

spring the Advisory Board will vote on such instruments. Adoption, however, will in no way change the fact that these conferences have been so useful to science because they have been alive and allowed to adapt to conditions. Their friends have nurtured them as living organisms with full awareness of their mission for science.

To reemphasize, it is evident that the Gordon Research Conferences as they exist today have been successful because of: first, very good ideas on the part of the founder and his successors on how such conferences should be run; second, experimentation and development within the framework of the original ideas; and third, an active organization assuring that the improvements of procedures developed in one conference or the disadvantages evident in another were used to improve the conference as a whole.

A basic concept was the recognition that the *conference approach* is the most successful method for creating and spreading ideas as well as promoting the personal contacts on which so much accomplishment depends. To realize this concept, profitable use of the following factors was made: A conference should be held in every important field. The physical arrange-

ments should be agreeable enough so that scientists will attend. The distractions that would keep the scientists from one another's company should be avoided. Topnotch specialists should be invited, yet there should also be present men with more general and practical backgrounds. The meeting should not be too large. Enough time should be allowed for full presentation and discussion of a topic; a full week should be allowed for a field. Discussions should be encouraged by all available means, even at the expense of publication.

In other words, the essence of a conference is stimulation and the interchange of ideas and facts. Gordon Research Conferences are a most outstanding example, because this stimulation and interchange has been promoted without having been burdened with overorganization or allowed to lapse because of lack of attention.

Many deserve thanks for their part in this venture. Some of the names can be found among the directors, conference chairmen, and members of the Management Committee.

A full history entitled *The Gordon Research Conferences* was published in 1950 under the auspices of the AAAS and will be available in revised form in 1955.



Program of the Gordon Research Conferences, AAAS, June 14–Sept. 3, 1954

W. George Parks, Director
University of Rhode Island, Kingston

THE Gordon Research Conferences, sponsored by the American Association for the Advancement of Science, for 1954, will be held from June 14 to Sept. 3 at Colby Junior College, New London, N. H.; New Hampton School, New Hampton, N. H.; and Kimball Union Academy, Meriden, N. H.

Purpose. The conferences were established to stimulate research in universities, research foundations, and industrial laboratories. This purpose is achieved by an informal type of meeting consisting of scheduled lectures and discussion groups. Sufficient time is available to stimulate informal discussions among the members of the conferences. Meetings are held in the morning and in the evening, Monday through Friday, with the exception of Friday evening. The afternoons are available for recreation, reading, resting, or participation in discussion groups as the individual desires. This type of meeting is a valuable means of disseminating information and ideas that otherwise would not be realized through the normal channels of publication and scientific meetings. In addition, scientists in related fields become acquainted, and valuable asso-

ciations are formed that often result in collaboration and cooperative efforts between different laboratories.

It is hoped that each conference will extend the frontiers of science by fostering a free and informal exchange of ideas between persons actively interested in the subjects under discussion. The purpose of the program is not to review the known fields of chemistry but primarily to bring experts up to date on the latest developments, to analyze the significance of these developments, and to provoke suggestions concerning the underlying theories and profitable methods of approach for making new progress.

In order to protect individual rights and to promote discussion, it is an established requirement of each conference that all information presented is not to be used without specific authorization of the individual making the contribution, whether in formal presentation or in discussion. Scientific publications are not prepared as emanating from the conferences.

Registration and reservations. Individuals interested in attending the conferences are requested to send their applications to the director on or before May 15, 1954. Each applicant must state the institu-

tion or company with which he is associated and the type of work in which he is interested. Attendance at each conference is limited to 100.

The director will submit the names of those requesting attendance to the Conference Committee for each conference. This committee will review the names and select the members in an effort to distribute the attendance as widely as possible among the various institutions and laboratories represented. A registration card will be mailed to those selected as soon as possible. Advance registration by mail for each conference is required, and registration is completed on receipt of the card and a deposit of \$25, made payable to the Gordon Research Conferences, AAAS. The deposit of \$25 will cover the registration fee of \$20 (except for academic individuals and students on personal expense who may apply for a reduction of \$10), the balance to be credited against subsistence expenses.

The room rates are as follows: \$2.50 per night per person in a double room with single beds; \$3 per night per person in a single room; \$3.50 per night per person in a single or double room with private bath (the number of rooms available with bath is limited; assignments are made in the order that applications are received). Meals served in the dining room are at the rate of \$6.50 per day per person. Gratuities are provided for by an additional charge of 10 percent, which is added to each bill. Members attending a conference are expected to live at the conference location. If special circumstances warrant living elsewhere, all individuals, including academic members, are required to pay a special registration fee of \$25.

Accommodations are available for a limited number of women to attend each conference, also for wives who wish to accompany their husbands. All such requests should be made at the time of the request for attendance, because these limited accommodations will be assigned in the order that specific requests are received. Children under 12 years of age cannot be accommodated. Rooms are available at several inns and hotels in New London, Meriden, and New Hampton, if reservations are made in advance. Information on these inns and hotels will be supplied by the director on request. No dogs or other animals will be permitted in the dormitories.

Special fund. A special fund is put at the disposal of the chairman of each conference by the Management Committee to assist scientists from academic and government institutions who cannot attend or participate because of financial limitations. This fund is provided with the object of increasing the participation of research workers of academic and government laboratories; it is limited to scientists who have been invited by the chairman to attend a conference in order to present a paper or because it is expected that they will make significant contributions during their stay at the conference. The money is to be used as an assistance fund only and may be used to contribute toward the traveling and/or subsistence expenses at the conference. Total travel and subsistence expenses normally will not be available.

Cancellations. The notice of cancellation must be received in the office of the director three weeks prior to the conference. If such notice is received 3 weeks in advance of the conference, \$20 will be refunded from the \$25 deposit. No refund will be made for cancellations received within the 3-week period.

Requests for attendance at the conferences, or for any additional information, should be addressed to W. George Parks, Director, Department of Chemistry, University of Rhode Island, Kingston, R. I. From June 12 to Sept. 3, 1954, mail should be addressed to Colby Junior College, New London, N. H.

Program at Colby Junior College

CATALYSIS

G. A. Mills, *chairman*; F. G. Ciapetta, *vice chairman*

June 14: A. Schneider and R. M. Kennedy, "Ionic hydrocarbon reactions catalyzed by strong acids"; H. H. Voge, F. T. Eggersten, R. J. Moore, "Iron oxide Catalysts for butylene dehydrogenation"; T. P. Wilson and H. G. Davis, "Influence of inhibitors on the Fischer-Tropsch synthesis."

