

that the intrinsic membrane potential in chloroplasts, but not the pH gradient, could be correlated with the capacity for photosynthetic phosphorylation. Second, mention was made of evidence obtained in several different laboratories that coupling could be achieved in non-membranous suspensions of macromolecules (reported by M. I. H. Aleem, University of Kentucky; and T. Ozawa, Nagoya University; and published by D. R. Sanadi, Retina Foundation, Boston). If there was one issue on which a consensus was reached at the conference, it was that the Mitchell model could only be viable with an intrinsic membrane potential as the driving force. In that revised form, the Mitchell model shares common ground with the electromechanochemical model.

E. N. Moudrianakis (Johns Hopkins University) has opened wide the door to a reevaluation of the first acceptor for activated phosphate in photosynthetic phosphorylation. He presented unequivocal evidence that the first acceptor was adenosine monophosphate and that formation of adenosine triphosphate (ATP) depended on a myokinase-like transfer of a phosphoryl group between two molecules of bound adenosine diphosphate (ADP). A similar interpretation, based on results obtained with submitochondrial particles, was first proposed by Ozawa several years ago, but eventually came in for severe criticism published by P. Boyer (University of California, Los Angeles) and M. E. Pullman (Public Health Research Institute, New York). What this demonstration by Moudrianakis probably means is that the hydrolysis of ATP to ADP and inorganic phosphate is not the microscopic reversal of oxidative or photosynthetic phosphorylation.

The sticky problem of how electrons from reduced complex III can find their way into the heme group in a crevice in the interior of cytochrome c was considered by R. Dickerson (California Institute of Technology), B. Chance (University of Pennsylvania), and Winfield. Despite the elegant x-ray studies of Dickerson and the exhaustive spectroscopic studies of Chance, there was no consensus about the mechanism of electron transfer, although the cloud of conjecture was thick. Winfield, in one of the most penetrating presentations of the conference, laid bare the sorry state of our present ignorance of this crucial problem. If evidence were needed for the crisis in bioenergetics, the problem posed by the mechanism

of electron transfer involving the components of the mitochondrial electron transfer chain can provide food for thought.

The generation of accurate structural information about energy-transducing systems is undoubtedly the crowning achievement of contemporary bioenergetics. The surveys of progress in muscle (Huxley; M. Morales, University of California School of Medicine, San Francisco; and J. Gergely, Retina Foundation), the mitochondrion (Y. Hatefi, Scripps Clinic and Research Foundation, La Jolla, California; L. Packer, University of California, Berkeley; and A. Tzagoloff, Public Health Research Institute), the sarcoplasmic reticulum (D. MacLennan, University of Toronto; and A. Martonosi, St. Louis University), and the chloroplast (Moudrianakis; L. Vernon, Brigham Young University; and R. Park, University of California, Berkeley) were among the high points of the conference. The x-ray crystallographic studies of chymotrypsin (Hartley) and of cytochrome c (Dickerson) pointed up the stark contrast between the precision and beauty of the accumulated structural information about these two macromolecules and the pitifully limited understanding of the mechanisms of both catalysis and electron transfer. Clearly, knowledge of the structural information is a necessary but not sufficient condition for adumbrating the functional principles.

The number of new concepts presented at the conference was high. These included enzymes as transducers of thermal to electromechanochemical potential energy (Green and Ji), force-generating mechanisms for muscular contraction (R. Dowben, Southwestern University Medical School, Dallas; McClare; and Ji), thermodynamic models for oxidative phosphorylation (Bennun and Weber), and molecular models for nerve transmission (R. Keynes, Agricultural Research Council Institute of Animal Physiology, Babraham, Cambridge, England; Wei; I. Tasaki, National Institute of Mental Health, Bethesda, Maryland; and Nachmansohn). Cope developed a solid-state model for mitochondrial function.

A gap of at least 100 years separates parallel developments in physics and biology. The cooperative and symbiotic relation between theory and experiment has by now a long tradition in physics, but this relation is only in its formative stage in biology. If this conference has helped to convey the message to workers

in bioenergetics that experiment without theory is as sterile as theory without experiment, it will have served a useful and historic purpose.

H. Baum (Chelsea College, London), played the role of Solomon in a brilliant summary of the conference. He pointed up the close analogies between the prolonged debate over atomism that raged in the late 19th century and the present dilemma in bioenergetics.

Mitchell, the cosponsor of the conference, was unfortunately unable to be present, but, nonetheless, the power of his approach and insights dominated the proceedings. The notion of vectorial electron flow and vectorial coupling, which he has championed, would now appear to be one of the greatest achievements in bioenergetics.

