Meetings and Societies

Marine Biology

Under the auspices of the International Union of Biological Sciences and sponsored by the University of California, Scripps Institution of Oceanography, and the Office of Naval Research, there was held 23 Mar.–2 Apr., at La Jolla, Calif., a symposium on "Perspectives in marine biology," with 47 participants, about 72 observers, plus Scripps personnel. Adriano Buzzati-Traverso organized the program, took the brunt of intricate diplomatic problems, and directed the large staff in managing a complex function.

The main strength and the main weakness of the conference may be said to have derived from the large number of people and the great diversity of disciplines represented. A high percentage of the members were not marine biologists. Many fields, but especially ecology, physiology, genetics, and evolution were represented. The advantages of this feature were felt by the members of these disciplines per se, while the disadvantage was felt by those who hoped for some synthesis, some formulation, or some agreement on a finite set of perspectives on the future of marine biology.

The ecological papers were introduced by K. M. Rae (Edinburgh), who examined the parameters of the marine environment that should be studied and was the first among many speakers to call for more intensive effort at culture of marine organisms. A. C. Redfield (Woods Hole) emphasized the inadequacy of experiments in marine biology and, thereby, opened a debate which continued as a thread through subsequent discussions. Papers by P. Drach (Paris), W. Weiser (Seattle), and R. Riedl (Vienna) attacked conceptual and practical aspects of field ecology. G. Thorson (Copenhagen) reported evidence of an enormously greater consumption of food by invertebrate predators than fish predators on the bottom communities in the North Sea and further of an ecologically crucial period of quiescence of these invertebrate predators coinciding with the period of chief larval settlement of the common prey species. D. P. Wilson (Plymouth) described the present information on the selection of substratum by planktonic larvae ready for metamorphosis and on trace organic substances in certain water masses which promote the growth of larvae.

H. Barnes (Millport) illustrated a paper on the future of underwater television with startlingly detailed and revealing photographs of present-day achievements. Individual spines of echinoids and single zooplankters could be clearly seen. C. M. Yonge (Glasgow) opened a discussion on the physiology and ecology of reef-building corals and concluded with the opinion that algae, associated with the coral, are not of direct nutritional benefit to the coral. Others, and especially E. P. Odum (Athens, Ga.) felt that, in the light of recent discoveries, this question must be reopened.

V. and L. Tonolli (Pallanza, Italy) demonstrated the irregularities of distribution of plankton communities in fresh waters as measured by a continuously recording and sampling device that receives plankton through a plastic tube extending to the surface from the plankton net at 70 meters depth. A different and already classical form of continuous plankton recorder was one of the bases of a paper by A. C. Hardy (Oxford) emphasizing the possibilities of prediction of fishery conditions in the sea. Although the ecological papers as a whole showed great vitality in dealing with special cases, there was a complaint by some that an over-all accounting for the distribution of organic matter and the flux of energy, as between major fractions of the living mass and of the nonliving reservoirs, was not being faced up to.

The series of biochemical and physiological papers was begun by E. Baldwin (London) and continued by T. H. Bullock (Los Angeles), E. S. Guzman Barrow (Chicago), and A. Szent-Gyorgyi (Woods Hole) whose essay entitled "Motion, energy transmission and the cellular matrix," proposed a new theory of the linkage between energy-releasing mechanisms in muscle and the contractile portions of the protein. Ending up a heady day of provocative new ideas, C. S. Pittendrigh (Princeton) and F. A. Brown (Evanston, Ill.) reported experiments on a wide range of organisms analyzing rhythms of daily, tidal, and lunar periodicity.

S. K. Kon (Reading, England) documented the tortuous path of the scientist with a story of the search for vitamin A in bathypelagic organisms which began in a dairy research institute. W. Rodhe (Uppsala) thrilled all those who hope for intensive work on productivity of natural waters by recounting recent experiences with daily C^{14} measurements in a Swedish lake, and R. Margalef (Barcelona) followed with a complementary report on close-grained analysis of temporal succession and spatial heterogeneity in occurrence of phytoplankton. D. I. Arnon (Berkeley) and L. Provasoli (New York) pointed up the opportunities and difficulties in the study of inorganic micronutrients and organic growth factors.

