 cu. ft. Ease of operation and convenience are featured. Operation is economical with safe long storage time you

is economical with safe, long storage time-you fill only every 30 to 90 days, depending on unit

Write for our complete catalog on CRYENCO BIOSTATS, company letterhead, please.

ENCC

CRYOGENIC ENGINEERING COMPANY 217 WEST 48th AVENUE • DENVER 16, COLORADO Low Temperature, High Vacuum Equipment and Engineering Thursday 28 December

Part III: Interdisciplinary Symposium in the Social Sciences: Water and Climate. Joint program of AAAS Section O-Agriculture and the Committee on Desert and Arid Zones Research of the AAAS Southwestern and Rocky Mountain Division, cosponsored by Sections E-Geology and Geography, K-Social and Economic Sciences, M-Engineering, and P-Industrial Science, the American Meteorological Society, and the American Geophysical Union. Arranged by Terah L. Smiley, University of Arizona, and Wynne Thorne, Utah State University. Terah L. Smiley will preside. A meteorologist looks at hydroclimatology, Paul R. Julian. Capture of additional water for increasing supplies, John W. Harshbarger. Weather modification, Earl G. Droessler. Legal aspects of a national water policy, Morris K. Udall.

Friday 29 December

Part IV: Impact of Public Policy on Land and Water Use. W. E. Morgan, president, Colorado State University, will preside. The government's responsibility for land and water, L. B. Leopold. Problems associated with wilderness and other reserves of public lands, C. R. Gutermuth. Problems growing out of the spaciousness of the West, M. M. Kelso. Public and/or private investment in resource development, W. E. Folz.

Part V: Projecting Management Programs. R. E. Hodgson, Director, Animal Husbandry Research Division, Agricultural Research Service, Beltsville, Maryland, will preside. Providing for multiple use in managing land and water, J. A. Hopkin. Modifying management and vegetation of watershed areas for improved water yields, F. H. Kennedy. Management associated with complex use for wildlife, livestock, and recreation, A. L. McComb. Managing private lands in relation to changing uses of public lands, N. Keith Roberts.

Saturday 30 December

Water Improvement, Part I. Symposium of the Committee on Desert and Arid Zones Research of the AAAS Southwestern and Rocky Mountain Division, cosponsored by AAAS Section O-Agriculture. Arranged by Terah L. Smiley, University of Arizona, and Joseph A. Schufle, New Mexico Institute of Mining and Technology. Terah L. Smiley will preside. Contamination of underground water-vicinity of Denver,

William N. Gahr. New dimensions in water pollution research, Bernard B. Berger and Gordon McCullum. The salt water intrusion problems in coastal aquifers, David K. Todd. The zone of diffusion and its consequences, H. H. Cooper.

Water Improvement, Part II. John W. Harshbarger, University of Arizona, will preside. Electrochemical demineralization of water—theory and practice, George W. Murphy. Operating characteristics of ground water reservoirs occupying a trench, Robert E. Glover and Morris M. Skinner. Summary, Peter C. Duisberg.

Forthcoming Events

November

16-19. American Anthropological Assoc., Philadelphia, Pa. (S. T. Boggs, 1530 P St., NW, Washington, D.C.)

23-25. Central Assoc. of Science and Mathematics Teachers, Chicago, Ill. (J. Kennedy, Indiana State Teachers College, Terre Haute)

24-25. American Soc. of Animal Production, Chicago, Ill. (C. E. Terrill, Animal Husbandry Research Div., U.S. Dept. of Agriculture, Beltsville, Md.)

24-25. Federation of American Scientists, natl. council, Chicago, Ill. (D. M. Singer, FAS, 1700 K St., NW, Washington 6)

24-25. National Council for Geographic Education, Philadelphia, Pa. (L. Kennamer, Dept. of Geography, Univ. of Texas, Austin)

25-26. American College of Chest Physicians, annual interim session, Denver, Colo. (M. Kornfeld, ACCP, 112 E. Chestnut St., Chicago 11, III.)

26. Medical Aspects of Sports, 3rd natl. conf., Denver, Colo. (F. V. Hein, AMA Committee on the Medical Aspects of Sports, 535 N. Dearborn St., Chicago, Ill.)

26-1. American Soc. of Mechanical Engineers, winter, New York, N.Y. (L. S. Dennegar, ASME, 29 W. 39 St., New York, N.Y.)