DAVID E. GREEN

*Institute for Enzyme Research,
University of Wisconsin,
Madison 53706*

Forthcoming Events

September

9-12. American Soc. of **Mechanical Engineers** (Plant Engineering and Maintenance Div.), 16th annual, Cincinnati, Ohio. (M. Jones, ASME, United Engineering Center, 345 E. 47 St., New York 10017)

10-11. National Conf. on **Cancer Nursing**, American Cancer Soc., Chicago, Ill. (ACS, 219 E. 42 St., New York 10017)

10-13. **Carbonisation and Graphitisation**, Inst. of Physics, Newcastle upon Tyne, England. (H. Marsh, Northern Coke Research Labs., Univ. of Newcastle upon Tyne, Newcastle upon Tyne, NE1 7RU)

10-14. **Structural Mechanics and Reactor Technology**, 2nd intern. conf., American Nuclear Soc., Berlin, Germany. (T. A. Jagger, c/o BAM, Unter den Eichen 87, 1 Berlin W. 45)

12-14. American **Ceramic Soc.** (Electronics Div.), Atlanta, Ga. (F. P. Reid, ACS, 4055 North High St., Columbus, Ohio 43214)

12-14. **Physics of Semimetals and Narrow-Gap Semiconductors**, Univ. of Wales and Inst. of Science and Technology, Cardiff, Wales. (J. E. Aubrey, Dept. of Applied Physics, UW and IST, King Edward VII Ave., Cardiff CF1 3NU)

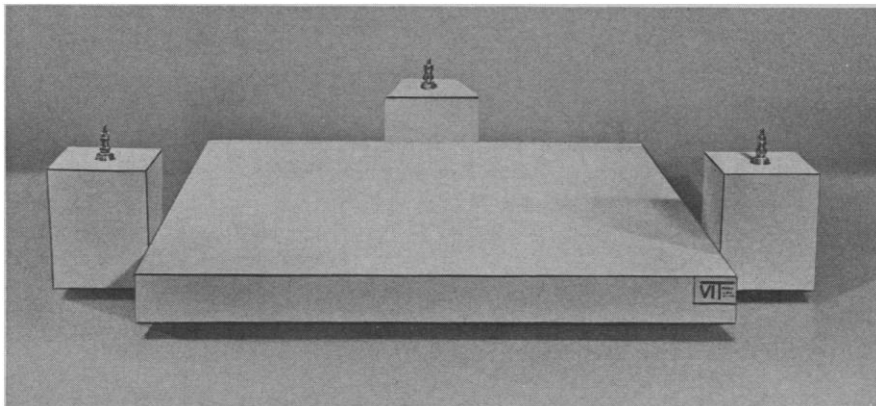
12-15. **Organ Transplantation Soc.**, 6th congr., Varese-Villa Ponti, Italy. (G. R. Pedroni, Studio MGR, Via Lanzzone 40, 1 20123 Milan, Italy)

12-17. American **Medical Writers Assoc.**, Bethesda, Md. (E. Stahl, Ayerst Labs., Montreal, P.Q., Canada)

13-14. Society for **Management Information Systems**, 5th annual conf., Chicago, Ill. (A. Suter, SMIS, 221 North La Salle St., Chicago 60601)

13-15. International Congr. on the **Knee Joint**, 75th, Dutch Orthopaedic

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Assoc., Rotterdam, Netherlands. (Secretariat, Holland Organizing Centre, 16 Lange Voorhout, The Hague, Netherlands)

14-15. **West Coast Cancer Foundation**, 9th symp., San Francisco, Calif. (J. M. Vaeth, WCCF, Suite 615, 2155 Webster St., San Francisco 94115)

16-20. **American Oil Chemists Soc.**, Chicago, Ill. (J. Lyon, AOCS, 508 S. Sixth St., Champaign, Ill. 61820)

16-20. **American Acad. of Ophthalmology and Otolaryngology**, Dallas, Texas. (C. M. Kos, 15 Second St., SW, Rochester, Minn. 55901)

16-21. **International Assoc. for Comparative Research on Leukemia and Related Diseases**, 11th, Nagoya, Ise-Shima, Japan. (R. M. Dutcher, IACRLRD, 1530 E. Jefferson St., Rockville, Md. 20852)

16-22. **Colloquium Spectroscopicum Intern.**, 17th, Italian Metallurgical Assoc., Florence. (J. R. Ferraro, Chemistry Div., Argonne Natl. Lab., 9700 S. Cass Ave., Argonne, Ill. 60439)

17-20. **Power Generation Conf.**, American Soc. of Mechanical Engineers and Inst. of Electrical and Electronics Engineers, New Orleans, La. (M. Jones, ASME, 345 E. 47 St., New York 10017)

19-20. **Conference on Environmental Engineering in Industrialized and Developing Countries**, World Federation of Engineering Organizations, New York, N.Y. (M. Herrick, Inst. of Electrical and Electronics Engineers, 345 E. 47 St., New York 10017)

19-21. **International Congr. of Aerosols in Medicine**, Vienna, Austria. (Mrs. E. Weidenhaus, Wiener Medizinische Akademie, Stadiongasse 6-8, A-1010 Vienna)

19-22. **American Ceramic Soc.** (Structural Clay Products Div.), Salt Lake City, Utah. (F. P. Reid, ACS, 4055 N. High St., Columbus, Ohio 43214)

20-24. **American Mathematical Soc.**, Missoula, Mont. (G. L. Walker, AMS, P.O. Box 6248, Providence, R.I. 02994)

