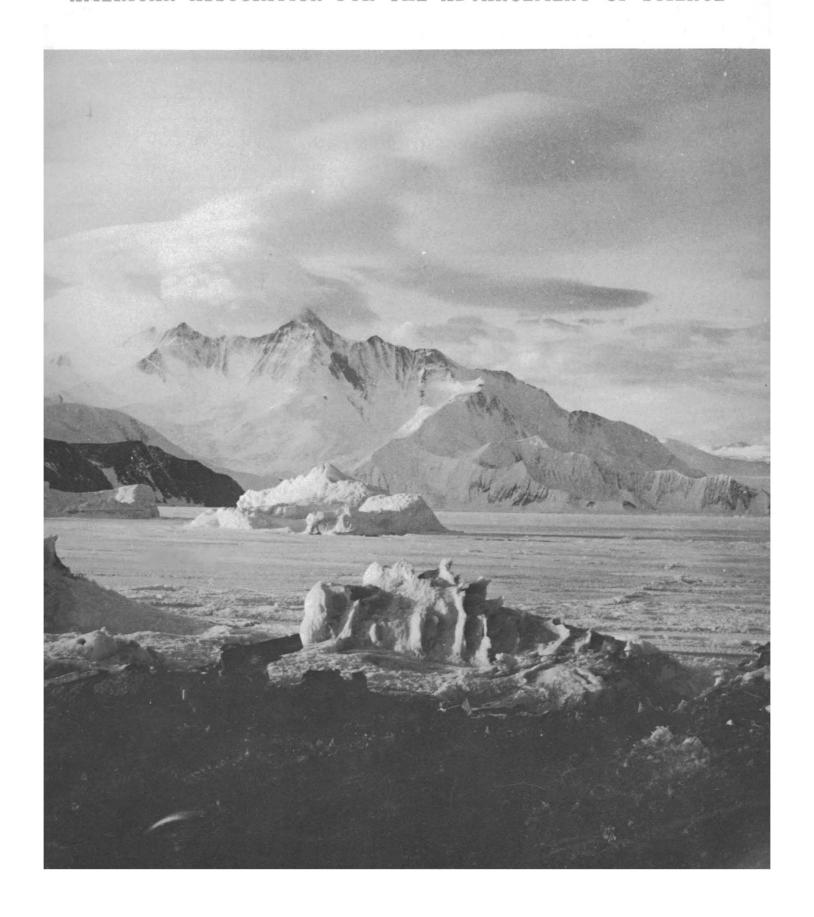
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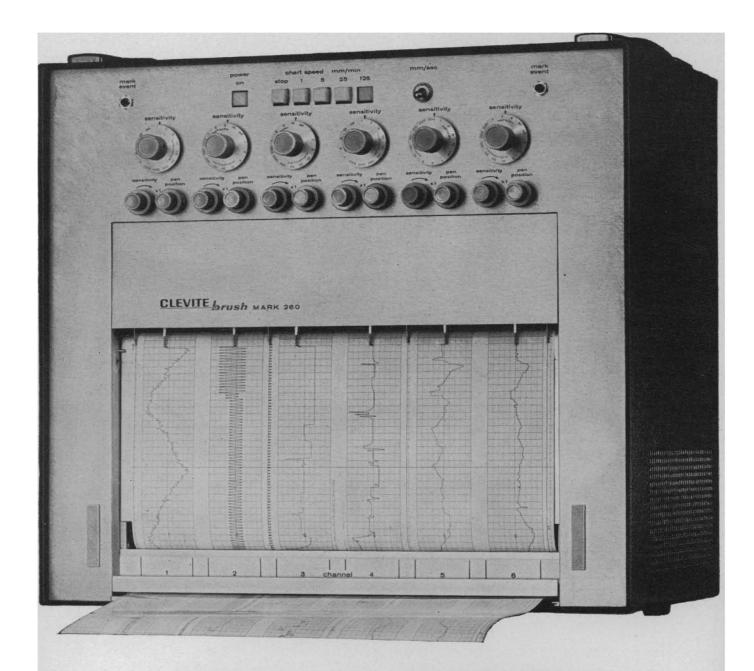
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COVER

Hallett Station area, Antarctica. A symposium scheduled during the AAAS Annual Meeting (26–31 December 1968) will present a series of received and review papers in the very research and review papers in the various scientific disciplines actively pursued under the U.S. Antarctic Research Program. See page 380. [Charles B. Roberts, Environmental Science Services Administration, Silver Spring, Maryland]



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Please use the form to register for tours. Indicate the number of tickets you wish to order for each tour and enclose payment of \$2.00 for each ticket ordered.

Since attendance at each site is limited, early registration is recommended. Refund requests on tour tickets cannot be accepted after 18 December.

AAAS Tour Registration

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	Ling-Temco-Vought, Inc., 27 December, 2:00-5:00 p.m.
	Callier Hearing and Speech Center, 28 December, 10:00 a.mnoon
	Amos Carter Museum, Fort Worth, 28 December, 1:00-5:00 p.m.
	Dallas Museum of Fine Arts, 29 December, 1:00-4:00 p.m.
	Ling-Temco-Vought, Inc., 30 December, 9:00 a.mnoon
	Texas Instruments, Inc., 30 December, 2:00-5:00 p.m.
	Southwest Center for Advanced Studies, 30 December, 2:00-5:00 p.m.
	Total amount remitted for tours \$side total amount remitted for tours.

The American Association for the Advancement of Science will hold its 1968 Annual Meeting in Dallas, Texas, 26–31 December. The Adolphus (1321 Commerce), Baker (1400 Commerce), Sheraton-Dallas (Southland Center), and Statler-Hilton (1914 Commerce) hotels will be used for housing. All the hotels will have Registration Centers.

