

about the carbon dioxide pool was debated at length. Nome Baker (Veterans Administration, Los Angeles) suggested that  $C^{14}O_2$  from a single injection of bicarbonate behaves in the same fashion as that produced by intracellular oxidation. Therefore the results from bicarbonate can be used to predict the behavior of metabolic  $C^{14}O_2$ . Although some disagreed, Baker's position was supported by LeRoy and Okita who described experiments where  $C^{14}O_2$  specific activity was monitored during and after infusion of  $NaHC^{14}O_3$  at a constant rate. The incorporation of carbon-14 increased to a maximum and then declined at complementary rates. The curve for the declining rate had the same configuration as that following a single dose.

Uncertainty about interpretation has led most clinical investigators to report results simply as percentage of carbon-14 recovered at various times. Kleiber described his elegant studies of the precursor to product relationship in the constituents of milk from dairy cattle. By integrating curves of specific activity plotted against time for both precursor and products, he calculates a transfer quotient, that is, the amount of carbon arriving in a product from a particular precursor. The transfer quotient does not require information about intervening pools and can be obtained in situations where it is not possible to follow changes in specific activity of the precursor pool so long as information is available on a common pool such as that of carbon dioxide.

A number of clinical applications of the continuous assay method were described by Edgar Gordon (Wisconsin), Walton W. Shreeve (Brookhaven), and others. The application to pharmacological and physiological research with intact small animals was reviewed by George Okita (Northwestern). There are obvious advantages in working with intact, unanesthetized animals. The conferees agreed that it was difficult to evaluate some experimental studies because of variations in the terminology used to report the findings. A number of suggestions were offered to remedy the situation, but no consensus was reached.

A delightful feature of the conference was an after-dinner address by Willard F. Libby (U.C.L.A.) who reviewed the history of the discovery of carbon-14. His presence was particularly appropriate because of his en-

thusiastic support of efforts to exploit the unique features of radiocarbon in biological and medical research.

This conference was sponsored by the Argonne Cancer Research Hospital, which is operated for the U.S. Atomic Energy Commission by the University of Chicago under contract AT-(11-1)-69.

GEORGE V. LEROY

*Department of Medicine, University of Chicago, Chicago, Illinois*

## Forthcoming Events

### May

11-13. American **Science Film Assoc.**, annual, Washington, D.C. (ASFA, 704 17 St. NW, Washington, D.C. 20006)

14-16. American Inst. of **Industrial Engineers**, 15th annual conf., Philadelphia, Pa. (W. J. Jaffe, Dept. of Management Engineering, Newark College of Engineering, Newark, N.J.)

14-16. Society of **Technical Writers and Publishers**, 11th annual convention, San Diego, Calif. (C. M. Johnson, U.S. Navy Electronics Laboratory, San Diego 92132)

16. **Southern California Acad. of Sciences**, annual, Northridge. (R. B. Loomis, Dept. of Biology, Long Beach State College, Long Beach, Calif.)

16-2. European **Energy Conf.**, Paris, France. (H. Perdon, Institut Français des Combustibles et de l'Energie, 3, rue Henri-Heine, Paris 16<sup>e</sup>)

17-20. American Inst. of **Chemical Engineers**, natl. meeting, Pittsburgh, Pa. (F. J. Van Antwerpen, 345 E. 47 St., New York, N.Y. 10017)

18-20. **Radiation Research Soc.**, 12th annual, Miami Beach, Fla. (G. D. Adams, Radiological Laboratory, Univ. of California Medical Center, San Francisco 22)

18-20. **Water**, 2nd conf., Technical Assoc. of the Pulp and Paper Industry, Green Bay, Wis. (H. O. Teeple, TAPPI, 360 Lexington Ave., New York, N.Y.)

18-21. Society of **Economic Paleontologists and Mineralogists**, Toronto, Ont., Canada. (R. H. Dott, Box 979, Tulsa 1, Okla.)