20-4. **Alliance for Engineering in Medicine and Biology**, 26th annual conf., Minneapolis, Minn. (J. Busser, Suite N-300, 3900 Wisconsin Ave., NW, Washington, D.C. 20016)

23-24. **Society for Pediatric Radiology**, Montreal, P.Q., Canada. (J. L. Gwinn, Childrens Hospital 4650 Sunset Blvd., Los Angeles, Calif. 90027)

23-25. **Chemical Marketing Research Assoc.**, Hershey, Pa. (C. C. Harvey, Ethyl Corp., 451 Florida St., Baton Rouge, La. 70801)

23-26. **American Ceramic Soc.** (Basic Science and Ceramic-Metal Systems Divs.), Pittsburgh, Pa. (F. P. Reid, ACS, 4055 N. High St., Columbus, Ohio 43214)

23-26. **National Forum on Growth with Environmental Quality**, jointly by the Natl. Science Foundation, Metropolitan Tulsa Chamber of Commerce, and the Midcontinent Environmental Center Assoc., Tulsa, Okla. (B. Carnett, Metropolitan Tulsa Chamber of Commerce, Tulsa 74119)

23-27. **Society of American Foresters**, Portland, Ore. (H. R. Glascock, Jr., SAF, 1010 16 St., NW, Washington, D.C. 20036)

24-28. **International Acad. of Legal Medicine Congr.**, Rome, Italy. (C. Gerin, Inst. of Legal Medicine, Via Regina Elena 336, Rome)

24-28. **Noble Gases Symp.**, jointly by

SCIENCE, VOL. 181

U.S. Environmental Protection Agency, Natl. Environmental Research Center, and Univ. of Nevada, Las Vegas. (D. S. Barth, NERC, P.O. Box 15027, Las Vegas 89114)

24-28. International Tuberculosis Conf., 22nd, Japan Antituberculosis Assoc., Tokyo. (M. Yamaguchi, JAA, Kanka Misaki-cho, Chiyod-ky, Tokyo)

25-28. Engineering in the Ocean Environment, 4th intern. conf., Inst. of Electrical and Electronics Engineers, Seattle, Wash. (G. Raudsep, Marine Systems Center, Honeywell Inc., 5303 Shilshole Ave., NW, Seattle 98107)

25-28. American Roentgen Ray Soc., Montreal, P.Q., Canada. (T. E. Leigh, Emory Univ. Clinic, Atlanta, Ga. 30322)

26-27. International Symp. on Vitamin E, Minneapolis, Minn. (M. K. Horwitt, Dept. of Biochemistry, St. Louis Univ. Medical School, St. Louis, Mo. 63104)

26-29. American Ceramic Soc. (Materials and Equipment and White Wares Divs.), Bedford, Pa. (F. P. Reid, ACS, 4055 N. High St., Columbus, Ohio 43214)

26-30. International Symp. on Underground Waste Management and Artificial Recharge, jointly by the American Assoc. of Petroleum Geologists, U.S. Geological Survey, and the Intern. Assoc. of Hydrological Sciences, New Orleans, La. (L. Bowling, 1417 NBC Bldg., New Orleans 70112)

27-29. Cancer of the Colon and Rectum, 2nd natl. conf., American Cancer Soc., Bal Harbour, Fla. (S. L. Arje, ACS, 219 E. 42 St., New York 10017)

30-3. Society of Research Administrators, 7th, New Orleans, La. (Mrs. L. Lasker, New York Medical College, 106th St. and Fifth Ave., New York 10029)

30-3. Soil Conservation Soc. of America, 28th, Hot Springs, Ark. (H. W. Pritchard, SCSA, 7515 NE Ankeny Rd., Ankeny, Iowa 50021)

30-4. Engineering in Medicine and Biology, 26th conf., Alliance for Engineering in Medicine and Biology, Minneapolis, Minn. (A. Kahn, AEMB, 3055 Old Highway Eight, Minneapolis 55418)

30-5. Penrose Conf. on Earth Sciences and the Environment Planned, Geological Soc. of America, Vail, Colo. (B. B. Hanshaw, U.S. Geological Survey, Federal Center, Lakewood, Colo. 80225)

October

1-3. Hanford Biology Symp., 13th, sponsored by U.S. Atomic Energy Commission and Battelle Memorial Inst., Richland, Wash. (J. A. Harrison, Biology Dept., Battelle Pacific Northwest Labs., Richland 99352)

1-3. International Conf. on Land for Waste Management, Canadian Soc. of Soil Science, Ottawa, Ont. (M. K. Ward, Natl. Research Council, Ottawa, Ont. K1A 0R6)

1-4. American Acad. of Family Physicians, Denver, Colo. (R. Tusken, AAFP, Volker Blvd. at Brookside, Kansas City, Mo. 64112)

1-4. American Soc. for Metals, Chicago, Ill. (A. R. Putnam, ASM, Metals Park, Ohio 44073)

