Scientific Meetings

Peacetime Use of the Atom

Future world energy requirements, the possibilities of meeting these requirements from presently available sources of energy, and the economic costs of meeting some of the requirements by generating electric power with nuclear reactors were some of the topics under discussion during the first 3 days of the International Conference on the Peaceful Uses of Atomic Energy, which convened in Geneva, Switzerland, on 8 Aug. under the auspices of the United Nations.

Participants in the session concerned with world energy requirements during the next 50 years emphasized that they were attempting to forecast an order of magnitude for future needs. N. B. Guyol (U.N.) based his estimates on total useful power consumption in 1952 and past rates of growth of consumption. Useful power consumption in 1952 was equivalent to 10.2×10^9 megawatt hours (Mw hr) of electricity or to the power produced from 3×10^9 tons of coal. The rate of growth of commercial sources of energy has been 3.25 percent per year since 1860, but Guyol stated that this production curve understates the rise in requirements, particularly during recent years, because the efficiency of fuel utilization has increased. Guyol concluded that future growth of energy requirements during periods free from war or depression will take place at a rate between 4 and 6 percent per year. Thus the world will require useful power equivalent to 27×10^9 Mw hr of electricity in 1975 (5.5×10^9 tons of coal) and 84×10^9 Mw hr in 2000 (15×10^9 tons of coal). Guyol estimated that, since the efficiency of fuel use is likely to increase, an increase in fuel production of 3.5 percent per year will be sufficient to meet the new energy requirements.

E. A. G. Robinson and G. H. Daniel (United Kingdom), basing their study on a smaller estimate of future energy needs (equivalent to 7.4×10^9 tons of coal in 2000), considered present known world reserves of coal, oil, natural gas, and hydroelectric capacity. They concluded that hydroelectric plants could supply 0.9×10^9 tons of coal equivalent in 2000; that coal, because its production rate has been increasing very slowly (0.5 percent per year) and because of increased price, could supply only about 2×10^9 tons; and that the demand for oil and natural gas would therefore be about 4.5×10^9 tons of coal equivalent—a demand that would reduce world reserves to within 70 years of exhaustion. Robinson and Daniel said that, under these circumstances, the incentives to expand coal production would be powerful, but that the same incentives would serve equally to stimulate the development of nuclear energy, particularly for generating electricity.

Energy requirements and economic growth were discussed by E. S. Mason (U.S.), who pointed out that the demand for electric power is likely to increase more rapidly than the demand for energy as a whole and that nuclear power can contribute to electric power resources provided that adequate capital is available. Capital requirements for utilization of power, however, are far greater than those for power production. If full advantage of the potentialities of nuclear power is to be taken, the technological development necessary to reduce the cost of producing power from nuclear reactions must be pushed, and means must be found to make this power source available in underdeveloped areas.

Part of this session was devoted to the energy needs and resources of individual countries. Most of the papers demonstrated that these countries—Yugoslavia, Australia, Belgium, Czechoslovakia, Japan, Argentina, and India—would not be able to meet their future energy requirements from presently known conventional sources.

Forecasts of the role of nuclear energy during the next 50 years in France, Canada, the United Kingdom, Norway, Argentina, and the United States were presented in a separate session. Most speakers felt that reactor-produced electric power will seldom be able to compete with hydroelectric power when the latter is available. J. Davis and W. B. Lewis (Canada) suggested that nuclear power plants may be furnishing 10 to 15 percent of Canada's electric generating capacity by 1980 if the electricity can be produced at a cost of 6 to 7 mills/kw hr. K. M. Mayer (U.S.) presented a study of the economic potential of nuclear energy in various regions of the United States. He said that the maximum plausible growth of a nuclear power industry would permit nuclear power plants to provide 1.1, 2.5, 6.0, and 14.8 percent of the total power generation by 1975 for production costs of 9, 8, 7, and 6 mills per kilowatt hour, respectively. Mayer stressed particularly the factors that must be considered and the methods that must be employed in making a realistic appraisal of the economic potential of reactor-produced power. J. Cockcroft (United Kingdom) estimated that the installed electric power capacity of nuclear plants in the United Kingdom will be between 18 and 25 percent of national capacity by 1975.