June 15: C. C. Price, "Formation and reactions of organic hydroperoxides"; D. Turnbull, "Nucleation: phenomena and theory"; R. Gomer, "Chemisorption and mobility of oxygen on tungsten."

June 16: W. P. Hettinger, C. D. Keith, J. L. Gring, and J. W. Teter, "Influence of certain catalyst properties and catalyst poisons on reforming reactions"; H. S. Seelig, T. M. Darby, J. B. Malloy, and R. F. Waters, "Kinetics of ultraforming reactions"; S. W. Weller and S. E. Voltz, "Electric conductivity, catalytic activity, and surface chemistry of chromic oxide."

June 17: P. W. Selwood, "Structure of supported nickel metal"; C. Wagner, "Reactions at the surface of silver sulfide"; T. J. Gray, "Chemical physics of catalysis."

June 18: W. K. Wilmarth, "Mechanism of homogeneous activation of molecular hydrogen."

PETROLEUM

W. J. Coppoe, *chairman*;
Robert F. Marschner, *vice chairman*

June 21, Fundamental chemistry of certain reactions of hydrocarbons, Robert L. Burwell, Jr., *chairman*: John E. Willard, "Some reactions of aluminum chloride with Friedel-Crafts reactants"; D. A. McCaulay, "General behavior of aromatic hydrocarbons in the presence of boron trifluoride and hydrogen fluoride."

June 22: Herman Pines, "Reaction of terpene hydrocarbons and their application to the chemistry of petroleum hydrocarbons." *Fundamentals of petroleum catalysis,* H. Heinemann, *chairman*: H. F. Mark, "Free radical catalysis: role of free radicals in polymerization"; A. A. Morton and E. J. Lanpher, "Base catalysis: studies with a C¹⁴ Alfin catalyst and its mode of action."

June 23: R. B. Anderson and J. F. Schultz, "Heterogeneous catalysis: chemical and physical changes in iron Fischer-Tropsch catalysts during synthesis"; W. P. Hettinger, C. D. Keith, J. L. Gring, and J. W. Teter, "Heterogeneous catalysis: influence of certain catalyst properties and catalyst poisons on reforming reactions"; I. Wender, H. Sternberg, and H. Greenfield "Homogeneous catalysis: metal carbonyls and their derivatives as cata-

lysts and intermediates in the reactions of unsaturated hydrocarbons."

June 24, Physical methods for analysis and research in petroleum chemistry, L. C. Roess, *chairman*: L. C. Roess, "Radio frequency spectroscopy"; J. W. Otvos, "Analysis of high molecular weight hydrocarbons."

June 25, Sulfur and porphyrins in petroleum, H. M. Smith, *chairman*: A. H. Corwin, "Chemistry of porphyrins"; H. N. Dunning, "Some properties of porphyrins in petroleum and oil shales"; H. M. Smith, "Recent advances in the chemistry of sulfur compounds in petroleum."

SEPARATION AND PURIFICATION

A. Letcher Jones, *chairman*;
Arthur Rose, *vice chairman*

June 28: C. P. Saylor, "The intangible isolation of contaminants within purified substances"; M. R. Fenske, "Separation processes in general with emphasis on extraction"; H. G. Driekamer, "Studies in the liquid state."

June 29: H. G. Cassidy, "Paper chromatography"; H. P. Gregor, "Ion-exchange membranes and their industrial utilization"; Karl Kammermeyer, "Membrane separations."

June 30: C. C. DeWitt, "Some physico-chemical aspects of flotation"; Leo Shedlovsky, "Adsorption and fractionation in foams"; R. L. Pigford, "Simultaneous gas absorption and chemical reaction with emphasis on interface resistance."

July 1: C. C. Ward, "Thermal diffusion and chromatography for the separation of sulfur compounds"; W. C. Fernelius, "Metal chelate compounds."

July 2: Joseph Stewart, "Laboratory studies of continuous processes."

POLYMERS

W. H. Stockmayer, *chairman*;
R. F. Boyer, *vice chairman*

July 5-9: H. Mark, "Recent progress in polymer chemistry"; F. A. Bovey, "Fluorochemical elastomers"; F. A. Long, "Diffusion in polymers"; B. H. Zimm, "Relaxation effects in dilute polymer solutions"; F. Bueche, "Interpretation of the visco-elastic behavior of solid polymers"; J. R. Schaefgen and William Kirk, Jr., "Poly-p-xylylene and related polymers"; S. Gratch and J. L. Kice, "Initiation efficiency in free-radical polymerization"; M. Szwarc, "Addition of methyl radicals to aromatic systems"; G. V. Schulz, "Coordination of different methods of molecular weight estimation"; R. C. Osthoff, "Chemistry of silicone polymers"; P. Doty, "Molecular configuration and denaturation of nucleic acid"; P. Debye, "Concentration changes induced by electric fields"; M. K. Phibbs, "Solubility of polar polymers"; W. E. Roseveare, "Thermodynamics of the mechanical properties of oriented crystalline polymers."

TEXTILES

George S. Buck, Jr., *chairman*;
J. B. Goldberg, *vice chairman*

July 12: T. F. Cooke, "Mechanism of wrinkle-resistant finishes for cellulosic fabrics"; Herman F. Mark, "Recent developments in the synthetic fiber field in Europe."

July 13: Allan McQuade, "Recent Work on flame resistant treatments for textile fabrics"; R. H. Peters, "Study of the initial stages of the dyeing process."

July 14: C. B. Havens, "Preparation and properties

of fibers from vinylidene chloride"; Alex Brown, "Second-order transition temperature and fiber properties."

July 15: Nils Gralen, "Fiber friction at different velocities"; Herbert G. Lauterbach, "Felts from man-made fibers."

July 16: Newton A. Teixeira, "Theoretical analysis of the mechanism of tongue-tear in woven fabrics."

CORROSION

A. Wachter, *chairman*;
E. A. Gulbransen, *vice chairman*

July 19: A. C. Zettlemoyer, "Heterogeneity of surfaces"; C. V. King, "Adsorption of metal salts on metals"; N. Hackerman, "Molecular structure, metal character, and inhibition"; Rudolph Speiser, "Passivation of several metals"; N. Hackerman, "Some experiments in passivity of metals."