1-5. American Assoc. for Laboratory Animal Science, 24th annual, Miami

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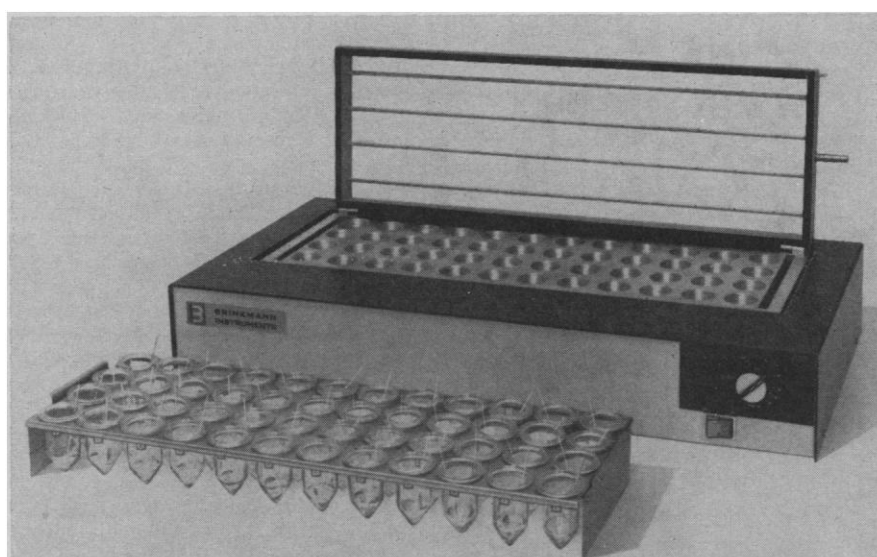
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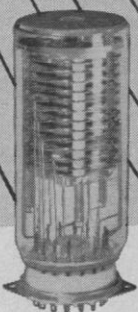
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Beach, Fla. (J. J. Garvey, AALAS, 2317 W. Jefferson St., Joliet, Ill. 60435)

1-5. Symposium on **Remote Sensing in Oceanography**, American Soc. of Photogrammetry, Orlando (Disney World), Fla. (J. S. Beazley, 330 Ponce St., Tallahassee, Fla. 32303)

1-6. International Congr. of **Rheumatology**, 13th, Kyoto, Japan. (S. Sasaki, Japan Rheumatism Assoc., Shimbunkaikan 63, 3-8-4 Ginza, Chuo-ku, Tokyo, Japan)

3-5. **Clinical Orthopedic Soc.**, Cleveland, Ohio. (M. L. Clayton, COS, 2045 Franklin St., Denver 80205)

4-6. Refractories Div., American Ceramic Soc., Bedford, Pa. (F. P. Reid, ACS, 4055 N. High St., Columbus, Ohio 43214)

4-10. **Chemistry of Sea/Air Particulate Exchange Processes**, intern. symp., Intern. Assoc. for the Physical Sciences of the Ocean, Intern. Union of Geodesy and Geophysics, Nice, France. (R. A. Duce, Dept. of Oceanography, Univ. of Rhode Island, Kingston 02881)

5-6. **Southeastern Cancer Research Assoc.**, Atlanta, Ga. (W. E. Criss, Dept. of Obstetrics and Gynecology, Univ. of Florida College of Medicine, Gainesville 32601)

5-6. **Psychopharmacology Symp.**, World Psychiatric Assoc., Wroclaw, Poland. (A. Bukowczyk, Kraszewskiego 25, Wroclaw)

5-9. **Sigma Xi**, Fontana, Wis. (T. T. Holme, SX, 345 Whitney Ave., New Haven, Conn. 06510)

6-12. **American Concrete Inst.**, Ottawa, Ont., Canada. (ACI, Box 4754, Redford Stat., 22400 W. Seven Mile Rd., Detroit, Mich. 48219)

6-13. **World Federation for Mental Health**, 25th congr., Sydney, Australia. (A. Stoller, Mental Health Authority, 300 Queen St., Melbourne C1, Australia)

7-11. **Clay Minerals Soc.** (10th mtg.) and Clay Minerals Conf. (22nd), Banff, Alta., Canada. (J. E. Gillott, Dept. of Civil Engineering, Univ. of Calgary, Calgary 44, Alberta)

7-11. **International Iron and Steel Inst.**, 7th annual conf., Johannesburg, South Africa. (IISI, 5 Place du Champ de Mars, 1050 Brussels, Belgium)

7-11. **Life Assurance Medicine**, 11th intern. congr., Mexico City, Mexico. (J. Rendon, Edificio Bancomer, Aptdo Postal M-7817, Mexico, D.F.)

7-12. **Electrochemical Soc.**, 144th natl., Boston, Mass. (E. G. Enck, ES, P.O. Box 2071, Princeton, N.J. 08540)

7-13. **Neurological Surgery**, 8th intern. congr., Tokyo, Japan. (S. Ishii, Dept. of Neurosurgery, Juntendo Univ. Hospital, Hongo, Bunkyo-ku, Tokyo)

7-20. **Institute on Terrestrial and Extraterrestrial Volcanology**, Italian Natl. Research, Regional Sicilian Government, and the Italian Ministry of Public Education, Erice, Trapani, Sicily. (F. Cuttitta, U.S. Geological Survey, Geologic Div., Washington, D.C. 20244), or (M. Carapezza, Istituto di Mineralogia, Via Archirafi 36, 90123 Palermo, Italy)

8-10. **National Electronics Conf. and Exhibition**, 29th, Chicago, Ill. (NEC, Inc., Oakbrook Executive Pl. No. 2, 1211 W. 22 St., Oak Brook, Ill. 60521)

8-10. **Society for Industrial and Applied Mathematics**, Iowa City, Iowa. (J. K.

