Program of the Gordon Research Conferences, AAAS, 13 June–2 September, 1955

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

THE Gordon Research Conferences, sponsored by the American Association for the Advancement of Science, for 1955, will be held from 13 June to 2 Sept. 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 associations 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 among 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 15 May 1955. Each applicant must state the institution 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 because the conferences are organized to provide a place for scientists to get together both formally and informally. It is to the advantage of all participants to attend a conference for the entire week. 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. Dogs or other animals will not 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 partici-

pation 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 10 June to 2 Sept. 1955, mail should be addressed to Colby Junior College, New London, N. H.

Program at Colby Junior College

Separation and Purification

Arthur Rose, *chairman*; H. G. Cassidy, *vice chairman*

13 June: Vincent Verplanck, "Comparison of separation processes"; Robert V. Kleinschmidt, "Controlled thermal gradients as a factor in fractional distillation columns"; A. J. P. Martin, "Gas partition chromatography."

14 June: Kenneth Savard, "Paper chromatography of steroids"; Robert M. Milton, "Molecular sieve adsorbents"; Wayne Keller, "Preparation of pure metals in high vacuum."

15 June: John E. Powers and C. R. Wilke, "Liquid thermal diffusion"; E. S. Perry, "Separation factors in molecular distillation."

16 June: F. H. Horne, "Purification by zone melting"; A. E. Schubert, "Separation of gases in a vortex tube"; N. C. Melchior, "Metabolic mechanisms for the movement of inorganic ions."

17 June: G. J. Pierotti, "Factors affecting deviations from ideality in nonelectrolytic solutions."

Petroleum

R. F. Marschner, *chairman*; J. S. Ball, *vice chairman*

20 June: Robbin C. Anderson, "Nucleation and formation of carbon from hydrocarbons"; R. O. Grisdale, "Formation and properties of black carbon."

21 June, Symposium on chemistry of neutral compounds of nitrogen, oxygen, and sulfur: Calvin A. VanderWerf, "Neutral compounds of nitrogen"; Richard H. Wiley, "Neutral compounds of oxygen"; Dean Stanley Tarbell, "Neutral compounds of sulfur."

22 June: J. B. Beverly and Robert F. Marschner, "Relations among properties of liquids"; Robert Simha, "Application of liquid-state theory to hydrocarbons."

23 June: Francis P. Shepard, "Genesis of petroleum"; R. E. Kallio, "Hydrocarbons and life."

24 June: A. F. Benning and W. B. McCormack, "A comparison of fluorocarbons and hydrocarbons."

Catalysis

F. G. Ciapetta, *chairman*; H. H. Voge, *vice chairman*

27 June: T. J. Gray, "Defect structure and catalysis"; P. A. Marshall, Jr., "The electronic properties of solids and catalytic effects of surfaces"; Y. L. Sandler, "The magnetic parahydrogen conversion on defect solid surfaces"; P. Delahay, "Heat of adsorption of hydrogen on metals and hydrogen overvoltage."

28 June: R. E. Cunningham, "Catalytic reaction studies on plane faces of metal single crystals"; H. Pines, "The specificity of a nickel hydrogenation catalyst"; P. W. Selwood, "Magnetic studies of supported nickel catalysts"; G. C. A. Schuit, "Texture, structure and activity of nickel on silica catalysts."

29 June: H. E. Farnsworth, "Adsorption and surface catalysis using radiotracer and high-vacuum techniques"; M. E. Wadsworth, "Application of infrared spectroscopy to catalysis"; R. P. Eischens, S. A. Francis, W. A. Pliskin, "Effect of surface coverage on infrared spectra of adsorbed carbon monoxide."

30 June: E. W. Muller, "Field emission spectroscopy"; R. Klein, "The carbon-oxygen reaction on tungsten"; J. A. Becker, "Impact of modern techniques on the theories of adsorption."

1 July: A. Clark, G. C. Bailey, V. C. F. Hohm, "A study of supported nickel oxide polymerization catalysts"; S. Weller and L. Wright, "The catalytic activity of barium and calcium hydrides."

Polymers

R. F. Boyer, *chairman*; C. G. Overberger, *vice chairman*

4 July, Recent progress in polymer chemistry: Giffin D. Jones, "Some unusual polar monomers and their polymers"; L. A. Wall, "Thermal stability of polymers at elevated temperatures."

5 July: D. S. Ballantine, "Polymerization induced by radiation"; A. A. Miller, "Effects of radiation on polymers"; F. H. Winslow and W. O. Baker, "Odd electrons and electrical conductivity in polymer molecules."

6 July: A. R. Shultz, "Thermodynamic studies of polymer solutions"; H. G. Morawetz, "Molecular association in high polymers"; Arthur Tobolsky, "Structure and mechanical properties of polymers."

7 July: S. W. Hawkins, "Some considerations of the structural factors affecting the properties of polyethylene"; C. A. Sperati, "Mechanical properties and structure of polytetrafluorethylene"; John D. Cotman, G. L. Claver, Margaret Polglase, "Studies on the polymerization of vinyl chloride and the structure of polyvinyl chloride."

8 July: Herbert A. Newey, "The cure of epoxy resins."

Textiles

J. B. Goldberg, *chairman*; G. R. Seidel, *vice chairman*

11 July: H. Wakeham, "Cotton fiber properties in relation to processing and product quality"; C. Harmon and S. Simon, "Bleachability and the bleaching of off-colored cotton."

12 July: J. Compton, "The chemical modification of cotton by cyanoethylation"; E. Abrams, "A copper process for permanent microbiological protection of cellulosic fabrics."

13 July: R. G. Scott, "Fiber characterization by electron microscopy"; S. Edelstein, "Some new aspects on static in textiles."

14 July: J. S. Gillespie, Jr., "Progress in man-made protein fibers"; H. K. Hughes, "The influence of molecular structure on cellulose acetate fiber properties."

15 July: S. J. Kennedy, "Protection afforded by textiles and clothing against the thermal effects of atomic weapons."

Corrosion

E. A. Gulbransen, *chairman*;
J. J. Harwood, *vice chairman*
Fundamental studies in oxidation and corrosion

18 July, A. Gwathmey, *chairman, Theory and nature of surfaces*: R. D. Heidenreich, "Application of electron instrumental methods to the study of metal surfaces"; J. S. Koehler, "Structural defects produced by cold work and their possible influence on chemical reactions"; N. Cabrera, "The nature of a metal surface as suggested by theories of crystal growth"; Open discussion, "The nature of a metal surface on an atomic scale."

19 July, J. J. Harwood, *chairman, Substructure in oxidation and corrosion*: E. Machlin, "Recent concepts and observations of the structure of grain boundaries and subboundaries"; R. Bakish, "The chemistry of grains and grain boundaries"; M. Metzger, "Sub-grain boundary corrosion phenomena"; J. Benard, "Recent investigations in the field of nucleation during the oxidation of pure metals"; M. Simnad, "Influence of substructure upon electrochemical exchange, electrodeposition and oxidation of metals"; W. Harris, "Oxide substructure formed on single metal crystals."

20 July, T. Rhodin, *chairman, Nature and composition of oxide films*: F. Wormwell, "Recent English research on films and surface layers on metals"; T. Rhodin, "Oxygen adsorption on stainless steel"; W. Smeltzer, "Kinetics of oxide film formation on aluminum-magnesium alloys." *Electrical properties of oxides*, T. Rhodin, *organizer*; T. Gray, *chairman*: F. Morin, "Electron transfer in bulk oxides of the transition metals"; D. Vermilyea, "Electrical properties of oxide films on metals."