Behavior and its mechanisms formed the common denominator of three contributions by W. H. Thorpe (Cambridge), T. H. Waterman (Yale), and A. D. Hasler (Madison, Wis.), the latter two suggesting new or little understood sensory modalities as the basis for navigation and migration.

The series of contributions in the area of evolution and population genetics included several reports on successful experiences in the breeding and culturing of species of marine invertebrates, especially those by V. L. Loosanoff (Milford, Conn.) on pelecypods, and D. L. Ray (Seattle) on crustaceans, polychaetes, and other groups, and W. Matsui (Kyoto) on the pearl oyster. Problems of speciation in the sea and of the influence of breeding structure of the population were discussed by W. Wieser (Seattle), C. Barigozzi (Milan), and A. J. Kohn (Honolulu).

Moving in closer, A. Novick (Chicago) cited experiments with continuous-flow culture techniques on bacteria permitting experimental observation of evolutionary processes in response to imposed changes in the environmnt. R. A. Lewin (La Jolla) examined genetics in marine algae, and G. Montalenti (Naples) discussed sex determination in marine species. Moving back again for the broad look, P. Drach eloquently pleaded that marine biology not be studied as a special branch but simply as a favorable place for the examination of the most general problems of biology.

A notable experiment in conference technique sent groups of eight or ten participants selected for diversity into daily sessions of almost unstructured discussion. The six different so-called "idea groups" had, as might be expected, very different experiences, but it was commonly reported that at least some of the time fruitful discussions resulted.

It was a matter of general regret that four Russian delegates, who were expected until the last minute, cabled their apologies. The proposal by Zenkevich to include a biological program of field work in the International Geophysical

Year was endorsed by a vote of the symposium.

Methods were a frequent topic. Severe criticism of long-accepted techniques, criticisms for failure to use available techniques or to standardize those in use, and suggestions for new methods, ranging from ingenious simplified procedures, such as Margalef's "diversity indices" to genuinely imaginative large-scale attacks on the problems, both of data procurement and data reduction by automatic processes commensurate with the size and complexity of the problems in the seas, were rife. Beyond techniques, there was a strong feeling continually coming to the surface that classical approaches, especially to ecology, are inadequate in the recognition of the criteria of the environment to be measured. As a single example of this, many were impressed by the new field of micro- and even ultramicronutritional factors affecting marine populations.

One ecologist said, "I felt that ecology is rapidly coming to occupy a strong position as a 'bridger of gaps' between physical sciences and the experimental biologist who has been the 'fair-haired child' for the past decade. What scares me is that ecology is not well prepared in terms of manpower and sound modern research know-how to fulfill this important role." A minor persistent theme was the strategy of science. Two views that were expressed surprised some in their incompatibility and in the prominence of the issue in other peoples' thinking. A clear majority seemed firmly in favor of absolute freedom of activity for the research worker, even though this means that an institute of oceanography would not have a theme, let alone a definite project. A minority felt that, especially in the science of the sea, some limitation of objectives is essential and that it might be better in marine biology to have more engineers even if it means having fewer scientists.

The papers, together with submitted discussions, are being edited for publication by the University of California Press.

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Cosmic Distance Scale

Our knowledge of the universe depends basically on astronomical distances. The accuracy of the determination of distances presents a major challenge to astronomers. The need of a critical review and a fresh look at this complex problem prompted this Conference on the Cosmic Distance Scale, which was sponsored by the National Science Foundation and the Leander McCormick Observatory of the University of Virginia. The conference was held 5–7 Apr. 1956 at Charlottesville, where 30 participants and invited guests were present. Two foreign astronomers were invited, but, of these, only Otto Heckmann (Hamburg) was able to attend. Daniel Chalonge (Institut d'Astrophysique, Paris) met with last minute visa difficulties and was unable to be present [*Science* **124**, 127 (20 July 1956)]. However, his contribution was read.