18-21. American Assoc. of **Petroleum Geologists**, 49th annual conv., Toronto, Ont., Canada. (R. E. King, American Overseas Petroleum, Ltd., 485 Lexington Ave., New York, N.Y. 10017)

19-20. Council on **Medical Television**, 6th annual, Atlanta, Ga. (S. A. Agnello, Duke Univ. Medical Center, Box 3163, Durham, N.C. 27706)

19-21. **Microwave Theory and Techniques**, intern. symp., New York, N.Y. (H. L. Browman, Airborne Instruments Laboratory, Deer Park, N.Y. 11729)

19-22. **German Metallurgical Soc.**, general assembly, Bremen. (Deutsche Gesellschaft für Metallkunde, An der Alteburger Mühle 12, Köln-Marienburg, Germany)

19-22. German Soc. for **Applied Optics**, 65th, Gmunden am Traunsee. (H. Volkman, Deutsche Gesellschaft für Ange-

wandte Optik, Zeppelinstr. 23, 7920 Heidenheim, Germany)

19-23. **Energy Metabolism**, 3rd symp., Ayr, Scotland. (European Assoc. for Animal Production, Corso Trieste, 67, Rome, Italy)

19-30. International **Electrotechnical Commission**, general meeting, Aix-les-Bains, France. (American Standard Assoc., 10 E. 40 St., New York 16)

20. Memorial Hospital of Long Beach, **medical staff symp.**, Long Beach, Calif., (G. X. Trimble, 2801 Atlantic Ave., Long Beach 6)

20-23. Canadian Assoc. of **Geographers**, 14th annual, London, Ont. (CAG, P.O. Box 421, Ottawa, Ont., Canada)

20-28. Modern Methods for **Analysis of Organic Compounds**, symp., Eindhoven, Netherlands. (Gesellschaft Deutscher Chemiker, Postfach 9075, Frankfurt-am-Main, Germany)

21-22. American **Geological Inst.**, Toronto, Ont., Canada. (D. M. Kinney, U.S. Geological Survey, Washington, D.C.)

21-22. Southern **Textile Research Conf.**, Hilton Head Island, S.C. (American Assoc. of Textile Chemists and Colorists, P.O. Box 886, Durham, N.C.)

21-23. **Minerals**, 9th annual symp., Moab, Utah. (J. C. Fox, Soc. of Mining Engineers, 345 East 47 St., New York, N.Y.)

21-23. California Soc. of **Professional Engineers**, annual, Palm Springs, Calif. (J. C. Huisking, 970 Hillcrest Dr., Pomona, Calif.)

23-24. **Radiosensitizers and Radioprotective Drugs**, 1st intern. symp., Milan, Italy. (R. Paoletti, Pharmacology Inst., Via A. del Sarto, 21, Milan)

24-28. Near and Middle East **Medical conf.**, Istanbul, Turkey. (P. Ponthus, Institut de Radiologie et de Lutte Contre le Cancer, Hotel-Dieu de France, Beirut, Lebanon)

24-28. Institute of **Food Technologists**, 24th annual, Washington, D.C. (A. Kramer, Dept. of Horticulture, Univ. of Maryland, College Park)

24-29. International Federation for **Information Processing**, global conf., New York, N.Y. (A. P. Speiser, I.B.M. Research Laboratory, Zurichstr. 108, Adliswil-Zurich, Switzerland)

25. **Organic Solid State**, 2nd symp., Franklin Inst., Philadelphia, Pa. (M. M. Labes, Franklin Inst. Laboratories, 20th and The Parkway, Philadelphia 3)

25-27. American **Gynecological Soc.**, Hot Springs, Va. (American Gynecological Soc., 3800 Reservoir Rd., Washington, D.C. 20007)

25-27. **Power Reactors and Radioisotopes**, Canadian Nuclear Assoc., Toronto, Ont. (CNA, 19 Richmond St. West, Toronto 1, Ont.)