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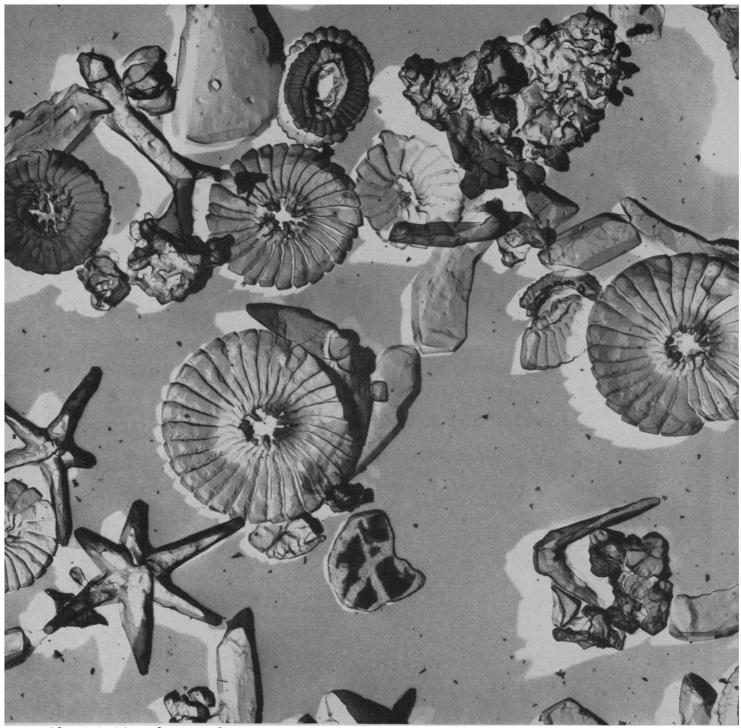
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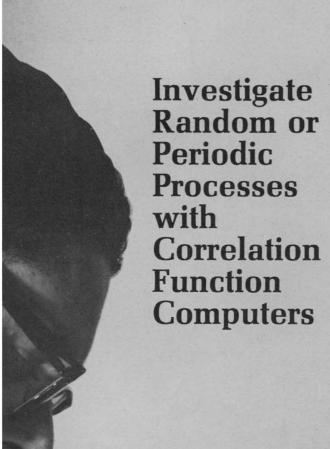
Though only a few microns in diameter, they are so numerous they make up about 30% of the ooze of the sea's floor from 3,000 to 10,000 feet and sometimes deeper. From study of such small evidences can be constructed to a great degree the history of our oceans.

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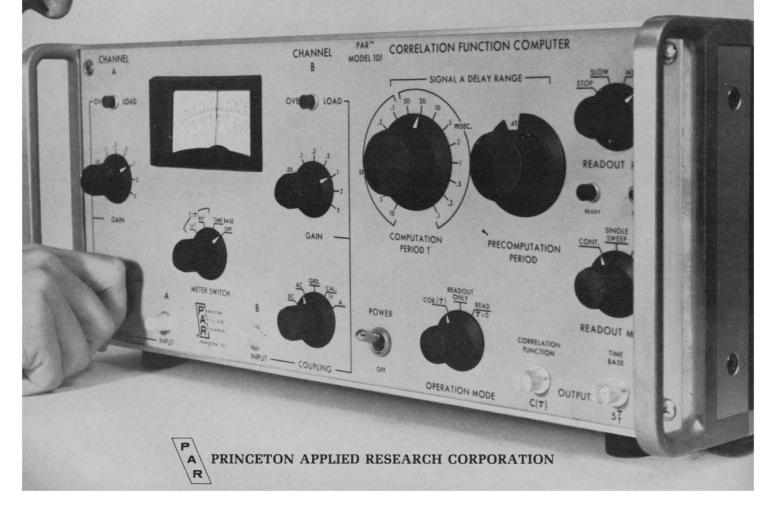
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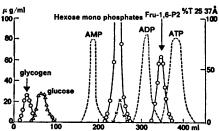
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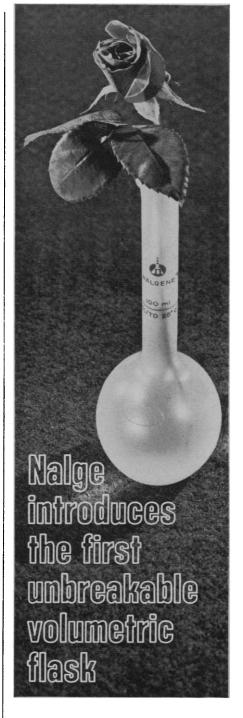
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which Carter reports was singularly unfortunate—a reaction to disapproval of a particular road project in the Senator's state rather than a well-considered contribution to the public debate on park policy. Our legislators, too, must learn to evaluate park programs on qualitative grounds-admittedly a more difficult matter than relying on travel statistics and road mileage. Moss titled his speech "Parks Are for People," a too oft-quoted trite phrase which F. Fraser Darling and Noel D. Eichhorn (in a major study of park policy for the Conservation Foundation) dismiss as "inappropriate huckstering.". .

DOUGLAS W. SCOTT Department of Forestry, University of Michigan, Ann Arbor 48104

Ballast Overboard!

Our report about the transportation of European Cretaceous flint to North America largely in the form of ship ballast (1) prompted several readers to report additional localities. The vicinity of New York City appears to have been a favorite dumping area for ship ballast, in view of its history as a great seaport. An article by Rose (2) described flint pseudoartifacts on Glen Island in Long Island Sound near New Rochelle, and traces the derivation of other kinds of ballast found in the New York area. I. G. Sohn (U.S. Geological Survey, Washington, D.C.) reported collecting flint nodules in the Bronx at Hunts Point in the early 1930's. W. S. Newman (Queens College) mentioned European Cretaceous flint in landfill of Flushing Meadows. E. A. Weiss (Sun Oil Co., Philadelphia) reported heaps of large flints on the tidal flats of the Hackensack River south of Bayonne and Jersey City. H. G. Richards (Academy of Natural Sciences of Philadelphia) described flint with West Indian coral near Woodbury, N.J., south of Camden. W. A. Price (Corpus Christi, Tex.) told of having been tested by his geology professor with Dover flint in track ballast of the Northern Central Railroad near Baltimore, Md. C. G. Holland (Charlottesville, Va.) sent specimens of European Cretaceous flint that he had found on the beach of the Mattaponi River near Newington, Va., and one nodule from Tar Bay about 10 miles down the James River from Hopewell, Va. Frederick Johnson (R. S.



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Peabody Foundation, Andover, Mass.) described flint ballast stones at Strawberry Bank in Portsmouth, N.H., and the presence of small chips in the lower levels of the recently excavated Fort Constitution in Portsmouth harbor that are suggestive of local manufacture of gunflints. Lastly, V. K. Prest (Geological Survey of Canada, Ottawa) reported the presence of English flint at an old sailing-ship port near the southeastern end of Prince Edward Island, Canada.

Although the quantity of European Cretaceous flint brought to North America as ship ballast can never be known, it must easily exceed 100,000 tons, considering the large number of ships that carried it as ballast and the very large number of known points of discharge.

K. O. EMERY

Woods Hole Oceanographic Institution, Woods Hole, Massachusetts 02543

References

 K. O. Emery, C. A. Kay, D. H. Loring, D. J. G. Nota, Science 160, 1225 (1968).
 F. P. Rose, Amer. Antiquity 33, 240 (1968).

Scoundrelly Fellow

The allusion to "The groves of academe" in Nelson's excellent article ("University of Hawaii," 16 Aug., p. 673), is apposite, but is inaccurate in some respects. The character (Henry Mulcahy) in the novel is not an "outspoken professor," but a "self-pitying," incompetent, and lazy instructor in literature. Confronted with a letter terminating his appointment, he decides to fabricate a story that he had long been a member of the Communist Party. This falsehood he exploits successfully as a form of job insurance by leaking the lie to sympathetic fellow faculty members. They rally vigorously to the cause of academic freedom and, without attempting to get the facts, they fight for the right of Henry to be a Communist. Mulcahy's cause snowballs as he invents more lies, and as more intellectuals join the battle against the forces of reaction.