26-1. Radiological Soc. of North America, annual, Chicago, Ill. (R. P. Barden, 713 E. Genesee St., Syracuse 2, N.Y.)

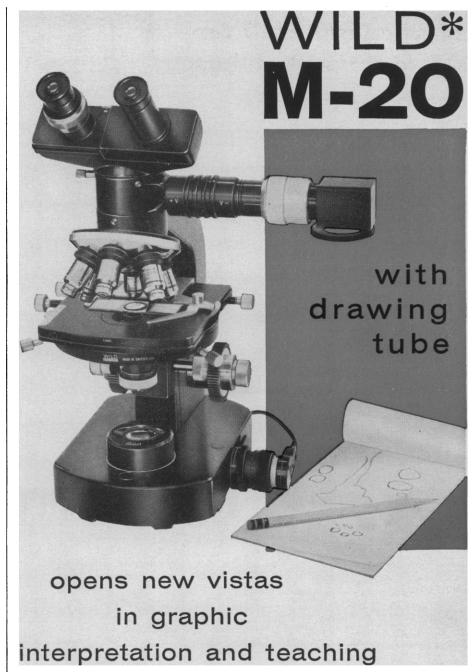
27-28. Agricultural Meteorology, 4th conf., St. Louis, Mo. (K. C. Spengler, American Meteorological Soc., 45 Beacon St., Boston 8, Mass.)

27-29. American Soc. of Hematology, annual, Los Angeles, Calif. (J. W. Rebuck, ASH, Henry Ford Hospital, Detroit 2, Mich.)

27-29. Vehicle Systems Optimization Symp., Garden City, N.Y. (Meetings Dept., Inst. of the Aerospace Sciences, 2 E. 64 St., New York 21)

New York 21)
27-30. American Medical Assoc., Denver, Colo. (F. J. L. Blasingame, 535 N. Dearborn, Chicago 10, Ill.)

27-30. American Soc. of Agronomy, jointly with Crop Soc. of America, Council on Fertilizer Application, and Soil Science Soc. of America, St. Louis, Mo.



Stress parts of a preparation...combine separated details... observe and draw various layers of the object, one at a time... secure a facsimile or enlarged illustration of the microscope picture—without impairing normal operator comfort. Add these and other capabilities to those inherent in the basic instrument with its many accessories and attachments for all types of observation.

Can any other microscope offer more versatility, precision and adaptability than the Wild M-20? Your own evaluation of this great instrument will provide the answer.

Write for Booklet M-20d

*The FIRST name in a complete line of Surveying Instruments, Photogrammetric Equipment and Microscopes.



WILD HEERSKUGG INSTRUMENTS, INC PORT WASHINGTON, NEW YORK

Full In Canada: Wild of Canada Ltd., Factory Services 157 Maclaren St., Ottawa, Ontario (ASA, 2702 Monroe St., Madison, Wis.) 27-30. Entomological Soc. of America, Miami, Fla. (R. H. Nelson, 4603 Calvert Rd., College Park, Md.)

29-1. Communication Wires and Cables, symp., Asbury Park, N.J. (H. Kingsley, U.S. Army Research and Development Laboratory, Fort Monmouth, N.J.)

29-1. Western Surgical Assoc., Francisco, Calif. (W. W. Carroll, 700 N. Michigan Ave., Chicago 11, Ill.)

30. American Geographical Soc., New York, N.Y. (C. W. Bastable, Columbia Univ., New York 27)

30-1. Conference on Graduate Medical Education, Philadelphia, Pa. (P. Nemir, Jr., Dean, Graduate School of Medicine, Univ. of Pennsylvania, Philadelphia)

30-1. Vehicular Communications, Minneapolis, Minn. (J. Kahnke, MinneapolisHoneywell, Aero Div., 1541 Edgewater Ave., St. Paul 13, Minn.)