25-29. Society of **Physical Chemistry**, 14th annual, Bordeaux, France. (G. Emschwiller, Soc. de Chimie physique, 10, rue Vauquelin, Paris 5<sup>e</sup>, France)

26-29. **Water Studies**, 17th intern. conf., Liège, Belgium. (Cebedeau—Journées 1964, 2, rue A. Stevart, Liège)

27-29. American **Ophthalmological Soc.**, Hot Springs, Va. (AOS, 108 E. 68 St., New York, N.Y. 10021)

27-29. Canadian **High Polymer Forum**, 12th, Ste. Marguerite, Quebec. (H. Daoust,

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Dept. of Chemistry, University of Montreal, P.O. Box 6128, Montreal, P.Q.)

27-29. **Operations Research Soc. of America**, Montreal, P.Q., Canada. (G. D. Shellard, New York Life Insurance Co., 51 Madison Ave., New York, N.Y. 10010)

28-30. **American Assoc. of Museums**, St. Louis, Mo. (S. F. Borhegyi, Milwaukee Public Museum, Milwaukee 3, Wis.)

28-31. **Rockets and Space Flight**, 13th symp., Darmstadt, Germany. (A. F. Staats, Hermann-Oberth-Gesellschaft, Gesellschaft zur Förderung der Erforschung und Erschliessung des Weltraumes, Fritz-Beindorff-Allee 9, Hanover, Germany)

30-7. **Medical Surgical meetings and film festival**, 5th intern., Turin, Italy. (Minerva Medica, Corso Bramante n. 83-85, Turin, Italy)

### June

1-3. **Instrument Soc. of America, Analysis Instrumentation Div.**, symp., San Francisco, Calif. (Northern California Sec., ISA, 1341 Seventh St., Berkeley, Calif. 94710)

1-3. **Chemical Inst. of Canada**, 47th annual, Kingston, Ont. (D. G. Diaper, Royal Military College, Kingston)

1-3. **Subunit Structure of Proteins**, 17th biology symp., Brookhaven Natl. Laboratory, Upton, N.Y. (S. Lacks, Dept. of Biology, Brookhaven Natl. Laboratory, Upton 11973)

1-4. **Basic Science and Clinical Aspects of Muscle**, Edmonton, Alberta, Canada. (G. Monckton, Univ. of Alberta Hospital, Edmonton)

1-5. **Medical Library Assoc.**, 63rd annual, San Francisco, Calif. (MLA, 919 N. Michigan Ave., Chicago 11, Ill.)

1-5. **Society of the Plastics Industry**, natl. conf., New York, N.Y. (W. C. Bird, 250 Park Ave., New York 10017)

1-6. **Gastroenterology**, 7th intern. congr., Brussels, Belgium. (Assoc. of Natl. European and Mediterranean Socs. of Gastroenterology, 43, rue des Champs-Elysées, Brussels 5)

2-3. **Photovoltaic Specialists**, 4th annual conf., Cleveland, Ohio. (P. Rappaport, RCA Laboratories, Princeton, N.J.)

2-4. **Global Communications**, intern. symp. (Globcom VI), Philadelphia, Pa. (R. Guenther, RCA Communications Systems Div., Bldg. 1-3-1, Camden, N.J.)

2-4. **Telemetry**, natl. conf., Los Angeles, Calif. (W. S. Pope, 8420 Quinn St., Downey, Calif.)

2-5. **Food Microbiology**, 4th intern. symp., Göteborg, Sweden. (N. Molin, Swedish Inst. for Food Preservation Research, Göteborg 16)

2-6. **Acoustical Conf.**, 3rd., Budapest, Hungary. (Acoustics Div., Hungarian Soc. of Optics, Acoustics, and Film Techniques, Szabadság tér 17, Budapest 5)

2-6. **Ophthalmic-Optics**, intern. congr., Copenhagen, Denmark. (Danmark Special Optiker-Forening, Vesterbrogade 41B, Copenhagen 5)

3-5. **Collaborative Pesticides Analytical Committee**, 8th, Wageningen, Netherlands. (R. de B. Ashworth, c/o Plant Pathology Laboratory, Hatching Green, Harpenden, Hertfordshire, England)

3-10. **American Metalworking Technol-**

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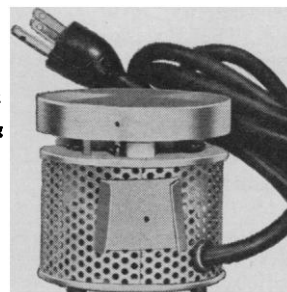


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ogy for the European Community (AMTEC), Brussels, Belgium. (E. L. Koester, ASTM, 10700 Puritan Ave., Detroit, Mich.)