July 20: M. J. Pryor, "An interpretation of the significance of the passive potentials on steel"; Morris Cohen, "Electrochemical and surface studies on iron in inhibitor solutions"; C. V. King, "Corrosion inhibition in acid solutions"; H. C. Gatos, "Corrosion inhibitors and polarographic maxima"; Morris Cohen, "Initial consumption of inhibitors on iron"; E. J. Schwoegler, "Functional groups in organic inhibitors."

July 21, Hydrogen in metals, J. J. Harwood, *chairman*: J. J. Harwood, "Effects of hydrogen on mechanical properties of metals"; L. D. McGraw, "Mechanism of hydrogen entry into metals during corrosion processes"; W. R. Heller, "Occlusion of hydrogen in metals"; M. C. Bloom, "Some relations between hydrogen and the corrosion behavior of metals"; *Sulfide corrosion cracking*, J. J. Harwood, *chairman*: W. D. Robertson, "Mechanism of sulfide corrosion cracking of steels"; A. Wachter, "Cracking of steels in aqueous hydrogen sulfide"; H. H. Uhlig, "Cracking of ferritic stainless steels as related to hydrogen absorption resulting from corrosion."

July 22, Corrosion at high temperatures, E. A. Gulbransen, *chairman*: Carl Wagner, "Solved and unsolved problems in high-temperature oxidation"; Manley W. Mallet, "Oxidation of zirconium and zirconium-tin alloys"; Allan T. Gwathmey, "Rates of formation of oxide films on iron single crystals"; Erwin W. Muller, "Field emission microscopy of high-temperature gas-metal reactions"; A. Taylor, "Oxidation of some iron-nickel alloys"; Donald Thomas, "High-temperature corrosion"; C. E. Birchenall, "Multilayer sealing."

July 23, Corrosion of 2S aluminum in distilled water at high temperatures, J. E. Draley, *chairman*: Maurice Lavigne, "Effects of cold-working on corrosion of aluminum by water at high temperatures"; A. H. Roebuck, "Effect of dissolved oxygen on corrosion of stainless steel in water at elevated temperatures"; D. E. Thomas, "Corrosion of zirconium in water at high temperature."

INSTRUMENTATION

Ralph H. Munch, *chairman*;
Robert H. Osborn, *vice chairman*

July 26: Britton Chance, "Biophysical instrumentation"; George McKnight, "Application of the frequency response technique to chemical processes."

July 27: J. W. Beams, "Production and use of high centrifugal fields"; W. J. Youden, "Statistical design as an aid to improving the precision of instruments."

July 28: H. M. Paynter, "Practical computation of nonlinear control problems"; H. R. Hegbar, "Electronic analog computers and data handling."

July 29: Peter Elias, "Information theory"; N. B. Nichols, "Recent developments in transistors."

July 30: H. F. Schwede, "Oil well logging techniques"; W. H. Howe, "Present status of high-pressure measurements."

Additional papers to be presented during the week: W. G. Sykes, "Some problems in the construction of a streak camera for the photography of explosives"; Paul Hoell, "Use of electronic potentiometers in research"; K. S. Lion, "Recent advances in a method of increasing photographic sensitivity by electric discharges"; J. A. Hrones, "New valve actuator"; T. D. Sharples, "Universal recording balance"; J. C. Hosken, "Automatic read-out for a densitometer"; A. H. Peterson and L. F. Marinaccio, "Adapter for recording 60-cycle wave forms on ordinary recording potentiometers"; A. H. Peterson and Victor Jackman, "Precise determination of humidity by a titration method"; Marcus O'Day, "Measurement of total radiation by the pressure exerted on a polished diaphragm"; C. W. Miller, "New transducer for converting shaft rotation to voltage"; J. M. Devine, "New instruments for the measurement of pressure, temperature, and weight"; I. Lefkowitz, "Computer control of a batch chemical process"; B. S. Benson, "New semi-automatic measuring device, or cybernetics rampant"; R. R. Webster, "Improved null balance method for x-ray measurements"; R. H. Munch, "Instrumentation for vapor phase partition chromatography"; R. H. Munch, "Simple instrumentation for measuring thermal stability"; David R. Simonsen, "Infra-red analyzers as monitors for toxic solvent vapors"; D. R. Conlon, "Recording dilatometer for polymerization studies"; D. Z. Robinson, "Hydrogen-deuterium analysis with a Fabry-Perot interferometer"; Raymond Jonnard, "Some experiments on optical reimagining and applications."

ELASTOMERS

John Rehner, Jr., *chairman*;
A. M. Bueche, *vice chairman*

Aug. 2, *Fluorine-containing elastomers*: J. F. Abere and P. J. Stedry, "1, 1-Dihydroperfluorobutyl polyacrylate: vulcanization and properties"; E. T. McBee, "Fluorine-containing silicones as intermediates for synthetic rubber"; F. J. Honn, "Préparation and propriétés of fluorinated elastomers."

Aug. 3, *Special techniques in elastomer research and development*: D. L. Loughborough and J. W. Born, "Radioactive techniques applied to tire wear"; W. R. Smith, "Examination of carbon black and reinforced elastomers with the electron microscope"; Norbert J. Scully and William Chorney, "Biosynthesis of C¹⁴-labeled rubber, and carbon assimilation and turnover in *Hevea brasiliensis*."

Aug. 4, *Abrasion*: C. S. Wilkinson, Jr. and S. D. Gehman, "Abrasion of rubber"; G. Kraus, J. F. Svetlik, and H. E. Railsback, "Relation of some carbon black properties to abrasion and reinforcement"; E. M. Dannenberg and B. B. S. T. Boonstra, "Effect of coefficient of friction on the rate of abrasion of rubber compounds."

Aug. 5, *Vulcanization and elastomer structure*: F. P. Baldwin and R. L. Anthony, "Experimental examination of the statistical theory of rubber elasticity"; H. P. Brown and C. F. Gibbs, "Carboxylic elastomers and their vulcanizates"; P. A. Goodwin, "Electron-irradiated polyethylene."

Aug. 6, *Attack by microorganisms*: J. T. Blake, D. W.

Kitchin, and O. S. Pratt, "Action of soil microorganisms on rubber insulation."

FOOD AND NUTRITION

Hartley W. Howard, *chairman*;
Anthony A. Albanese, *vice chairman*

Aug. 9, *Obesity*: Margaret W. Bates and J. Mayer, "Multiple etiology of obesity"; Sidney C. Werner, "Controlled study of weight reduction on two isocaloric regimens of different protein content"; A. W. Pennington, Discussion. G. R. Tristram, "Production of protein foodstuffs in the United Kingdom."