30-2. Purest Substances in Science and Technology, intern. symp., Dresden, Germany. (Sekretariat, Chemische Gesellschaft in der Deutschen Demokratischen Republik, Unter den Linden 68/70, Berlin W.8, Germany)

December

- 1. Symposium on Insulin, New York Diabetes Assoc., New York, N.Y. (New York Diabetes Assoc., 104 E. 40 St., New York 16)
- 1-2. Linguistic Circle of New York, 7th annual conf., New York, N.Y. (L. Urdang, Random House, Inc., 501 Madison Ave., New York 22)
 - 2. International College of Surgeons,

intern. executive council, Chicago, Ill. (H. E. Turner, 1516 Lake Shore Dr., Chicago)

- 2. New York State Registry of Medical Technologists, annual seminar, New York, N.Y. (S. H. Keeling, 1719 Midland Ave., Syracuse, N.Y.)
- 2-7. American Acad. of Dermatology and Syphilology, annual, Chicago, Ill. (R. R. Kierland, Mayo Clinic, Rochester, Minn.)
- 3-6. American Inst. of Chemical Engineers, New York, N.Y. (F. J. Van Antwerpen, AICE, 345 E. 47 St., New York
- 4-6. Institute of the Aerospace Sciences, Aerospace Support and Operations, natl., Orlando, Fla. (R. J. Kotowski, 318 Virginia Dr., Melbourne, Fla.)

4-8. International Colloquium on Ionic Bombardment, Bellevue, France. (Natl. Scientific Research Center, 15 Quai Anatole France, Paris 7°, France)
4-9. Mathematics Instruction at Second-

ary and University Levels, Inter-American conf., Bogota, Colombia. (M. Alonso, Div. of Science Development, Pan American Union, Washington 6)

4-9. World Federation of Neurology, Problem Commission of Tropical Neurology, Buenos Aires, Argentina. (P. Bailey, Natl. Inst. of Neurological Diseases and Blindness, Bethedsa, Md.)

4-16. Inter-American Conf. on Education and Economic and Social Development, Santiago, Chile. (U.S. National Commission for UNESCO, Dept. of State. Washington 25)

4-16. Latin American Phytotechnical Meeting, 5th, Buenos Aires, Argentina. (U. C. Garcia, Organizing Committee, Rivadavia 1439, Buenos Aires)

5-7. Building Research Inst., Washington, D.C. (Scientific Liaison Office, Natl. Research Council, Sussex Dr., Ottawa,

6-7. UNESCO Intern. Non-Governmental Organizations on Extension of Intern. Collaboration in Education, Science and Culture to Africa, Paris France. (Place de Fontenoy, Paris 7°)

6-8. Conference on Document Copying by Photography, London, England. (A. J. O. Axford, Ozalid Co., Longston Rd., Loughton, Essex, England)

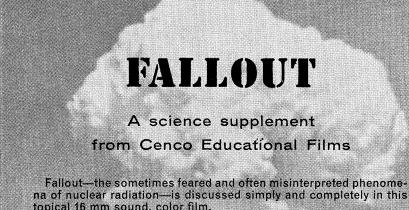
6-8. Electrical Furnace Steel Conf., 19th, American Inst. of Mining, Metallurgical and Petroleum Engineers, Pittsburgh, Pa. (Scientific Liaison Office, Natl. Research Council, Sussex Dr., Ottawa,

6-8. Latin-American Congr. of Pathological Anatomy, 3rd, Medellín, Colombia. (A. C. Henao, Laboratorio de Anatomía Patológica, Rua Botucatu 720, São Paulo, Brazil)

6-8. National Institutes of Health Symp. on Neuroendocrinology, Miami, Fla. (A V. Nalbandov, 102 Animal Genetics, Univ. of Illinois, Urbana)

6-12. American Acad. of Optometry, Chicago, Ill. (C. C. Koch, 1506-08 Foshay Tower, Minneapolis 2, Minn.)

6-16. Food and Agriculture Organization of the U.N. World Health Organization, Nutrition Conf. for the Far East, 5th, Hyderabad, India. (Intern. Agency Liaison Branch, Office of Director General, FAO, Viale delle Terme di Caracalla, Rome, Italy)



topical 16 mm sound, color film.

Produced especially for high school and junior college classes, this dramatic 15 minute film pinpoints often misunderstood topics such as fallout radiation patterns; Alpha, Beta and Gamma radiation; Carbon-14 and Strontium-90; and radiation's genetic effects on man's future development and environment.

Produced in collaboration with Dr. S. Allison of The Enrico Fermi Institute of Nuclear Studies, FALLOUT is a timely film that treats all fallout radiation and its effect in a simple, step-by-step manner.

Color price for each film is \$150, black and white, \$75. For further details contact your nearest Cenco branch office or write direct for Booklet 504.