Cullum, IBM-T. J. Watson Research Center, Yorktown Heights, N.Y. 10598)

8-12. **International Drivers' Behaviour Research Assoc.**, Zurich, Switzerland. (T. E. A. Benjamin, Room 9C27, 10, quai Paul Doumer, F-92 Courbevoie, France)

8-12. **Symposium on Experience from Operating and Fueling of Nuclear Power Plants**, Intern. Atomic Energy Agency, Vienna, Austria (J. H. Kane, Office of Information Services, U.S. Atomic Energy Commission, Washington, D.C. 20545)

9-12. **Association of Official Analytical Chemists**, 87th, Washington, D.C. (L. G. Enslinger, AOAC, Box 540, Benjamin Franklin Sta., Washington, D.C. 20044)

9-12. **Optical Soc. of America**, 58th annual, Rochester, N.Y. (J. W. Quinn, OSA, 2100 Pennsylvania Ave., NW, Washington, D.C. 20037)

9-12. **American Vacuum Soc.**, 20th natl. symp., New York, N.Y. (R. B. Marcus, Bell Telephone Labs., Murray Hill, N.J. 07974)

10. **Avian Energetic Symp.**, 91st (Nutall Ornithological Club), American Ornithologists' Union, Provincetown, Cape Cod, Mass. (R. A. Paynter, Museum of Comparative Zoology, Harvard Univ., Cambridge, Mass. 02138)

10-12. **Glass Div., American Ceramic Soc.**, Bedford, Pa. (F. P. Reid, ACS, 4055 N. High St., Columbus, Ohio 43214)

10-12. **American Council on Education**, 56th annual, Washington, D.C. (F. Skinner, ACE, 1 Dupont Circle, NW, Washington, D.C. 20036)

10-16. **American Speech and Hearing Assoc.**, Detroit, Mich. (K. O. Johnson, 9030 Old Georgetown Rd., Washington, D.C. 20014)

11-12. **Chemical and Physical Processes in Combustion**, 7th technical mtg., Eastern Section, Combustion Inst., Montreal, P.Q., Canada. (F. J. Wright, Corporate Research Labs., Esso Research and Engineering Co., P.O. Box 45, Linden, N.J. 07036)

11-13. **American Soc. for Colposcopy and Colpomicroscopy**, 6th clinical, Key Biscayne, Fla. (A. C. Corzo, Symposia Intern., P.O. Box 580, Tujunga, Calif. 91042)

11-13. **American Assoc. for the Surgery of Trauma**, Chicago, Ill. (J. A. Boswick, AAST, 4200 E. Ninth Ave., Denver, Colo. 80220)

12-13. **Electronic Physics of Organic Materials Symp.**, New York State Section, American Physical Soc., Troy, N.Y. (W. Eppenstein, Dept. of Physics, Rensselaer Polytechnic Inst., Troy 12181)

12-14. **National Assoc. of Biology Teachers**, St. Louis, Mo. (J. P. Lightner, NABT, 1420 N St., NW, Washington, D.C. 20005)

12-14. **Association for Women in Psychology**, Fort Wayne, Ind. (C. Adamsky, Dept. of Psychological Sciences, Purdue Univ., Fort Wayne 46805)

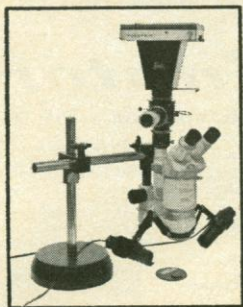
12-20. **American Soc. of Clinical Pathologists**, Chicago, Ill. (M. Damron, ASCP, 710 S. Wolcott Ave., Chicago 60612)

14-17. **American Chemical Soc.**, 5th Northeast regional, Rochester, N.Y. (P. Tingué, Bldg. 81, Room 254, Research Labs., Eastman Kodak Co., Rochester 14650)

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14-17. Association of Life Insurance Medical Directors, New York, N.Y. (A. E. Brown, ALIMD, 501 Boylston St., Boston, Mass. 02117)

14-18. American Inst. of Ultrasound in Medicine, Ann Arbor, Mich. (M. A. Wainstock, Dept. of Ophthalmology, Univ. of Michigan Medical Center, Ann Arbor)

14-19. Society of Motion Picture and Television Engineers, New York, N.Y. (D. A. Courtney, SMPTE, 9 E. 41 St., New York 10017)

14-20. Allergology, 8th intern. congr., Tokyo, Japan. (Japanese Soc. of Allergology, c/o Dept. of Microbiology and Immunology, Nippon Medical School, 1-1 Sendagi, Bunkyo-ku, Tokyo)