21 July, W. J. Moore, *chairman, Studies on oxidation of metals*: N. Cabrera, "Recent developments in the theory of oxidation"; W. Moore, "Diffusional mechanisms in oxidation of copper and zinc"; J. Benard, "Structural aspects in the selective oxidation of some binary alloys"; E. Birchenall, "Studies on the oxidation and sulfidation of iron"; J. Waber, "Experimental observations on the cubic law of oxidation."

22 July, D. Thomas, *chairman, Corrosion of zirconium and other metals*: R. Misch, "Electrical properties of oxide films on zirconium"; G. Cartledge, "Inhibition of corrosion by the pertechnatate ion"; G. Adams, Jr., subject to be announced.

Instrumentation

R. H. Osborn, *chairman*;
Donald Williamson, *vice chairman*

25 July: E. Leonard Arnoff, "Linear programming in operations research"; W. A. Wildhack and J. Stern, "Information sources for instrumentation.

26 July: D. Z. Robinson, "Applications of information theory"; Derald Stuart, "Ballistics instrumentation."

27 July: Robert R. Williamson, "Real time digital computer systems"; Donald P. Eckman, "A complete story of an integrated control system."

28 July: Robert T. Nieset, "Applications of radioisotopes to measuring"; John D. Isaacs, "Instruments for oceanography."

29 July: James D. Hardy, "Instrumentation in psychophysiology of temperature and pain sensation."

Additional papers to be presented during the week: William E. Vannah, "A mechanical-digital torque amplifier"; E. W. James, "Measuring time constants in chemical processes"; Nelson Gildersleeve, "Dielectric constant chemical analyzer"; John F. Bishop, "Application experiences with a new plant stream flow colorimeter"; Paul M. Erlandson, "An index of transducers and actuators"; J. A. Richards, "A linearly variable sensitivity control circuit for recording strain-gage instruments"; D. J. Troy, "Procedures for calibrating photometric scales"; Paul Hoell, "Special purpose computer techniques"; C. D. Morrill, "A computer for economic scheduling and control of power systems"; Truman S. Gray, "Neutron flux measuring system"; John P. Strange, "A discriminatory thermal conductivity gas analyzer"; Yasundo Takahashi, "Graphical solutions of heat-exchange problems."

Elastomers

A. M. Bueche, *chairman*; B. S. Biggs, *vice chairman*

1 Aug.: Harry L. Fisher, "Recent advances in elastomers"; J. J. Verbanc, "Review of isocyanate chemistry"; N. V. Seeger, "Chemigum SL polyurethane elastomers"; J. A. Nelson, "Adiprene urethane rubber."

2 Aug.: K. E. Polmanteer and R. J. Koch, "Sulfur vulcanization of vinyl-substituted polysiloxanes"; E. G. Williams, "The effect of different backbone structures on the properties of isocyanate-linked elastomers"; R. S. Marvin, "The molecular basis of viscoelastic behavior."

3 Aug.: L. Breitman and L. A. McLeod, "Second-order transitions of polymers, plasticizers, and blends"; G. R. Taylor, "The tensile strength of elastomers"; F. R. Eirich and J. Cornell, "Attempted correlation between abrasion resistance and breaking strength of acrylic resins."

4 Aug.: D. Parkinson, A. F. Blanchard, J. W. Watson, C. H. Leigh-Dugmore, "Reinforcement: physical and chemical approaches"; F. L. Roth, G. M. Martin, R. D. Stiehler, "Behavior of rubber vulcanizates in tension"; A. M. Gessler, "Filler reinforcement of butyl rubber."

5 Aug.: P. Fram, "Reinforcement of acrylic elastomers"; F. D. Snyder, "The effect of high rates of elongation on the stress-strain properties of elastomers."

Medicinal Chemistry

Karl H. Beyer, *chairman*;
Bernard B. Brodie, *vice chairman*

8 Aug., Chemical approach to neuropsychological disorders: Donald B. Tower, "Biochemical approach to the problem of epilepsy"; Vittorio Erspamer, "Role of serotonin in the body"; Sidney Udenfriend, "Formation and fate of serotonin in the body"; Edward Evarts, "Production of experimental psychoses by chemical agents."

9 Aug.: Mark P. Altschule, "Neuropharmacological and clinical aspects of tranquillizing agents (reserpine and chlorpromazine)"; Bernard B. Brodie, "Biochemical and physiological relationships of serotonin, lysergic acid diethylamide and the tranquillizing agents." *Drug action*: Arnold J. Lehman, "Interpretation of animal toxicity in terms of potential toxicity in man"; Bert La Du, Jr., "Enzymatic mechanisms in drug metabolism."

10 Aug.: Adrien Albert, "Physico-chemical properties affecting drug action"; Robert D. Tschirgi, "Nature of the blood-brain barrier." *Collagen diseases; Purification and chemistry of the corticotropins*: Paul Bell, "Purification of the corticotropins"; K. S. Howard, "Degradation of β-corticotropin"; R. G. Shepherd, "Structure of β-corticotropin"; A. W. Moyer, general comments.

11 Aug.: A. C. Bratton, Jr., "Some biological and chemical aspects of inflammation." *Chemistry of meticorten and meticortelone*: E. B. Hershberg, "Meticorten"; H. Herzog, "Meticortelone"; Preston L. Perlman, "Biological properties of meticorten and meticortelone"; Maurice Pechet, "Metabolic studies and clinical effects of meticorten and meticortelone in man."

12 Aug., Diabetes: R. Levine, "Current concepts of

the physiological and biochemical role of insulin"; I. Arthur Mirsky, "Insulinase and its possible role in *diabetes mellitus*."

VITAMINS AND METABOLISM

Paul L. Day, *chairman*; Karl Folkers, *vice chairman*

15 Aug.: J. A. Stekol, "Influence of vitamin B_{12} and folic acid on metabolism of methionine and choline in animals"; D. D. Woods, "Role of folic acid and B-vitamins in synthesis of methionine and serine by microorganisms"; Gerhard W. E. Plaut, "Biosynthesis of riboflavin by *Ashby gossypii*"; George M. Briggs, "Comparative requirements of small laboratory animals"; Herbert P. Sarett, "Effect of carbohydrate in powdered milk diets in nutrition of growing rat."

16 Aug.: Nevin S. Scrimshaw, "Nutritional and metabolic aspects of kwashiorkor"; Charles U. Lowe, "Nutritional and metabolic aspects of celiac disease and pancreatic fibrosis"; Charles D. May, discussion. William J. Darby, "Pellagra in the world today"; David B. Hand, "Food supply and nutrition in Formosa."

17 Aug., Symposium on chick nutrition: Edwin P. Singsen, "Vitamin E and antioxidants in poultry nutrition"; M. L. Scott, "Unidentified chick growth factors, with special reference to an unknown mineral essential"; Alvin C. Wiese, "New chick factor"; Orville G. Bentley, R. R. Johnson, T. V. Hershberger, "Ruminant digestion, as related to the *in vitro* studies with B-vitamins and fatty acids"; C. L. Comar, "Radioisotopes in nutritional studies with domestic animals."

18 Aug.: Robert F. Schilling, "Intrinsic factor and its relation to vitamin B_{12}; William L. Williams, "Purification and chemical studies on the intrinsic factor"; W. F. White and William R. Best, discussion. Gladys Emerson, "Vitamin B_6 deficiency in the monkey"; William Bean, "Induced pantothenic acid deficiency in man."

