Gordon Research Conferences: Program for 1966

W. George Parks

The Gordon Research Conferences for 1966 will be held from 13 June to 2 September at five educational institutions in New Hampshire: Colby Junior College, New London; New Hampton School, New Hampton; Kimball Union Academy, Meriden; Tilton School, Tilton; and Proctor Academy, Andover. From 20 June to 2 September conferences will also be held at Crystal Inn, Crystal Mountain, Enumclaw, Washington.

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 speakers and discussion groups. Sufficient time is available to stimulate informal discussion among the members of each conference. 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 or participation in discussion groups, as the individual desires. This type of meeting is a valuable means of disseminating information and ideas to an extent that could not be achieved through the usual channels of publication and presentation at scientific meetings. In addition, scientists in related fields become acquainted, and valuable associations are formed that often result in collaboration and cooperative efforts among 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 subject under discussion. The purpose of the program is 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 progress. The review of known information is not desired.

In order to protect individual rights and to promote discussion it is an established requirement of each conference that no information presented is 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. Attendance at the conferences is by application. Individuals interested in attending the conferences are requested to send their applications to the Director at least 2 months prior to the date of the conference. *All applications must be submitted in duplicate on the standard application form which may be obtained by writing to the office of the director.* This procedure is important because certain specific information is required in order that a fair and equitable decision on the application may be made. Attendance at each conference is limited to approximately 100 conferees.

The director will submit the applications of those requesting permission to attend a conference to the committee for that conference. This committee will review the applications and select the members in an effort to distribute the attendance as widely as possible among the various institutions and laboratories represented by the applications. Registration cards will be mailed to those persons selected. Advance registration by mail for each conference is required and is completed on receipt of the card and a deposit. This advance deposit is not required from foreign scientists. Checks are to be made payable to the Gordon Research Conferences. The deposit will be credited against the fixed fee for the Conference. A registration card not accompanied by the deposit will not be accepted.

The Board of Trustees of the conferences has established a fixed fee for resident conferees at each conference. This fee was established to encourage attendance for the entire conference and to increase the special fund that is available to each conference chairman for the purpose of assisting conferees who attend a conference at total or partial personal expense with their travel or subsistence expenses, or with both. It is to the advantage of all participants to attend a conference for the entire week. The fixed fee will be charged regardless of the time a conferee attends the conference—that is, for the periods of from 1 to 4½ days. An additional charge per night per person will be made for a room with a private bath (New Hampshire only) or for a single room, if no double rooms are available. These rooms will be assigned in the order that applications are received. An additional charge will also be made for rooms occupied more than five conference nights.

The fixed fee will cover registration, room except single room (or room in New Hampshire with private bath), meals, and gratuities for resident conferees. It will not provide for golf, telephone, taxi, laundry, conference photograph, or any other personal expenses.

Conferees are expected to live at the conference location because one of the objectives of the conferences is to provide a place where scientists can get together informally for discussion of scientific research. When special circumstances warrant a request to live elsewhere permission must be obtained from the director. If the request is approved these nonresident conferees will be charged a registration fee of $60, instead of the resident fee of $50.

Conferees living at the conference location who will pay all or part of the fixed fee as a personal expense may request a reduction of $25. *Application for this special fee must be requested at the conference office during the conference.*

Accommodations are available for wives who wish to accompany their husbands and for children at least 12 years of age. All such requests should be made at the time the attendance application is submitted because these accommodations, limited in number, will be assigned in the order that specific requests are received. No pets will be permitted in the dormitories.

Special Fund. A special fund is provided from the registration fee and is

The author, director of the Gordon Research Conferences, is professor and chairman of the department of chemistry at the University of Rhode Island, Kingston.

made available to the chairman of the conference for the purpose of increasing participation of research scientists who could not otherwise attend and participate because of financial limitations. Its use is not limited to scientists who have been invited by the chairman as a speaker or discussion leader. The money is to be used as an assistance fund only and may be used to contribute toward travel expenses, registration fee and/or subsistence expenses at the conference, or both. Total travel and subsistence expenses usually will not be provided.

Fees. The following is a schedule of the fees.

	New Hampshire	*Washington*
Deposit	$ 15	$ 25
Fixed fee	115	125
Registration fee		
Resident	50	50
(included in fixed fee)		
Nonresident	60	60
Guest charges	65	75

(Room and meals, five conference days)

Cancellation. The deposit will be forfeited if an approved application for attendance at a conference is cancelled.

Attendance. Requests for attendance at the conferences, or for additional information, should be addressed to W. George Parks, Director, Gordon Research Conferences, University of Rhode Island, Kingston, Rhode Island 02881. Mail for the office of the Director from 13 June to 2 September 1966 should be addressed to: W. George Parks, Director, Gordon Research Conferences, Colby Junior College, New London, New Hampshire 03257.

The program to be presented is as follows:

Colby Junior College

Hydrocarbon Chemistry

Lester Friedman and David A. McCaulay are chairman and vice chairman, respectively.

13 June. Short invited papers (D. A. McCaulay, chairman). Martin Stiles, "Cycloaddition reactions of arynes."

14 June. Richard A. Finnegan, "Photochemistry of aryl esters, a new hydrocarbon synthesis"; J. Reid Shelton, "Reactions of selected free radicals with 4-vinylcyclohexene and related hydrocarbons"; Richard L. Baird, "Concerning the role of protonated cyclopropanes in solvolytic and related reactions."

15 June. A. W. Weitkamp, "Hydrogenation products of mono- and dimethylnaphthalenes. Stereochemistry and conformational analysis"; J. R. Olechowski, "Chemistry and syntheses of medium ring hydrocarbons"; L. Vaska, "Homogeneous catalytic hydrogenation with transition metal complexes."

16 June. H. G. Viehe, "Benzene valence bond isomers"; Gerhard Schröder, "Bullvalene and related systems"; Emanuel Vogel, "The chemistry of 1,6-methanocyclodecapentaene."

17 June. Roland Pettit, "Chemistry of cyclobutadiene-iron tricarbonyl."

Nuclear Chemistry

John M. Alexander is chairman. Raymond Kay Sheline and G. D. O'Kelley are co-vice chairmen.

20–24 June. (Speakers to be announced.) "Nuclear fission: low, intermediate and high-energy studies"; "Reaction mechanisms and statistical properties: cross-section fluctuations, photon emission and evaporation"; "Atomic and molecular processes: atomic and molecular collision studies."

Catalysis

Hans A. Benesi and R. J. Kokes are chairman and vice chairman, respectively.