14-20. World Medical Assoc., Munich, Germany. (A. Z. Romualdez, WMA, 10 Columbus Circle, New York 10019)

14-21. International Congr. on Tropical Medicine and Malaria, 9th, Hellenic Ministry of Social Services and Hellenic Ministry of Culture and Sciences, Athens, Greece. (J. Papavassiliou, ICTMM, P.O. Box 1373, Athens)

15-16. Environmental Geologic Mapping Colloquium, Austin, Tex. (E. G. Wermund, Bureau of Economic Geology, Univ. of Texas, Box X, University Station, Austin 78712)

15-17. National Electronics Conf., Inst. of Electrical and Electronics Engineers, Chicago, Ill. (IEEE, 345 E. 47 St., New York 10017)

15-17. Energy Resources Symp., Royal Soc. of Canada, Ottawa, Ont. (Executive Secretary, RSC, 395 Wellington, Ottawa, K1A0 N4)

15-17. National Noise Control Engineering Conf., Washington, D.C. (R. Cohen, Ray W. Herrick Labs., School of Mechanical Engineering, Purdue Univ., Lafayette, Ind. 47907)

15-17. Soil Microcommunities Conf., 3rd, Syracuse, N.Y. (D. L. Dindal, Dept. of Zoology, College of Environmental Sciences and Forestry, State Univ. of New York, Syracuse 13210)

15-18. Estuarine Research Federation, 2nd intern. conf., cosponsored by American Soc. of Limnology and Oceanography, Myrtle Beach, S.C. (A. B. Williams, Systematics Lab., Natl. Marine Fisheries Service, U.S. Natl. Museum, 10th and Constitution Ave., NW, Washington, D.C. 20560)

15-18. Instrument Soc. of America 28th mtg., Houston, Tex. (H. S. Kindler, ISA, 400 Stanwix St., Pittsburgh, Pa. 15222)

15-18. Lubrication Conf., American Soc. of Mechanical Engineers and American Soc. of Lubrication Engineers, Atlanta, Ga. (ASME, United Engineering Center, 345 E. 47 St., New York 10017)

15-18. American Inst. of Ultrasound in Medicine, 18th annual, Detroit, Mich. (M. Wainstock, Dept. of Ophthalmology, Univ. of Michigan Medical School, Ann Arbor)

15-19. American College of Surgeons, 59th annual clinical congr., Chicago, Ill. (E. W. Gerrish, ACS, 55 E. Erie St., Chicago 60611)

15-19. Youth in a World of Change, World Psychiatric Assoc. and Australian

and New Zealand College of Psychiatrists, Sydney, Australia. (Congress Secretary, Box 475, G.P.O., Sydney, New South Wales 2001)

15-20. International Soc. of **Radiology** Congr., 13th, Madrid, Spain. (J. Bonmati, ISRC, Lagasca 27, Madrid 1)

16-18. Society of **Automotive Engineers**, aerospace engineering and manufacturing mtg., Los Angeles, Calif. (A. J. Favata, SAE, 2 Pennsylvania Plaza, New York 10001)

16-19. American **Chemical** Soc., rubber chemistry mtg., Denver, Colo. (F. M. O'Connor, Harwick Standard Chemical Co., 60 S. Seiberling St., Akron, Ohio 44305)

16-19. Society for **Experimental Stress Analysis**, Indianapolis, Ind. (B. E. Rossi, SESA, 21 Bridge Sq., Westport, Conn. 06880)

16-19. **Human Factors** Soc., Washington, D.C. (M. G. Knowles, HFS, P.O. Box 1369, Santa Monica, Calif. 90406)

16-20. American Assoc. of **Stratigraphic Palynologists**, 6th annual, Anaheim, Calif. (K. N. Piel, Union Oil Research, P.O. Box 76, Brea, Calif. 92621)

16-21. American Soc. of **Clinical Hypnosis**, 16th annual, Toronto, Ont., Canada. F. D. Nowlin, ASCH, 800 Washington Ave., SE, Minneapolis, Minn. 55414)

17-20. American Soc. of **Human Genetics**, Atlanta, Ga. (W. E. Nance, Medical Genetics, Univ. of Indiana, 1100 W. Michigan St., Indianapolis 46202)

18-19. Oklahoma **Education** Assoc., 83rd annual, Oklahoma City. (M. Leyerle, OEA, 323 East Madison, Oklahoma City 73105)

18-19. **Endocrinology and Metabolism**, 9th Midwest conf., Columbia, Mo. (A. D. Kenny, Dalton Research Center, Univ. of Missouri, Columbia 65201)

18-20. Central **Neuropsychiatric** Assoc., Chicago, Ill. (D. W. Sprague, CNA, 1417 Marlowe Ave., Lakewood, Ohio 44107)

18-20. Central Assoc. of **Obstetricians and Gynecologists**, Scottsdale, Ariz. (C. P. Goplerud, University Hospitals, Iowa City 52240)

18-21. American Acad. of **Child Psychiatry**, Washington, D.C. (E. Bogan, AACP, 1700 18th St., NW, Washington, D.C. 20009)