7-9. National Public Relations Council of Health and Welfare Services, New York, N.Y. (The Council, 257 Park Ave. S., New York 10010)

7-9. Isotopically Labeled Drugs in Experimental Pharmacology, conf., Chicago, Ill. (L. J. Roth, Dept. of Pharmacology, Univ. of Chicago, Chicago 60637)

7-11. Special Libraries Assoc., St. Louis, Mo. (Mrs. J. North, Missile and Space Div., Lockheed Aircraft Corp., Palo Alto, Calif.)

7-12. Mass Spectrometry and Allied Topics, 12th annual conf., Montreal, Quebec, Canada. (N. D. Coggeshall, Gulf Research and Development Co., P.O. Drawer 2038, Pittsburgh, Pa. 15230)

7-13. European Ophthalmological Soc., 2nd congr., Vienna, Austria. (J. François, 15, Place de Smet de Naeyer, Ghent, Belgium)

8-9. Basic Cancer Research, 2nd Scandinavian symp., Stockholm, Sweden. (K. E. Hellström, c/o Riksföreningen mot Cancer, Postgiro 90 19 51, Stockholm)

8-10. Quasi-Optics, symp., Polytechnic Inst. of Brooklyn, 14th, New York, N.Y. (Polytechnic Inst. of Brooklyn, 55 Johnson St., Brooklyn 1)

8-11. Cardiovascular Conf., 2nd intern., St. Adele, Quebec, Canada. (D. F. M. Bunce, Dept. of Physiology, College of Osteopathic Medicine and Surgery, Des Moines, Iowa)

8-11. International Planned Parenthood Federation, conf. of region for Europe, Near East, and Africa, London, England. (J. Bettie, 6 Pembroke Rd., London W.1)

8-12. Surface Contamination, intern. symp., Gatlinburg, Tenn. (B. R. Fish, Health Physics Div., Oak Ridge Natl. Laboratory, P.O. Box X, Oak Ridge, Tenn. 37831)

9. International Assoc. for the Prevention of Blindness, Vienna, Austria. (J. P. Baillart, 47, rue de Bellechasse, Paris 7<sup>e</sup>, France)

9-11. Cobalt Applications, intern. meeting, Brussels, Belgium. (Cobalt Information Center, Battelle Memorial Inst., 505 King Ave., Columbus 1, Ohio)

9-11. Electromagnetic Compatibility, 6th natl. symp., Los Angeles, Calif. (J. A. Eckert, Dept. 3441/32, Northrop Norair, 3901 West Broadway, Hawthorne, Calif.)

9-12. Canadian Federation of Biological Societies, Halifax, N.S. (A. H. Neufeld, The Federation, Univ. of Western Ontario, London, Ont., Canada)

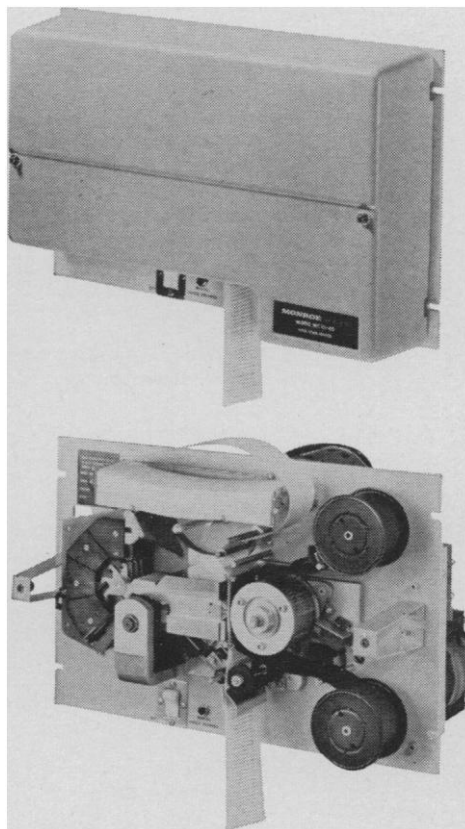
9-12. Max Planck Soc. for the Furtherance of Science, general meeting, Hamburg, Germany. (Max-Planck Gesellschaft zur Förderung des Wissenschaften e.V., Düsseldorf, Germany)

10-12. Heat Transfer and Fluid Mechanics, Berkeley, Calif., (S. Levy, General Electric Co., 150 Curtner Ave., San Jose, Calif.)