27 June. T. Freund, "Photocatalysis: chemical role of holes and electrons in zinc oxide"; P. Mark, "Photo-induced chemisorption on insulators"; D. D. Eley, "Recent studies on the Fermi level in chemisorption and catalysis."

28 June. P. B. Venuto, "Electrophilic aromatic substitution reactions catalyzed by acidic crystalline alumino-silicates"; J. L. Carter, D. J. C. Yates, P. J. Lucchesi, J. J. Elliott and V. Kevorkian, "Study of ethylene adsorption on near-faujasite zeolites by infrared spectroscopy and calorimetry"; D. E. Bryant, "Catalytic dehydration of primary alcohols over crystalline zeolites"; R. P. Merrill, W. A. Blanton, Jr., and C. H. Byers, "Quantitative rate constants from pulsed micro-catalytic reactors."

29 June. E. L. Pollitzer and H. S. Bloch, "Reactions of hydrocarbons with heterogeneous anionic catalysts"; J. Haber, "Mechanism of doping of semiconducting oxides: relation to the physico-chemical and catalytic properties"; G. C. A. Schuit, "Catalytic oxidation of hydrocarbons over metal oxides."

30 June. G. N. Schrauzer, "Catalysis and coordination chemistry"; E. W. Stern, "Reactions of unsaturated compounds in the presence of palladium (II) chloride"; J. F. Kirsch, "Mechanism of enzymatic catalysis."

1 July. J. W. Hightower and W. K. Hall, "Tracer studies of the catalytic isomerization of butenes over alumina and silica-alumina"; R. Maatman, "Use of alkali metal ion poisons in the elucidation of cracking catalyzed by silica-alumina."

Polymers

Herbert N. Friedlander and Murray Goodman are chairman and vice chairman, respectively.

4 July. Structure-properties relationship seminar (H. F. Mark, discussion leader). S. Krimm, "New results in the study and analysis of infrared spectra of polymers"; Yoh-Han Pao, "Some topics on nonlinear and inelastic scattering of laser light by polymers"; W. Krigbaum, "Molecular structure in relation to rubber-like elasticity." (H. N. Friedlander, discussion leader). C. E. H. Bawn, "Charge transfer polymerization."

5 July. Conducting polymer seminar (M. M. Labes, discussion leader). A. Rembaum, "Recent developments in polymeric semiconductors"; J. H. Lupinski, "Recent research in conducting charge transfer polymers"; G. Weill, "ESR measurements in conducting polymers." (C. S. Marvel, discussion leader). A. A. Berlin, "A new approach to the synthesis and investigation of the properties of polymers with conjugated double bonds."

6 July. Polyelectrolyte polymer seminar (H. Eisenberg, discussion leader). Aharon Katchalsky, "Equilibrium and nonequilibrium properties of polyelectrolyte solutions"; A. Ciferri, "Interactions between macromolecules and salt solutions"; J. R. Schaefgen, "Synthesis and properties of polyelectrolytes from polyhedral boranes." (V. A. Kargin, discussion leader). C. G. Overberger, "Optically active polyamides and polyesters."

7 July. Coordinate polymerization seminar (H. N. Friedlander, discussion leader). P. Corradini, "Molecular asymmetry in the coordination of olefins to transition metals"; A. Schindler, "Kinetic effects of the transition metal valence in Ziegler-type catalyst systems"; P. Teyssie, "Stereospecific polymerization of unsaturated hydrocarbons by

transition metal derivatives." (M. Goodman, discussion leader). C. N. Matthews, "The origin of biological polymers."

8 July. (M. Goodman, discussion leader). J. P. Kennedy, "Latest developments in transannular and isomerization polymerization"; T. A. Orofino, "Solution properites of low molecular weight polymers"; G. Allegra, "The copolymer problem: a general theory on the calculation of average conformational function of a free copolymer molecule with neighbor interactions."

Textiles

Ludwig Rebenfeld and Hector C. Borghetty are chairman and vice chairman, respectively.

11 July. Anton Peterlin, "The folded chain concept of fiber structure"; John A. Sauer, "Morphology and fracture of polypropylene"; Franz Feichtmayr, "Colorfastness in relation to dye and fiber structure."

12 July. Wilhelm Herzog, "Relationships between the properties of staple fibers and textile structures"; Arnold Sookne, "Concepts in finishing cotton for shape-retentive textiles."

13 July. (Heinrich Zollinger, discussion leader). Paul B. Weisz, "Analysis of basic features of sorption-diffusion behavior and implications for the dyeing process"; John A. Medley and J. Marshall, "Transport processes in water-swollen textile materials."

14 July. W. Denney Freeston, "Properties of metallic fibers and their application in textile structures"; James Economy, "Recent advances in inorganic fibers"; Harold P. Lundgren, "Highlights of progress in wool research."

15 July. Aidan B. McNamara, "Relative fiber movement in textile structures."

Food and Nutrition

M. Wight Taylor and Herbert P. Sarett are chairman and vice chairman, respectively.

18 July. S. K. Kon, "Pitfalls in nutritional research"; A. A. Albanese, "Effect of exercise on nutritional requirements." (H. P. Sarett, chairman): Edgar S. Gordon, "Studies of adaptive enzyme changes in human adipose tissue and liver"; Jay Tepperman, "Adaptation of the biliary tract leading to gallstone formation."

19 July. Alina Szczesniak, "New trends and developments in food texture research"; Loren B. Sjöström, "The chemistry and importance of synthetic food flavors"; Stanley M. Leverson, "The influence of microorganisms on metabolism and nutrition"; and Floyd S. Doft, "Further metabolic and nutritional studies with germ-free animals."

20 July. George G. Graham, "Amino acid deficiency and imbalance in the human infant"; Lester J. Teply, "The role of nonconventional food proteins in meeting world food needs"; John H. Nair and William B. Esselen, Jr., "The effects of food processing on nutritive value."

21 July. K. J. Carpenter, "Problems in measuring the quality of protein foods"; Joaquin Cravioto, "The effect of nutrition on intersensory organization of school age children." (J. T. Sime, chairman); W. M. Chapman, "The ocean and human food needs."

22 July. (D. M. Hegsted, chairman): H. J. Thomasson, "Influence of dietary fats on blood"; David Kritchevsky, "Cholesterol vehicle in experimental atherosclerosis."

Corrosion

Michael J. Pryor and Jerome Kruger, vice chairmen.

25 July. T. J. Gray, "The significance of defect structure in corrosion"; S. Barnartt, "General concepts of electrode kinetics and experimental determination of significant parameters"; N. Hackerman, "Differential capacities at metal-solution interfaces"; A. C. Makrides. "Structure and growth of thin, anodic oxide films."