Aug. 10, *Agricultural practices and nutritional quality of crops*: G. E. Hilbert, "Complexity of chemical composition of foods"; Kenneth C. Beeson, "Locational factors affecting the nutritional quality of food and feed crops"; C. Warren Thornthwaite, "Timing crop production to assure maturity"; George L. McNew, "Pesticide contamination of food products."

Aug. 11: Edwin Traisman and James Ingle, "Technical advances in cheese production and distribution"; Fred A. Kummerow, "Nutritional value of polymerized fats." *Evaluation of nutritional states*: James B. Allison, "Biochemical analysis of nutritional states"; Albert R. Behnke, "Lean body mass and nutritional states."

Aug. 12: Ancel Keys or Josef Brozek, "Evaluation of relative obesity and calorie status"; J. D. Boyd, "Nutritional states with particular reference to body-weight-height charts"; Roger J. Williams, "Biochemical individuality and nutritional state."

Aug. 13, *Dextran and methylcellulose gums*: Robert C. Hockett, Introductory remarks; C. E. Rist, "Dextran—a new class of gums"; G. K. Greminger, Jr., "Methylcellulose—a Synthetic cellulose gum."

VITAMINS AND METABOLISM

Grace A. Goldsmith, *Chairman*;
P. L. Day, *Vice Chairman*

Aug. 16: G. E. Cartwright, "Copper and its role in erythropoiesis"; O. Neal Miller, "Intrinsic factor studies"; W. A. Wood, "Interaction between para-aminobenzoate and pantothenate for the growth of *B. linens*"; J. Baddiley, "Chemistry of Coenzyme A"; Esmond E. Snell, Discussion.

Aug. 17: H. R. V. Arnstein, "Effect of vitamin B₁₂ on methyl group synthesis"; C. G. Mackenzie, H. J. Sallach, and W. R. Frisell, "A one-carbon cycle and active formaldehyde"; G. R. Greenberg, "Biosynthesis of purines"; H. R. Mahler, "Metallo-flavo proteins and electron transport."

Aug. 18: J. Beaton and E. W. McHenry, "Vitamin-B₆ deficiency in experimental animals"; Charles D. May, "Vitamin B₆ nutrition in infancy"; Klaus Schwarz, "Factor 3 and dietary necrotic liver degeneration: its metabolic and nutritional significance"; Johannes Moustgaard, "Influence of the B vitamins on metabolism in swine"; R. W. Luecke, "B vitamins in the nutrition of the baby pig."

Aug. 19: R. T. Holman, "Essential fatty acid metabolism"; R. G. Langdon, "Cholesterol synthesis"; Robert Becker, "Ascorbic-acid deficiencies in relation to cholesterol metabolism"; A. Tamplin, "Metabolic interrelationships of lipoproteins, with special reference to human athero-sclerosis."

Aug. 20: R. G. Tucker, "Effects of various levels of dietary sodium chloride in the albino rat"; W. S. Hart-

roft, "Relationships of choline to vascular diseases in experimental animals"; A. C. Corcoran, "Nutritional factors in human hypertension."

MEDICINAL CHEMISTRY

Karl H. Brunings, *chairman*;
Karl H. Beyer, *vice chairman*

Aug. 23, Hypertension session, Cardiovascular section: A. C. Corcoran, "Physiological basis of hypertension"; Speaker to be announced, "Chemistry of Veratrum alkaloids"; E. Schlitter, "Chemistry of Rauwolfia alkaloids"; Jacob W. Stutzman, "Pharmacology of Rauwolfia and Veratrum alkaloids."

Aug. 24, Hypertension session, Renal and Electrolyte Section: Karl H. Beyer, "Fundamentals of renal pharmacology"; Robert Gaunt, "Hormonal regulation of salt and water metabolism"; Tomas H. Maren, "Sodium diuretics, with particular reference to carbonic anhydrase inhibitors"; Sibley W. Hoobler, "Current therapy of hypertension."

Aug. 25, Microbiological session: Ernest Jawetz, "Combined antibiotic action in theory and practice"; D. K. Detweiler, "Veterinary problems in chemotherapy"; W. Celmer and I. A. Solomons, "Structure and chemistry of thiolutin"; Speaker to be announced, "Structure and chemistry of other antibiotics."

Aug. 26, Cancer chemotherapy session: Van R. Potter, "Current biochemical studies in oncology"; Hilary Koprowski, "Oncolytic action of viruses"; Howard E. Skipper, "Theoretical and empiric contributions to cancer and chemotherapy"; David A. Karnofsky, "Problems and trends in clinical cancer chemotherapy."

Aug. 27, Visceral anticholinergic session: W. D. M. Paton, "Pharmacological basis for anticholinergic therapy"; Robert B. Moffett, "Chemistry of visceral anticholinergic agents."

CANCER

Albert Tannenbaum, *chairman*;
Jacob Furth, *vice chairman*

Aug. 30, Fifty years of cancer research: Symposium on environmental factors in the causation of cancer.

Aug. 31, Symposium on cancer in man: "Natural history of the disease"; J. Englebert Dunphy, "Changing concepts in the surgery of cancer"; "Outlooks in radiation therapy"; Sidney Farber, "Current status and potential of cancer chemotherapy."

Sept. 1, H. Demerec, Walter J. Burdette, and Walter E. Heston, Symposium on mutagenesis and carcinogenesis; Charles Berman, "Primary carcinoma of the liver"; I. Berenblum, "Some factors influencing gastric carcinogenesis in the mouse."

Sept. 2, Theodore S. Hauschka, "Analysis of the cellular components of ascites tumors"; Joseph Leighton, "Growth pattern of some normal and cancerous tissues in sponge matrix tissue culture"; Raymond E. Zirkle and William Bloom, "Effects of irradiating parts of single dividing cells"; Glenn H. Algire, "Advances in transparent chamber techniques."

Sept. 3, Irving Zeidman, "Experimental studies on the invasion and spread of tumors."

Program at New Hampton School

AROMATIC CHEMICALS

Webster N. Jones, *chairman*;
Robert B. Carlin, *vice chairman*

June 14: Emil Ott, "Oxidation of aromatic chemicals"; A. V. Willet, "Present important aromatic chemicals"; F. S. J. Swackhamer, "Epoxy resins."