Mary McCarthy, as a novelist, is, of course, entitled to poetic license in creating a fictional situation which is remote from reality. Any resemblance to persons living or dead is purely coincidental.

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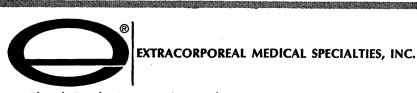
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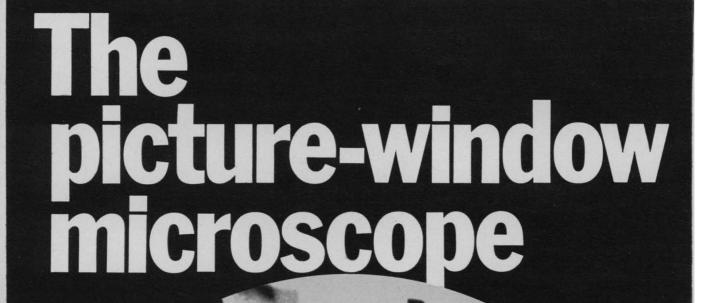
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No Easy Victories

The modern belief that man's institutions can accomplish just about anything he wants, when he wants it, leads to certain characteristic contemporary phenomena.

One is the bitterness and anger toward our institutions that well up when high hopes turn sour. No observer of the modern scene has failed to note the prevalent cynicism concerning all leaders, all officials, all social institutions. That cynicism is continually fed and renewed by the rage of people who expected too much in the first place and got too little in the end.

The aspirations are healthy. But soaring hope followed by rude disappointment is a formula for trouble. Leaders arise whose whole stock in trade is to exploit first the aspirations and then the disappointment. They profit on both the ups and downs of the market. . . .

All of this leaves us with some crucial and puzzling questions of public policy. How can we make sluggish institutions more responsive to human need and the requirements of change? How can we mobilize the resources to meet the grave crises ahead?

How can we preserve our aspirations (without which no social betterment is possible) and at the same time develop the toughness of mind and spirit to face the fact that there are no easy victories?

How can we make people understand that if they expect all good things instantly, they will destroy everything? How do we tell them that they must keep unrelenting pressure on their social institutions to accomplish beneficial change but must not, in a fit of rage, destroy those institutions? How can we caution them against exploitative leaders, leaders lustful for power or for the spotlight, leaders caught in their own vanity or emotional instability, leaders selling extremist ideologies?

How can we diminish the resort to violence? Violence cannot build a better society. No society can live in constant and destructive tumult. Either we will have a civil order in which discipline is internalized in the breast of each free and responsible citizen, or sooner or later we will have repressive measures designed to re-establish order. The anarchist plays into the hands of the authoritarian. Those of us who find authoritarianism repugnant have a duty to speak out against all who destroy civil order. The time has come when the full weight of community opinion should be felt by those who break the peace or coerce through mob action.

Dissent is an element of dynamism in our system. It is good that men should expect much of their institutions, good that their aspirations for improvement of this society should be ardent.

But those elements of dynamism must have their stabilizing counterparts. One is a tough-minded recognition that the fight for a better world is a long one, a recognition that retains high hopes but immunizes against childish collapse or destructive rage in the face of disappointment. The other is an unswerving commitment to keep the public peace.

And we need something else. An increasing number of bright and able people must become involved in the development of public policy. Ours is a difficult and exhilarating form of government—not for the faint of heart, not for the tidy-minded, and in these days of complexity not for the stupid. We need men and women who can bring to government the highest order of intellect, social motivations sturdy enough to pursue good purposes despite setbacks, and a resilience of spirit equal to the frustrations of public life.

We face the gravest difficulties in the days ahead. But if we could bring to bear on our toughest problems all the talent and resources of this nation, we could accomplish some things that would leave an indelible mark on the history books.—John W. Gardner [From the book No Easy Victories. Copyright © 1968 by John W. Gardner. Reprinted by special permission of Harper & Row]



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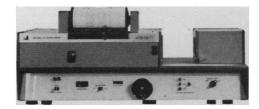
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Calendar of Events

National Meetings

November

1-2. Central Soc. for Clinical Research, Chicago, Ill. (J. Eckstein, Dept. of Internal Medicine, Univ. of Iowa Hospitals, Iowa City 52240)

1-3. National Council for Geographic Education, 54th, Kansas City, Mo. (E. Eiselen, The Council, Room 1532, 111 W. Washington St., Chicago, Ill. 60602)

1-4. Research in Medical Education, 7th conf., Houston, Tex. (P. J. Sanazaro, Assoc. of American Medical Colleges, 2530 Ridge Avenue, Evanston, Ill. 60201)

6-8. Conference on Composition and Dynamics of the Upper Atmosphere, El Paso, Tex. (J. E. Morris, P.O. Box 26065, El Paso 79925)

6-8. **Diffraction** Conf., 26th, Pittsburgh, Pa. (S. Diamond, U.S. Steel Corp., Applied Research Lab., Monroeville, Pa. 15146)

6-8. Northeast Electronics Research, Mtg., Boston, Mass. (A. Uhlir, Inst. of Electrical and Electronics Engineers, NEREM-68, 31 Channing St., Newton, Mass. 02158)

6-8. International **Spi Cellular Plastics** Conf., New York, N.Y. (S. Steingiser, Monsanto Research Corp., Station B, Box 8, Dayton, Ohio 45407)

6-9. American Ceramic Soc., Pittsburgh, Pa. (The Society, 4055 N. High St., Columbus, Ohio 43214)

6-9. Operations Research Soc. of America, 34th, Philadelphia, Pa. (J. H. Engel, c/o Center for Naval Analysis, 1401 Wilson Blvd., Arlington, Va. 22209)

6-9. Conference on Respiratory Therapy, Boston, Mass. (M. J. Nicholson, 605 Commonwealth Ave., Boston 02215)

7-9. American Soc. of Cytology, Cleveland, Ohio. (W. R. Lang, 1025 Walnut St., Philadelphia, Pa. 19107)

7-10. Association of Clinical Scientists, Washington, D.C. (R. P. MacFate, 300 N. State St., Chicago, Ill. 60610)

8-11. American **Physical** Soc., Plasma Physics Div., Austin, Tex. (W. E. Drummond, Physics Bldg. 330, Univ. of Texas, Austin 78712)

10-15. American Soc. of Agronomy, New Orleans, La. (M. Stelly, c/o The Society, 677 S. Segoe Rd., Madison, Wis. 53711)

10-15. Crop Science Soc. of America, New Orleans, La. (Secretary, 677 S. Segoe Rd., Madison, Wis.)