26 July. J. S. Ll. Leach, "The frequency dependence and the conductivity of the oxide films on metals"; G. C. Wood, "AC impedance studies of anodic films on valve metals"; J. N. Wanklyn, "The electrical properties of zirconia films"; B. Cox, "The use of electrical methods for investigating the growth and breakdown of oxide films on zirconium alloys."

27 July. H. H. Uhlig, "Factors affecting critical potentials for pitting corrosion of passive metals and alloys"; R. P. Frankenthal, "Breakdown of passivity and anodic dissolution of iron-chromium alloys"; M. Cohen, "Oxide films formed on iron by anodic oxidation of ferrous ions in solution"; J. L. Ord, "A correlated optical and electrochemical study of the passivity of iron and nickel."

28 July. E. N. Pugh, "Recent researches on the mechanism of stress corrosion cracking of copper base alloys"; R. W. Staehle, "Studies of the mechanism of stress corrosion cracking of austenitic iron-chromium-nickel alloys"; D. L. Douglas and J. S. Armijo, "Environmental and structural aspects of the intergranular corrosion of austenitic stainless steels"; *General discussion*. (J. J. Hardwood, chairman): "Stress corrosion cracking mechanisms."

29 July. H. W. Pickering, "Dissolution of binary alloys containing a noble metal"; E. J. Caule, "Anodic behavior of alloys of aluminum with tin and group IV metals."

Elastomers

A. N. Gent and B. B. Boonstra are chairman and vice chairman, respectively.

1 August. J. E. Mark, "Energetic contribution to the elastic force of polymer networks and C_2 term in the elastic equation of state"; B. M. E. van der Hoff and E. J. Buckler, "Stress-strain relations and network structure of polybutadiene vulcanizates"; A. V. Tobolsky, "Elasticity and viscoelasticity of amorphous polymers."

2 August. G. Kraus, "Properties of butadiene-styrene block copolymers"; A. J. Ultee and F. L. Tobiason, "Structure of segmented polyurethane elastomers"; and A. Schallamach and K. A. Grosch, "Recent work on tire wear."

3 August. K. F. O'Driscoll, "A theoretical treatment of diene polymerization"; M. Morton and R. A. Pett, "Organolithium polymerization of butadiene"; (W. M. Saltman, discussion leader); H. E. Adams, F. C. Weissert and B. L. Johnson, "Preparation and properties of branched and polydisperse polybutadienes."

4 August. E. H. Andrews, P. J. Owen and P. E. Reed, "Morphology and micro-kinetics of crystallization in natural rubber and their influence upon strength"; R. S. Stein and W. Yau, "Optical and x-ray studies of rubber and rubber-like polymers"; (S. L. Aggarwal, discussion leader) *Current research problems*.

5 August. W. M. Hess, C. E. Scott and J. E. Callan, "Heterogeneity in elastomer blends"; A. B. Sullivan and R. W. Wise, "Application of electron spin resonance techniques to the study of elastomer/filler interactions."

Separation and Purification

John R. Anderson and Gilbert J. Sloan are chairman and vice chairman, respectively.

8–9 August. Crystallization: James Lago, "Separation of optical isomers"; Reed H. Belden, "Scaling up tonnage processes"; Charles P. Saylor, "Staircase technique, attainment of total purity, and other matters"; William G. Pfaan, "Some new concepts." (Dwight L. McKay, discussion leader).

9–10 August. Separation processes based on bubbles and foams: Felix Sebba, "Ion flotation and allied techniques"; Robert B. Grieves, "Foam separation of colloid particles"; Robert Lemlich, "Chemical engineering aspects of foam fractionation and bubble fractionation"; Barry L. Karger, "Solvent sublation and foam fractionation—nonsurface active substances." (Earnest Schonfeld, Allen J. Rubin, discussion leaders). *Natural separation processes in the sea*: Peter J. Wangersky.

11–12 August. New concepts for large-scale preparative gas chromatography: Victor Pretorius, J. Howard Purnell, Raymond F. Baddour, F. J. Debbrecht, speakers. (Arthur Rose, J. Ward Greiner, discussion leaders).

Medicinal Chemistry

Martin M. Winbury and Armin G. Wilson are chairman and vice chairman, respectively.

15 August. Drug design: Bernard Belleau, "Some relationships between the parameters specificity and efficiency of drug receptor interactions"; Jack Peter Green, "The application of molecular orbital theory to the study of the relationship between chemical structure and biological activity"; Edward Kosower, "The therapeutic possibilities arising from the chemical modifications of proteins"; and Gerhard Levy, "Kinetics of salicylate absorption, metabolism, and excretion—a model for pharmacokinetic studies in man and animals."

16 August. Mechanism of action of antibiotics: James T. Park, "Penicillins and cephalosporins as inhibitors of a peptide cross-linking reaction needed for bacterial cell wall mucopeptide synthesis"; Waclaw Szybalski, "Antibiotics which form covalent or noncovalent bonds with DNA"; Joel G. Flaks, "Antibiotics affecting protein synthesis"; and Hans Selye, "The predictable localization of induced thrombosis."

17 August. Cancer: Julian L. Ambrus, "DNA in normal and neoplastic tissue"; Thomas J. Bardos, "Chemistry and biology of dual antagonists in cancer chemotherapy"; Helena Stranstrom, "Viruses and neoplastic diseases." Hyaline membrane disease: Nathan Back, "The fibrinolysin system"; Clara Ambrus, "The fibrinolysin system in the etiology and treatment of hyaline membrane disease."

18 August. Biochemistry and biophysics of water: Ralph A. Horne, "The structure of liquid water and aqueous electrolyte solutions: its role in biological systems"; Donald T. Warner, "Water in the ice-lattice: the use of molecular models in studying its association with biological substances"; Norman H. Grant, "Accelerated biochemical reactions in structured water systems." *Structure of macromolecules*: Arthur V. Tobolsky, "Some aspects of the physical chemistry of helical macromolecules."

19 August. Special topics: Patrick D. Wall, "Differences between various central cutaneous sensory pathways"; Joseph J. Ursprung, "The discovery and development of a long-acting hypotensive."

Cancer

Thomas J. King and Harry Eagle are chairman and vice chairman, respectively.

22 August. Virus infection and cell transformation (John J. Trenin and Thomas J. King, chairmen): M. Edward Kaighn, "Susceptibility of differentiated cells to tumor viruses"; Peter K. Vogt, "Carcinogenic and virus-producing interactions of avian tumor virus and cell"; Renato Dulbecco, "Cell transformation by Polyoma virus."