June 15: L. Marek, "Petroleum sources of aromatic chemicals"; E. E. Donath, "Aromatic chemicals from coal"; Henry F. Smyth, Jr., "Toxicity of aromatic chemicals"; Per K. Krolich, "Medicinal aromatic chemicals."

June 16: J. E. Jansen, "Aromatic chemicals in elastomers"; J. H. Harshaw, "Aromatic chemicals for scintillation counters"; D. S. Tarbell, "Tropolones and related compounds"; Oliver DeGarmo, "Relation of structure to effectiveness in agricultural insecticides and herbicides."

June 17: R. C. Fuson, "Conjugated additions of Grignard reagents to aromatic ketones"; L. E. Miller, "Directive influence of the methoxy and acetylamino groups on succinylation of substituted naphthalenes"; Gustav Egloff, "Future of aromatic chemicals."

June 18: E. E. Kimmel, "Synthesis of phthalic anhydride"; Donald Bowman, "Halogenated aromatic chemicals."

INORGANIC CHEMISTRY

J. J. Katz, *chairman*; F. Basolo, *vice chairman*

June 21-25, Behavior of inorganic salts in organic solvents: Leonard I. Katzin, Introductory remarks; Harold L. Friedman, "Solubility of electrolytes in organic solvents"; John L. Huston, "Solute-solvent interactions as shown by isotope-exchange studies"; Herbert C. Brown, "Interaction of metal halides with alkyl halides and with aromatic hydrocarbons"; D. F. Peppard, "Behavior of salts in tributyl phosphate"; D. D. Eley and W. F. Luder, subject to be announced.

Early chemical history of the earth, with special reference to the origin of life: Harold C. Urey.

Molecular addition compounds: Harry H. Sisler, "Addition compounds of dinitrogen tetroxide and chromic oxide with ethers and amines"; A. W. Laubengayer, "Molecular addition compounds of halides of boron, gallium, titanium, germanium, and tin"; C. C. Addison, "Recent developments in dinitrogen tetroxide chemistry"; A. B. Garrett, subject to be announced.

NUCLEAR CHEMISTRY

G. Friedlander, *chairman*;
T. P. Kohman, *vice chairman*

June 28, Nuclear structure and radioactivity.

June 29, Nuclear reactions at very high energies.

June 30, Nuclear geochemistry and cosmochemistry.

July 1, Techniques of absolute counting.

July 2, Interactions between nuclei and their environment.

RADIATION CHEMISTRY

A. O. Allen, *chairman*; Edwin J. Hart, *vice chairman*

July 5, A. O. Allen, chairman: Jerome Weiss, "Chemical dosimetry." John E. Willard, *chairman:* Willard F. Libby, A. C. Schrodt, and Richard L. Wolfgang, "Chemical effects of nuclear transformations."

July 6, Max S. Matheson, *chairman*: Robert L. Platzman, John L. Magee, and Robert H. Schuler, "Physical and chemical aspects of the radiolysis of liquids." Robert Mesrobian, *chairman*: A. Charlesby, Elliott J. Lawton, and O. Sisman, "Modification of polymers by irradiation."

July 7, S. C. Lind, *chairman*: Philip S. Rudolph, Leon M. Dorfman, and Benjamin P. Burt, "Radiation chemistry in the gas phase." Edwin J. Hart, *chairman*: Thomas J. Sworski, Harold A. Schwarz, and Max S. Matheson, "Radiation effects in water and ice."

July 8, A. O. Allen, *chairman*: Joseph Weiss, Warren M. Garrison, and Sheffield Gordon, "Radiolysis of aqueous solutions." Elmer L. Gaden, *chairman*: Bruce H. Morgan, Charles G. King, and Robert R. Becker, "Chemical changes in irradiated foods."

July 9, S. C. Lind, *chairman*: E. P. Schoch and Milton Burton, "Chemical reactions in the electric discharge."

ORGANIC COATINGS

Lehman E. Hoag, *chairman*;
Louis A. Melsheimer, *vice chairman*

July 12: Introductory remarks; R. B. Seymour, "Coatings from the furans"; R. D. Emmick, "Formulation and properties of polyvinyl acetate emulsion paints"; Harry Burrell, "Application of the solubility parameter concept to film-forming materials."

July 13: R. Buchdahl, "Correlation of film properties with composition"; James A. Shotton, "Coatings from butadiene polymers."

July 14: R. B. Brand, "Organic coatings for cathodically protected metals"; J. H. Saunders or Herbert L. Heiss, "Coatings from the polyurethanes and related polymers."

July 15: Q. P. Cole, "Effect of irradiation on polyethylene coatings"; Turner Alfrey or John Vanderhoff, "Fundamental properties of polymer latices"; S. M. Skinner, "Some electric and thermodynamic factors related to the adhesion of organic coatings."

July 16: S. Gusman, "Some fundamental studies into the durability of baked synthetic enamels."

ION EXCHANGE

J. Schubert, *chairman*;
D. R. Lewis, *vice chairman*

July 19: H. G. Cassidy, "Electron exchange resins"; H. P. Gregor, "Specific ion-exchange resins"; E. Glueckauf, "Improvements in column performance"; H. C. Thomas, "Kinetics and equilibrium behavior of inorganic ion exchangers."

July 20, *Round table discussion on ion-exchange equilibria*, T. F. Young, *moderator*, G. E. Boyd, A. W. Davidson, E. Glueckauf, H. P. Gregor, K. A. Kraus, G. Seatchard, *participants*. O. Samuelson, "New separations with anion-exchange resins"; H. F. Walton, "Anion-exchange separations of organic mercury compounds"; W. Rieman, III, "Ion-exchange chromatography and polyelectrolyte fractionation."

July 21: G. E. Boyd, "Rate processes in ion exchangers"; F. T. Wall, "Relationships between polyelectrolytes and ion exchange"; T. L. Hill, "Statistical mechanical models of ion-exchange resins"; C. H. W. Hirs, H. A. Sober, E. A. Peterson, and H. C. Isliker, "Interactions of ion exchangers with proteins, enzymes, viruses, and antibodies."

July 22: K. Sollner, "Electrochemistry of ion exchangers"; K. S. Spiegler and M. R. J. Wyllie, "Electroosmotic water transport and desalting by high pressures"; W. R. Walters, "Radioactive waste treatment by electromigration through ion-exchange membranes." *Ion exchange as a tool for studies of electrolyte solutions*: R. M. Diamond, "Behavior of rare earths and transuranium ions"; I. Feldman, T. Y. Toribara, and J. R. Havill, "Ion-exchange studies on the beryllium-citrate system"; H. F. Walton, "Stability of metal amine complexes."