In accordance with the desires of United Nations officials that considerable emphasis should be given to the economic cost of building and operating nuclear power plants, several papers were devoted to costs and others mentioned them. A paper by J. M. Hill and S. W. Joslin (United Kingdom) and one by W. K. Davis (U.S.) considered the capital investment required for production of nuclear energy. Davis said that cost estimates for power plants of 100- to 200-Mw capacity in the United States now range from $200 to $250 per kilowatt of capacity, whereas coal-fired plants now cost about $150 per kilowatt of capacity.

The most complete analysis of the cost of an operating reactor was presented in a paper prepared by J. R. Dietrich *et al.* (U.S.), who said that total cost of operation of a prototype boiling water reactor that drives a 3500-kw generator was 30 mills/kw hr, of which almost half was charged to capital investment. J. A. Jukes (United Kingdom) presented cost estimates for one of the nuclear power stations that were announced by the British Government last February. For a 150-Mw station driven by a gas-cooled, graphite-moderated reactor, capital costs are expected to be 0.36 pence/kw hr and annual operating costs 0.40 pence/kw hr (total, 9 mills/kw hr). Jukes noted that a coal-fired plant could produce power at 0.60 pence/kw hr, but that credit for the sale of the plutonium produced in the reactor will probably bridge the gap. D. I. Blokhintsev and N. A. Nikolayev (U.S.S.R.) reported that the cost of 1 kw hr of power produced by the 5000-kw station now operating in the Soviet Union "exceeds considerably the average cost of 1 kw hr in powerful heat power stations in the U.S.S.R." (10 kopecks/kw hr). The Soviets estimate that large nuclear power plants will be able to produce power at rates between 10 and 20 kopecks/kw hr. (Ten kopecks is about 25 mills at the official rate of exchange.) J. A. Lane (U.S.) reviewed published estimates of the capital cost of nuclear-electric plants, combined them with projected operating costs, and concluded that nuclear power costs in the range of 4 to 7 mills/kw hr might be realized

within 20 years. Lane discussed the costs of building and operating each of several different types of reactors.

Other topics discussed in the plenary sessions that were held during the first few days of the conference were the administrative and legal problems of the widespread use of high-level radiation sources, including both industrial health and safety and radiological health and safety codes; possible role of thorium in nuclear energy; biological effects of radiation; reactor safety and the location of power reactors; waste disposal in both its short-term and long-term aspects; isotopes in industry, medicine, biology, and agriculture; and experience with operation of nuclear power plants.

Meeting Notes

■ The American Institute of Biological Sciences will meet at Michigan State University, 5–9 Sept. George W. Beadle, Jr., president of the AAAS will be the principal speaker at the general session on 6 Sept., when he will consider the topic "What is a gene?"

During the convention period, 1154 research papers will be presented, and more than 100 speakers will participate in various symposiums. Two special meetings have been scheduled: a symposium on "Cultivated plants of the world" is dedicated to Liberty Hyde Bailey, and one on "Population genetics" is similarly dedicated to Sewall Wright. Other symposiums of general interest are "Modern approaches to problems of differentiations"; "Photorespiration in plants"; Biochemical genetics"; "Antibiotics in agriculture"; "Microscopical science in aquatic biology"; and "Arctic and alpine tundras."

Approximately 2700 biologists are expected to attend these concurrent meetings of 24 professional biological and agricultural societies. The facilities of Michigan State University will be used for society meetings as well as for housing and feeding delegates and their families. The campus will serve as base for a number of field trips into central and northern Michigan. As in the past, the Biological Sciences Exhibit will be an important feature, and this year's exhibit will be larger and more diversified than any displayed at previous AIBS meetings.

■ The Instrument Society of America's 10th annual Instrument-Automation Conference and Exhibit is to be held at the Shrine Exposition Hall and Auditorium in Los Angeles, Calif., 12–16 Sept. Theme of the show this year will be "Instrumentation paces automation."