10-19. Intergovernmental Oceanographic Commission, 3rd session, Paris, France. (W. S. Wooster, Office of Oceanography, UNESCO, Place de Fontenoy, Paris 7<sup>e</sup>)

11-13. Manufacturing Chemists' Assoc., 92nd annual, White Sulphur Springs, W.

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11-13. **Population Assoc. of America**, San Francisco, Calif. (P. C. Glick, Bureau of Census, Washington, D.C. 20233)

13-19. **Medical Film Festival**, Helsinki, Finland. (W. M. A.-Film/Finmedicas, Ullanlinnankatu 1, Helsinki)

13-19. **World Medical Assoc.**, 18th general assembly, Helsinki, Finland. (H. S. Gear, 10 Columbus Circle, New York, N.Y. 10019)

14-17. **American Assoc. of Feed Microscopists**, 12th annual, Hot Springs, Ark. (G. M. Barnhart, Missouri Dept. of Agriculture, State Office Bldg., Jefferson City, Mo.)

14-18. **Industrial Pharmaceutical Research**, 6th natl. conf., Land O'Lakes, Wis. (L. W. Busse, 190 Pharmacy Bldg., Univ. of Wisconsin, Madison 6)

14-18. **Health Physics Soc.**, 9th annual, Cincinnati, Ohio. (H. F. Kolde, Taft Sanitary Engineering Center, Cincinnati 45226)

14-18. **American Nuclear Soc.**, 10th annual, Philadelphia, Pa. (O. J. DuTemple, 244 E. Ogden Ave., Hinsdale, Ill. 60502)

14-19. **Alpha Chi Sigma Fraternity**, Greenvale, L.I., N.Y. (M. L. Griffin, 5503 E. Washington St., Indianapolis, Ind. 46219)

14-19. **Cardiology**, 7th inter-american Congr., Montreal, P.Q., Canada. (The Congress, 2052 St. Catherine St., W., Montreal 25)

14-20. **National Speleological Soc.**, annual conv., New Braunfels, Tex. (J. H. Estes, 2818 S. 39 St., Abilene, Tex. 79605)

15-17. **Lattice Defects in Quenched Metals**, intern. conf., Argonne, Ill. (The Conference, Bldg. 212, Argonne Natl. Laboratory, Argonne)

15-17. **Institute of Navigation**, 20th annual, New York, N.Y. (P. Rosenberg, 330 Fifth Ave., Pelham, N.Y. 10803)

15-17. **American Neurological Assoc.**, 89th annual, Atlantic City, N.J. (M. D. Yahr, 710 West 168 St., New York, N.Y. 10032)

15-18. **Materials**, 2nd intern. symp., Berkeley, Calif. (T. H. Chenoweth, 276 Hearst Mining Bldg., Univ. of California, Berkeley 94720)

15-18. **American Soc. of Limnology and Oceanography**, 27th annual, Miami Beach, Fla. (G. H. Lauff, ASLO, Sapelo Island Research Foundation, Sapelo Island, Ga.)

15-19. **Antibiotics**, intern. Congr., Prague, Czechoslovakia. (V. Vlček, Antibiotics Research Inst., Roztoky near Prague, Czechoslovakia)

15-19. **Molecular Spectroscopy**, symp., Columbus, Ohio. (H. H. Nielsen, Dept. of Physics, Ohio State Univ., 174 W. 18 Ave., Columbus 43210)

15-19. **Technical Writers**, 12th annual inst., Troy, N.Y. (J. R. Gould, Rensselaer Polytechnic Inst., Troy)

15-21. **Women Engineers and Scientists**, 1st intern. conf., New York, N.Y. (E.