July 23: D. C. Grahame, "Specificity of ionic adsorption at a metal-solution interface."

STATISTICS IN CHEMISTRY

Cuthbert Daniel, *chairman*

July 26, *General introduction to statistical design of experiments*, W. A. Noyes, *chairman*: H. O. Hartley, "Example of fundamental ideas (orthogonalization, randomization, and blocking)." J. W. Hopkins, *chairman*: W. J. Youden, "Designs for the chemist's qualitative problems (factorials, linked blocks, etc.)."

July 27, *Components of variance*, G. Wernimont, *chairman*: S. L. Crump, "What is a variance component? (General linear model, urn sampling, design of components of variance experiments)." E. L. LeClerc, *chairman*: S. M. Free, "Examples (material sampling, optimum allocation, interlaboratory tests)."

July 28, *Designs for the chemist's quantitative problems*, G. Symonds, *chairman*: G. E. Kimball, "Designs of first order, fitting response surfaces." J. C. Whitwell, *chairman*: J. S. Hunter, "Seeking for an optimum."

July 29, *Multiple comparisons and multiple decisions*, G. Calingaert, *chairman*: R. F. Link, "Multiple comparisons (confidence intervals, allowances, and error rates)." G. E. Kimball, *chairman*: R. E. Bechhofer, "Multiple decisions (choosing the best of several, comparisons with a standard)."

July 30, *Review discussion*.

CHEMISTRY OF STEROIDS AND RELATED

NATURAL PRODUCTS

Carl Djerassi, *chairman*;
L. H. Sarett and R. B. Turner, *vice chairmen*

Aug. 2: M. E. Wall, C. R. Eddy, and S. Serota, "Stereochemistry of steroidal sapogenin side chains"; A. L. Wilds, "Steroid syntheses"; W. S. Knowles, "Studies on the total synthesis of steroids"; G. Stork, subject to be announced.

Aug. 3: T. G. Halsall, "Stereochemistry of polyporenic acid C"; F. S. Spring, "Some recent experiments in the triterpenoid group"; A. Robertson, "Triterpene acids and related compounds from molds"; E. R. H. Jones, subject to be announced.

Aug. 4: A. Eschenmoser, "Contribution to the synthesis of terpenoid alicyclic compounds"; A. J. Birch, "Hydroaromatic steroid hormones"; A. Zaffaroni, "Recent investigations in steroid biochemistry in Mexico"; A. Wettstein, "Advances in the field of adrenal cortical hormones."

Aug. 5: J. W. Cornforth, "Biosynthesis of cholesterol"; K. Bloch, "Biosynthesis of steroids"; R. B. Woodward, "Some recent advances in the chemistry of natural products."

Aug. 6: D. Ginsburg, "Total synthesis of morphine"; G. Laubach, "Reactions of steroidal peroxides."

ANALYTIC CHEMISTRY

L. B. Rogers, *chairman*;
Harold A. Frediani, *vice chairman*

Aug. 9: E. W. Balis, "Analytic chemistry—content, practice, and training"; W. H. Baldwin, "Distribution of inorganic materials between immiscible liquids. Structural relationships among organic solvents."

Aug. 10: R. B. Fischer, "Physical forms of analytic precipitates"; J. A. Marinsky, "Ion-exchange membranes."

Aug. 11: W. Ulrich, "Analysis of carbonate minerals by infra-red absorption and x-ray diffraction"; N. B. Hannay, "Analysis of solids with the mass spectrograph."

Aug. 12: C. N. Reilley, "Chronopotentiometry"; C. J. Borkowski, "Measurement of radioactivity"; W. W. Meinke, "Activation analysis."

Aug. 13: J. N. Shoolery, "Nuclear resonance."

CHEMISTRY AND PHYSICS OF METALS

G. J. Dienes, *chairman*; J. C. Fisher, *vice chairman*

Mechanical properties of metals

Aug. 16: H. Brooks, "Electronic theory of cohesion and elastic constants"; C. Wert, "Anelasticity of metals"; J. R. Low, "Microstructure and fracture"; E. W. Hart, "Role of dislocations in plastic deformation"; B. E. Warren, "X-ray measurements of cold-work distortion"; M. Bever, "Stored energy."

Aug. 17: E. Parker, "Work hardening and substructure"; J. Washburn, "Work hardening and substructure"; R. W. Cahn, "Mechanical twinning"; H. B. Huntington, "Variation of elastic constants with temperature and pressure"; R. W. Powers, "Internal friction due to impurities."

Aug. 18: E. Montroll, "Frequency spectrum of vibrations of crystal lattices"; A. Nowick, "Internal friction effects produced by dislocations"; L. Zernow, "Plastic deformation and fracture at very high strain rates"; T. H. Blewitt and R. R. Coltman, "Deformation of copper single crystals"; C. E. Dixon, "Low-temperature irradiation and plastic deformation"; R. H. Pry, "Electric resistivity."

Aug. 19: J. H. Koehler, "On the production of vacancies and interstitials during cold work"; J. J. Gilman, "Cooperative dislocation motion"; F. C. Frank, "Dislocation in real crystals"; K. Lücke, "Strain hardening in face-centered cubic metals."

Aug. 20: R. Truell, "Use of ultrasonics in the study of solid-state problems"; T. Vreeland, D. S. Wood, and D. S. Clark, "Delay time in yielding"; R. Smoluchowski, "Structure of grain boundaries."

COAL

M. A. Elliott, *chairman*; Everett Gorin, *vice chairman*

Aug. 23, Origin of coal, Irving A. Breger, *chairman*: J. M. Schopf, "Paleobotanical aspects of the origin of coal"; J. H. Quastel, "Metabolism in the soil with special reference to humic acid substances"; Elso Barghoorn, "Degradation of plant tissues in relation to the origin of coal"; W. H. Bradley, "Paleolimnology and the preservation of organic matter."

Aug. 24, Structure of coal, carbons, and derived products from physical measurements, J. W. Gartland, *chairman*: J. T. McCartney, "Reflectance measurements";

R. A. Friedel, "Infra-red spectra"; E. W. Toor, "Magnetometric methods"; R. E. Franklin, "Fine structure of carbon."

Aug. 25, Application of statistical procedures to problems in coal research, H. H. Lowry, *chairman*: W. S. Connor, Jr., "Statistical procedures"; Speaker to be announced, "Chemical structure of coal and derived products"; S. Ergun, "Gasification reactions"; C. W. Sheldrake, Jr., "Evaluation of coke."