According to A. O. Beckman, general chairman, the conference and exhibit is expected to be the largest national industry event of its kind ever held in the West. More than 500 manufacturers from many parts of the world have scheduled displays. Industrial leaders from Germany, Japan, England, Scandinavia, and South America, as well as from all over the United States, are planning to attend the meeting. In addition to the exhibit, there will be some 325 technical and clinical sessions.

■ An International Conference on the Use of Antibiotics in Agriculture will be held 19–21 Oct. in Washington, D.C., under the auspices of the National Academy of Sciences–National Research Council with the cooperation of its Agricultural Research Institute. The meeting will be supported by the American Cyanamid Co., Merck and Co., Charles Pfizer and Co., Inc., and E. R. Squibb and Sons.

The role of antibiotics in animal nutrition and food production will become increasingly important as their use is spread throughout the world. Antibiotic treatment of seeds and crops to control certain diseases as well as their use in the commercial processing of both meat and vegetables are receiving more and more attention. These subjects, as well as others, will be covered by the conference, which will be divided into five sessions of 3 hr each dealing with (i) growth response in animals; (ii) special biological problems; (iii) mode of action; (iv) crop usage and food preservation; and (v) public health aspects.

Sixteen scientists from abroad and 28 from the United States have been invited to participate in the program. At each session, two or three critical reviews will be presented and discussed by a panel. Each panel will consist of a moderator, the authors of the reviews, and one or two others. The panel discussion will be followed by a general discussion; finally, the whole session will be summarized by a specially designated participant.

The list of those invited from foreign countries includes: H. D. Branion, head, department of nutrition, Ontario Agricultural College, Guelph, Ont., Canada; Knut Breirem, Institute of Animal Husbandry and Animal Breeding, Agricultural College of Norway, Vollebekk; Johannes Bruggemann, Institute of Physiology and Animal Nutrition, University of Munich, Munich, Germany; Hjalmar Clausen, National Research Institute for Animal Husbandry, Copenhagen, Denmark; Douglas Coles, director of Veterinary Service, P.O. Onderstepoort, Union of South Africa.

John Duckworth, biochemistry department, Rowett Research Institute, Bucksburn, Aberdeenshire, Scotland; Sven Dyrendahl, Royal Veterinary College, Stockholm, Sweden; Andre C. Francois, Centre National de Récherches Zootechniques, Domaine de Vilvert, Jouy en Josas, Seine et Oise, France; E. Freerksen, Institute for Experimental Biology and Medicine, Borstel über Bad Oldesloe, Germany; W. S. Gordon, Agricultural Research Council Field Station, Compton, England.

S. K. Kon, National Institute for Research in Dairying, Shinfield, England; H. R. Marston, division chief, Commonwealth Scientific and Industrial Research Organization, University of Adelaide, Adelaide, South Australia; Francisco Ruiz-Sanchez, Instituto de Patología Infecciosa Experimental, Universidad de Guadalajara, Guadalajara, Jalisco, Mexico; A. D. Sardon, State Animal Health Center, Madrid, Spain; R. L. Squibb, Servicio Cooperativo Interamericano de Agricultura, "La Aurora" Guatemala, Departamenta de Zootecnia, Guatemala, Central America; H. L. A. Tarr, acting director, Pacific Fisheries Experimental Station, Vancouver B.C., Canada.

The meetings will be held in the Jefferson Memorial Auditorium of the U.S. Department of Agriculture at 14 St. and Independence Ave. S.W. Interested scientists are invited to attend. Registration should be made in advance by writing for a registration card to the International Conference on the Use of Antibiotics in Agriculture, National Academy of Sciences–National Research Council, 2101 Constitution Ave. NW, Washington 25, D.C. There is no registration fee.

■ A symposium on the Physiopathology of the Reticulo-endothelial System was held 4–8 July at the Centre National de la Récherche Scientifique, Gif sur Yvette, France. This meeting was sponsored by the Council for International Organizations of Medical Sciences, with participation of the Unitarian Service Committee.