19 Aug.: Louis Pillemer, "The properdin system"; Harry Eagle, "Specific amino acid and vitamin requirements of normal and malignant cells in tissue culture"; George W. Kidder, "Review of the present knowledge of functions of thioctic acid."

FOOD AND NUTRITION

Anthony A. Albanese, *chairman*;
Robert A. Harte, *vice chairman*

22 Aug., Amino acid needs and utilization, James B. Allison, *chairman*: R. M. Leverton, "Amino acid needs of women"; K. H. Maddy, "Amino acid supplementations of animal and human diets"; N. W. Flodin, "Amino acid balance and nitrogen efficiency." *Nutrition and calorie limitations,* Henry B. Hass, *chairman*: J. R. Brobeck, "Hunger and food"; S. Lepkovsky, "Nutritional balance in reduction diets."

23 Aug., Parenteral nutrition, Harry L. Fevold, *chairman*: J. H. Roe, "Intravenous fructose and invert sugar solutions"; M. I. Grossman, "Intravenous fat emulsions"; C. O. Rice, "Postoperative parenteral nutritional needs." *Appraisals of the hazards of food additives,* Bernard F. Oser, *chairman*: N. Nelson, "Limitations of experimental approach"; J. L. Zapp, "Additives from packaging materials."

24 Aug., Food energy—yield and expenditure, Harry Spector, *chairman*: M. I. Grossman, "Estimation of caloric values of foods"; A. F. Henschel, "Energy expenditure in military tasks"; R. Passmore, "Energy expenditure in everyday life."

25 Aug., Fat utilization, Daniel Melnick, *chairman*: F. H. Mattson and L. W. Beck, "Action of pancreatic lipase on glycerides"; R. Reiser, "Role of phospholipids in fat absorption"; W. E. Cornatzer, "Cellular lipotropic mechanisms"; P. P. Swanson, "Nitrogen-sparing action of fats."

26 Aug., New developments in dehydrated foods, John H. Nair, *chairman*: D. K. Tressler, "Fruits and vegetables"; H. R. Kraybill, "Meats, eggs, and poultry."

CANCER

Jacob Furth, *chairman*; H. S. N. Greene, *vice chairman*

29 Aug., Features of the cancer cell and the cancerous state; Carcinogenesis, H. P. Rusch, P. Weiss, A. Gellhorn, *chairmen*: H. S. N. Greene and H. Stewart, "Biologic types of tumors and tumor cells"; C. Breedis, S. Meryl Rose, C. Grobstein, "Carcinogenesis in relation to regeneration and differentiation"; R. Graham, J. Graham, S. Gusberg, J. Nickson, "Cytologic expression of sensitivity to irradiation; Potentiation to radiation therapy"; F. W. Putnam and E. Osserman, "Myeloma and myeloma proteins"; L. W. Law and A. Kirschbaum, "The thymic factor in leukemogenesis."

30 Aug. and 31 Aug. (morning), Hormonal factors in origin and control of neoplasms, R. Hertz, R. Rawson, and J. Aub, *chairmen, I, Tumorigenesis*: W. Gardner, G. Biskind, G. Mueller, J. Trentin, M. Klein, "Estrogens, androgens, and gonadotropes"; G. Woolley, R. Silberberg, M. Silberberg, A. Kirschbaum, "Adrenal hormones and adrenotropes"; H. Morris, A. Grobman, H. Isler, "Thyroid and thyrotropes"; H. Moon, 'Somatotropes"; H. Schlumberger and P. Steiner, "Character of pituitary tumors in parakeets." *II*: O. Pearson, R. Rawson, L. Engel, G. Mueller, W. Baker, "Endocrine control of neoplasia."

31 Aug. (evening) and 1 Sept., Immunologic phenomena related to neoplastic growth, E. Russell, M. Heidelberger, M. Chase, *chairmen*: G. Snell and M. Barrett, "Genetics of tissue compatability"; P. Gorer and T. Hauschka, "Relation between genetic and antigenetic character of cells; Alterations in virulence in relation to genetic and immunologic alterations"; E. Witebsky and B. Bjorklund, "Evidence for immunologic difference between cancer and homologous normal cells"; J. Freund and E. Kabat, "Immunologic analysis of tissue antigens; Unmasking latent potencies in autologous hosts; Adequacy of technics used"; H. C. Stoerk, "Extent and mechanism of destruction of malignant lymphocytes by guinea pig serum"; J. Syverton, "Pitfalls resulting from use of immuno-incompatible grafted tumors"; L. Brent, P. Medawar, R. Billingham, N. Kaliss, E. Sparrow, "Acquired tolerance to homografts."

2 Sept., Viruses causing leukemia and tumors, J. Enders, *chairman*: R. Ritchie and M. Gordon, "Leukemia in fish"; L. Gross and S. Stewart, "Leukemia in mice"; L. Gross and L. Law, "Salivary gland tumors"; L. Dmochowski, F. Bang, J. Bittner, "Mammary tumors"; J. Beard, R. Bryan, F. Bang, F. Duran-Reynals, "Avian tumors."

Program at New Hampton School

ION EXCHANGE

D. R. Lewis, *chairman*;
Henry C. Thomas, *vice chairman*

13 June: Jack Schubert, "Physical chemical applications of ion exchange"; A. Winger, "Ion-hydration numbers by ion-exchange membranes"; Oscar D. Bonner and Harry P. Gregor, "Ion-exchange equilibria."

14 June: Henry C. Thomas and K. Kraus, "Inorganic exchangers"; Melvin Cook, "Inorganic exchangers"; D.

Reichenberg, "Adsorption of nonelectrolytes by ion-exchange resins."

15 June: W. F. Graydon and George Butler, "Ion-exchange resin preparation and properties"; R. Kunin, "Ion-exchange resin stability"; Frank E. Harris, "Polyelectrolytes."

16 June: D. Reichenberg, "Ion-exchange relative affinities"; R. F. Baddour, "Kinetics of ion-exchange reactions"; Wm. Reiman III, "Analytical applications of ion exchange."

17 June: Andrew Gemant, "Ion exchange in nonaqueous media."

Coal

E. Gorin, *chairman*; H. H. Storch, *chairman-elect*

20 June, Gasification kinetics, P. C. Walker, *chairman*: P. C. Walker, "Kinetics and mechanism of graphite gasification"; S. Ergun, "A generalized correlation of the gasification of various carbons"; speaker to be announced, "Complete kinetic correlation in the gasification of char by H_2/H_2O mixtures"; R. H. Wilhelm, "Interaction of physical and chemical variables in coal gasification."

21 June, H. R. Batchelder, *chairman*: R. M. Busche, "Kinetics in the design of dilute phase gasification systems"; R. M. Busche, "Dilute phase gasification commercial experience." *Production of hi-Btu gas from coal,* Martin Elliott, *chairman*: H. Benson, "Production of methane by modified Messerschmidt process"; R. Hiteschue, "Production of hi-Btu gas by hydrogenation of coal in fluidized bed"; M. Elliott, "Hi-Btu gas by dry coal hydrogenation."

22 June, Hi-Btu gas by methanation reactions: H. Linden, "Methanation reactions over nickel catalysts"; M. Greyson, "Methanation reactions using fluidized catalysts." *Fundamentals of combustion processes,* John Mitchell, *chairman*: T. F. Hurtley, "Recent British research work on combustion of solid fuels"; E. A. Gulbransen, "Fundamentals of combustion of graphite."