Aug. 26, Minor atoms and trace elements, H. C. Howard, *chairman*: A. R. Powell and G. R. Yohe, "Sulfur, oxygen, and nitrogen"; Maurice Deul and J. W. Myers, "Trace elements."

Aug. 27, Round table discussion of trends in coal research, H. H. Storch, *chairman*.

PROTEINS AND NUCLEIC ACIDS

Gerhardt Schmidt, *chairman*;
J. P. Greenstein, *vice chairman*

Biosynthesis with reference to proteins and nucleic acids

Aug. 30, Possible precursors and intermediaries of nucleic acid biosynthesis: D. M. Brown, "Chemistry of nucleotides"; Discussion: R. L. Sinsheimer, "Degradation products of DNA"; Van R. Potter, L. Hecht, and R. B. Hurlburt, "Tissue nucleotides"; Discussion: Z. Dische, E. Volkin, "Amino acid supply of cells and tissues"; H. E. Umbarger, "Influence of mutual proportions of amino acids on the growth of microorganisms"; Bernard Davis, Discussion; H. N. Christensen, "Concentrative uptake of amino acids by cells."

Aug. 31, Enzymes involved in nucleic acid formation: William Shive, "Formation of purines in microorganisms"; John M. Buchanan, "Enzymatic formation of the purine ring"; G. R. Greenberg, Discussion; G. Toennies and E. Usdin, "Folic acid activity of blood"; I. Lieberman and A. Kornberg, "Enzymatic formation of pyrimidines"; H. M. Kalckar, "Formation of the bonds between purines and carbohydrate groups"; S. P. Colowick, N. O. Kaplan, and M. Friedkin, Discussion; *Some enzymes involved in peptide bond formation*: G. Brawerman and E. Chargaff, "Formation of bonds between carbohydrate and phosphoryl groups of nucleotides"; Leon A. Heppel, Discussion; W. Maas, "Enzymatic formation of the peptide bond in pantothenic acid"; H. J. Strecker and H. Waelsch, "Thio esters of amino acids in enzymatic transfer reactions."

Sept. 1, Incorporation studies on intact tissues: George B. Brown, "Incorporation of labeled precursors into the nucleic acid of cells and tissues"; John Totter, P. M. Roll, A. Bendich, L. F. Cavalieri, Francis Crick, Discussion; C. B. Anfinsen, "Incorporation of labeled amino acids into proteins in animals"; Discussion: P. Zamecnik, M. Simpson, "Incorporation of labeled amino acids in some enzymes and hormone proteins"; D. Steinberg; T. S. Work, "Biosynthesis of milk proteins in lactating mammary glands"; F. W. Putnam, Synthesis of plasma proteins and Bence Jones protein in patients with multiple myeloma"; P. Zamecnik, Discussion; F. Haurowitz, "Biosynthesis of immune proteins."

Sept. 2, Nucleic acid and protein biosynthesis in bacteriophages and microorganisms: A. D. Hershey, "Nucleic acid economy in bacteria infected with bacteriophage"; Discussion: F. W. Putnam, "Present status of our information regarding protein synthesis in bacteria infected with bacteriophage"; Barry Commoner, "Studies on the biosynthesis of tobacco virus." *Antimetabolites of nucleic*

acid metabolism: G. B. Hitchings, "Antimetabolites in nucleic acid biosynthesis"; J. A. Stekol, "Mechanism of antimetabolic action of ethionine"; F. Schlenk and G. Schmidt, Discussion.

Sept. 3, Nucleic acid and protein biosynthesis in bacteriophages and microorganisms: Sol Spiegelman, "Adaptive enzyme formation"; B. Magasanik, "Factors Controlling the Rate of Adaptive Enzyme Formation."

Program at Kimball Union Academy

STREAM SANITATION

R. D. Hoak, *chairman*

June 21: James B. Lackey, "Stream biology"; Ruth M. Patrick, "Physical factors in self-purification."

June 22: Clair N. Sawyer, "Deoxygenation and reoxygenation"; Henry C. Marks, "Disinfection."

June 23: H. Heukelekian, "Basic principles of waste treatment"; Robert S. Ingols, "Toxicity."

June 24: Frank M. Middleton, "Tastes and odors"; C. C. Ruchhoft, "Analytical methods and quality criteria."

June 25: Leslie A. Chambers, "Special topics."

ADHESION

John E. Rutzler, Jr., *chairman*;

Frank W. Reinhart, *vice chairman*

June 28, General theory of adhesion, R. F. Blomquist, *leader*: F. O. Rice, "Mechanism of interaction at surfaces"; M. R. Hatfield and G. B. Rathmann, Application of absolute rate theory to adhesion"; F. W. Reinhart, "Origins of stresses on adhesive bonds."

June 29, Thermodynamics and structures of surfaces, D. M. Gans, *leader*: Fred Schulman, "Surface factors in cohesion and adhesion"; R. S. Hansen, "Some general aspects of surface thermodynamics."

June 30, Electric phenomena in adhesion and cohesion, L. P. Smith, *leader*: C. G. B. Garrett, "Potentials and space-charge double layers at interfaces between conductors and semiconductors"; S. M. Skinner, "Transient electric potential associated with breaking structural adhesive bonds"; D. M. Alstadt and H. C. O'Brien, "Galvanic decay of adhesive bonds."

July 1: J. E. Rutzler, Jr., "Effects of stress and strain in adhesive bonds upon dielectric loss factor." *Mechanics of Joints*, G. W. Koehn, *leader*: J. L. Lubkin, "Stress distribution in adhesive joints, including tubular and scarf configurations."

July 2: H. A. Perry, Jr., "The strength of adhesive butt joints."

EXTRACTIVE METALLURGY AND MINERAL PREPARATION

Nathaniel Arbiter, *chairman*

July 5: Speaker to be announced, "Surface energy of solids"; Speaker to be announced, "Potentials at the mineral water interface."

July 6: P. L. DeBruyn and R. Schumann, "Significance of the contact angle in flotation"; N. Arbiter, "Adsorption of inorganic ions by inorganic solids."

July 7: A. M. Gaudin, "Interaction between collectors and minerals"; J. Schulman, "Role of frothers in flotation."

July 8: H. R. Spedden, "Mechanism of particle bubble contact"; T. M. Morris and R. Schumann, "Flotation kinetics."

July 9: Summary Session.