CENCO EDUCATIONAL FILMS



A division of Cenco Instruments Corporation 1700 Irving Park Road & Chicage 13, Illinois ountainside, N. J. Montreal Santa Clara merville, Mass. Toronto Los Angeles rmingham, Ala. Oltawa Vancouver Houston Mountainside, N. J. Montreal Samerville, Mass. Toronto Birmingham, Ala. Oltawa Vanc Cenco S.A., Breda, The Netherlands









6-16. Food and Agriculture Organization of the U.N., Far East Meeting on Animal Production and Health, 3rd, Bangkok, Thailand. (Intern. Agency Liaison Branch, Office of Director General, FAO, Viale delle Terme di Caracalla, Rome, Italy)

7-8. Symposium on Sintered High-Temperature Oxidation-Resistant Materials, London, England. (S. C. Guilan, Powder Metallurgy Joint Group, Inst. of Metals,

17 Belgrave Sq., London)

7-9. American Chemical Soc. Southwest-Southeast regional meeting, New Orleans, La. (P. D. Accardo, California Chemical Co., Oronite Div., Belle Chasse, La.)

7-9. New York Acad. of Sciences Conf. on the Cervix, New York, N.Y. (W. R. Lang, Jefferson Medical College, Philadelphia, Pa.)

7-9. Texas Acad. of Science, Galveston. (D. E. Edmondson, Mathematics Dept., 115 Bendect Hall, Univ. of Texas, Austin 12)

8. Food and Agriculture Organization of the U.N., Advisory Group on Training in Home Economics and Social Work, Rome, Italy. (Intern. Agency Liaison Branch, Office of Director General, FAO. Viale delle Terme di Caracalla, Rome)

8-9. American Rheumatism Assoc., interim session, Washington, D.C. (F. E. Demartini, 622 W. 168 St., New York 32)

8-9. Association for Research in Nervous and Mental Diseases, annual, New York, N.Y. (Scientific Liaison Office, Natl. Research Council, Sussex Dr., Ottawa, Canada)

8-9. Symposium on Plasma Membrane, New York, N.Y. (A. P. Fishman, New York Heart Assoc., 10 Columbus Circle, New York 19)

8-10. American Psychoanalytic Assoc., New York, N.Y. (D. Beres, 151 Central Park W., New York 23)

9-10. Academy of Psychoanalysis, New York, N.Y. (J. H. Merin, 125 E. 65 St., New York 21)

10-13. American Phytopathological Soc., Biloxi, Miss. (G. A. Zentmyer, Dept. of Plant Pathology, Univ. of California, Riverside)

10-14. Psychosomatic Medicine Symp., 6th, Philadelphia, Pa. (Miss M. R. Carmosin, Hahnemann Medical College and Hospital, 235 N. 15 St., Philadelphia 2, Pa.)

10-17. Latin American Congr. on Microbiology, 2nd, San José, Costa Rica. (J. L. De Abate, Secretary General, Apartado 1404, San José)

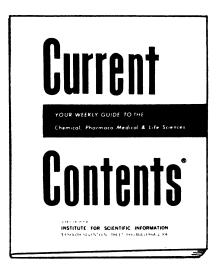
11. Society of Photographic Scientists and Engineers, Washington, D.C. (C. M. Bailey, Rte. 4, Box 404, Fairfax, Va.)

11-15. Agricultural and Public Health Aspects of Radioactive Contamination in Normal and Emergency Situations, technical seminar, The Hague, Netherlands. (Food and Agriculture Organization of the U.N., Intern. Agency Liaison Branch, Office of the Director General, Viale delle Terme di Caracalla, Rome, Italy)

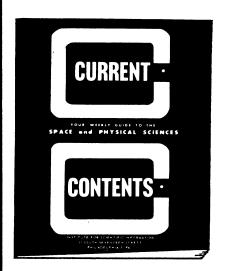
11-15. Symposium on Organization of Agricultural Research, Muguga, Kenya. (Commission for Technical Cooperation in Africa South of the Sahara, Pvt. Mail Bag 2359, Lagos, Nigeria)

11-16. Ionospheric Soundings in the In-

ITIME SAVERS



CURRENT CONTENTS OF CHEMICAL PHAR. MACO-MEDICAL & LIFE SCIENCES is a comprehensive weekly service that lists the tables of contents, most of them in advance, of more than 600 primary scientific journals. With this service, the scientist is given a unique, convenient method to scan the title pages of journals of interest to him without physically handling thousands of individual issues per year. Spending about one hour per week, he can easily check off articles of interest. CURRENT CONTENTS also provides, when possible, author addresses so scientists can write to colleagues for reprints. In addition, Original Article Tear Sheets are available.