All proceedings were tape-recorded, because it is our aim to publish the papers as well as much of the discussion. The first day was devoted to astrometry, the second to spectroscopic determinations of distances, and the third to extragalactic distances of the nearby nebulae.

Our knowledge of the distances of the stars in our immediate neighborhood is based on geometric considerations. The most fundamental method of determining these distances, that of trigonometric parallaxes, makes use of the earth's orbit around the sun. Even for stars within 150 light-years of the sun, we are confronted with serious limitations in accuracy of this method. The nature of the systematic errors present is still unknown. In addition, this geometric method provides distances relative to the background stars only. From the motion of the distant stars, absolute distances are obtained, which, in turn, add to our uncertainties. Among the suggestions for remedying the situation were the establishment of a southern station with a telescope exactly like the 20-inch astrograph of the Lick Observatory for the determination of the motion of the stars in the southern sky and the construction of a large reflector designed especially for the determination of distances by means of geometric methods. Another geometric method uses the sun's path through space as a base line for distance determinations. This method is mainly of statistical value, producing mean distances for certain types of stars. It is affected by uncertainties in the assumed relative motions of stars in various parts of our stellar system.

By establishing the intrinsic luminosity of a star and by comparing it with the star's apparent luminosity, the star's distance is derived. The spectrum of a star yields the star's intrinsic luminosity, provided that we know from geometric or kinematic considerations the distance of a number of stars for calibration purposes. Therefore, the uncertainties of the previous determinations are, by necessity, included in this method of determination. This is particularly true for stars of high luminosity that are at great distances. Here enters, also, the uncertainty owing to the interstellar absorption of the light received from the stars. However, it appears possible to take this into account by measuring the reddening of the light owing to the interstellar particles.

The nearby clusters provide an independent method for calibrating our spectra and securing luminosities. The line-of-sight velocities of the stars in a cluster and their projected motions on the sky yield the distance to the cluster. It was shown that the distance of the Hyades is the most accurately known distance among the clusters. But, since the members of this cluster do not include stars of all luminosities and spectral types, the stars of other clusters suitably superimposed on the calibration line of stars of the Hyades are used. It was pointed out that, in order to do this, it is necessary to know the ages of the different clusters, since evolutionary changes of the stars affect their luminosity. Here again we are confronted with new uncertainties.

The well-known method of determining distances by means of the intrinsic luminosities of Cepheid variables is more complicated than it was originally thought to be. This method utilizes the relationship between the period of light variation and the intrinsic brightness of these stars. However, this period-luminosity relationship is not unique for all kinds of Cepheid variables. Five "families" of Cepheid variables have been identified from independent considerations, and, for each of these, a relationship period and luminosity seems to exist.

The final session of the conference dealt with the determination of the distances of the nearby external galaxies. The distance indicators of these objects are stars similar to some kinds of stars that we find in our stellar system. By necessity, they must be of high luminosity and, at the same time, identifiable with certainty with their counterparts in our own system. Much of this work is now in progress. The expressed opinion was that it will take a number of years to complete. But, in spite of all the precautions that are taken, a 25-percent accuracy in their distances will be difficult to attain.

The problem of the distant galaxies, of which no individual stars are visible, was not discussed. Its solution will depend on the clarification of our present difficulties and uncertainties.

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Meeting Notes

■ The first of a series of annual symposia on naval hydrodynamics will be held in Washington, D.C., 24–28 Sept. It will be sponsored by the mechanics branch of

the Office of Naval Research, in cooperation with the National Academy of Sciences–National Research Council. The papers will survey critically the various areas of hydrodynamics that are basic to Naval and marine applications.