23 June: G. von Elbe and B. Karlowitz, "Combustion wave theory and combustion of char"; F. T. Barr, "The combustion of fluidized petroleum coke." *Problems in combustion technology,* George Creelman, *chairman*: A. R. Mumford, "Powdered fuel combustion systems"; L. S. Wilcoxon, "Cyclone burner."

24 June: John Yellott and associates, "Development of the coal-fired gas turbine."

Proteins and Nucleic Acids

Frank W. Putnam, *chairman*;
George B. Brown, *co-chairman*

27 June, Chemistry of the nucleic acid macromolecule; nucleotides and *nucleosides*: R. L. Sinsheimer, "The nucleotides obtained by degradation of deoxyribonucleic acid"; A. M. Michelson, "The chemistry of degradation products of deoxyribonucleic acids"; A. Bendich, L. F. Cavalieri, E. Volkin, discussion; Waldo E. Cohn, "Structural aspects of the ribonucleic acid molecule"; David Lipkin, "The base-catalyzed methanolysis of ribonucleic acids, A novel approach to the structure of the macromolecule"; Gerhard Schmidt and D. I. Magrath, discussion.

28 June: R. E. F. Matthews, "Nucleic acids containing unnatural bases"; Jack J. Fox, "The syntheses of pyrimidine and purine nucleosides"; Fritz Schlenk, S. H. Lipton, S. A. Morell, M. P. Gordon, S. Zamenhof, discussion. *The structure of ACTH*: C. H. Li, introductory remarks; P. H. Bell, R. G. Shepherd, R. A. Brown, A. W. Moyer, S. B. Davis, "Purification and characterization of the corticotropins"; R. G. Shepherd, P. H. Bell, S. B. Davis, A. W. Moyer, R. A. Brown, "Degradation and structure of β-corticotropin"; W. F. White and W. A. Landmann, "Studies on corticotropin A."

29 June: C. H. Li, I. I. Geschwind, J. S. Dixon, G. I. Harris, A. L. Levy, R. D. Cole, and I. D. Raacke, "α-Corticotropin-ACTH from sheep glands"; Klaus Hofmann, "Peptide synthesis in relation to degradation products of ACTH"; R. A. Brown and W. A. Landmann, discussion; Lyman C. Craig, "Fractionation and chemical structure of polypeptide antibiotics." *Structural studies on proteins*: C. H. W. Hirs, "Studies on the structure of ribonuclease"; C. B. Anfinson and R. Redfield, "Studies on the gross and fine structure of ribonuclease."

30 June: W. W. Bromer and Otto K. Behrens, "The chemical characterization of glucagon"; Frank W. Putnam, "Chemical homogeneity and end-group distribution of human serum globulins"; P. Desnuelle and M. Rovery, "The activation of chymotrypsinogen: a stepwise and limited proteolysis"; Henry Bull, Sidney Fox, H. Fraenkel-Conrat, discussion; Fred Sanger, "The structure of insulin"; Barbara Low, "X-ray crystal structure studies of insulin"; W. A. Schroeder and Robert Parrish, discussion.

1 July: H. Fraenkel-Conrat, "Chemical studies on tobacco mosaic virus"; W. A. Schroeder, "Structural studies on silk fibroin"; Milton Levy, "Sequence of amino acids in silk fibroin"; T. D. Kroner, discussion.

Radiation Chemistry

E. J. Hart, *chairman*; R. L. Platzman, *vice chairman*

4 July, Primary processes, I, R. L. Platzman, *chairman*: U. Fano, "Energy loss by ionizing radiations"; H. Linschitz, "Energy absorption by electronic excitation." *Primary processes, II,* M. Burton, *chairman*: D. P. Stevenson, "Electron impact phenomena in gases"; W. P. Jesse, "Ion pair yields in gases."

5 July, Free radical reactions, B. de B. Darwent, *chairman*: S. N. Foner, "Detection of atoms and radicals in gases"; D. J. LeRoy, "Atomic and molecular free radical reactions." *Gas phase reactions,* S. C. Lind, *chairman*: W. A. Noyes, Jr., "Photochemistry of gases"; P. Harteck, "Radiation chemistry of gases."

6 July, Liquid phase reactions, M. Magat, *chairman*: G. R. Rollefson, "Photochemistry of liquids"; J. W. T. Spinks, "Radiation chemistry of liquids." *Aqueous solutions,* A. O. Allen, *chairman*: M. Lefort, "Present status of radiation yields." Reports on recent research.

7 July, Diffusion kinetics, W. H. Hamill, *chairman*: H. Fricke, "Aqueous solutions"; A. Chapiro, "Nonaqueous solutions." *Solid-state reactions, I,* M. Haissinsky, *chairman*: F. Hutchinson, "Irradiation of proteins." Reports on recent research.

8 July, Solid state reactions, II, M. S. Matheson, *chairman*: G. Harbottle, "Szilard-Chalmers reactions"; J. Ghormley, "Free-radical reactions in inorganic solids."

Inorganic Chemistry

Roland Ward, *chairman*; John F. Gall, *vice chairman*

11 July, Inorganic macromolecules, Eugene Rochow, chairman: R. E. Benkeser, "Organic functional groups in organosilicon compounds"; M. M. Sprung, "Structures of some siloxane polymers"; Anton B. Burg, "Boron-nitrogen polymers"; F. G. A. Stone, "Boron-phosphorus and boron arsenic polymers."

12 July: J. P. Van Wazer, "General structure theory

of condensed phosphates"; A. E. R. Westman, "Filter paper chromatographic studies of condensed phosphates"; Ulrich Strauss, "The effect of some monovalent counter ions on the behavior of long-chain phosphates"; H. Malmgren, "High molecular weight polyphosphates from the biological viewpoint."

13 July: L. C. Baker, "Heteropoly molybdates"; L. M. Mulay, "Mechanism of polymerization of some inorganic oxides." *Chemistry of the cosmos*, F. O. Rice, *chairman*: F. O. Rice, "Chemistry on Jupiter"; G. Herzberg, "Interstellar reactions."

14 July: B. Donn, "The physical and chemical properties of interstellar space." *Chemistry of the rare earths*, H. E. Kremers, *chairman*. T. Moeller, "Electrolytic behavior of some rare-earth metal salts in basic solvents"; B. Weaver, "Rare-earth separation methods used at Oak Ridge National Laboratory."

15 July: L. L. Quill, "Composition of praseodymium oxide" and "Separation of yttrium"; F. H. Spedding and J. E. Powell, "The ion-exchange method of separating adjacent rare earths by elution with ethylenediamine tetraacetic acid."

Industrial Organic Processes

A. V. Willett, *chairman*; R. W. Ivett, *vice chairman*

18 July: H. J. Taufen, "Chemistry of pentaerythritol"; E. L. McMaster, "Physical and chemical factors in the preparation and use of ion exchange resins"; D. J. Beaver, "Organic rubber accelerators."

19 July: M. P. Cava, "Some new aromatic systems related to biphenylene"; R. W. Thoma, "Fermentation processes for production of steroids"; F. W. Tanner, Jr., "Industrial organic syntheses by microorganisms."

20 July: O. L. Davis and H. Sello, "Manufacture of tertiary butyl benzoic acid"; R. M. Zielinski, "Reaction kinetics in the production of benzene from cycloaliphatics"; Speaker to be announced, "Reactions of formaldehyde with olefins"; Hugh Campbell, "Furan derivatives."

21 July: J. E. Troyan, "Manufacture of hydrazine and substituted hydrazine"; J. F. Brown, Jr., "Organic reactions of nitrogen oxides and nitric acid"; H. E. Schroeder, "Development of dyes for new fibers."