10-15. American Assoc. for Inhalation Therapy, Houston, Tex. (M. T. Bowers, 4075 Main St., Riverside, Calif. 92501)

11-13. Soc. of Engineering Science, 6th technical mtg., Princeton, N.J. (A. C. Eringen, Dept. of Aerospace and Mechanical Sciences, Engineering Quadrangle, Princeton Univ., Princeton 08540)

11-13. Genetics Soc. of America, Boston, Mass. (B. Wallace, Dept. of Genetics, Cornell Univ., Ithaca, N.Y.)

Cornell Univ., Ithaca, N.Y.)

11-14. American Nuclear Soc., Washington, D.C. (Executive Secretary, 244 E. Ogden Ave., Hinsdale, Ill. 60521)

11-15. American College of Preventive Medicine, Detroit, Mich. (E. A. Piszcek, 6410 N. Leona Ave., Chicago, Ill. 60646)

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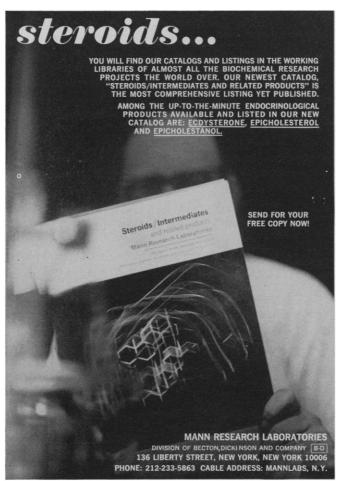
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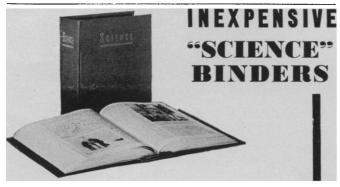
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11-15. American **Public Health** Assoc., 96th, Detroit, Mich. (Executive Director, 1790 Broadway, New York, N.Y.)

13-15. Eastern Analytical Symp., New York, N.Y. (L. M. Brancone, Lederle Labs., Pearl River, N.Y. 10965)

13-16. National Easter Seal Soc. for Crippled Children and Adults, Boston, Mass. (Natl. Easter Seal Soc., 2023 W. Ogden Ave., Chicago, Ill. 60612)

14-16. Southern **Thoracic Surgical** Assoc., San Juan, Puerto Rico. (H. H. Seiler, 517 Bayshore Blvd., Tampa, Fla. 33606)

15-16. American **Psychiatric** Assoc., Chicago, Ill. (L. Rudy, Illinois Psychiatric Inst., 1601 W. Taylor St., Chicago 60612)

17-20. Academy of **Pharmaceutical** Sciences, 5th, Washington, D.C. (S. W. Goldstein, 2215 Constitution Ave., NW, Washington, D.C. 20037)

18-20. Institute of Electrical and Electronics Engineers, 7th, Cocoa Beach, Fla. (L. E. Williams Aerospace Corp., P.O. Box 4007, Patrick Air Force Base, Fla. 32925)

18–20. American **Petroleum** Inst., Chicago, Ill. (Secretary, Program Commission, 1271 Avenue of the Americas, New York 10020)

18–21. Symposium on Basic Mechanisms of the Epilepsies, Colorado Springs, Colo. (J. K. Penry, Section on Epilepsy, Room 8A-03, Bldg. 31, National Inst. of Neurological Diseases and Blindness, National Institutes of Health, Bethesda, Md. 20014)

18–21. Conference on **Engineering in Medicine and Biology**, Houston, Tex. (W. T. Maloney, Suite 620, 6 Beacon St., Boston, Mass. 02108)

18-21. Conference on Magnetism and Magnetic Materials, 14th, New York, N.Y. (D. T. Teaney, IBM Thomas J. Watson Research Center, Box 218, Yorktown Heights, N.Y. 10598)

18-22. Society of the **Plastics Industry**, Inc., Chicago, Ill. (The Society, 250 Park Ave., New York 10017)

18–22. American Water Resources Conf., 4th, New York, N.Y. (P. Cohen, U.S. Geological Survey, 1505 Kellum Place, Mineola, N.Y. 11501)

19. Air Pollution Control, Columbia, Mo. (Extension Div., Whitten Hall, Univ. of Missouri, Columbia)

19-20. Council on Arteriosclerosis of the American Heart Assoc., Bal Harbour, Fla. (Dept. of Councils and International Program, American Heart Assoc. Natl. Office, 44 E. 23 St., New York 10010)

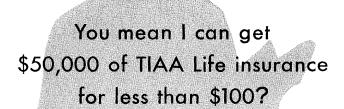
19-20. Systems Symp., 4th, Cleveland, Ohio. (P. Schneider, Systems Research Center, Case Western Reserve Univ., Cleveland)

19-21. Photovoltaic Specialists Conf., 7th, Pasadena, Calif. (R. E. Fischell, Applied Physics Lab., Johns Hopkins Univ., 8621 Georgia Ave., Silver Spring, Md. 20910)

19-22. Acoustical Soc. of America, Cleveland, Ohio. (The Society, 133 E. 45 St., New York 10017)

20–22. National Soc. for the **Prevention** of **Blindness**, Inc., New York, N.Y. (J. W. Ferree, 79 Madison Ave., New York 10016)

20-22. Microelectronic Packaging and Interconnection Conf., Palo Alto, Calif. (D. H. O'Neill, Soc. of Automotive Engi-



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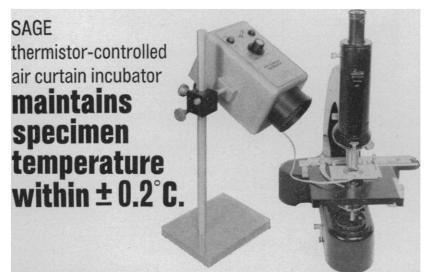
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20-24. Society for Clinical and Experimental Hypnosis, 20th, Chicago, Ill. (The Society, 353 W. 57 St., New York 10019)

21-22. Chemical Kinetics Symp., Chapel Hill, N.C. (L. Pedersen, Dept. of Chemistry, Univ. of North Carolina, Chapel Hill 27514)

21-24. American Anthropological Assoc., Seattle, Wash. (Executive Secretary, The Association, 1530 P St., NW, Washington, D.C. 20005)

25-27. International Symp. on the Metabolic Function of Vitamin A, Cambridge, Mass. (G. Wolf, Room 56-235, Massachusetts Inst. of Technology, Cambridge 02139)

25-27. American Physical Soc., Miami, Fla. (Executive Secretary, 538 W. 120 St., New York 10027)

29-30. Membrane Proteins Symp., New York, N.Y. (J. Newkirk, New York Heart Assoc., 2 E. 64 St., New York 10021)

29-30. National Federation of Catholic **Physicians'** Guild, Miami Beach, Fla. (R. H. Herzog, 2825 N. Mayfair Rd., Milwaukee, Wis. 53222)

December

1. Medical Aspects of Sports, 10th, Miami Beach, Fla. (F. Hein, American Medical Assoc., Dept. of Health Education, 535 N. Dearborn St., Chicago, Ill. 60610)