The program for the symposium includes the following speakers: C. C. Lin, on boundary layer stability; S. Corrsin, on turbulence in shear flows; G. K. Batchelor, on wave scattering owing to turbulence; M. J. Lighthill, on river waves; W. H. Munk and M. Tucker, on the ocean wave spectrum; D. Gilbarg, on free streamline theory and steady-state cavitation; M. S. Plesset, on physical effects in cavitation and boiling; H. Snay, on hydrodynamics of underwater explosions; G. P. Weinblum, on seaworthiness; H. Lerbs, on hydrodynamics of marine propulsion; J. V. Wehausen on ship wave phenomena; M. Strasberg, and H. M. Fitzpatrick, on hydrodynamic noise; J. B. Parkinson, on hydrodynamics of water-based aircraft; J. W. MacColl and R. N. Cox, on basic hydroballistic phenomena; and J. C. Niedermair, on hydrodynamic barriers in ship design.

For further information write to John S. Coleman, National Academy of Sciences–National Research Council, Washington 25, D.C.

■ The Committee on Geographic Pathology of the Research Commission of the International Union against Cancer, of which Harold L. Stewart (National Institutes of Health) is chairman, has planned three meetings to study the problems of cancer in Africa. The first is a symposium on cancer of the liver to be held 24–31 Aug. in Kampala, Uganda, East Africa. The tentative program includes (i) definition of the terms *cirrhosis, necrosis, fatty change, kwashiorkor,* and *primary cancer* of the liver; (ii) experimental necrosis, regeneration, and fibrosis of liver; (iii) world distribution, kwashiorkor, infectious hepatitis, cirrhosis, and cancer of the liver; (iv) pathology of kwashiorkor, cirrhosis, cancer of the liver and experimental cancer of the liver; (v) mechanism of chemical carcinogenesis of the liver of the rat; (vi) clinical aspects, diagnosis, and therapy of kwashiorkor, cirrhosis, cancer of the liver, endocrinological aspects of liver disease; (vii) liver function tests and alteration in metabolism in patients with cirrhosis; (viii) nutritional and physiological aspects of liver disease; (ix) enzyme activity of rat liver during carcinogenesis; (x) enzyme activity of hepatic tissue in kwashiorkor.

It is hoped that this symposium in Kampala will afford the opportunity for scientists from different parts of the world to meet, to examine one another's material, to have an exchange of ideas with the view to improving the knowledge of liver disease and cancer in Africa and to stimulating new studies along these lines. It is anticipated that there will be approximately 27 participants, representing ten countries. This meeting is being generously supported by the British Empire Cancer Campaign, the Medical Research Council, and the Colonial Office, and by the cancer organizations in the countries from which the delegates are coming.

Immediately following the meeting in Kampala most of the participants will continue on to a meeting arranged for 1–5 Sept. in Leopoldville, Belgian Congo. This meeting is being supported by the Louvanian University, Leopoldville, and the Belgian Government. The meeting in Leopoldville will be on a broader scale than that of Kampala and will consider not only all forms of cancer in Africa but also all forms of cancer in relation to other diseases, geography, race, and so forth. There will be specialized presentations on the geography of Africa south of the Sahara. There will be a special presentation regarding the characteristics of the different ethnic groups that inhabit this area. Cancer in the African Negro will be discussed in relation to cancer in other races. Nutrition, avitaminosis, siderosis of the liver, peptic ulcer, and parasites will be discussed in relation to cancer and to other diseases. A central repository for pathological specimens from Africa will be considered. A large part of the program will be devoted to consideration of methods for the collection of statistical data within stated geographic limits. Toward the end of the symposium, time will be set aside to consider what problems for research can be recommended for study in Africa.

Immediately following the meeting in Leopoldville, several of the participants will go on to Dakar, French West Africa, to accept the invitation by the Haut Commissaire of the Government of the French Republic in West Africa, to study the types of cancer and related diseases that may be observed in the hospitals of Dakar. M. Payet is organizing the meeting in Dakar. Those accepting the invitation, numbering around 12 individuals, will be guests of the Governor General. The meetings will include visits to the Native Central Hospital, to the Principal Hospital, and to the Institut Pasteur. A side trip a little distance from Dakar will take the group to the Nutritional Study Center to observe the work in progress there. The main meetings will be held at the Medical School in Dakar.