22 July: A. D. F. Toy, "Mechanism of organic phosphorus esterification reactions"; John G. Wallace, "Hydrogen peroxide-resin expoxidation reactions."

Chemistry and Physics of Metals-Atom Movements

L. S. Darken, *chairman*; R. Smoluchowski, *vice chairman*

25 July: R. E. Hoffman, "Self-diffusion in dilute binary solid solutions'; R. F. Balluffi, "The Kirkendall effect"; N. H. Nachtrieb, "Self-diffusion in crystalline solids and in liquids"; D. Lazarus, "Diffusion in noble metals"; C. E. Birchenall, "The effect of dissolved carbon on the self-diffusion of iron in gamma-iron."

26 July: R. E. Ogilvie, "Analysis of diffusion couples by x-ray absorption"; A. S. Nowick, "Study of atomic mobility by anelastic methods"; G. Schoeck, "Interaction of dislocations and interstitials"; D. Turnbull, "Role of dislocations and grain boundaries in precipitation phenomena"; J. H. Koehler, "The quenching-in of vacancies in pure gold."

27 July: E. S. Machlin, "On the driving force for atom movements during recrystallization." W. C. Winegard, "Segregation of solute to metal surfaces"; *Round-table discussion of phenomenology of irreversible processes*, Howard Reiss, *chairman*.

28 July: Bruce Chalmers, "Crystal growth from the melt"; K. A. Jackson, "Solid-liquid equilibria in two component systems"; W. G. Pfann, "Transport of solutes by zone melting"; N. Cabrera, "Recent developments in crystal growth"; Amos Shaler, "Sintering"; M. T. Simnad, "Self-diffusion and vapor nucleation."

29 July: H. Reiss, "The influence of holes and electrons on the heterogeneous equilibria and motions of impurities in semiconductors"; G. J. Dienes and G. H. Vineyard, "Kinetics of order-disorder transformations."

Microbiological Deterioration

R. E. Vicklind and James G. Horsfall, *co-chairmen*; G. L. McNew and P. B. Marsh, *co-vice chairmen*

1 Aug.: R. H. Wellman, "Opportunities for progress in the prevention of microbiological deterioration." Martin Rubin, *chairman*: Martin Rubin, "Chelation as a fungitoxic mechanism"; S. Chabarek, "Physical and chemical highlight of chelation"; F. Rieders, "Biological action of chelating compounds"; R. Kraus, "Metal requirements of microorganisms"; M. Manowitz, "Hypotheses of fungitoxic action of chelating agents"; D. Barnes, "Mechanism studies with radioisotopes."

2 Aug., R. A. Ludwig, *chairman*: R. A. Ludwig, "Mechanisms of action of organic sulfur fungicides"; G. D. Thorn, "Structure of organic sulphur fungicides in relation to their reactivity"; G. J. M. van der Kirk, "Fungitoxic action of dithiocarbamates and related compounds"; Frances Brown, "Microbiological activity of rhodanine derivatives"; D. Jorgeson, "Dithio-compounds as fungicides"; H. D. Sisler, "Effect of organic sulphur fungicides on certain metabolic systems and enzymes"; R. G. Owens, "Known and theoretical effects of organic sulphur compounds on enzyme systems."

3 Aug., J. G. Horsfall, *chairman*: J. G. Horsfall, "Other fungitoxic mechanisms"; J. G. Horsfall, "Physical toxicity"; F. F. Nord, "Structure and action of naphthoquinone and related compounds"; H. P. Treffers, "Facts and speculation on mechanism of drug resistance"; "Factors affecting the retention of biocides by materials to which they are applied"; Program to be announced.

4 Aug., R. G. H. Siu, *chairman*: R. G. H. Sui, "Service life of present-day fungicidal treatments"; John Rutzler, "Principles of adhesion"; speaker to be announced, "Service life of agricultural fungicides"; A. M. Kaplan, "Service life of fungicides in plastics and leather"; speaker to be announced, "Service life of fungicides in wood." J. M. Leonard, *chairman*: J. M. Leonard, "Basic considerations in methodology"; W. S. Connor, "Application of statistics to laboratory testing"; E. G. Klarmann, "Assay methods—pure chemicals."

5 Aug., Speaker to be announced, "Evaluation of wood preservatives"; Allen McQuade, "Philosophy of specification testing."

Analytic Chemistry

H. A. Frediani, *chairman*; W. D. Cooke, *vice chairman*

8 Aug.: H. M. N. H. Irving, "The relationship between reagent sensitivity, stereochemistry and electronic structure"; H. H. Strain, "Electrochromatography."

9 Aug.: B. Dubrow, "The determination of particle size"; F. W. Jensen, "High frequency and microwave titrations."

10 Aug.: C. Ricciuti, "Functional group analysis by polarography"; A. Von Grosse, "The determination of oxygen."

11 Aug.: J. S. Fritz, "Theory of nonaqueous titra-

tions"; J. Riddick, "Application of nonaqueous titrimetry." Open session for nonscheduled problems.

12 Aug.: A. A. Benedetti-Pichler, "Chemical microscopy."

Organic Coatings

Louis A. Melsheimer, *chairman*;
Harry Burrell, *vice chairman*

15 Aug.: Walter O. Lundberg, "Some recent aspects of oxidation and oxidative polymerization in drying oil films"; Ernest Mueller, "Effect of driers on chemical compositions and film properties of linseed oil and varnish films."

16 Aug.: Samuel B. Crecelius, "A study of the infrared absorption spectra of gaseous degradation products of organic films under ultraviolet irradiation"; Turner Alfrey, Jr., "Intrafilm bonding forces in relation to the composition, structure, and properties of organic coating films."

17 Aug.: W. C. Walker, "Physical chemistry of printing ink transfer"; H. W. Talen, "Mechanical properties of paint films."

18 Aug.: Mark P. Morse, "Physical properties of paint films relating to service"; Wouter Bosch, "The influence of emulsification upon stress-strain properties of dried films."

19 Aug.: Paul Klens, "Microbiological factors in film deterioration"; Allen L. Alexander, "Microbial effects on organic film properties."

Chemistry of Steroids and Related Natural Products

Josef Fried, *chairman*; James A. Moore, *vice chairman*

22 Aug.: K. Wiesner, "Chemistry of the Garrya alkaloids"; S. W. Pelletier, "Structure of atisine": S. Bergström, "Some aspects of the formation and metabolism of bile acids."

23 Aug.: H. Herzog, "Chemistry of metacortandracin and metacortandralone"; R. B. Turner, "Structure of ouabagenin"; O. Wintersteiner, "Some aspects of jervine and veratramine chemistry."

24 Aug.: E. J. Corey, subject to be announced; G. D. Meakins, "Some aspects of the chemistry of lumisterol."

25 Aug.: R. K. Callow, "Stereochemistry of the sapogenins"; F. C. Uhle, "Structure and synthesis of solasodine and tomatidine"; E. Schlittler, "Chemistry of reserpine and related alkaloids."

26 Aug.: E. C. Kornfeld, "Synthesis of lysergic acid."

Adhesion

Frank W. Reinhart, *chairman*; D. W. Elam, vice chairman

29 Aug.: Turner Alfrey, Jr., "Magnitude of intermolecular forces and relations to strength properties"; Selby M. Skinner, "The electrostatic component of adhesion."

30 Aug.: John E. Rutzler, Jr., "Electrical properties and strength of adhesive bonds"; Speaker to be announced, "Adhesional theory of friction."

31 Aug.: Porter Erickson, "Surface treatments for glass"; John W. Vanderhoff, "Fundamental properties of polymer latices."