CURRENT CONTENTS OF SPACE & PHYSICAL SCIENCES enables scientists to keep up with new developments in such fields as missiles and rockets, electronics, mathematics, computers, physics, nuclear energy and instrumentation. This new weekly service comprehensively reports the contents of more than 500 primary journals—over 100,000 individual articles per year. As a special bonus, all basic chemical journals are covered in this edition of CURRENT CONTENTS. Available only to CURRENT CONTENTS. Available only to CURRENT CONTENTS subscribers is our exclusive Original Article Tear Sheet service, OATS supplies the principal ingredient in the effective utilization of scientific information—prompt and convenient access to original documents. And cost of OATS is lower than hard-to-read photocopies. CURRENT CONTENTS OF SPACE & PHYSICAL than hard-to-read photocopies.

Gratis review copies of the above listed services are available upon request.

INSTITUTE FOR SCIENTIFIC INFORMATION 33 SOUTH SEVENTEEN STREET, PHILADELPHIA 3, PA.

tern. Geophysical Year/Intern. Geophysical Cooperation-1959 Symp., Nice, France. (A. H. Shapley, URSI World-Wide Soundings Commission, Central Radio Propagation Laboratory, Natl. Bureau of

Standards, Boulder, Colo.)

12-14. Association for Computing Machinery, eastern joint computer conf., Washington, D.C. (B. Oldfield, I.B.M. Corp., 326 E. Montgomery, Rockville, Md.)

12-15. American Soc. of Agricultural Engineers, Chicago, Ill. (J. L. Butt, ASAE, 420 Main St., St. Joseph, Mich.)

12-19. Latin American Congr. on Microbiology, 2nd, San Jose, Costa Rica. (J. de Abate, Apartado 1404, San Jose)

13. American Acad. of Arts and Sciences, Brookline, Mass. (J. L. Oncley, 280 Newton St., Brookline 46)

15-16. Oklahoma Acad. of Science, Stillwater. (D. Buck, Northern Oklahoma Junior College, Tonkawa)

17-18. International Congr. of Comparative Pathology, 9th, Paris, France. (L. Grollet, Comité International Permanent des Congrès de Pathologie Compareé, 63 Avenue de Villiers, Paris 17°)

19-23. Inter-American Congr. of Psychology, 7th, Monterrey, Mexico. (G. M. Gilbert, Psychology Dept., Long Island Univ., Brooklyn 1, N.Y.)

22-29. Plant Tissue and Organ Culture, intern. symp., New Delhi, India. (P. Maheshwari, Univ. of Delhi, Delhi)

26-28. History of Science Soc., annual, Washington, D.C. (J. C. Greene, 1121 Iowa Ave., Ames, Iowa)

26-31. American Assoc. for the Advancement of Science, annual, Denver, Colo. (R. L. Taylor, AAAS, 1515 Massachusetts Ave., NW, Washington 5)

The following 35 meetings are being held in conjunction with the AAAS annual meeting.

AAAS Southwestern and Rocky Mountain Div., Committee on Desert and Arid Zones Research (M. G. Anderson, University Biological Station, Pulston, Mich.). 26-31 Dec.

Alpha Epsilon Delta (M. L. Moore, 7 Brookside Circle, Bronxville, N.Y.). 28 Dec.

American Assoc. of Clinical Chemists (R. L. Dryer, State Univ. of Iowa, Dept. of Biochemistry, Iowa City). 26-27 Dec.

American Astronautical Soc. (J. Campbell III, R.C.A., Front and Cooper Sts., Bldg. 10-7, Camden, N.J.). 26-30 Dec.

American Astronomical Soc. (H. J. Smith, Yale Observatory, 135 Prospect St., New Haven, Conn.). 27-30 Dec.

American Economic Assoc. (J. W. Bell, Northwestern Univ., Evanston, Ill.). 26 Dec.

American Educational Research Assoc. (G. T. Buswell, 1201 16 St., NW, Washington 6). 30 Dec.

American Meteorological Soc. (J. M. Austin, Dept. of Meteorology, Massachusetts Inst. of Technology, Cambridge 39). 26-31 Dec.