■ The fall general meeting of the American Institute of Electrical Engineers, to be held 1–5 Oct., in the Morrison Hotel, Chicago, Ill., will honor the centenary of the birth of Nikola Tesla, the inventor of the alternating-current motor. Commemorating Tesla's contributions to the electric industry, Samuel G. Hibben will deliver a demonstration lecture on Tesla's work related to high-frequency studies connected with radiation or luminous phenomena.

Fifty-four technical sessions are scheduled. The six technical divisions of the institute (communications, general applications, industry, power, science, and electronics and instrumentation) will hold symposia and sessions on developments in their fields. The institute's committee on management will present a panel discussion by several young graduate engineers, who will discuss their formal education, their training on the job, and the opportunities offered them. Those attending the meeting have also been invited to the 12th annual Electronics Conference, which will be held 1–3 Oct., in the Sherman Hotel, Chicago.

■ The third annual convention of the Society of Nuclear Medicine has been held in Salt Lake City. Eight regional groups interested in the application of radioactive isotopes to biology and medicine were inducted as chapters. Three days were devoted to papers on almost every aspect of medicine involved in the use of isotopes. There were also scientific and commercial exhibits.

■ The Atmospheric Optics Symposium, sponsored by Boston University Physical Research Laboratories, will be held at Sargent Camp, Peterborough, N.H., 5–7 Sept. It will be devoted to atmospheric problems in aerial photography, the photography of celestial and airborne objects, and vision through the atmosphere. For information write to F. Dow Smith, Director, Boston University Physical Research Laboratories, 700 Commonwealth Ave., Boston 15, Mass.

■ The second national symposium on Aeronautical Communications, which is being sponsored by the Professional Group on Communications Systems of the Institute of Radio Engineers, will be held in Utica, N.Y., 8–10 Oct. There will be four open sessions on communications systems and components, and two sessions classified confidential on military data links and long-range communications.

■ The third annual meeting of the Professional Group on Nuclear Science of the Institute of Radio Engineers will be held in Pittsburgh, Pa., at the Mellon Institute and Hotel Webster Hall, 20–22 Sept. The program will include sessions on nuclear science, computation and simulation, instrumentation, and reactor control. For information write to James B. Callaghan, Westinghouse Bettis Plant-W3R-N, P.O. Box 1468, Pittsburgh 30, Pa.

■ The third annual East Coast Conference on Aeronautical and Navigational Electronics will be held 29–30 Oct. in Fifth Regiment Armory, Baltimore, Md. The conference is jointly sponsored by the Baltimore chapter of the Institute of Radio Engineers, the Professional Group on Aeronautical and Navigational Electronics, and the electronics industry. Nearly 2500 engineers, scientists and industrial representatives are expected to attend the technical program and industrial exhibition during the 2-day meeting.

■ A symposium on optics and microwaves will be held at Lisner Auditorium of George Washington University, Washington, D.C., 14–16 Nov. The meeting is jointly sponsored by the Professional Group on Antennas and Propagation of the Institute of Radio Engineers, George Washington University, and the Optical Society of America. The technical program of six sessions is designed for scientists in the fields of engineering, medicine, and related physical sciences whose work concerns optical phenomena. In addition, survey papers will be presented to aid understanding of the basic physics underlying optics and microwaves.