SOLID-STATE REACTIONS IN CERAMICS

W. J. Smothers, *chairman*

July 12: Samuel Zerfoss, "Influence of trace impurities on solid-state reactions"; H. H. Hausner, "Effect of pressure on some solid-state reactions"; P. A. Marshall, Jr., "Atomistic approach to diffusion processes in solid-state reactions"; J. A. Hedvall, "Sintering and the influence of dissolved gases on the surface activity"; F. Sandford, subject to be announced.

July 13: W. E. Eitel, "Role of volatile constituents in solid-state reactions"; P. Schwartzkopf and W. J. Leszynski, "Sintering mechanism of cermet materials"; G. Cohn, "Experimental methods employed in the investigation of kinetics and mechanism of solid-state reactions"; T. J. Gray, "Chemical physics of oxides."

July 14: J. R. Johnson, "Some observations on sintering of thorium and uranium oxides"; D. L. Heath, "Mathematical analysis of phase diagrams"; R. S. Weisz, "Solid-state reactions and properties of ferromagnetic spinels"; W. F. Sullivan, "Formation of spinels at low temperatures"; E. J. Smoke, "Solid-state reactions in some lithium aluminosilicate ceramics."

July 15: M. C. Wittels, "Radiation damage studies of some refractory crystals"; V. D. Frechette, "Use of the microscope for study of solid-state reactions"; R. W. Grimshaw, "Differential thermal analysis and its applications in the study of solid-state reactions"; N. F. Tsang, "Heat conduction theory in differential thermal analysis."

July 16: G. W. Brindley, "X-ray study of clay minerals and of their thermal transformation"; F. A. Mauer, "Thermogravimetric and x-ray diffraction studies at the National Bureau of Standards"; M. D. Beals, "Observation of solid-state reactions by x-ray methods."

STRUCTURE, CHEMISTRY, AND PHYSIOLOGY OF BONES AND TEETH

Felix Bronner, *chairman*; William F. Neuman and Reidar F. Sognnaes, *co-chairmen*

July 19, Matrix formation in bones and teeth, C. Leblond, *chairman*: F. L. Losee and W. C. Hess, "Organic components of dentin matrix"; R. E. Clegg, "Carbohydrates of bone and dentin matrix"; D. D. Dziwiatkowski, "Incorporation of radioactive elements into bone and dentin matrix." F. McLean, *chairman*: R. M. Amprino, "Bone structural renewal"; J. Gross, "Collagen fibrogenesis."

July 20, Chemistry of mineralization, H. C. Hodge, *chairman*: V. DiStefano, "Role of phosphatase"; B. B. Migocovsky, "Isotope studies"; A. E. Sobel, "Local factor in calcification." A. B. Gutam, *chairman*: W. F. Neuman, "Theory of calcification"; T. Dixon, "Origin and nature of bone citrate."

July 21, Dynamics of calcium metabolism, W. D. Armstrong, *chairman*: D. L. Buchanan and A. Nakao, "Physiological status of bone carbonate"; C. J. Maletskos, "Dynamic model of calcium metabolism"; William P. Norris, "Radiocalcium and radium studies"; M. Rubin, subject to be announced. J. E. Howard, *chairman*: H. D. Copp, "Calcium and phosphorus homeostasis."

July 22, Nutritional Factors, R. S. Harris, *chairman*: J. Cohen, "Newer studies on vitamin A in bone growth"; C. L. Comar, "Calcium metabolism and bone formation"; H. E. Harrison, "Vitamin D in calcium metabolism"; W. van Robertson, "Ascorbic acid in fibrogenesis." *Afternoon workshop—some analytical aspects*, J. Sendroy,

Jr., *chairman*. H. H. Mitchell, *chairman*: R. Nicolaysen, "Physiological basis for evaluation of man's calcium requirements." *Panel discussion*: L. Barnes, H. H. Mitchell, R. Nicolaysen, D. Watkin, "Human requirements for calcium."

July 23, Physiological Aspects of Bone Formation, R. Follis, *chairman*: J. Arnold, "Bone remodeling"; G. Bevelander, "Histochemistry of osteogenesis"; P. Munson and A. D. Kenny, "Nature and mechanism of action of parathyroid hormonal activity"; N. S. McDonald, "Some aspects of radio-strontium deposition."

CHEMISTRY AT INTERFACES

Sydney Ross, *chairman*

July 26, Foams and emulsions: Sydney Ross "Recent researches on foams and antifoams"; J. J. Spitzer, "Lipemia, a physiological fat emulsion"; H. L. Davis, "Albumin-lipid systems."

July 27, Emulsions and cell interfaces: H. Necheles, "Recent researches on physiological fat emulsions"; H. L. Davis, "Agglomeration of blood components by lipids"; Eric Hutchinson, "Hemolysis by alkyl sulfates."

July 28, Solid interfaces: Sydney Ross, "Adsorbed films on homotactic surfaces: historical"; Sydney Ross, "Two-dimensional phase transitions on solids"; Donald Graham, "Interaction and condensation in adsorbed monolayers."

July 29, Solid interfaces: Ben Millard, "Adsorption of krypton and argon by barium sulfate"; F. H. Healey, "Heat of immersional wetting of solids by liquids."

July 20, Solid interfaces: Discussion: "Adsorption of water by hydrophobic surfaces; Summary and conclusions."

INFRA-RED SPECTROSCOPY

R. C. Lord, *chairman*

Interpretation of infra-red spectra of large molecules

Aug. 2: R. C. Gore, "Structural information from group frequencies"; H. W. Thompson, "Fundamental consideration of frequency correlations"; M. K. Wilson, "Uses and limitations of frequency calculations."

Aug. 3: R. Norman Jones, "Structural information from quantitative intensities"; E. Bright Wilson, Jr., "Absolute intensities and their relation to the electric structure of molecules"; N. Fuson, "Solvent effects and their use in interpretation of spectra."

Aug. 4: R. Mecke, "Dielectric effects on infra-red spectra of hydrogen bonds"; W. C. Price, subject to be

announced; R. C. Lord, "Relation between infra-red spectra and hydrogen-bond strength."

Aug. 5: R. S. Halford, "Infra-red absorption in crystals and the structure of complex molecules"; G. B. B. M. Sutherland, "Relation between x-ray results and infra-red spectra of large molecules."

Aug. 6: R. M. Badger, "Amide frequencies in relation to the structure of polypeptides"; E. R. Blout, "Interpretation of amide and peptide spectra."

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