Eaves, 18 Third Ave., Port Washington, N.Y. 11050)

15-3. **Relativity**, teaching at undergraduate level, Arlington, Tex. (J. Ellis, Dept. of Physics, Arlington State College, Arlington)

15-4 Sept. **Gordon Research Conf.**, New Hampshire. (W. G. Parks, Dept. of Chemistry, Univ. of Rhode Island, Kingston)

16-17. **Computer Augmentation of Human Reasoning**, symp., Washington, D.C. (W. D. Orr, TRW Computer Div., 8433 Fallbrook Ave., Canoga Park, Calif. 91304)

16-18. **Entomological Soc. of America**, Pacific Branch, annual, Long Beach, Calif. (W. W. Allen, 112 Agric. Hall, Dept. of Entomology, Univ. of California, Berkeley)

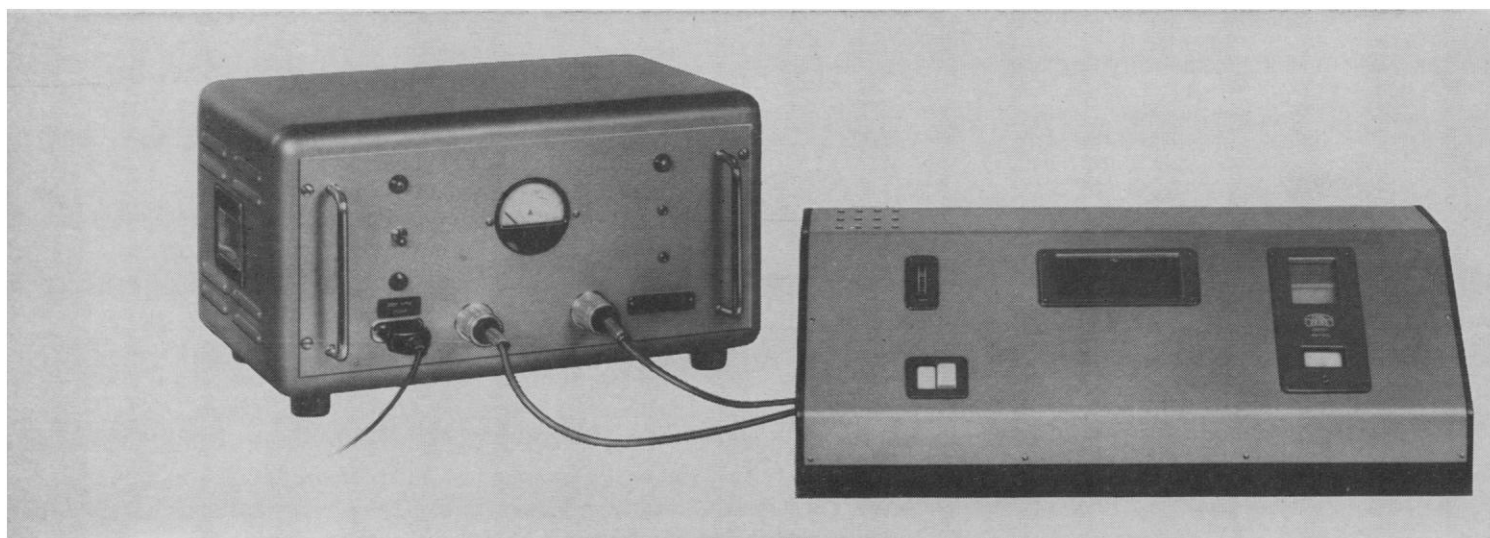
17-19. **Microscopy**, 11th intern. symp., Chicago, Ill. (MICRO-64, McCrone Research Inst., 451 E. 31 St., Chicago 60616)

17-20. **American College of Angiology**, Las Vegas, Nev. (A. Halpern, 11 Hampton Court, Great Neck, N.Y.)