23 August. Neoplasia in amphibia (Laurens N. Ruben, Marie A. Di Berardino, and Keen A. Rafferty, chairmen): Michael Balls, "A transmissible amphibian lymphosarcoma"; Louis E. Delaney, "Lymphosarcoma in the Mexican axolotl"; Allan Granoff, "Viruses from *Rana pipiens*: passengers or carcinogens."

24 August. Cell and tissue interactions in vitro (Joseph Leighton and Milan J. Kopac, chairmen): Robert Auerbach, "Tissue interaction in relation to hyperplasia"; Rody P. Cox, "Effects of simple sugars on the growth and morphology of mammalian cell cultures"; Leo Sachs, "Mechanism of transformation of normal cells to tumor cells."

25 August. Tumor antigens and the immune response (Eberhardt Weiler and Thomas J. King, chairmen): George Klein, "Ontogeny of the immune response and the outgrowth of neoplastic cells carrying specific antigens"; Baruch S. Blumberg. "A human serum isoantigen in leukemia, mongolism and other diseases"; Albert Tyler, "Developmental immunogenetic analysis of cancer."

26 August. Cell surface and malignant transformation (Murray D. Rosenberg, chairman): Michael Abercrombie, "The disturbance in contact relationships of malignant cells"; Philip I. Marcus, "Dynamics of plasma membrane modification in normal and virus-infected cells."

Dielectric Phenomena

Robert H. Cole and Arthur A. Maryott are chairman and vice chairman, respectively.

29 August–2 September. H. L. Welsh, "Induction effects in optical spectra"; J. van Kranendonk, "Theory of pressure induced absorption spectra"; Patrick Thaddeus, "Dielectric loss in nonpolar gases, high pressures, and temperatures"; G. Birnbaum, "Collision induced line shapes in gases"; R. H. Orcutt, "Pressure induced polarization in gases"; H. B. Levine, "Virial expansion of the complex dielectric constant"; Irwin Oppenheim, "Nuclear relaxation in fluids"; H. R. Hart, Jr., and S. Roberts, "The low temperature dielectric behavior of impurity ions in potassium chloride"; R. O. Pohl, "Low-lying energy states in parelectric materials"; H. S. Sack, "Quantum effects in the orientation polarization of impurity centers in ionic crystals"; R. M. Wilcox, "Quantum theory of the dielectric tensor for insulators"; A. S. Barker, Jr., "Infrared dielectric properties of phonons and electrons in crystals"; R. L. Peterson, "Theory of relaxation of coupled systems"; M. Davies, "Dielectric properties of clathrates, zeolites, and polystyrene matrices"; D. W. Davidson, "Dielectric behavior of water in solids"; D. McCall, "Relaxation processes in polymers"; Graham Williams, "The effect of pressure on the dipole relaxations in amorphous polymers"; C. Brot, "Microwave relax-

ation in molecular solvents"; W. S. Lovell, "Millimeter-wave ellipsometric measurements of the complex dielectric constants of solids and liquids"; W. Reddish, "The contribution of D.C. step-response measurements to dielectric studies on polymers"; W. P. Harris, "Measurement of dielectric constant and loss tangent at frequencies from 0.001 H_z to 1kH_z."

New Hampton School

Environmental Sciences: Water

Frank E. Clarke and E. R. Hendrickson are chairman and vice chairman, respectively.

Nitrogen and Phosphorus Nutrients in Natural Waters.

13 June. "The solution chemistry of phosphorus compounds" (James J. Morgan, chairman; Werner Stumm, discussion leader). "Analytical chemistry of phosphorus and nitrogen" (Robert A. Baker, chairman; G. Fred Lee, discussion leader). "Chemical and physical forms of phosphorus in natural waters" (Martin Alexander, chairman; F. H. Rigler, discussion leader).

14 June. "Nitrogen transformations in natural water systems" (William Samples, chairman; James M. Symons, discussion leader). "Nitrogen fixation in natural waters" (Hugh D. Putnam, chairman; Richard C. Dugdale, discussion leader). "Movement of nitrogen through soil and ground waters" (Paul Hennessy, chairman; John M. Flynn, discussion leader).

15 June. "Phosphorus cycles and distribution in water bodies" (R. S. Engelbrecht, chairman; L. R. Pomeroy, discussion leader). "Influence of fertilizing nutrients upon other major chemical parameters" (C. H. J. Hull, chairman; Joseph Shapiro, discussion leader). "Relation of phosphorus and nitrogen to primary production" (John Cairns, chairman; John P. Barlow, discussion leader).

16 June. "Elimination of phosphate from waste effluent by biological treatment" (Morris Ettinger, chairman; J. A. Borchardt, discussion leader). "Removal of nitrogen nutrients from waste effluents" (William Yee, chairman; Walter K. Johnson, discussion leader). "Hypereutrophication of lakes" (Arthur D. Hasler, chairman; W. T. Edmondson, discussion leader).

17 June. "Phosphate exchange at sediment-water interface" (S. K. Love, chairman; Bruce W. Nelson, discussion leader). *Summary:* D. F. Jackson.

Nucleic Acids

Paul Berg and Robert W. Holley are co-chairmen.

20–24 June. "Anatomy of viral genomes" (C. Thomas, chairman): "Viral RNA replication" (N. Zinder, chairman); "DNA replication" (N. Sueoka, chairman); "Gene transcription" (B. Hall, chairman); "Regulation of RNA synthesis" (G. Stent, chairman); "Lysogeny: integration and immunity" (A. D. Kaiser, chairman); "Genetic recombination and DNA repair" (M. Meselson and R. B. Setlow, chairmen); "Virus assembly" (E. Kellenberger and R. Edgar, chairmen); "Molecular biology of central nervous system function" (B. W. Agranoff, chairman).

Proteins

Frederic M. Richards and William H. Stein are co-chairmen. I. M. Klotz and E. Margoliash are co-vice chairmen.

27 June–1 July. (Speakers to be announced.) "Determinations of protein structures by x-rays"; "Techniques of potential use in protein chemistry"; "Automated peptide synthesis"; "The interactions of metals with proteins"; "The mechanism of action of esterases and proteinases"; "Structure and function of the following enzymes: phosphorylase, phosphoglucomutase, triosephosphate, dehydrogenase, alcohol dehydrogenase, procarboxypeptidase, subtilisin."

Chemistry of Heterocyclic Compounds

Richard L. Hinman and Edward C. Taylor are chairman and vice chairman, respectively.