1. American Acad. of Oral Medicine, New York, N.Y. (S. Conrad, 133-28 228th St., Laurelton, N.Y. 11413)

1-4. American Medical Assoc., Miami Beach, Fla. (F. J. L. Blasingame, 535 N. Dearborn St., Chicago, Ill. 60610)

1-4. Reticuloendothelial Soc., 5th, New York, N.Y. (F. J. DiCarlo, Warner-Lambert Research Inst., Morris Plains, N.J. 07950)

1-5. American Inst. of Chemical Engineers, 61st, Los Angeles, Calif. (Secretary, 345 E. 47 St., New York 10017)

1-6. Radiological Soc. of North America, Chicago, Ill. (M. D. Frazer, 1744 S. 58 St. Lincoln, Neb 68506)

58 St., Lincoln, Neb. 68506)
2. Quantum Chemistry, 9th winter inst.,
Gainesville, Fla. (Winter Institute, 525
Nuclear Sciences Bldg., Univ. of Florida,
Gainesville 32601)

2-3. Applications of Simulation, 2nd conf., New York, N.Y. (A. Ockene, IBM Corporation, 112 E. Post Road, White Plains, N.Y. 10601)

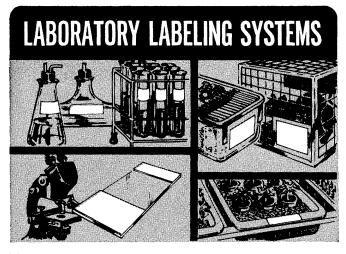
2-4. New England Conf. on Air Pollution, Waterville, Maine. (Director, Colby News Bureau, Colby College, Waterville 04901)

2-4. Western National Geophysical Union, San Francisco, Calif. (J. C. Harrison, Dept. of Geophysical Sciences, Univ. of Colorado, Boulder 80302)

2-6. Greater New York Dental Mtg., 44th, New York, N.Y. (M. Purdy, Room 106A. Statler Hilton, New York 10001)

106A, Statler Hilton, New York 10001)
3. American Soc. of Therapeutic Radiologists, Chicago, Ill. (J. A. del Regato, Penrose Cancer Hospital, 2215 N. Cascade, Colorado Springs, Colo. 80907)

3-4. Vehicular Technology Conf., San Francisco, Calif. (W. G. Chaney, Lenkurt Electric, 1105 Country Rd., San Carlos, Calif. 94070)



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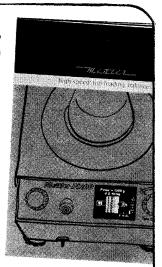


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3-5. Entry Vehicle Systems and Technology Conf., Williamsburg, Va. (M. H. Bloom, Polytechnic Inst. of Brooklyn, Graduate Center, Route 110, Farming-

dale, N.Y. 11735)

4-6. Optical Character Recognition in Computerized Management of Information in the Next Decade, Hollywood, Fla. (International Business Forms Industries, 20 Chevy Chase Circle, NW, Washington, D.C. 20015)

4-6. Academy of Psychosomatic Medicine, Miami Beach, Fla. (E. Dunlop, 150 Emory St., Attleboro, Mass. 02703)

4-7. American Assoc. of Physicists in Medicine, Chicago, Ill. (R. O. Gorsop, Stein Research Center, Jefferson Medical College, 920 Chancellor St., Philadelphia, Pa. 19107)

5-6. American Rheumatism Assoc., Tucson, Ariz. (M. M. Walsh, 1212 Avenue of the Americas, New York 10036)

6-7. American Federation for Clinical Research, Boston, Mass. (H. J. Levine, New England Medical Center Hospitals, 171 Harrison Ave., Boston 02111)

7-12. American Acad. of Dermatology and Syphilology, 27th, Chicago, Ill. (S. E. Huff, 1636 Church St., Evanston, Ill.)

8-13. American Soc. of Agricultural Engineers, Chicago, Ill. (P. L. Bellinger, Technical Coordinator, 420 Main St., St. Joseph, Mich. 49085)

8-15. Symposium of Analogue and Digital Computers in Hydrology, Tucson, Ariz. (American Federation of Information Processing Societies, 211 E. 43 St., New York 10017)

9-11. Computer Conf., San Francisco, Calif. (R. H. Glaser, 1968 Joint Computer Conf., P.O. Box 2309, Stanford, Calif. 94305)

9-12. Electrical Insulation Conf., Los Angeles, Calif. (Secretary, 3600 Wilshire Blvd., Los Angeles 90005)

9-12. National Electronics Conf. and Exhibition, 24th, Chicago, Ill. (E. C. Jones, Electrical Engineering Dept., Iowa State Univ., Ames)

11-13. National Oceanography Conf., Portland, Ore. (J. H. Jorgenson, National Security Industrial Assoc., Suite 800, 1030 15th St., NW, Washington, D.C. 20005, or K. R. Cannon, Governor's Committee on Natural Resources, State Capitol, Salem, Ore. 97310)

15-17. New York State Soc. of Anesthesiologists, New York, N.Y. (E. C. Sinisi, 30 E. 42 St., New York, 10017)

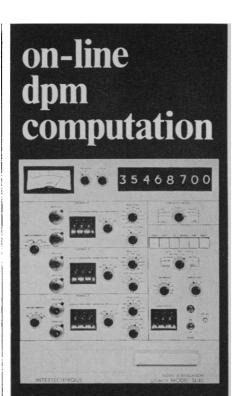
16-18. Symposium on Adaptive Processes, 7th, Univ. of California, Los Angeles. (J. M. Mendel, Advance Flight Mechanics, Douglas Aircraft Co., Inc. 3000 Ocean Park Blvd., Santa Monica, Calif. 90406)

16-20. Texas Symp. of Relativistic Astrophysics, 4th, Dallas. (I. Robinson, South West Center for Advanced Studies, P.O. Box 30365, Dallas 75230)

18-20. American Physical Soc., San Diego, Calif. (W. Whaling, California Inst. of Technology, 1201 East California St., Pasadena 91109)

20-22. American Psychoanalytic Assoc., New York, N.Y. (American Psychoanalytic Assoc., 1 E. 57 St., New York

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26-31. American Assoc. for the Advancement of Science, 135th, Dallas, Texas. (Secretary, 1515 Massachusetts Ave., NW, Washington, D.C. 20005)

26-31. Society for General Systems Research, Dallas, Texas. (M. D. Rubin, Mitre Corp., Bedford, Mass. 01730)

27-30. Institute of Mathematical Statistics, Washington, D.C. (J. R. Rosenblatt, 337 Administration Bldg., Gaithersburg, National Bureau of Standards, Washington, D.C. 20234)

28-30. History of Science Soc., Dallas, Texas. (J. C. Greene, Dept. of History, Univ. of Connecticut, Storrs 06268)