18-19. **Patent, Trademark, and Copyright Research Inst.**, 8th annual conf., George Washington Univ., Washington, D.C. (PTCR Inst., George Washington Univ., Washington, D.C. 20006)

18-19. **American Rheumatism Assoc.**, San Francisco, Calif. (J. A. Coss, Jr., 20 E. 76 St., New York, N.Y. 10021)

18-20. **Community Psychiatry**, conf., Univ. of Wisconsin, Madison. (L. M. Roberts, 1300 University Ave., Madison)



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18-20. **Endocrine Soc.**, San Francisco, Calif. (H. H. Turner, 200 N. Walker, Oklahoma City, Okla.)

18-20. **American Assoc. of Physics Teachers**, summer meeting, Madison, Wis. (H. R. Crane, Dept. of Physics, Univ. of Michigan, Ann Arbor)

18-20. **Space Technology**, 4th European symp., Rome, Italy. (A. Eula, Associazione Italiana Razzi, Piazza Santo Bernardo 101, Rome)

18-20. **Sulfite Pulping**, conf., Chicago, Ill. (Technical Assoc. of the Pulp and Paper Industry, 360 Lexington Ave., New York, N.Y. 10017)

18-22. **American College of Chest Physicians**, San Francisco, Calif. (M. Kornfeld, 112 E. Chestnut, Chicago, Ill.)

19. **Parenteral Drug Assoc.**, Philadelphia, Pa. (The Association, Broad and Chestnut Sts., Philadelphia 7)

19-20. **American Geriatrics Soc.**, 21st annual, San Francisco, Calif. (AGS, 10 Columbus Circle, New York, N.Y. 10019)

19-27. **Chemical Engineering**, European conv., Frankfurt am Main, Germany (Chicago Section, American Chemical Soc., 86 E. Randolph St., Chicago 1, Ill.)

21. **Surface Physics**, Providence, R.I. (W. H. Brattain, Bell Telephone Laboratories, Murray Hill, N.J. 17971)

21-23. **Society for Investigative Dermatology**, 25th annual, San Francisco, Calif. (H. Beerman, SID, 255 S. 17 St., Philadelphia, Pa. 19103)

21-24. **American Soc. of Agricultural**

**Engineers**, Fort Collins, Colo. (J. L. Butt, ASAE, 420 Main St., St. Joseph, Mich.)

21-25. **Air Pollution Control Assoc.**, 57th annual, Houston, Tex. (The Association, 4400 Fifth Ave., Pittsburgh, Pa.)

21-25. **American Medical Assoc.**, San Francisco, Calif. (F. J. L. Blasingame, N. Dearborn, Chicago, Ill. 60610)

21-26. **American Soc. for Testing and Materials**, 67th annual, Chicago, Ill. (ASTM, 1916 Race St., Philadelphia 3, Pa.)

22-24. **American Dairy Science Assoc.**, Tucson, Ariz. (H. F. Judkins, 32 Ridgeway Circle, White Plains, N.Y.)

22-24. **Medicinal Chemistry**, 9th natl. symp., Minneapolis, Minn. (A. T. Winstead, American Chemical Soc., 1155 16th St., NW, Washington, D.C. 20006)

22-24. **Association for Research in Ophthalmology**, San Francisco, Calif. (H. Kaufman, c/o Hillis Miller Health Center, Gainesville, Fla.)

22-24. **Photosensitization in Solids**, intern. conf., Chicago, Ill. (L. Grossweiner, Dept. of Physics, Illinois Inst. of Technology, Chicago)

22-24. **American Assoc. of Physical Anthropologists**, 33rd annual, Mexico City, Mexico. (T. D. Stewart, The Association, U.S. Natl. Museum, Washington, D.C.)