American Nature Study Soc. (B. Schultz, Dept. of Biology, Western Michigan Univ., Kalamazoo). 26-30 Dec.

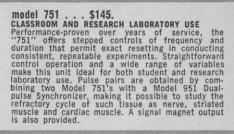
American Physiological Soc. (R. G. Daggs, APS, 9650 Wisconsin Ave., Washington 14). 28 Dec.

OFFERS YOU AN ELECTRONIC SQUARE WAVE

FOR EVERY PURPOSE FOR EVERY PRICE RANGE

Study the brief summaries below of the complete line of quality AEL Electronic Square Wave Stimulators designed to meet every requirement of classroom and research laboratory use. You will find the Stimulator that will meet both your budget and technical requirements. AEL Stimulators come to you with a background covering thousands of hours of classroom and laboratory operation.

model 198 . . . \$95.
CLASSROOM AND RESEARCH LABORATORY USE
A many-purpose . . . yet inexpensive unit, designed for both classroom and research laboratory use. Undergraduate students find it particularly desirable because of its simple-to-operate controls. However, the ranges of variable stimulus, output and duration also make the "198" attractive for research laboratory use. Produces recurrent or single stimuli. Versatility provided through continuously variable controls. Offers sync-pulse of 10 volts amplitude for use with cathode ray oscilloscopes.



model 404 . . . \$400.

ALL-PURPOSE RESEARCH LABORATORY USE

Designed for the physiology laboratory, the "404" provides a wide variety of stimuli. The five modes of operation include . . SINGLE SHOCKS . . . REPETITIVE STIMULATION . . SINGLE PAIR OF STIMULI . . REPETITIVE PAIRS OF STIMULI . . .

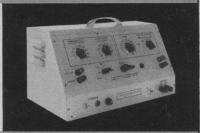
DIRECT CURRENT STIMULATION. Trains of pulses are produced by coupling two Model 404's. Outputs 60 ma at 150V or 9 watts. Stimulus Intensity: 1 millivolt to 150 volts. Stimulus Duration: 10 microseconds to 1 second. Delay. Adjustable from 10 microseconds to 1 second. Stimulus Frequency: 1 every second to 10,000/second.

model 104-A . . . \$550.

THE ULTIMATE IN RESEARCH LABORATORY USE
An extremely accurate, all-purpose stimulator, the
"104-A" is designed specifically for the most exacting research laboratory use. Six modes of operation include . . SINGLE SHOCKS . . REPETITIVE
STIMULATION . . SINGLE PAIRS OF STIMULI .

REPETITIVE PAIRS OF STIMULI . SINGLE TRAINS
OF STIMULI . . REPETITIVE TRAINS OF STIMULI
Utilizing 10-turn linear helipots which are resettable
to 0.1 percent, the "104-A" is accurate within five
percent across the dial . . in all ranges. It
produces trains of pulses, can be externally or
remotely driven and has a 250 volt output.









ACCESSORIES FOR USE WITH MODEL 104-A & 404 STIMULATORS



STIMULUS ISOLATION UNIT . . . model 112

Provides the means of isolating a stimulator pulse from ground reference to reduce ground loop artifacts.



PHOTIC STIMULUS ACCESSORY
...model 127
Provides a source of short duration light flashes at three different intensities and at repetition rates controlled by the

Write for detailed literature on each of the above instruments and accessories. Send your request, plus any other information that you may desire, to . . .

One year warranty on all models



American Electronic Laboratories, Inc.

RICHARDSON ROAD, COLMAR, PENNA.

American Political Science Assoc., (E. M. Kirkpatrick, 1726 Massachusetts Ave., NW, Washington 6). 27 Dec.

American Psychiatric Assoc. (M. Ross, APA, 1700 18 St., NW, Washington 9). 27 Dec.

American Soc. of Criminology (J. Chwast, New York Inst. of Criminology, 115-117 W. 42 St., New York 36). 29-30 Dec.

American Soc. of Naturalists (E. L. Green, Roscoe B. Jackson Memorial Laboratory, Bar Harbor, Maine). 27 Dec.

American Soc. of Zoologists (C. B. Metz, Dept. of Oceanography, Florida State Univ., Tallahassee). 28–30 Dec.

American Sociological Assoc. (T. Parsons, Emerson Hall, Cambridge 38, Mass.). 28-29 Dec.