International and Foreign Meetings

November

18-23. International Seed Testing Assoc., 15th, Palmerston, New Zealand. (The Association, Binnenhaven 1, Wageningen, Netherlands)

19-20. Symposium on **Tribology in Railways**, London, England. (Public Relations Officer, Institution of Mechanical Engineers, 1, Birdcage Walk, Westminster, S.W.1, London)

20-24. Pan American Congr. of Otorhinolaryngology and Bronchoesophagology, Mar del Plata, Argentina. (C. Arauz, Casilla de Correo 45B, Suc. 53, Buenos Aires, or H. von Leden, 11600 Wilshire Blvd., Los Angeles, Calif. 90025)

20-26. International Automation and Instrumentation Conf. and Exhibition, 10th, Milan, Italy. (Studio A. Barbieri, Via Marcona, 49, 20129 Milan)

26-27. International Aerospace Exposition, Montreal, P.Q., Canada. (B. G. Newman, Dept. of Mechanical Engineering, McGill Univ., Montreal 2)

28. Symposium on Hydrostatic and Hydromechanic Transmission, London, England. (Public Relations Officer, Institution of Mechanical Engineers, 1, Birdcage Walk, Westminster, S.W.1, London)

December

I-5. Central American Congr. of Microbiology, 2nd, Panama City, Panama. (O. E. Sousa, Apartado 6403, Panama City, Panama)

1-7. International Congr. of **Pediatrics**, 12th, Mexico City, Mexico. (L. Benavides, Hospital Infantil de Mexico, Mexico City)

1-8. International Geographical Congr., 21st, Calcutta, India. (S. G. Chatterjee, Intern. Geophysical Union, % National Atlas Organisation, 1 Acharya Jagadish Bose Road, Calcutta 20, India)

2-6. OECON-Middle East, Athens, Greece. (M. J. Richardson, P.O. Box 88, Palos Verdes Estates, Calif. 90274, or M. F. Oberacker, % De Doelen Congres Centre, Rotterdam, Netherlands)

2-8. American College of Angiology, San Juan, Puerto Rico. (A. Halpern, 381 Park Ave. S., New York 10016)

6-13. International Cartographic Assoc., 3rd, New Delhi, India. (F. J. Ormeling, Bachiaan 39, Hilversum, Netherlands)

9-13. Soc. of Technical Writers and Publishers, intern. symp., Tel Aviv, Israel. (Intern. Symp. of Soc. of Technical Writers and Publishers, P.O. Box 16271, Tel Aviv, Israel)

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BOOKS RECEIVED

(Continued from page 347)

Advances in Microcirculation. Vol. 1. H. Harders, Ed. Karger, Basel, 1968 (distributed in the U.S. by Phiebig, New York). 160 pp., illus. \$12.75.

Advances in Tuberculosis Research. Vol. 16. Georges Canetti, Hans Birkhäuser, and Hubert Bloch, Eds. Karger, Basel, 1968 (distributed in the U.S. by Phiebig, New York). vi ± 232 pp., illus. \$15.10. Bibliotheca Tuberculosea, No. 24.

Advances in Veterinary Science. Vol. 12. C. A. Brandly and Charles E. Cornelius, Eds. Academic Press, New York, 1968. xvi - 438 pp., illus. \$18.50.

Advances in the Astronautical Sciences. Vol. 22, The Search for Extraterrestrial Life. Based on proceedings of the 12th annual meeting of the American Astronautical Society, Anaheim. Calif., May 1966. James Stephen Hanrahan, Ed. Scholarly Publications, Sun Valley, Calif., 1967. $x \rightarrow 378$ pp., illus.

Annual Reports in Medical Chemistry, 1967. Sponsored by the Division of Medicinal Chemistry of the American Chemical Society. Cornelius K. Cain, Ed. Academic Press, New York, 1968. xxvi + 374 pp., illus. Paper, \$8.75.

Auto-eugenics and Sex Predetermination. S. S. Verdi. Kanwal, Pal. Chandigarh, India, 1968. vi + 124 pp., illus. Paper, Rs. 6.

Barley Varieties-EBC. G. Aufhammer, P. Bergal, A. Hagberg, F. R. Horne, and H. Van Veldhuizen. Composed under the auspices of the Barley Committee of the European Brewery Convention. Elsevier, New York. ed. 3, 1968. xlv + 156 pp., illus. \$16.50. Text in English, French, and German.

Basic Principles of Sensory Evaluation. American Society for Testing and Materials, Philadelphia, 1968. vi + 106 pp., illus. Paper, \$5.75; 30 percent discount to members. ASTM Special Technical Publication No. 433.

Bibliography of Pharmaceutical Reference Literature. Magda Pasztor and Jenny Hopkins. Pharmaceutical Press, London, 1968. viii + 167 pp. Paper. 25 s.

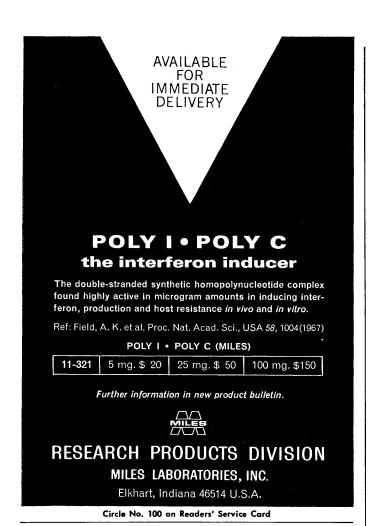
A Bibliography of Translations from Mainland Chinese Periodicals in Chemistry, General Science and Technology published by U.S. Joint Publications Research Service, 1957–1966. Compiled by Amy C. Lee and D. C. Dju Chang for the Committee on Scholarly Communication with Mainland China. National Academy of Science, Washington, D.C., 1968. xviii + 161 pp. Paper.

Big Bend Historic Sites. G. Hubert Smith. Jerome E. Petsche. Ed. Smithsonian Institution River Basin Surveys, Lincoln, Neb. 1968. iv + 114 pp., illus. Paper. Publications in Salvage Archeology, No. 9.

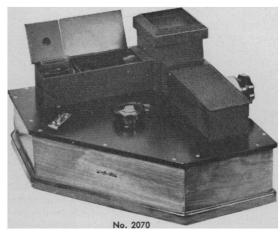
College Chemistry. Leo H. Spinar. Scott, Foresman, Glenview, Ill., 1968. xiii + 448 pp., illus. \$8.50.

Concepts of Science. A Philosophical Analysis. Peter Achinstein. Johns Hopkins Press, Baltimore, 1968. xvi + 266 pp. \$8.95.

The Conservation of Norfolk Island. J. S. Turner, C. N. Smithers, and R. D. Hoogland. Australian Conservation Foundation, Australia, 1968. ii + 41 pp., illus. Paper. ACF Special Publication No. 1.