1 Sept.: David M. Gans, "Factors that influence adhesion of protective coatings"; A. E. H. Dietz, "Possible methods for nondestructive testing of adhesive bonds"; Speaker to be announced, "Adsorption at interfaces."

2 Sept.: Panel discussion, "Problems concerned with basic studies of adhesion."

Program at Kimball Union Academy

Blood

Herbert L. Davis, *chairman*

13 June: H. L. Davis, "Colloidal factors in blood stability." *Lipid absorption*: A. C. Frazer, "Alimentary hyperlipemia"; P. Desnuelle, "Some properties of pancreatic lipase"; H. Necheles, "Competition in intestinal absorption"; H. C. Tidwell and W. W. Burr, Jr., "Fat absorption and its measurement." *Analytic*: J. Folch, M. Lees, G. H. Sloane-Stanley, "Estimation of blood lipids"; W. M. Sperry, "A gravimetric method for determination of unmodified total lipids of serum"; J. D. Evans, J. M. Waldron, N. L. Oleksyshyn, R. W. Riemenschneider, "Polyunsaturated fatty acids of normal human blood"; C. Entenman, "The composition of serum lipoproteins"; T. T. Tsaltas, "Preparation, purification, and determination of lipids of serum lipoproteins after starch electrophoresis"; O. A. Schjeide, "Lipoproteins during embryonic development."

14–15 June, Lipid forms, properties, stabilities: M. I. Grossman and D. Devor, "Electrophoresis of chylomicrons"; E. Revici, "Lipids in blood physiology"; D. B. Zilversmit, "Molecular aggregation as a determinant of the metabolic fate of blood lipids"; J. Bjorksten, "Lipid deposition *in vitro* and on protein surfaces"; R. L. Swank, "Influence of fat intake on blood viscosity (with movie)"; J. M. Waldron, "The stabilizing effect of oral sucrose"; R. S. Gordon, Jr. and A. Cherkes, "Albumin-fatty acid complex in lipid transport"; H. Sobotka, "Complex formation of serum albumin with fatty acids"; M. Stefanini, "Platelet agglutination as a colloidal phenomenon"; M. Silver, D. L. Turner, R. T. Carroll, L. M. Tocantins, "Lipid antithromboplastin"; E. Sheppard and I. S. Wright, "Electrostatic forces in blood coagulation"; J. J. Spitzer, "Hemorrhagic lipemia"; L. Levine, D. L. Kauffman, R. K. Brown, "The antigenic similarity of human low-density lipoproteins"; H. D. Anderson, "The role of lipids in the preparation and use of human blood and its derivatives"; H. A. Eder, "Lipoprotein metabolism studied with C^{14}-glycine."

15–16 June, Pathological aspects: E. D. Korn "Lipoprotein lipase (clearing factor) and fat transport"; W. F. Lever, "Effects of heparin on lipoproteins"; J. Herzstein, "Heparin effects in abnormal states of lipid metabolism"; P. Constantinides, "Antiatherogenic effects of heparin and of sulfated alginic acid in the rabbit"; M. M. Gertler, J. Kream, J. Hylan, B. S. Oppenheimer, "Serum phosphatidyl bases in health and disease"; O. J. Pollak, "Serum albumin and atherogenesis"; S. O. Byers, M. Friedman, R. H. Rosenman, "Origin and fate of chylomicron cholesterol"; I. D. Frantz, Jr., "Cholesterol synthesis *in vivo* and *in vitro*"; Lena A. Lewis, "Stability of serum lipoproteins"; R. H. Furman, "Lipoprotein spectrum influenced by biliary obstruction"; D. Adlersberg, "Abnormalities of lipid metabolism"; E. H. Ahrens, Jr., "Prolonged feeding of individual defined fats to human subjects; Effects on serum lipids"; M. M. Best and C. H. Duncan, "Effects of sitosterol on human blood lipids"; J. Pomeranze, "Fat tolerance studies."

17 June: Round-table discussion and summaries.

Stream Sanitation

J. Carrell Morris, *chairman*;
Clair N. Sawyer, *vice chairman*

20 June: John P. Geyer, "Hydrological factors in stream sanitation"; Ross E. McKinney, "Metabolic path-

ways in aerobic biological treatment of organic wastes."

21 June: William Bridge Cooke, "The role of fungi in biological treatment of organic wastes"; Gerald C. Gerloff, "Phosphorus and nitrogen requirement of blue-green algae in relation to the production of algal blooms in lakes."

22 June: Gerard A. Rohlich, "Removal of algal nutrients from waste waters."

23 June: Forrest Western, "Standards of control of the release of radioactive materials into streams"; Conrad P. Straub, "Treatment methods for power reactor wastes."

24 June: Clair N. Sawyer, "Recapitulation and evaluation."

Nuclear Chemistry

A. Turkevich, *chairman*; L. Yaffe, *vice chairman*

27 June: Nuclear models; Nuclear reactions at energies below 100 Mev.

28 June: Nuclear reactions induced by heavy ions; nuclear reactions in the Bev region.

29 June: Nuclear fission, I. Nuclear fission, II.

30 June: Neutrino experiments; Positronium.

1 July: Radiochemical separations and source preparations.

Solid-State Studies in Ceramics

V. D. Frechette, *chairman*; J. R. Johnson, *vice chairman*

4 July: Wilhelm Jost, "Recent diffusion studies"; Philip L. Walker, "Chemical aspects of graphite"; S. Mrozowski, "Physical aspects of graphite."

5 July: T. J. Gray, "Defect structures and chemical reactions involving ceramics"; T. S. Shevlin, "Cermets"; E. M. Onitsch-Modl, "Sintering behavior, microstructure, and properties of metal-oxide cermets"; J. E. Burke, "Note on the sintering process."

6 July: Herbert Insley, "Isomorphous substitutions in ceramic materials"; G. T. Kohman, "Observations on hydrothermal synthesis"; R. M. Barrer, "Ion exchange in crystals as a solid-state reaction."

7 July: M. L. Kronberg, "Plastic deformation of single crystals of synthetic sapphire"; Charles Tucker, "Radiation effects in crystalline materials"; I. B. Cutler, "Infrared spectroscopy of minerals as an indication of structure"; B. E. Warren, "Review of x-ray studies of glass structures."

8 July: Hans Thurnauer, "Status of titanate developments"; Richard R. West, "High-temperature reactions in kaolin-type clays."

Chemistry and Physics of Isotopes

Malcolm Dole, *chairman*;
Harry G. Thode, *vice chairman*

11 July, Experimental methods of isotopic analysis; Determination of isotope masses, Harry Duckworth, *chairman*: A. O. C. Nier, "Mass spectrographic determination of atomic masses"; S. Geschwind, "Determination of atomic masses by microwave spectroscopy"; D. M. Van Patter, "Atomic masses from reactions of transmutation." *Determination of the relative abundance of isotopes,* Russell Baldock, *chairman*: Russell Baldock, "The present status of isotope abundance measurements"; F. A. White, "Isotopic abundance measurements utilizing a two-stage magnetic analyzer"; J. R. Sites, "Isotopic abundance measurements of the platinum metals"; C. M. Stevens, "The grid collector in surface ionization isotopic analysis."