Scientists from this country who attended were S. O. Byers, Harold Brunn Institute, San Francisco, Calif.; E. L. Dobson, Donner Laboratory, Berkeley, Calif.; P. F. Hahn, Cancer Research Laboratories, Nashville, Tenn.; J. H. Heller, New England Institute for Medical Research, Ridgefield, Conn.; Lewis Thomas, New York University College of Medicine; and C. A. Doan, Ohio State University College of Medicine.

Forthcoming Events

September

19–23. Fédération Internationale Pharmaceutique, 16th general assembly, London, Eng. (D. F. Lewis, Secy., Organizing Committee, FIP, 17 Bloomsbury Sq., London W.C.1.)

20–23. American Roentgen Ray Soc., Chicago, Ill. (B. R. Young, Germantown Hospital, Philadelphia 44, Pa.)

20–26. World Medical Assoc., 2nd con-

gress, Vienna, Austria. (L. H. Bauer, 345 E. 46 St., New York 17.)

22–23. Symposium on the Less Common Metals, London, Eng. (W. J. Felton, Institution of Mining and Metallurgy, Salisbury House, London, E.C.2.)

23–24. Symposium on the Biologic Effects of Microwaves, Rochester, Minn. (J. F. Herrick, Section of Biophysics, Mayo Clinic, Rochester.)

25–28. American Inst. of Chemical Engineers, Lake Placid, N.Y. (F. J. Van Antwerpen, AICE, 25 W. 45 St., New York.)

26–29. Assoc. of Iron and Steel Engineers, annual, Chicago, Ill. (Secretary, AISE, Empire Bldg., Pittsburgh 22, Pa.)

26–30. International Dairy Federation, annual, Bonn, Germany. (IDF, 154, rue Belliard, Brussels, Belgium.)

26–30. Atomic Industrial Forum and Trade Fair, Washington, D.C. (C. Robbins, 260 Madison Ave., New York 16.)

26–30. Colloquium on Deformation and Flow of Solids, Madrid, Spain. (H. L. Dryden, National Advisory Comm. for Aeronautics, Washington 25.)

26–1. Endocrine Soc., 7th annual postgraduate assembly, Indianapolis, Ind. (Postgraduate Office, Indiana Univ. School of Medicine, Indianapolis 7.)

27–1. International Symposium on Analogue Computers, Brussels, Belgium. (P. Germain, Institut de Physique Appliquée, Université Librede Bruxelles, Bruxelles.)

28–29. Industrial Electronics Conf., Detroit, Mich. (G. Ferrara, 8106 W. Nine Mile Rd., Oak Park 37, Mich.)

28–30. Mississippi Valley Medical Soc., St. Louis, Mo. (H. Swanberg, 209–224 W.C.U. Bldg., Quincy, Ill.)

29–1. International Soc. of Vegetative Neurology, 6th annual symposium, Strasbourg, France. (R. Fontaine, Univ. of Strasbourg Faculty of Medicine, Strasbourg.)

30. American Medical Writers' Assoc., St. Louis, Mo. (H. Swanberg, 209–224 W.C.U. Bldg., Quincy, Ill.)

30–1. Council for International Organizations of Medical Sciences, 3rd general, Paris, France. (J. F. Delafresnaye, CIOMS, 19, avenue Kléber, Paris 16e.)

30–2. Indiana Geological Field Conf., 8th, Clifty Falls State Park, Ind. (C. F. Deiss, Dept. of Geology, Indiana Univ., Bloomington.)

October

1–9. International Food Fair, Cologne, Germany. (International Trade Fair Staff, USDA, Washington 25.)

3–6. Soc. of Exploration Geophysicists, 25th annual, Denver, Colo. (C. Campbell, SEG, 624 S. Cheyenne, Tulsa, Okla.)

3–7. American Inst. of Electrical Engineers, fall general, Chicago, Ill. (N. S. Hibshem, 33 W. 39 St., New York 18.)

4–6. American Meteorological Soc., Stillwater, Okla. (K. C. Spengler, 3 Joy St., Boston 8, Mass.)