18-21. **Phi Delta Kappa**, Houston, Tex. (L. C. Rose, PDK, 8th and Union Sts., P.O. Box 789, Bloomington, Ind. 47401)

19. American **Pharmaceutical** Assoc., 13th annual Eastern regional (Industrial Pharmacy section), Morristown, N.J. (A. J. Scarpone, Pharmaceutical Product Development Dept., Lederle Labs., American Cyanamid Co., Pearl River, N.Y. 10965)

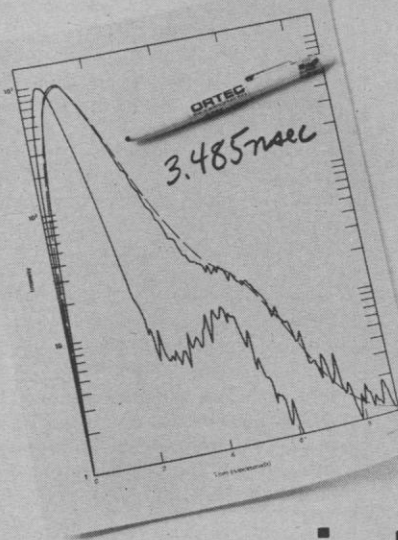
20-23. Institute of **Electrical and Electronics Engineers**, electron devices mtg., Washington, D.C. (Office of the Technical Activities Board, IEEE, 345 E. 47 St., New York 10017)

20-24. American Acad. of **Pediatrics**, 42nd annual, Chicago, Ill. (E. Kittrell, AAP, 1801 Hinman Ave., Evanston, Ill. 60204)

21-24. American College of **Apothecaries**, White Sulphur Springs, W.Va. (D. C. Huffman, Jr., 5291 Rock Ridge Rd., Memphis, Tenn. 38128)

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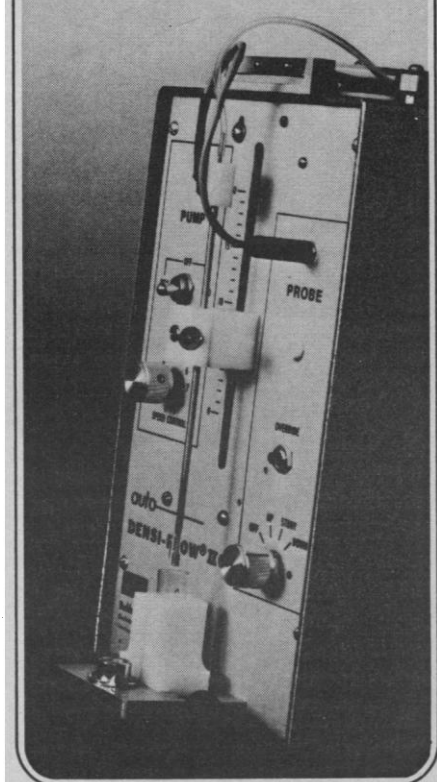
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21-25. American College of **Chest Physicians**, 39th fall scientific assembly, Toronto, Ont., Canada. (A. Soffer, ACCP, 112 E. Chestnut St., Chicago, Ill. 60611)

21-25. Society of **Exploration Geophysicists**, Mexico City, Mexico (H. Breck, P.O. Box 3098, Tulsa, Okla. 74101)

21-25. American Soc. for **Information Science**, Los Angeles, Calif. (H. R. Koller, ASIS, 1140 Connecticut Ave., NW, Washington, D.C. 20036)

21-26. Association of **Engineering Geologists**, 16th annual, North Hollywood, Calif. (C. A. Yelverton, AEG, Suite 506, 201 S. Lake Ave., Pasadena, Calif. 91101)

21-26. American Assoc. for **Hand Surgery**, Hollywood, Fla. (K. K. Lie, 27500 Hoover Rd., Warren, Mich. 48093)

21-26. American Soc. of **Plastic and Reconstructive Surgeons**, Hollywood, Fla. (D. F. Whaley, ASPRS, 29 E. Madison, Chicago, Ill. 60602)

21-26. American Congr. of **Rehabilitation Medicine**, Washington, D.C. (C. C. Herold, 30 N. Michigan Ave., Chicago, Ill. 60602)

21-26. American **Water Resources Assoc.**, 9th, Seattle, Wash. (S. P. Gessel, Dean of the College of Forestry, University of Washington, Seattle 98105)

21-27. American College of **Gastroenterology**, Los Angeles, Calif. (D. Weiss, ACG, 299 Broadway, New York 10007)

22-24. International **Pollution Engineering Congr.**, 2nd, Philadelphia, Pa. (Clapp & Poliak, Inc., 245 Park Ave., New York 10017)

22-25. **Civil Aviation Medical Assoc.**, Guadalajara, Mexico. (A. Carriere, 801 Green Bay Rd., Lake Bluff, Ill. 60044)

22-26. American **Dietetic Assoc.**, Denver, Colo. (R. M. Yakel, ADA, 620 N. Michigan Ave., Chicago, Ill.)