12 July, Production of enriched stable isotopes; Electromagnetic methods, C. P. Keim, *chairman*: C. P. Keim, "The status of electromagnetic isotope separations"; C. E. Normand, "The electromagnetic isotope separation facilities at Oak Ridge"; L. O. Love, "Electromagnetic isotope separation techniques and developments"; Boyd Weaver, "The role of chemistry in the electromagnetic separation of isotopes"; P. S. Baker, "The utilization of electromagnetically enriched isotopes." *Thermal diffusion methods,* W. W. Watson, *chairman*: Lars Onsager, "Thoughts on various methods of separation by diffusion and thermal diffusion"; Philip Abelson, "Separation by the liquid thermal diffusion method"; K. Clusius and E. Schumacher, subject to be announced; W. W. Watson, "Increasing the efficiency of gaseous thermal diffusion separation columns."

13 July, Isotope effects in reaction kinetics, W. H. Stevens, *chairman*: J. C. Polanyi, "The relative rates of isotopic reactions between methyl and hydrogen"; M. Wolfsberg, "A semi-empirical study of the H_2Cl transition complex through the use of hydrogen isotope effects"; P. E. Yankwich, "Comparison of the isotope effects in the decomposition of a carboxylic acid and its ion"; P. Riesz, "Influence of temperature and solvent on the intermolecular isotope effect in the decarboxylation of trinitrobenzoate ion." Jacob Bigeleisen, *chairman*: J. Bigeleisen, "Statistical mechanics of isotopic systems with small quantum corrections"; G. Ropp, "C^{14} fractionation studies of several oxidation reactions"; R. E. Weston, Jr., "Effect of pressure on the isotope effect in a unimolecular gas reaction."

14 July, Isotopes in geochemistry and geophysics, Harmon Craig, *chairman*: Harmon Craig, "Isotopic geochemistry of water and carbon"; Robert Clayton, "Fractionation of oxygen isotopes in igneous, metamorphic, and hydrothermal rocks"; W. Dansgaard, "Studies of some meteorological oxygen isotope effects." Irving Friedman, *chairman*: Frank Senftle, "Diffusion separation of isotopes in nature"; Irving Friedman, "Deuterium fractionation in natural processes"; H. G. Thode, "Sulfur fractionation in natural processes."

15 July, Isotopic effects in oxidation reactions, R. B. Bernstein, *chairman*: R. A. Ogg, Jr., "Elucidation of mechanism of ozone pyrolysis by tracer methods"; R. B. Bernstein, "Oxygen-18 isotope effect in the reaction of oxygen with copper"; Malcolmn Dole, "Fractionation of oxygen isotopes in the formation of metal oxide films and in respiration."

Chemistry at Interfaces

A. C. Zettlemoyer, *chairman*;
W. M. Bright, *vice chairman*

18 July, Physical adsorption. J. A. Morrison, "Properties of solid surfaces"; M. L. Corrin, "Physical adsorption at low coverages"; L. E. Copeland, "Current developments in the thermodynamics of adsorption"; S. Brunauer, "Adsorption studies of Portland cement compositions."

19 July, Chemisorption, D. Graham, *chairman*: D. A. Dowden, "Chemisorption and valency"; R. P. Eischens, "Infrared spectra of chemisorbed molecules"; R. Gomer, "Some studies in absorption and catalysis with the field emission microscope"; H. E. Farnsworth, "Adsorption of gases on surfaces cleaned by ion bombardment and annealing, as determined by low-energy electron diffraction"; N. Hackerman, "Sorption on metal surfaces from solutions and from gases."

20 July, Solid-liquid interfaces, C. G. Dodd, *chairman*:

H. Van Olphen, "Interlayer and particle interaction forces in clay suspensions"; N. Hackerman, "Heats of wetting"; R. S. Hansen, "Adsorption from binary liquid solutions"; C. S. Smith, "Solid liquid interfaces in polycrystalline materials."

21 July, Liquid-liquid interfaces, W. M. Bright, *chairman*: V. K. LaMer, "Rates of evaporation through monolayers"; I. Reich, "A general theory of micelle formation"; K. J. Mysels, "Properties of solutions of surfactant."

22 July, Glass and resin surfaces, J. M. Lambert, *chairman*: J. M. Lambert, "The physical chemistry of glass-water interfaces"; G. A. Perley, "Glass structure as related to *p*H measurements"; K. S. Spiegler, "Electrochemistry of ion-exchange resins."

Plant Biochemistry and Agriculture

J. van Overbeek, *chairman*;
A. S. Crafts, *vice chairman*

25 July, Biochemistry of the soil, R. H. Burris, *chairman*: Firman E. Bear, "Chemistry of the soil"; M. B. Russell, "Soil physics"; Charles E. Kellogg, "Plant and soil interactions in soil formation"; A. G. Norman, "Soil microbiology"; Alvin Nason, "The mechanism of nitrate reduction"; R. H. Burris, "Biological nitrogen fixation."

26 July, Biochemistry of plant nutrition, T. C. Broyer, *chairman*: D. W. Thorne, "Functional role of zinc in plant nutrition." J. C. Brown, "Agricultural implications of copper"; B. Mackler, "Functional role of molybdenum in biology"; E. F. Wallihan, "Iron nutrition of trees"; R. H. Hageman, "Manganese-activated enzyme systems"; G. R. Noggle, "Boron and carbohydrate metabolism"; T. C. Broyer, "Chlorine as a micronutrient element."

27 July, Biochemistry of the action of biocides, G. L. McNew, *chairman*: A. S. Crafts, "Relationship of phloem structure to the translocation of chemicals"; W. H. Minshall, "Movement of plant biocides through plant tissues"; S. Rich and J. G. Horsfall, "Lipoid solubilization in biocides"; L. P. Miller and S. E. A. McCallan, "Uptake of fungicides and competition for receptor sites in spores"; H. N. Moorefield, "The biochemical basis of acquired resistance for insecticides"; R. D. Metcalf, "Effect of organic phosphate insecticides on cell functions."

28 July, Biochemistry and physiology of plant growth, J. van Overbeek, *chairman*: R. H. Wetmore, "Physiology and biochemistry of vegetative growth"; J. P. Nitsch, "Physiology and biochemistry of fruit growth"; S. A. Gordon, "Synthesis and destruction of auxin in the plant"; J. van Overbeek, "Molecular requirements for auxin activity." *The economical basis for agriculture,* Raymond E. Crist, *chairman.*

29 July, Energy transfer in plants, B. Axelrod, *chairman*: B. Axelrod, "The relative importance of oxidative glycolysis and the Emden-Meyerhof pathway in plants"; R. S. Bandurski, "Phosphate bond energy in carbon dioxide fixation"; A. A. Benson, "Quantum requirement of photosynthesis"; A. W. Frenkel, "Some aspects of light metabolism in cell-free preparations of purple bacteria"; P. K. Stumpf, "Oxidative systems and fat metabolism in higher plants."

Chemistry, Physiology and Structure of Bones and Teeth

W. F. Neuman, *chairman*;
R. F. Sognnaes, *vice chairman*

1 Aug., Structure of collagen, F. O. Schmitt, *chairman.* R. Robinson, *chairman*: A. Engstrom, "Ultrastructure of bone."

2 Aug., Nature and elaboration of ground substance, D. Dziewiatkowski, *chairman.* J. Arnold, *chairman*: P. Lacroix, "Histology of the matrix."

3 Aug.: A. Sobel, *chairman*: A. Carlsson, "Dynamics of skeletal calcium." C. Comar, *chairman*: G. Bauer, "Dynamics of elements other than calcium."

4 Aug.: R. Greep, *chairman*: A. H. Gordon, "The hormones of the parathyroid." B. Kramer, *chairman*: Parathyroid disease.