4–6. International Assoc. of Milk and Food Sanitarians, Augusta, Ga. (H. L. Thomasson, IAMFS, Box 437, Shelbyville, Ind.)

6–8. Optical Soc. of America, Pittsburgh, Pa. (A. C. Hardy, Room 8-203, Massachusetts Inst. of Technology, Cambridge 39.)

6–8. Soc. of Industrial Designers, 11th annual, Washington, D.C. (S. G. Swing, SID, 48 E. 49th St., New York 17.)

9–13. Electrochemical Soc., Pittsburgh, Pa. (H. B. Linford, 216 W. 102 St., New York 25.)

9–14. American Acad. of Ophthalmology and Otolaryngology, Chicago, Ill. (W. L. Benedict, 100 First Avenue Bldg., Rochester, Minn.)

10–12. American Acad. for Cerebral Palsy, annual, Memphis, Tenn. (R. A. Knight, AACP, 869 Madison Ave., Memphis 3.)

10–12. American Oil Chemists' Soc., Philadelphia, Pa. (Mrs. L. R. Hawkins, AOCS, 35 East Wacker Drive, Chicago 1, Ill.)

10–12. National Prestressed Concrete Short Course, 1st, St. Petersburg, Fla. (A. M. Ozell, Civil Engineering Dept., Univ. of Florida, Gainesville.)

10–13. National Clay Conf., 4th, University Park, Pa. (T. F. Bates, College of Mineral Industries, Pennsylvania State Univ., University Park.)

10–21. New York Acad. of Medicine Graduate Fortnight on Problems of Aging, New York (R. L. Craig, 2 East 103 St., New York 29.)

11. Illinois State Geological Survey, 50th anniversary, Urbana, Ill. (J. C. Frye, 121 Natural Resources Bldg., Univ. of Illinois, Urbana.)

12–13. Symposium on Phospholipids, London, Ontario. (R. J. Rossiter, Dept. of Biochemistry, Univ. of Western Ontario, London, Ont.)

13. Assoc. of Vitamin Chemists, Chicago, Ill. (M. Freed, 4800 S. Richmond, Chicago 32.)

13–15. Indiana Acad. of Science, Notre Dame. (W. A. Daily, Eli Lilly and Co., 740 South Alabama St., Indianapolis 6, Ind.)

13–15. Canadian Physiological Soc., annual, London, Ontario. (J. M. R. Beveridge, Dept. of Biochemistry, Queen's Univ., Kingston, Ont.)

14–15. National Soc. of Professional Engineers, Memphis, Tenn. (K. E. Trombley, NSPE, 1121 15 St., NW, Washington 5.)

16. American College of Dentists, San Francisco, Calif. (O. W. Brandhorst, 4221 Lindell Blvd., St. Louis, Mo.)

16–19. Soc. of American Foresters, Portland, Ore. (H. Clepper, 425 Mills Bldg., Washington 6.)

17–19. Detroit Institute of Cancer Research, 8th annual, Detroit, Mich. (Wm. L. Simpson, 4811 John R St., Detroit 1.)

17–20. American Dental Assoc., annual, San Francisco, Calif. (H. Hillenbrand, 222 E. Superior St., Chicago 11.)

17–21. American Soc. of Civil Engineers, New York, N.Y. (W. N. Carey, ASCE, 33 W. 39 St., New York 18.)

17–21. National Metal Exposition and Cong., Philadelphia, Pa. (C. L. Wells, 7301 Euclid Ave., Cleveland 3, Ohio.)

18. American Soc. of Safety Engineers, annual, Chicago, Ill. (J. B. Johnson, 425 N. Michigan Ave., Chicago 11.)

18. Oak Ridge Inst. of Nuclear Studies, council meeting, Oak Ridge,Tenn. (W. G. Pollard, P. O. Box 117, Oak Ridge.)

18–19. National Acad. of Economics and Political Science, Washington, D.C. (D. P. Ray, Hall of Government, George Washington Univ., Washington 6.)