■ The 22nd North American Wildlife Conference will be held 4–6 Mar. 1957 at the Statler Hotel in Washington, D.C. Papers for presentation at one of the six technical sessions should be sent to the appropriate chairman *before 15 Nov.* The sessions and their chairman are: disease, nutrition, and controls, O. Wilford Olsen (Colorado Agricultural and Mechanical College, Fort Collins); wetlands and inland water resources, Frank C. Bellrose, Jr. (Illinois Natural History Survey, Urbana); upland game resources, Wendell G. Swank (Arizona Game and Fish Department, Phoenix); marine and coastal resources, Clarence P. Idyll (Marine Laboratory, University of Miami, Coral Gables, Fla.); big game resources, Harold S. Crane (Utah Fish and Game Commission, Salt Lake City); conservation education, John D. Bulger (National Wildlife Federation, Rt. 2, Groton, N.Y.).

Forthcoming Events

September

10–12. American Soc. of Mechanical Engineers, fall, Denver, Colo. (C. E. Davies, ASME, 29 W. 39 St., New York 18.)

10–12. Electron Microscope Soc. of America, annual, Madison, Wis. (Miss J. R. Cooper, Nela Park 130, Cleveland 12, Ohio.)

10–12. Information Theory, symposium, Cambridge, Mass. (P. Elias, Massachusetts Inst. of Technology, Cambridge 39).

10–14. Electron Transport in Metals and Solids, colloq., Intern. Union of Pure and Applied Physics, Ottawa, Canada. (K. C. MacDonald, National Research Council, Ottawa.)

10–14. European Soc. of Cardiology, 2nd cong., Stockholm, Sweden. (K. E. Grewin, Sodersjukhuset, Stockholm.)

10–14. Immunomicrobiological Standardization Symposium, 2nd, Rome, Italy. (G. Penso, Instituto Superiore di Sanita, Viale Regina Elena, 299, Rome.)

10–14. International Conf. on Fatigue of Metals, London, England. (Secretary, Institution of Mechanical Engineers, 1, Birdcage Walk, Westminster, London, S.W.1.)

10–14. International Cong. on Catalysis, Philadelphia, Pa. (H. Heinemann, ICC, c/o Houdry Process Corp., P.O. Box 427, Marcus Hook, Pa.)

10–14. International Cong. of Dietetics, 2nd, Rome, Italy. (American Dietetic Assoc., 620 N. Michigan Ave., Chicago 11, Ill.)

10–15. High-Speed Photography, 3rd intern. cong., London, England. (Congress Secretariat, Dept. of Scientific and Industrial Research, Charles House, 5–11 Regent St., London, S.W.1, England.)

10–15. Perkin Centennial, New York, N.Y. (A. G. Bruinier, Jr., E. I. Du Pont de Nemours & Co., P.O. Box 386, Wilmington 98, Del.)

13–16. International Rorschach Soc., 3rd cong., Rome Italy. (Secretary, IRS, 6, Fischerweg, Bienne, Switzerland.)

13–17. Static Electricity in Textiles, Zurich, Switzerland. (General Secretary, Textile Institute, 10 Blackfriars St., Manchester 3, England.)

14–15. Calorimetry Conf., 11th annual, Baltimore, Md. (H. A. Boorse, Pupin Physics Laboratories, Columbia Univ., New York 27.)

15–22. Congreso Panamericano de Gerontología, 1st, Mexico, D.F., Mexico. (E. V. Cowdry, Washington Univ. School of Medicine, St. Louis 10, Mo.)

15–23. Instruments and Measurements, 4th intern. conf. and exhibition, Stockholm, Sweden. (S. Malström, P. O. Box 36, Stockholm 12.)

16–21. American Chemical Soc., Atlantic City, N.J. (A. H. Emery, ACS, 1155 16 St., NW, Washington 6.)

16–22. American Soc. for Testing Materials, Pacific Coast meeting, Los Angeles, Calif. (R. J. Painter, ASTM, 1916 Race St., Philadelphia 3, Pa.)

17–19. Alpine Meteorology, 4th intern. cong., Chamonix, France. (Dr. Piery, Institut de Meteorologie et des Sciences des Climats, 72 Rue Pasteur, Lyon, France.)

17–21. Illuminating Engineering Soc., annual, Boston, Mass. (A. D. Hinckley, IES, 1860 Broadway, New York 23.)