22-26. Symposium on **Effects on Neutron Irradiation upon Cell Function**, Intern. Atomic Energy Agency, Neuherberg near Munich, Federal Republic of Germany. (L. B. Sztanyik, Radiation Biology Section, Div. of Life Sciences, IAEA, Karntnerring 11-13, P.O. Box 590, A-1011 Vienna, Austria)

23-25. American College of **Emergency Physicians**, 5th scientific assembly, Dallas, Tex. (ACEP, 241 E. Saginaw, East Lansing, Mich. 48823)

23-25. International Symp. on **Immunoglobulin A System**, 25th, Birmingham, Ala. (F. W. Kraus, Box 103, University Station, Birmingham 35294)

23-26. International Conf. on **Environmental Health**, American Medical Assoc., Primosten, Yugoslavia. (Dept. of Environmental, Public and Occupational Health, AMA, 535 N. Dearborn St., Chicago 60610)

24-25. International Technico-Economical Symp. on **Environmental Chemistry**, Intern. Business Contact Club, Brussels, Belgium. (IBCC, Nieuwelaan, 65, B-1820-Strombeek, Belgium)

24-25. International Symp. on **Gonorrhea**, Health Protection Branch, Dept. of Natl. Health and Welfare, Ottawa, Ont., Canada. (J. R. Renaud, Food and Drug Bldg., Room 105, Health Protection Branch, NHW, Tunney's Pasture, Ottawa, K1A 0L2)

24-27. American Soc. of **Human Gene-**

tics, Atlanta, Ga. (W. E. Nance, Dept. of Medical Genetics., Indiana Univ. Medical Center, Indianapolis 46202)

25-26. **Vehicle Emission Control Programs Conf.**, Madison, Wis. (K. Sparks, Engineering Dept., Univ. of Wisconsin-Extension, 432 N. Lake St., Madison 53706)

25-27. Indiana **Acad. of Science**, Indianapolis. (J. J. Nisbet, Biology Dept., Ball State Univ., Muncie, Ind. 47306)

25-27. Academy of **General Dentistry**, Houston, Tex. (R. G. O'Donnell, AGD, 211 E. Chicago Ave., Chicago, Ill. 60611)

25-28. **Atherosclerosis**, 3rd intern. symp., West-Berlin, Germany. (G. Schettler, Bergheimer Str. 58, D69 Heidelberg, Germany)

25-28. Society for **Psychophysiological Research**, Galveston, Tex. (P. J. Lang, Dept. of Psychology, Univ. of Wisconsin, Madison 53706)

25-28. Society for the **Scientific Study of Religion**, San Francisco, Calif. (W. V. D'Antonio, SSSR, Box U68A, Univ. of Connecticut, Storrs 06268)

25-30. **Radiological Soc. of North America**, Chicago, Ill. (H. L. Baker, Jr., Room 604, 713 E. Genesee St., Syracuse, N.Y. 13210)

26. Utah **Acad. of Sciences, Arts, and Letters**, Ogden. H. Buchanan, Dept. of Botany, Weber State College, Ogden 84403)

27-28. American College of **Dentists**, Houston, Tex. (R. J. Nelsen, 7316 Wisconsin Ave., Bethesda, Md. 20014)

28-1. American **Dental Assoc.**, Houston, Tex. (C. G. Watson, ADA, 211 E. Chicago Ave., Chicago, Ill. 60611)

29-31. **Electrical Insulation and Dielectric Phenomena Conf.**, National Acad. of Sciences, Varennes, P.Q., Canada. (N. T. Grisamore, NAS, 2101 Constitution Ave., NW, Washington, D.C. 20418)

29-2. International Conf. on **Atomic Spectroscopy**, 4th, Toronto, Ont., Canada. (C. L. Chakrabarti, Dept. of Chemistry, Carleton Univ., Ottawa K1A 5B6, Ont., Canada)

29-2. American Soc. of **Civil Engineers**, New York, N.Y. (E. Zwoyer, ASCE, 345 E. 47 St., New York 10017)

30-1. American Assoc. for the **Study of Liver Diseases**, Chicago, Ill. (F. Schaffner, Mount Sinai Hospital, Fifth Ave. and 100th St., New York 10029)

30-2. **Acoustical Soc. of America**, Los Angeles, Calif. (B. H. Goodfriend, ASA, 335 E. 45 St., New York 10017)

30-2. American **Ceramic Soc.**, Nuclear Div., 26th, San Francisco, Calif. (J. M. Leitnaker, Bldg. 4500-S, Room A-156, Oak Ridge Natl. Lab., Oak Ridge, Tenn. 37830)

30-4. American **Physical Soc.** plasma physics div., Philadelphia, Pa. (W. W. Havens, Jr., 335 E. 45 St., New York 10017)

November

1. American **Pancreatic Study Group**, Chicago, Ill. (P. D. Webster, Dept. of Medicine, Medical College of Georgia, Augusta 30902)

1-3. Association for **Academic Surgery**, Rochester, N.Y. (J. Cerilli, Ohio State Univ. Hospital, 410 W. Tenth Ave., Columbus, Ohio 43210)