18–20. Entomological Soc. of Canada and the Acadian Entomological Soc., annual joint meeting, Fredericton, New Brunswick. (R. H. Wigmore, Science Service Bldg., Ottawa, Canada.)

18–21. American Dietetic Assoc., annual, St. Louis, Mo. (R. M. Yakel, ADA, 620 N. Michigan Ave., Chicago 11, Ill.)

19–21. Symposium on Applications of Radioactivity in Food and Food Processing Industries, Boston, Mass. (W. A. Stenzel, Tracerlab Inc., 130 High St., Boston 10.)

19–21. International Conf. on the Use of Antibiotics in Agriculture, Washington, D.C. (H. I. Cole, National Research Council, Div. of Biology and Agriculture, 2101 Constitution Ave., Washington 25, D.C.)

20–21. National Noise Abatement Symposium, 6th annual, Chicago, Ill. (R. W. Benson, Armour Research Foundation, Illinois Inst. of Technology, Chicago.)

22. American Mathematical Soc., College Park, Md. (AMS, 80 Waterman St., Providence 6, R.I.)

22–24. American Heart Assoc., 28th annual scientific session, New Orleans, La. (Medical Director, AHA, 44 E. 23 St., New York 10.)

24–26. National Conf. on Standards, 6th, Washington, D.C. (G. P. Paine, ASA, 70 E. 45 St., New York 17.)

24–27. International Anesthesia Research Cong., Washington, D.C. (W. Friend, 515 Nome Ave., Akron 20, Ohio.)

24–1. International Council for the Exploration of the Sea, annual, Copenhagen, Denmark. (General Secretary of Council, Charlottenlund Castle, Charlottenlund, Denmark.)

25–30. American Ornithologists' Union, Boston, Mass. (H. F. Mayfield, 2557 Portsmouth Ave., Toledo 13, Ohio.)

27–28. New Mexico Acad. of Science, Albuquerque. (C. C. Hoff, Dept. of Biology, Univ. of New Mexico, Albuquerque.)

27–29. Electron Microscope Soc. of America, University Park, Pa. (Miss J. R. Cooper, General Electric Co., Lamp Div., Nela Park, Cleveland 12, Ohio.)

27–29. Gerontological Soc., Baltimore, Md. (N. W. Shock, Baltimore City Hospitals, Baltimore 24.)

27–29. American Ceramic Soc., 8th Pacific Coast Regional, Seattle, Wash. (C. S. Pearce, 4055 N. High St., Columbus 14, Ohio.)

28–29. Conf. on Rare Earths in Biochemical and Medical Research, Oak Ridge, Tenn. (G. C. Kyker, Oak Ridge Inst. of Nuclear Studies, P.O. Box 117, Oak Ridge.

28–30. American Soc. for Aesthetics, Chicago, Ill. (J. F. White, Western Reserve Univ., Cleveland 6, Ohio.)

31–1. East Coast Conf. on Aeronautical and Navigational Electronics of Inst. of Radio Engineers, Baltimore, Md. (G. R. White, Bendix Radio Div., Bendix Aviation Corp., Towson 4, Md.)

31–5. Conf. on Solar Energy, Scientific

Basis, Tucson, Ariz. (31–1 Oct.); World Symposium on Applied Solar Energy, Phoenix, Ariz. (1–5 Nov.). (M. L. Kastens, Stanford Research Inst., Stanford, Calif.)

November

1–3. Enzymes: Units of Biological Structure and Function, International Symposium, Detroit, Mich. (C. E. Rupe, Henry Ford Hospital, Detroit 2.)

1–5. World Symposium on Applied Solar Energy, Phoenix, Ariz. (M. L. Kastens, Stanford Research Inst., Stanford, Calif.)

2–4. American Documentation Inst., annual, Philadelphia, Pa. (S. Rosenborg, Library of Congress, Washington 25.)

2–4. Society of Rheology, annual, New York. (W. R. Willets, Titanium Pigment Corp., 99 Hudson St., New York 13.)