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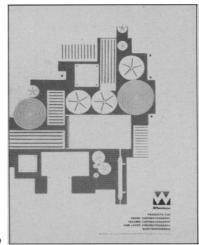
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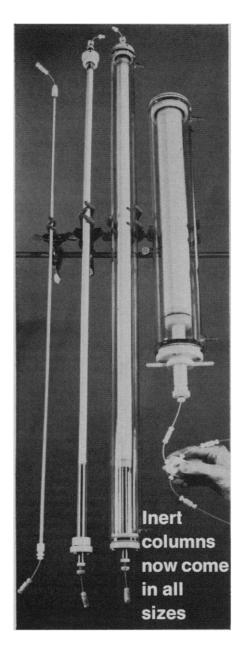
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Contemporary Soviet Government. L. G. Churchward. Elsevier, New York, 1968. xxii + 366 pp., illus. \$6.95.

Data Acquisition and Processing in Biology and Medicine. Vol. 5. Proceedings of a conference, Rochester, N.Y., 1966. Kurt Enslein, Ed. Pergamon, New York, 1968. x + 377 pp., illus. \$16.

The Design of Cam Mechanisms and Linkages. S. Molian. Elsevier, New York, 1968. viii + 285 pp., illus. \$9.

Die Dieselmaschine im Land- und Schiffsbetrieb. Siegfried Bock and Gunter Mau. Vieweg, Braunschweig, ed. 7, 1968. vi + 412 pp., illus. DM 48.

Enzymes in Nucleic Acid Research. Michel Privat de Barilhe. Hermann, Paris; Holden-Day, San Francisco, 1968. xiv + 393 pp., illus. \$16.25. Revised edition of Les Nucléases (Paris, 1964). Chemistry of Natural Products.

Fabrication of Thorium Fuel Elements. Prepared under the auspices of the American Society for Metals for the Division of Technical Information, U.S. Atomic Energy Commission. L. R. Weissert and G. Schileo. American Nuclear Society, Hinsdale, Ill., 1968. x + 208 pp., illus. \$11. Monograph Series on Metallurgy in Nuclear Technology.

Flora of the Queen Charlotte Islands. Part 1, Systematics of the Vascular Plants. James A. Calder and Roy L. Taylor. (xiv + 659 pp., illus. \$12.50 Canadian). Part 2, Cytological Aspects of the Vascular Plants. Roy L. Taylor and Gerald A. Mulligan. (xi + 148 pp., illus. \$7.50 Canadian). Canada Department of Agriculture. Ottawa, 1968 (available from the Queen's Printer, Ottawa). Canada Department of Agriculture Monograph No. 4.

Gene Control in the Living Cell. J. A. V. Butler. Basic Books. New York, 1968. x + 164 pp., illus. \$5.95.

Hospital Administration. Report of a WHO Expert Committee, Geneva, Oct. 1967. World Health Organization, Geneva, 1968 (distributed in the U.S. by Columbia University Press, New York). iv + 32 pp. Paper, \$1.

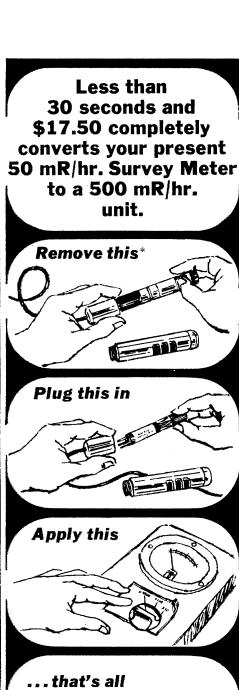
Human Respiration. A Programmed Course. Olof Lippold. Freeman, San Francisco, 1968. viii + 128 pp., illus. Paper, \$2.75.

Hyperfine Structure and Nuclear Radiations. Proceedings of a conference, Pacific Grove, Calif., Aug. 1967. E. Matthias and D. A. Shirley, Eds. North-Holland, Amsterdam; Interscience (Wiley), New York, 1968. xiv + 1097 pp., illus. \$25.

IBRO Survey of Research Facilities and Manpower in the Brain Sciences in the United States. Supervised by the Committee on Brain Sciences, Division of Medical Sciences, National Research Council. National Academy of Sciences, Washington, D.C., 1968. xliv + 314 pp. Paper.

Index to Air Pollution Research. A guide to Current Government and Industry Supported Air Pollution Research, July 1968. Patricia A. Burd. Center for Air Environment Studies, Pennsylvania State University, University Park, 1968. viii + 164 pp. Paper, \$2.

Introduction to Space Science. Written by the staff of the Goddard Space Flight Center. Wilmot N. Hess and Gilbert D. Mead, Eds. Gorden and Breach, New York, ed. 2, 1968. xviii + 1056 pp., illus.



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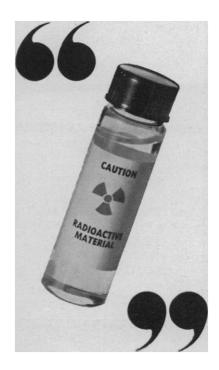
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York, 1968. xxii + 352 pp., illus. \$9.50. Laser Parameter Measurements Handbook. H. G. Heard. Wiley, New York, 1968. xiv + 489 pp., illus. \$15.95. Wiley Series in Pure and Applied Optics.

Ligand Reactivity and Catalysis. Mark M. Jones. Academic Press, New York, 1968. viii + 272 pp., illus. \$14.

Logic Design with Integrated Circuits.
William E. Wickes. Wiley, New York,
1968. xvi + 249 pp.. illus. \$9.95.

The McGraw-Hill Encyclopedia of Space. McGraw-Hill. New York, 1968. xii + 831 pp., illus. Through 31 Dec. 1968, \$23.95; thereafter, \$27.50.

Mécanismes Cérébraux du Langage Oral et Structure des Langues. R. Husson, J. Barbizet. J. Cauhépé. P. Debray. P. Laget, and A. Sauvageot. Masson, Paris, 1968. vi + 136 pp., illus. Paper, 44 F.

Medicine in Mexico. From Aztec Herbs to Betatrons. Gordon Schendel, with the collaboration of José Alvarez Amézquita and Miguel E. Bustamante. University of Texas Press. Austin, 1968. xxii + 329 pp., illus. \$6.50. Texas Pan American Series.

National Geographic Society Research Reports. Abstracts and reviews of research and exploration authorized under grants for the National Geographic Society during the year 1963. Paul H. Oehser, Ed. National Geographic Society, Washington, D.C., 1968. viii + 351 pp., illus. \$5.

Navy Space Astronautics Orientation. U.S. Government Printing Office, Washington, D.C., 1967. viii + 226 pp., illus. Paper, \$1.50. NAVPERS 10488.

Negro and White Children. A psychological Study in the Rural South. E. Earl Baughman and W. Grant Dahlstrom. Academic Press, New York, 1968. xxiv + 572 pp., illus. \$15.

Odour Description and Odour Classification. A Multidisciplinary Examination. R. Harper, E. C. Bate Smith, and D. G. Land. Elsevier, New York, 1968. viii + 191 pp., illus. \$7.50.