4–8 July. S. F. Mason, "Electronic spectra of heterocyclic compounds"; D. R. Arnold, "Synthesis of four-membered heterocycles by photocycloaddition"; A. Padwa, "Photodeamination of benzoylaziridines"; E. H. White, "Chemiluminescence"; J. E. Baldwin, "Cycloaddition reactions"; G. Illuminati, "Substitution reactions of heterocyclic systems"; H. J. den Hertog, "Hetaryne chemistry"; K. Hafner, "New 5- and 7-membered heterocyclic compounds"; F. Ramirez, "Heterocycles with phosphorus-oxygen bonds"; I. Ugi, "Multicomponent reactions with isocyanides"; E. Schmitz, "Three-membered heterocycles with two heteroatoms"; N. Easton, "Heterocyclic synthesis by cyclization of acetylenes"; E. Klingsberg, "Sulfur heterocycles: no-bond resonance."

Statistics in Chemistry and Chemical Engineering

Spencer M. Free, Jr., and Donald A. Gardiner are chairman and vice chairman, respectively.

11 July. H. O. Hartley, "Analysis of unbalanced factorial data"; Lincoln E. Moses, "Some thoughts on non-parametric methods."

12 July. R. Gnanadesikan and M. B. Wilk, "Probability plotting methods for the analysis of data"; Harry Smith, Jr, "Multivariate analysis revisted."

13 July. Norman L. Johnson, "Available sequential techniques"; William J. Hill, "Sequential design of experiments for discriminating among rival models."

14 July. Burton V. Dean, "Criteria for evaluating and selecting research projects"; Joseph M. Cameron, "Comments from a computer user."

15 July. Otto Dykstra, Jr., "Orthoginalization of undersigned experiments."

Scientific Information Problems in Research

François Kertesz and James M. Mullen are chairman and vice chairman, respectively.

Developing Information Systems (National and International Networks).

18 July. "Coordination of the scientific information activities of the U.S. government agencies"; "International collaboration among scientific societies concerning scientific information."

19 July. "Cooperation in a mission-oriented field: case studies from USAEC; data compilation on an international basis—Columbia University—ENEA and USAEC"; "Development of a large information system within one discipline: the AIP-physics abstract collaboration."

20 July. "Systems serving specific industries: (a) pharmaceutical; (b) oil; (c) chemical; (d) space"; "Evaluation of the efficiency of large systems. User study."

21 July. "The role of special information services: (a) private agencies; (b) consultants; (c) science attachés"; "The duty of the scientist to make himself understood. (Information transmission to the general public—high level popularization.)"

22 July. "Long-range plans. National, international (Russian, Japanese, French, Scandinavian, . . .), or road construction information within OECD-countries."

Organic Reactions and Processes

Daniel Swern and Everett Clippinger are chairman and vice chairman, respectively.

25 July. G. Wilke, "π-allylic transition metal complexes as catalysts"; G. E. Coates, "Organometallic complexes of second group elements."

26 July. W. Lwowski, "Recent developments in the chemistry of acylnitrenes"; P. Scheiner, "Triazoline photodecomposition"; C. A. Grob, "Mechanisms of hetero fragmentation reactions.

27 July. F. Marsh, "Cyanogen azide synthesis and chemistry"; B. Loev, "Sulfostyril and some new reactions of carbostyrils"; R. Pettit, "The chemistry of cyclobutadiene iron tricarbonyl."

28 July. M. Stiles, "Some reactions which form carbon-carbon bonds"; J. C. Little, "Mechanisms for a Diels-Alder reaction"; H. O. House, "Use of carbanionic reagents in synthetic organic chemistry."

29 July. L. S. Meriwether, "The photochromism of metal dithizonates"; E. F. Ullman, "The mechanism of color formation in some photochromic ketones."

Steroids and Other Natural Products

A. I. Scott and Francis Johnson are chairman and vice chairman, respectively.

1–5 August. D. Arigoni, "An aspect of natural product chemistry"; A. J. Birch, "Organometallic chemistry of natural products"; G. H. Büchi, "A topic in natural product chemistry"; W. S. Johnson, "Synthetic explorations"; K. Nakanishi, "Structural investigations"; G. Popják, "Stereochemistry of isoprenoid biosynthesis"; C. J. Sih, "Recent advances in microbiological transformations of steroids"; G. Stork, "The isoxazole route to polycyclic systems"; Ch. Tamm, "Structure of a novel mould metabolite"; J. Fried, "Methylenation reactions"; E. P. Oliveto, "The partial and total syntheses of retrosteroids"; T. Goto, "Cypridina luciferin."

Inorganic Chemistry

Edwin M. Larsen and Seymour Yolles are chairman and vice chairman, respectively.

8 August. Kinetics and mechanisms of oxidation-reduction reactions (E. L. King, discussion leader). J. Halpern, "Oxidation of coordinately unsaturated complexes"; H. Taube, "Recent advances in mechanisms of electron transfer reactions"; Norman Sutin, "Mechanisms of oxidation-reduction reactions involving metal ions." Properties and syntheses of compounds containing hydrogen.

9 August. Solid state (J. Ibers, discussion leader). W. C. Hamilton, "Hydrogen bonding in inorganic solids"; J. J. Rush, "Investigations of vibrations and hindered rotations in hydrogenous inorganic solids by inelastic scattering of neutrons"; J. C. Speakman, "X-ray studies of the symmetry of hydrogen bonds in solids."

10 August. D. Hadzi, "Spectroscopic and structural aspects of strong hydrogen bonds"; R. Blinc, "Proton and deutron magnetic resonance of hydrogen bonds in solids." *Syntheses* (Grant Urry, discussion leader). A. Ginsberg, "Transitional metal hydride complexes."

11 August. F. Hawthorne, "Metal sandwich compounds with carboranes and cyclopentadiene." *Solvents-solutions* (S. L. King, discussion leader). H. S. Frank, "The structure of liquid water—some recent contributions to the controversy"; H. C. Urey, "The problem of the abundances of the elements.

12 August. R. P. Bell, "Models of proton transfer reactions in solution"; E. Grunewald, "Rates of proton transfer reactions in solution."

This program is supported in part by a grant from the Directorate of Chemical Sciences, Air Force Office of Scientific Research.

Radiation Chemistry

Leon M. Dorfman and Harold A. Schwarz are chairman and vice chairman, respectively.

15 August. H. M. Rosenstock, (1) "Franck-Condon principle in polyatomic molecules"; (2) "Double ionization of molecules." (J. Durup, discussion leader). V. L. Talrose, "Radioloysis in an electric field." (J. H. Futrell, discussion leader).

16 August. P. Ausloos, "Ion molecule reactions in the radioloysis of hydrocarbons." (A. R. Anderson, discussion leader). R. Schiller, "Electrons and ions in irradiated dipolar liquids and solids"; P. J. Dyne, "Interaction distances in the radioloysis of hydrocarbons." (R. L. Platzman, discussion leader).