2–4. Symposium on Antibiotics, 3rd annual, Washington, D.C. (H. Welch, Div. of Antibiotics, Food and Drug Admin., U.S. Dept. of Health, Education, and Welfare, Washington 25.)

2–5. American Soc. of Tropical Medicine and Hygiene, Boston, Mass. (J. E. Larsh, Jr., School of Public Health, Univ. of North Carolina, Chapel Hill.)

3. American Federation for Clinical Research, Midwestern, Chicago, Ill. (R. J. Glaser, Barnes Hospital, 600 S. Kingshighway, St. Louis 10, Mo.)

4–5. Kentucky Academy of Science, Frankfort, Ky. (Mary E. Wharton, Georgetown College, Georgetown, Ky.)

5. Committee for the Scientific Study of Religion, Cambridge, Mass. (R. V. McCann, Andover Hall, Harvard Univ., Cambridge 38.)

6–7. American Soc. for the Study of Arteriosclerosis, 9th annual, Chicago, Ill. (O. J. Pollak, P.O. Box 228, Dover, Del.)

6–13. International Cong. of Allergology, Rio de Janeiro, Brazil. (F. Alves, Avenida Rio Branco 277, 7° andar, Rio de Janeiro.)

7–9. Assoc. of Military Surgeons of the United States 62nd annual, Washington, D.C. (AMSUS, 1726 Eye St., NW, Washington 6.)

7–9. Eastern Joint Computer Conf., AIEE, IRE, ACM, Boston, Mass. (I. Travis, Burroughs Res. Center, Paoli, Pa.)

7–9. Geological Soc. of America, annual, New Orleans, La. (H. R. Aldrich, 419 W. 117 St., New York 27.)

7–9. Mineralogical Soc. of America, New Orleans, La. (C. S. Hurlbut, Jr., 12 Geological Museum, Oxford St., Cambridge 38, Mass.)

7–9. Paleontological Soc., New Orleans, La. (K. E. Caster, Dept. of Geology, Univ. of Cincinnati, Cincinnati 21, Ohio.)

7–9. Soc. of Economic Geologists, New Orleans, La. (O. N. Rove, Union Carbide and Carbon Corp., 30 E. 42 St., New York 17.)

8. Assoc. of Geology Teachers, New Orleans, La. (R. L. Bates, Dept. of Geology, Ohio State Univ., Columbus 10.)

9–13. International Symposium on Tuberculosis in Infancy and Childhood, Denver, Colo. (L. S. Smith, National Jewish Hospital, 3800–4100 E. Colfax Ave., Denver 6.)

10. Assoc. of Vitamin Chemists, Chicago, Ill. (M. Freed, 4800 S. Richmond, Chicago 32.)

10–11. American Philosophical Soc., Philadelphia, Pa. (L. P. Eisenhart, 104 S. 5 St., Philadelphia 6.)

10–12. American Astronomical Soc., Troy, N.Y. (J. A. Hynek, McMillin Observatory, Ohio State Univ., Columbus 10.)

10–12. American College of Cardiology, 4th, Memphis, Tenn. (P. Reichert, American Coll. of Cardiology, Empire State Bldg., New York 1.)

11–12. Inter-Society Cytology Council, 3rd annual, Cleveland, Ohio. (P. F. Fletcher, 634 N. Grand Ave., St. Louis 3, Mo.)

13–18. American Soc. of Mechanical Engineers, 75th annual, Chicago, Ill. (C. E. Davies, 29 W. 39 St., New York 18.)

14–16. Technical Conf. on Electrical Techniques in Medicine and Biology, 8th annual, Washington, D.C. (T. Rogers, Machlett Laboratories, 1063 Hope St., Springdale, Conn.)

14–17. International Automation Exposition, 2nd, Chicago, Ill. (R. Rimbach Associates, 845 Ridge Ave., Pittsburgh 12, Pa.)

14–18. New England Inst. for Hospital Administrators, 7th, Boston, Mass. (D. Conley, ACHA, 620 N. Michigan Ave., Chicago 11, Ill.)