Organic Scintillators. Proceedings of a symposium, Argonne, Ill., June 1966. Donald L. Horrocks, Ed. Gordon and Breach, New York, 1968. viii + 413 pp., illus. \$40; 20 percent discount for payment in advance.

The Packing of Solid Particles. W. A. Gray. Chapman and Hall, London, 1968 (distributed in the U.S. by Barnes and Noble, New York). x + 134 pp., illus. \$5.50. Powder Technology Series.

Particle Acceleration. J. Rosenblatt. Methuen, London, 1968 (distributed in the U.S. by Barnes and Noble, New York). viii + 183 pp., illus. \$5.50. Methuen's Monographs on Physical Subjects.

Personality, Power and Politics. A Social Psychological Analysis of the Italian Deputy and His Parliamentary System. Gordon J. DiRenzo. University of Notre Dame Press, Notre Dame, Ind., 1968. xviii + 264 pp. \$7.95.

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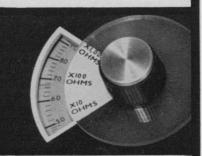
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monwealth Mycological Institute, Kew, Surrey, England, 1968. x + 206 pp. Paper, 30 s. Commonwealth Mycological Institute Phytopathological Papers, No. 9.

Political Science Annual. An International Review. Vol. 1, 1966. James A. Robinson, Ed. Bobbs-Merrill, New York, 1968. xiv + 307 pp. \$7.50.

Principles of Applied Biomedical Instrumentation. L. A. Geddes and L. E. Baker. Wiley, New York, 1968. xvi + 480 pp., illus. \$13.50.

Prison within Society. A Reader in Penology. Lawrence E. Hazelrigg, Ed. Doubleday, Garden City, New York, 1968. xvi + 536 pp. \$7.95.

Proceedings of the Fifteenth Southern Water Resources and Pollution Control Conference. Raleigh, N.C., April 1966. Department of Civil Engineering, North Carolina State University, Raleigh, 1968. vi + 190 pp., illus. Paper, \$4.

Progress in Phytochemistry. Vol. 1. L. Reinhold and Y. Liwschitz, Eds. Interscience (Wiley), New York, 1968. x + 723 pp., illus. \$23.75.

Psychological Science and the Educational Enterprise. Burton G. Andreas. Wiley, New York, 1968. x + 103 pp., illus. Cloth, \$6.95; paper, \$3.95.

The Psychology of Human Communi-

The Psychology of Human Communication. John Parry. Elsevier, New York, 1968: xiv + 248 pp. \$6.

The Psychology of Learning and Motivation: Advances in Research and Theory. Vol. 2. Kenneth W. Spence and Janet Taylor Spence, Eds. Academic Press, New York, 1968. xii + 249 pp., illus. \$10.50.

Radiation Biology. Alison P. Casarett. Prepared under the auspices of the American Institute of Biological Sciences for the Division of Technical Information, U.S. Atomic Energy Commission. Prentice-Hall, Englewood Cliffs, N.J., 1968. xiv + 368 pp., illus. \$9.25.

Readings in Psychological Tests and Measurements. W. Leslie Barnette, Jr., E. Dorsey, Homewood, Ill.; Irwin-Dorsey, Nobleton, Ontario, ed. 2, 1968. xii + 393 pp., illus. \$8.65. Dorsey Series in Psychology.

Reduction. Techniques and Applications in Organic Synthesis. Robert L. Augustine, Ed. Dekker, New York, 1968. x + 242 pp., illus. \$12.75.

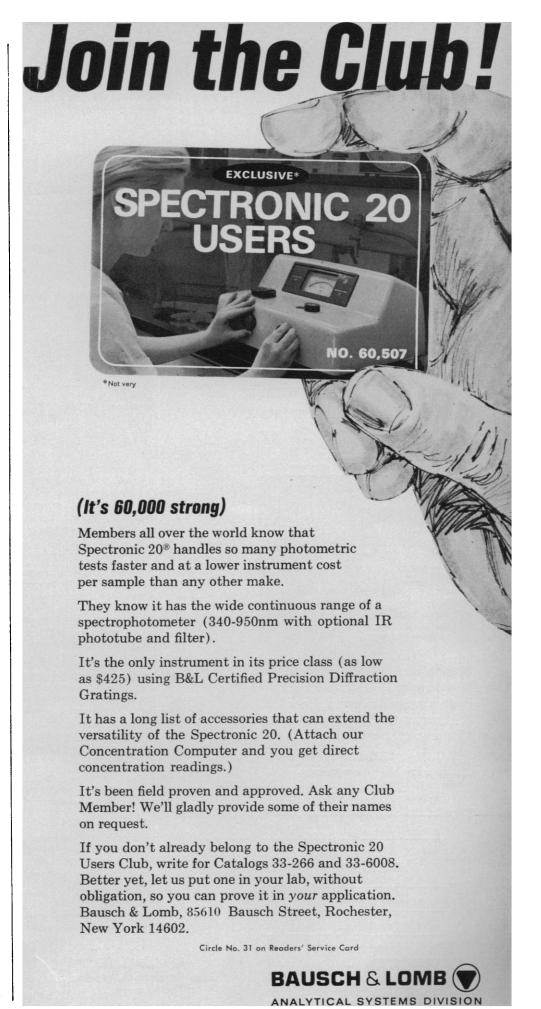
Report on the Elevated-Temperature Properties of Selected Superalloys. D. P. Moon, R. C. Simon, and R. J. Favor. American Society for Testing and Materials, Philadelphia, 1968. viii + 350 pp., illus. Paper, \$11. ASTM Data Series DS 7-S1

Roads, Bridges, and Tunnels. Modern Approaches to Road Engineering. Michael Overman. Doubleday, Garden City, N.Y., 1968. vii + 191 pp., illus. \$5.95. Doubleday Science Series.

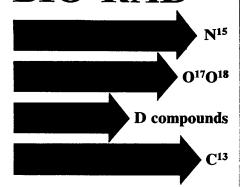
Rodd's Chemistry of Carbon Compounds. A Modern Comprehensive Treatise. S. Coffey, Ed. Vol. 2, Part B, Sixand Higher-Membered Monocyclic Compounds, Elsevier, New York, ed. 2, 1968. xvi + 463 pp., illus. \$27.

Science and Man. The Philosophy of Scientific Humanism. Tad S. Clements. Thomas, Springfield, Ill., 1968. xiv + 152 pp. \$9. American Lecture Series Publication No. 714.

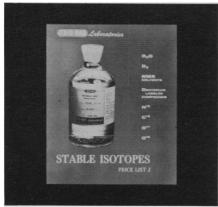
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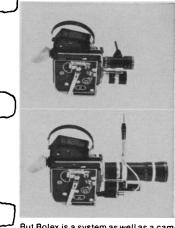
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