17–21. Instrument Soc. of America, 11th international conf., New York, N.Y. (F. J. Tabery, 250 W. 57 St., New York 19.)

17–21. Theoretical Physics, intern. cong., Seattle, Wash. (J. H. Manley, Dept. of Physics, Univ. of Washington, Seattle 5.)

17–22. International Astronomical Federation, 7th cong., Rome, Italy. (J. A. Stemmer, IAF, P. O. Box 37, Baden, Switzerland.)

17–23. European Confederation of Agriculture, 8th general assembly, Sheveningen, Netherlands. (M. Collaud, ECA, Pestalozzistrasse 1, Brugg, Argovie, Switzerland.)

19–23. International Cong. of Internal Medicine, 4th, Madrid, Spain. (C. Jimenez Diaz, Facultad de Medicina, Madrid.)

20–21. Physical Chemistry of Processes at High Pressures, general discussion, Faraday Soc., Glasgow, Scotland. (F. C. Tompkins, Faraday Soc., 6 Gray's Inn Sq., London, W.C.1, England.)

21–22. Pharmacotherapy in Mental Illness, Washington, D.C. (J. O. Cole, National Research Council, 2101 Constitution Ave., NW, Washington 25.)

21–28. History of Medicine, 15th cong., Intern. Soc. for the History of Medicine, Madrid and Salamanca, Spain. (Luis S. Granjel, Instituto Arnaldo de Vilanova de Historia de la Medicina, Duque de Medinaceli, 4, Madrid.)

23–26. International Bureau of Differential Anthropology, 4th cong., San Remo, Italy. (Bureau International d'Athropologie Differentielle, Institut d'Anatomie de Université Ecole de Medicine, Geneva, Switzerland.)

24–25. Industrial Electronics Symposium, 5th annual, Cleveland, Ohio. (C. F. Schunemann, Thompson Products, 2196 Clarkwood Rd., Cleveland 3.)

24–26. American Oil Chemists' Soc., Chicago, Ill. (Mrs. L. R. Hawkins, AOCS, 35 E. Wacker Drive, Chicago 1.)

24–26. Biochemistry of Lignin, 3rd round table, Appleton, Wis. (H. F. Lewis, Inst. of Paper Chemistry, Appleton.)

24–27. Science of Photography, international conf., Cologne, Germany. (W. Schürmeyer, Hohenstaufenring 48/54, Cologne.)

24–28. International Dairy Cong., 14th, Rome, Italy. (R. E. Hodgson, Dairy Husbandry Research Branch, U.S. Dept. of Agriculture, Beltsville, Md.)

24–29. International Scientific Film Assoc., 10th cong., Vienna, Austria. (Secretariat of Intern. Assoc., 38, Ave. des Ternes, Paris 17, France.)

25–27. Atomic Industrial Forum and Trade Fair, 3rd annual conf., Chicago, Ill. (C. Robbins, AIF, 260 Madison Ave., New York 16.)

25–28. American Roentgen Ray Soc., annual, Los Angeles, Calif. (B. R. Young, Germantown Hospital, Philadelphia 44, Pa.)

25–28. Assoc. of Iron and Steel Engineers, annual, Cleveland, Ohio. (Secretary, AISE, Empire Bldg., Pittsburgh 22, Pa.)

25–29. Atmospheric Condensation Nuclei, 2nd intern. symp., Basel and Locarno, Switzerland. (M. Bider, Astronomical Meteorological Station, Basel, Switzerland.)

25–29. Automatic Controls, international conf., Univ. of Heidelberg, Germany. (R. Oldenburger, Woodward Governor Co., Rockford, Ill.)

26–28. The Direction of Research Organizations, intern. symp. Teddington, England. (National Physical Laboratory, Teddington, Middlesex, England.)

26–28. Mississippi Valley Medical Soc., annual, Chicago, Ill. (H. Swanberg, 510 Maine St., Quincy, Ill.)

(See issue of 20 July for comprehensive list)