22-24. **Polymers**, 2nd biennial symp., American Chemical Soc., Durham, N.C. (H. N. Friedlander, Chemstrand Research Center, Inc., Box 731, Durham)

22-25. **Agricultural Pesticides Technical Soc.**, Fredericton, N.B., Canada. (W. H. Minshall, University Substation P.O., London, Ont., Canada)

22-25. **American Soc. of Pharmacognosy**, annual, Pittsburgh, Pa. (R. Blomster, Univ. of Pittsburgh School of Pharmacy, Pittsburgh 15213)

22-26. **American Soc. for Engineering Education**, Orono, Maine. (W. L. Collins, Univ. of Illinois, Urbana)

22-26. **Nobel Prize Winners**, 14th meeting, Lindau im Bodensee, Germany. (H. F. Kinderlen, Standing Working Committee for the Nobel Prize Winners, Postfach 11, 899 Lindau im Bodensee)

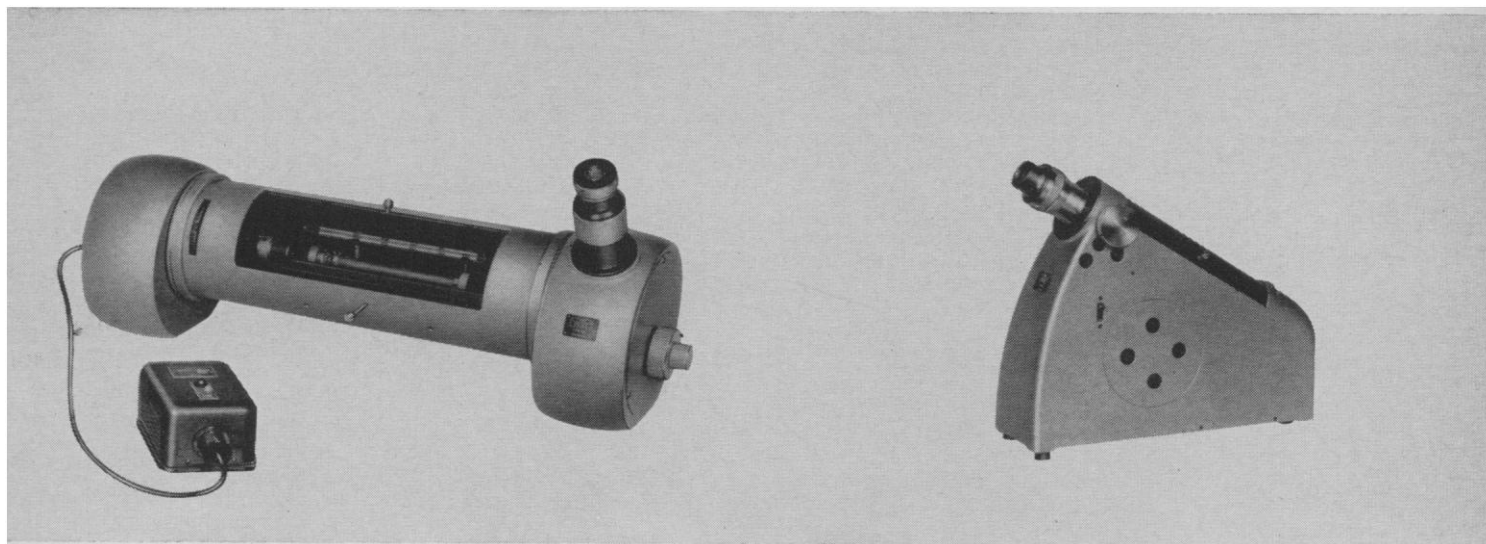
22-26. **Association of Official Seed Analysts**, Rochester, N.Y. (E. W. Sundermeyer, 329 U.S. Court House, Kansas City 6, Mo.)

22-27. **AAAS, Pacific Division**, 45th meeting, Vancouver, B.C., Canada. (R. C. Miller, California Academy of Sciences, San Francisco)

22-27. **International Organization for Pure and Applied Physics**, 2nd general assembly, Paris, France. (J. Tonnelot, Laboratoire de Biologie Physico-Chimique, Orsay, Seine-et-Oise, France)

23. **National Assoc. of Science Writers**, San Francisco, Calif. (M. D. Spencer, Buffalo Evening News, Buffalo, N.Y.)

23-25. **Precision Electromagnetic Measurements**, conf., Boulder, Colo. (National Bureau of Standards, Boulder Labs., Boulder)



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