American Statistical Assoc. (D. C. Riley,

ASA, 1757 K St., NW, Washington 6). 29-30 Dec.

Association of American Geographers, Great Plains-Rocky Mountain Div., (M. F. Burrill, AAG, 1785 Massachusetts Ave., NW, Washington, D.C.). 29-30 Dec.

Beta Beta Beta Biological Soc. (F. G. Brooks, Box 515, Ansonia Station, New York 23). 27 Dec.

Colorado-Wyoming Acad. of Science (R. G. Beidleman, Zoology Dept., Colorado College, Colorado Springs).

Ecological Soc. of America (J. E. Cantlon, Dept. of Botany and Applied Pathology, Michigan State Univ., E. Lansing). 26-30 Dec.

Institute of Management Sciences (W. Smith, Inst. of Science and Technology, Univ. of Michigan, Ann Arbor). 29 Dec.

Mathematical Assoc. of America, Com-

mittee on Undergraduate Program in Mathematics (H. L. Alder, MAA, Univ. of California, Davis). 30 Dec.

National Assoc. of Biology Teachers (H. C. Kranzer, Temple Univ., Philadelphia 22, Pa.). 26-30 Dec.

National Assoc. for Research in Science Teaching (H. A. Branson, Dept. of Physics, Howard Univ., Washington 1). 26-30 Dec.

National Assoc. of Science Writers (D. J. Dunham, Cleveland Press, Cleveland 14, Ohio).

National Science Teachers Assoc. (M. T. Ballou, Ball State Teachers College, Muncie, Ind.). 26-30 Dec.

National Speleological Soc. (D. N. Cournoyer, 2318 N. Kenmore St., Arlington 1, Va.). 29 Dec.

Scientific Research Soc. of America (D. B. Prentice, 51 Prospect St., New Haven, Conn.). 29 Dec.

Sigma Delta Epsilon (B. L. McLaughlin, 702 Butternut St., NW, Washington 12). 26–30 Dec.

Society of Protozoologists (N. D. Levine, College of Veterinary Medicine, Univ. of Illinois, Urbana). 27-30 Dec.

Society of the Sigma Xi (T. T. Holme, 51 Prospect St., Yale Univ., New Haven, Conn.). 29 Dec.

Society of Systematic Zoology (R. T. Abbott, Acad. of Natural Sciences, Philadelphia 3, Pa.). 27-30 Dec.

Tau Beta Pi Assoc. (R. H. Nagel, Univ. of Tennessee, Knoxville). 29 Dec.

United Chapters of Phi Beta Kappa (C. Billman, 1811 Q St., NW, Washington 9). 29 Dec.

27-29. American Economic Assoc., New York, N.Y. (J. W. Bell, AEA, Northwestern Univ., Evanston, Ill.)

27-29. American Folklore Soc., Cincinnati, Ohio. (T. P. Coffin, 110 Bennett Hall, Univ. of Pennsylvania, Philadelphia 4)

27-29. American Geophysical Union, 1st Western natl., Los Angeles, Calif. (A. N. Sayre, U.S. Geological Survey, Washington 25)

27-29. American Physical Soc., Los Angeles, Calif. (K. K. Darrow, 538 W. 120 St., New York 27)

27-29. Western Soc. of Naturalists, Eugene, Ore. (I. A. Abbott, Hopkins Marine Station, Pacific Grove, Calif.)

27-30. Institute of Mathematical Statistics, annual, New York, N.Y. (D. C. Riley, American Statistical Assoc., 1757 K St., NW, Washington 6)

28-29. American Chemical Soc., Div. of Industrial and Engineering Chemistry, Newark, Del. (Scientific Liaison Office, Natl. Research Council, Sussex Dr., Ottawa, Canada)

28-29. Linguistic Soc. of America, annual, Chicago, Ill. (A. A. Hill, Box 7790 University Station, Austin 12, Texas)

28-29. Northwest Scientific Assoc., Spokane, Wash. (E. J. Larrison, Univ. of Idaho, Moscow)

28-30. Archaeological Inst. of America, Detroit, Mich. (L. A. Campbell, 5 Washington Square N., New York 3)

28-30. Phi Delta Kappa, Bloomington, Ind. (R. S. Merkel, Indiana Central College, Indianapolis 27)

(See issue of 20 October for comprehensive list)