17 August. G. R. Freeman, "Electrons and ions in the radioloysis of liquids" (W. H. Hamill, discussion leader). *Contributed papers* (discussion leader to be announced).

18 August. V. Voevodsky. "Secondary chemical reactions during irradiation of organic solids." (G. Stein, discussion leader). F. Hutchinson, "Radiation chemical events determining the radiosensitivity of living cells." (W. M. Garrison, discussion leader).

19 August. J. F. Ward, "Free radical reactions with nucleic acids"; R. Braams, "Reactions of the hydrated electron with amino acids, peptides and proteins." (L. S. Myers, Jr., discussion leader).

Analytical Chemistry

David M. Hercules and Carl W. Zuehlke are chairman and vice chairman, respectively.

22 August. David K. Roe, "Mass transport in electroanalytical methods; a comparative treatment"; Robert A. Osteryoung, "Chronocoulometry: recent applications of current integration methods"; Petr Zuman, "Techniques for elucidation of organic electrode processes in polargraphy."

23 August. Computers in analytical chemistry, (1) basic and special purpose languages (2) system design considerations (3) importance of time-sharing to the analytical chemist (4) the computer and the on-stream analyzer: N. Rasmussen, M. Silberberg, R. A. Edwards, and R. Sauer.

24 August. Ross U. Robinson, "Analytical chemistry of living systems"; W. Donald Cooke, "Intercorrelations with NMR, infrared and mass spectrometry." Panel discussion.

25 August. Erwin L. Hahn, "Uses of pulse techniques in NMR." Open session (C. W. Zuehlke, chairman).

26 August. A. Javan and M. Feld, "Spectroscopic applications of gas las-

ers"; (speaker to be announced), "Gas absorption spectroscopy in the infrared using a laser light source."

Science of Adhesion

Robert R. Stromberg and Louis H. Sharpe are chairman and chairman-elect, respectively.

29 August. Frederick M. Fowkes, "Intermolecular and electrical attractive forces at interfaces." (Robert L. Patrick, discussion leader). Willard H. Sutton, "Wetting and adherence in ceramic-metal systems"; Richard M. Fulrath," "Wetting and adherence in Glass-metal systems." (E. Scala, discussion leader).

30 August. Elio Passaglia, "Mechanical properties of polymers." (K. M. Sinnott, discussion leader). David Tabor, "Viscoelastic effects in the friction of polymeric solids." (James R. Huntsberger, discussion leader).

31 August. W. A. Zisman, "Effect of water on adhesion to hydrophilic solids." (Samuel Sterman, discussion leader). George R. Iwin, "Environment assisted separation mechanics." (Herbert T. Corten, discussion leader).

1 September. William C. Wake, "Diffusion and adsorption processes with rubbery adhesives." (George Goldfinger, discussion leader). Anthony M. Schwartz, "Adhesion of restorative materials to teeth"; C. W. Cooper, "Approaches to adhesive bonding in surgical applications." (Irving Skeist, discussion leader).

2 September. Donald G. Flom, "Degradation of adhesive polymers in contact with metals." (Louis H. Sharpe, discussion leader).

Kimball Union Academy

Lipid Metabolism

Fred H. Mattson and Konrad Bloch are chairman and vice chairman, respectively.

13–17 June. L. Benjamin, "Physical-chemical properties of oil-water systems"; P. Desnuelle, "Kinetics of lipase catalyzed hydrolysis"; B. Borgström and A. Hofmann, "Role of bile in digestion and absorption"; J. Dietschy, J. Olson, J. Pope, and G. Vahouny, "Functions of bile in non-hydrolytic systems"; G. Colacicco and D. Hanahan, "Lipid-protein interactions"; A. Scanu, Y. Stein, S. Switzer, and R. I. Levy, "Lipoproteins: structure, synthesis, metabolism, and pathology"; W. E. M. Lands and D. Chapman, "Structure and physical properties of phospholipids"; J. Hirsch, "Studies of human obesity"; A. T. James and A. Karmen, "Liquid-liquid chromatography"; C. Sweeley, "Gas-liquid chromatography and mass spectrometry."

Research at High Pressure

William Paul is chairman.

20 June. Phase transitions: G. Kennedy, "General review of phase diagrams, melting curves, Simon equation, kinetics, etc."; A. Bienenstock, "Order-disorder transitions and the effect of pressure on them; theoretical and experimental"; D. Adler, "Electronically motivated phase transitions in the transition metal oxides and possibly in other, more conventional, semiconductors; theoretical and experimental"; R. Roy, "Equilibrium and kinetics in high pressure transitions from diamond (ZnS) structure phases"; W. Klement, "Critical review of transitions in solid systems, with particular attention to the alkali halides"; M. Cohen, "Discussion of the bismuth-arsenic-lead telluride system."

21 June. Fermi surfaces: J. E. Schirber, "Use of pressure as a tool in Fermi surface studies"; I. M. Templeton, "Discussion of recent deHaas-van Alphen measurements on the noble metals and possibly also on the alkali metal"; D. Lazurus, "Recent experimental measurements on Fermi surfaces under pressure." Magnetism: J. S. Kouvel, "General review"; H. G. Drickamer, "Recent measurements of Mossbauer effect at high pressures"; D. B. McWhan, "Magnetic properties of the rare earths at high pressure."

22 June. Compressibility and equation of state: C. A. Swenson, "Equation of state and elastic constants"; R. W. Keyes, "Electronic effects in the elastic properties of semiconductors"; C. S. Smith, "Ultrasonic equation of state of iron"; A. Smith, "Recent results on neutron scattering at high pressure"; H. Brooks, "Theory of compressibility in metals and ionic solids."

23 June. Semiconductors: W. Paul, "General review"; A. Jayaraman, "Pressure studies on some semiconductors in a combination of hydrostatic and uniaxial stress regimens"; D. Brust, "Theory of deformation potential and comparison of pressure measurements of energy gap changes"; G. A. Samara, "Pressure dependence of ferroelectric properties"; G. Pratt, "Effective pressure of laser tuning and Gunn effect oscillations"; W. E. Engeler, "Piezo-reflectivity and transmission."

24 June. Recent advances in technique (usually unpublished): W. Paul, "Windows transparent to long wavelengths in the infrared which hold pressure up to 15 kilobars"; W. B. Daniels, "Minature tubing, high-pressure seals, direct pumping pumps to 13 kilobars, neutro defraction apparatus"; D. Newhall, "Some new high-pressure techniques"; F. P. Bundy, "Recent advances in calibration points from 150 to 300 kilobars"; A. Jayaraman, "Hydrostatic technique using a teflon cell in a piston cylinder device"; R. M. Brugger, "Description of neutron defraction apparatus for high pressures"; G. J. Piermarini, "Improved techniques for single crystal x-ray defraction studies at high pressure."