5 Aug., Influences other than parathyroid, E. Shorr, *chairman.*

Statistics in Chemistry and Chemical Engineering

G. H. Symonds, *chairman*

8 Aug.: E. P. King, "Fundamentals—randomization, identification of nonrandom effects, search for and evaluation of parameters"; C. Bennett, "Economy in experimental design."

9 Aug.: R. J. Monroe, "Fundamentals of regression analysis"; H. F. Smith, "Handling the multiple regression."

10 Aug.: C. Daniel, "Exploration of response surfaces"; R. J. Hader, "Exploitation of response surfaces."

11 Aug.: M. Sobel, "Statistical decision theory"; R. Bechhofer, "Multiple comparisons and decisions."

12 Aug.: M. Woodbury, "Computing techniques panel."

Glass

F. C. Flint, *chairman*

15 Aug., Structure of noncrystalline condensed phases, I, F. C. Flint, *chairman*: W. A. Weyl, "New concepts of glass structure"; J. R. Van Wazer, "The polymer theory of glass structure"; E. Plumat, "Electron configuration in structural interpretation of some glass properties"; I. Sawai, "Current Japanese concepts of glass structure."

16 Aug., Structure of noncrystalline condensed phases, II, N. J. Kreidl, *chairman*: S. W. Barber, "Structural significance of low T heat capacity data for silica"; H. T. Smyth, "Theory of viscous flow in glasses"; J. W. Mitchener, "Concepts of glass structure based on physical properties and electron micrographs"; W. J. Kauzman, "The frozen equilibrium theory of the vitreous state."

17 Aug., Transformation phenomena (2nd order transition), O. L. Anderson, *chairman*: H. R. Lillie, "Transition phenomena in glass"; N. M. Brandt, "Some French views of transition phenomena"; T. G. Fox, Jr., "The continuous transition in glass polymers"; A. V. Tobolsky, "The glassy transition in polymers."

18 Aug., Sonic and pressure effects on glass structure, H. R. Lillie, *chairman*: T. H. Litovitz, "The use of ultrasonics in the investigation of glass structure"; D. A. Stewart, "Supersonic effects on glass structure"; I. Simon, "Irreversible density changes of glass under high pressure"; O. L. Anderson, "Reversible density changes of glass under high pressure."

19 Aug.: E. U. Condon, résumé and conclusions.

High-Pressure Research and Techniques

A. M. J. F. Michels, *chairman*

22 Aug.: A. M. J. F. Michels, J. Cox, S. R. deGroot, "What contribution can high-pressure research be expected to add to our scientific knowledge"; J. Strijland, "Measuring techniques for laboratory use."

23 Aug.: R. Bird, "Equilibrium properties and molecular action with elevated pressures"; W. H. Howe, "High-pressure measuring technique for industrial use and plant control."

24 Aug.: Speaker to be announced, "Optical and electrical properties"; speaker to be announced, "Application of fundamental data on plant design."

25 Aug.: J. O. Hirschfelder and R. W. Zwanzig, "Transport phenomena under pressure"; speaker to be announced, "Design and construction in industrial high-pressure processes."

26 Aug.: Henry Margenau and E. W. Montroll, conference summary and discussion of future research.

FATS AND OILS

Daniel Swern, *chairman*;
D. H. Wheeler, *vice chairman*

29 Aug.: R. T. O'Connor, "Infrared spectroscopy"; H. J. Dutton, "Countercurrent distribution"; E. S. Lutton, "Glyceride composition of fats"; R. W. Riemenschneider, discussion; Erich Baer, "Phosphatide synthesis."

30 Aug.: R. O. Feuge, "Dibasic acid glycerides"; L. A. Goldblatt, discussion; W. J. Gensler, "Synthesis of fatty acids"; D. H. Wheeler, "Isomerization of fatty acids"; W. D. Celmer, "Chemistry of mycomycin and related acetylenic compounds."

31 Aug.: Klaus Hofmann, "Lipids from microorganisms"; Guido V. Marinetti, "Lipids of brain and nerve tissue"; W. C. Ault, "Significance of chemical purity in fatty materials for biological investigations"; Hans Kaunitz, "Abnormal effects of autoxidatively treated fats."

1 Sept.: R. T. Holman, "Essential fatty acids in nutrition"; H. C. Tidwell, "Absorption of fats"; Sidney Weinhouse, "Biochemical breakdown and synthesis of fatty acids"; J. W. Gofman, "Role of fats and lipids in heart disease."

2 Sept.: R. P. Geyer, "Intravenous feeding of fat emulsions"; E. W. Crampton and R. H. Common, "Abnormal effects of thermally treated fats."

Contribution of "a Simple Bacteriologist" to Humanity

WITH the death of Sir Alexander Fleming, there passed from our midst one of the most colorful figures in the field of science. Although Fleming made many important contributions to our knowledge of disease-producing microorganisms and the natural defenses of the human body, his name will be forever associated with the discovery of one of the greatest weapons for combating infectious disease that has come out of the laboratory—penicillin.

Born on 6 August 1881, in Ayrshire, Scotland, the youngest of eight children, Fleming spent his first years on his father's farm. He received his early schooling in the immediate neighborhood, where "he took easily to his lessons." Later he joined his brother, Thomas, who had set up a medical practice in London. It was his brother who encouraged him, in 1901, to take up medicine. By a fortunate coincidence, he selected St. Mary's at about the same time that Dr. Almroth Wright, the famous pathologist, joined that school as a teacher of bacteriology.

Fleming won the senior entrance scholarship in natural science. His "formidable memory" and "instinctive sense of observation" greatly impressed his fellow-students. He was always at the top of the examination lists. As a medical student he fell under the immediate influence of Wright, whose classical work on vaccine therapy was influenced greatly by Metchnikov's ideas on phagocytosis. After qualifying in medicine in 1906, Fleming joined Wright's laboratory, on "the quest beyond the ranges." Here he was to combine his laboratory skill with the knowledge gained from his constant contact with the sick.

Fleming was an indefatigable worker, his physical resources being a great asset to him. Within less than 2 years, he was the author or joint author of two papers on opsonin and vaccine therapy. The subject of vaccination occupied his attention during the next 5 years. He was one of the first, in 1911, to study the effect on syphilis of the recently discovered salvarsan. He was profoundly impressed by the dramatic action of this drug as compared with the leisurely effect of vaccine therapy.

The experiences he gained as a medical officer during World War I directed his particular attention to the limitations of the chemical antiseptics commonly used at that time in the treatment of septic wounds. Following Wright's lead, Fleming demonstrated the ability of leucocytes to destroy bacteria, both in the pus of a wound and on a plate heavily infected with staphylococci or streptococci. Since leucocytes are more sensitive to chemical antiseptics than are bacteria, the logical conclusion was that such agents would destroy the tissues before killing the bacteria. These experiments convinced him that "probably the most important antibacterial agents in the body are the cells themselves."

In a paper presented in 1922 before the Royal Society, "On a remarkable bacteriolytic element found in tissues and secretions," Fleming drew attention to the presence in the tissues of a substance having properties "akin to those of ferments," which he called *lysozyme*. This substance was found to have a lytic effect on certain bacteria. Lysozyme was found in tears, nasal mucus, egg white, and leucocytes. These investigations enabled Fleming to develop the procedures that he so successfully employed 6 years later in his studies on penicillin. What is now known as the cross-streak method for screening antibiotic-producing organisms can be traced directly to Fleming's method of assaying lysozyme. He attributed great importance to this agent in the natural immunity of natural defenses of the body.

The groundwork was thus prepared for the dis-