Cell Structure and Metabolism

Albert H. Coons and S. Jonathan Singer are co-chairmen.

27 June (S. J. Singer, chairman): A. Nisonoff, "Introduction to nomenclature, immunoglobulin structure"; L. Herzenberg, "Genetics of immunoglobulins." (Chairman to be announced): W. J. Dreyer, "Primary structure of Bence-Jones proteins."

28 June. (R. G. White, chairman): Leon Weiss, "The origin of the plasma cell"; G. M. Williams, "The cellular basis of antibody formation." (J. C. Schooley, chairman): T. Makinodan, "Evidence for the commitment of cells to specify antibody synthesis."

29 June. (R. Owen, chairman): N. A. Mitchison, "Regulation of immunoglobulin synthesis"; M. Cohn, "Biological functions of immunoglobulins." (Chairman to be announced): R. S. Doolittle, "Structure and specificity of antibodies."

30 June. (A. H. Coons, chairman): N. B. Everett, "The heterogeneity of the lymphocyte population"; J. L. Gowans, "The function of lymphocytes"; S. Sell, "Modification of lymphocytes in millipore chambers." (R. Auerbach, chairman): J. A. P. Miller, "The role of the thymus"; D. Osoba, "The endocrine function of the thymus."

1 July. (J. H. Humphrey, chairman): N. L. Warner, "The bursa of Fabricius"; Robert A. Good, "The possible role of other lymphoid organs."

Coenzymes and Metabolic Pathways

Gertrude B. Elion and David Perlman are chairman and vice chairman, respectively.

4 July. S. Kaufman, "Enzymatic conversion of dihydrobiopterin to its active tetrahydro form"; H. Rembold, "Aspects of biopterin and neopterin metabolism"; H. S. Forrest, "Pteridine stimulation of photosynthetic phosphorylation"; F. R. Dalal, "Control of synthesis and interconversions of folate coenzymes by purine nucleotides."

5 July. N. O. Kaplan, "Evolution of enzymes"; W. J. Rutter, "Enzyme variants in cellular and metabolic diversification"; G. F. Maley, "Further studies on deoxycytidylate deaminase"; A. Welch, "Inhibition protein synthesis by 2-deoxyadenosine and derivatives."

6 July. J. Burchall, "Effects of substrates and inhibitors on the conformation of dihydrofolate reductase"; J. Skoda, "The *in vitro* biosynthesis and biological properties of polyribonucleotides containing unnatural bases"; M. E. Balis, "Non-immediate effects of anti-metabolites"; C. Heidelberger, "Recent studies with fluoropyrimidines."

7 July. W. S. Beck, "Role of vitamin B_{12} in deoxyribonucleotide synthesis: the cobamide dependent ribonucleotide reductases"; E. R. Stadtman, "Role of cobamide derivatives in some anaerobic fermentations"; J. I. Toohey, "Cobalt-free corrinoids from photosynthetic bacteria"; D. Perlman, "Cytotoxic antibiotics as potential biochemical tools."

8 July. E. E. Snell, "Pyridoxal phosphate function in enzymatic α,β-elimination reactions"; L. S. Dietrich, "Pyridine nucleotide biosynthesis in animal tissues."

Chemistry, Physiology, and Structure of Bones and Teeth

Robert P. Heaney, and Clayton Rich are chairman and vice chairman, respectively.

11 July. Short communications selected from submitted abstracts (to be sent to Clayton Rich, vice chairman, before 1 May 1966).

11–12 July. Symposium on thyrocalcitonin (Paul L. Munson and Philip F. Hirsch, chairmen): P. L. Munson and P. F. Hirsch, "Introduction: current status of research on thyrocalcitonin." Invited short communications: I. MacIntyre, "Thyrocalcitonin: purification and activity"; M. M. Pechet, "Studies concerning the mechanism of action of thyrocalcitonin"; A. W. Wase, Petersen, Salewski, and Rickes, "Some effects of thyrocalcitonin on calcium metabolism in the rat"; D. C. Klein, H. Morii, and R. V. Talmage, "Effect of thyrocalcitonin on removal of calcium, phosphate and certain radioisotopes by peritoneal lavage"; G. Milhaud, A. M. Perault, and M. S. Moukhtar, "Isotope studies on the mode of action of thyrocalcitonin *in vivo*"; F. Bronner, P. J. Sammon, B. G. Shah, and J. P. Aubert, "Regulation of the blood calcium level in thyroidectomized euparathyroid rats"; S. Wallach, A. B. Chausmer, R. Mittleman, and A. Dimich, "*In vivo* inhibition of bone resorption by thyrocalcitonin"; J. A. Parson, "Studies on isolated bone"; J. Friedman, L. G. Raisz, and W. Au, "Thyrocalcitonin and bone resorption in tissue culture"; M. A. Aliapoulios and H. Watts, "Thyrocalcitonin activity in human thyroid glands"; C. Arnaud, "Radioimmunoassay of thyrocalcitonin"; A. D. Care, T. Duncan, D. Webster, and S. C. Frazer, "Factors affecting the secretion of thyrocalcitonin."

12–13 July. Mechanical properties of bone (F. Gaynor Evans, chairman): J. D. Currey, "The mechanical consequences of the two-phase construction of bone and other skeletal materials"; William J. L. Felts, "Comparative aspects of the mechanical organization of bone"; J. H. McElhaney, "Strength and electrical properties of bone", K. Trosien, "Low cycle failure strength of femurs and prostheses"; Victor Frankel and Albert Burstein, "Viscoelastic properties of bones."

13–14 July. Bone blood flow (Patrick J. Kelly, chairman; D. Harold Copp): "Clearance of bone-seeking isotopes as a measure of effective blood flow"; N. E. Shaw, "Some aspects of the haemodynamics of the circulation in bones"; P. I. Branemark, "Direct observations of the flow of blood in bone"; Donald Van Dyke, "Bone blood flow and marrow distribution as shown with Positron camera"; Carl E. Anderson, "The patterns of capillary progression in enchondral ossification."

14 July. The skeleton in human evolution (John T. Robinson, chairman).

15 July. Effects of hormones other than parathyroid on bone cell metabolism (Arthur Kunin, chairman): George Weber, "Mechanisms of hormone action: regulation at the molecular level"; Arthur Kunin, "Effect of cortisone acetate on the intermediary metabolism of epiphyseal cartilage in the rat"; Conrad C. Johnston, "The effect of thyrocalcitonin on some metabolic processes of bone *in vitro*"; William A. Peck, "Ascorbic acid and collagen synthesis by isolated bone cells."

Physical Metallurgy

William W. Mullins and John Hirth are chairman and vice chairman, respectively.

Surfaces and interfaces.

18 July. Structure: J. H. van der Merwe, "The energy and structure of interfaces"; G. M. Pound, "Epitaxial deposition heterogeneous nucleation"; J. F. Nicholas, "The rigid sphere theory of crystal surface structure"; A. J. Melmed, "Field emission studies of surface transport."

19 July. Energy: W. L. Winterbottom, "Surface tension of solids"; B. Sundquist, "Anisotropy of surface tension of metals determined by equilibrium shapes of small particles and voids"; E. D. Hondros, "Surface energies and segregation in dilute alloys"; G. E. Rhead, "The effect of adsorbed sulphur on the surface energies and surface self-diffusion of silver."

20 July. Migration: J. W. Cahn, "The theory of interface migration during phase transformation"; K. A. Jackson, "The study of crystal growth using transparent compounds that freeze like metals"; R. K. Sekerka, " 'Reflections' on the thermal wave technique"; L. D. Hulett, Jr., "Etching studies of well-annealed and neutron-irradiated copper crystals."

21 July. Transport: P. G. Shewmon, "Mass transport by surface diffusions"; J. Blakely, "Interface morphology changes by diffusion"; (speaker to be announced), "History of capillarity."

22 July. Transport (continued): N. A. Gjostein, "Surface diffusion and structure of gold"; W. M. Robertson, "Surface profile changes in the presence of a liquid."

Chemistry at Interfaces

H. van Olphen and Frederick R. Eirich are chairman and vice chairman, respectively.

25–29 July. P. Debye, "Dielectric properties of adsorbed molecules." *Physical adsorption* (S. Brunauer, chairman): M. M. Dubinin, "Adsorption in

micropores"; Geza Schay, "Evidences for and consequences of monolayer adsorption from binary liquid mixtures"; Sidney Ross, "The nature of surfaces of liquid coated adsorbents." Electrical properties of interfaces (R. S. Hansen, chairman): P. L de Bruyn, "Proton adsorption from solution at crystalline oxide surfaces"; C. A. Barlow, Jr. and J. Ross Macdonald, "Electrical effects of adsorbed discrete dipoles and ions"; R. S. Hansen, "The alternating current impedance of reversible interfaces." *Adhesion and particle interaction* (Robert D. Vold, chairman): H. Krupp, "Theory of adhesion of solid particles to solid surfaces"; G. D. Parfitt, "Coagulation of dispersions of carbon black and rutile in hydrocarbon media." *Biological membranes* (Irving Fatt, chairman): E. J. Harris, "Factors affecting membrane behavior"; Milton Manes, "Classical thermodynamics and kinetics versus irreversible thermodynamics for describing near-equilibrium membrane processes"; Jose A. Zadunaisky, "Active transport processes in epithelial membranes"; R. C. La Force, "Transient ion current through biological membranes."

Solid State Studies in Ceramics

Ralph E. Carter and Cyrus Klingsberg are chairman and vice chairman, respectively.

Powders: Preparation, Characterization and Properties.

1 August. (C. Klingsberg, chairman): D. T. Livey, "Crystal growth and other characteristics of oxide powders." (W. E. Kuhn, chairman): S. J. Teichner, "Preparation of monodispersed oxide particles in an oxyhydrogen frame and some properties of these solids"; K. S. Mazdiyasni and C. T. Lynch, "High purity fine particulates by thermal and hydrolytic decomposition of alcoholates."

2 August. (J. J. W. Rogers, chairman): K. H. McCorkle and M. E. Wadsworth, "Preparation and properties of oxides prepared by sol-gel processes"; T. P. Meloy, "Estimates of particle shape and size distribution resulting from the fracture of brittle homogeneous and heterogeneous solids." (D. W. Koester, chairman): M. Kerker, "Size distribution of micron and submicron spheres by light scattering"; H. T. Oel, "Crystallite size distribution measurements and their significance in compacting and sintering."

3 August. (I. Shapiro, chairman): A. R. Cooper, "Pressure compaction of ceramic powders"; B. H. Kaye, "New techniques for investigating the cohesive and adhesive forces within a powder system." (R. R. Irani, chairman): K. J. Gallagher, "The influence of particle size on the kinetics of diffusion controlled reactions in solids"; S. P. Mitoff, "Electrical and thermal properties of two phase systems."

4 August. (I. B. Cutler, chairman): Short contributions to be arranged at the conference. (R. L. Coble, chairman): E. R. Stover, "Needs for improved powder characterization in ceramic processing."

5 August. (S. Newman, chairman): F. D. Schwarzl, "Mechanical properties of two phase composite systems in relation to filler characteristics"; H. D. Weymann, "Influence of sheer rate on light absorption and aggregate size distribution in bentonite suspensions."

Applications

Qualified scientists are invited to submit applications for attendance at the Gordon Research Conferences. Application blanks may be obtained by returning the postcard on page 1217 to W. George Parks, Department of Chemistry, University of Rhode Island, Kingston, R.I.

Toxicology and Safety Evaluations

Fred H. Snyder and O. Garth Fitzhugh are chairman and vice chairman, respectively.

8 August. (O. Garth Fitzhugh, chairman): William Montagna, "The use of subhuman primates in biomedical research"; Henry F. Smyth, Jr., "Sufficient challenge." (V. K. Rowe, chairman): Leon Goldberg, "Non-cytologic manifestations of liver response to toxic and other agents."

9 August. Norman DeNosaquo, chairman): John J. Burns, "Application of metabolic data to the evaluation of drug toxicity"; Bernard B. Brodie, "Drug interactions." (J. Wesley Clayton, chairman): Richard D. O'Brien, "The mechanism of the reaction between carbamates and cholinesterase."

10 August. (Mitchell R. Zavon, chairman): Cuthbert Daniel, "The no-effect dose and its extension to human populations"; John H. Weisburger, "Methods for evaluating carcinogenicity." (Robert J. Weir, chairman); R. Hess, "Problems in interpreting adaptive responses."

11 August. (Steven Carson, chairman): Gerhard Zbinden, "The role of experimental pathology in the evaluation of drug toxicity"; Souheil Laham, "Chemical carcinogenesis." (Keith H. Jacobson, chairman): William H. Summerson, "Toxicological research in the Food and Drug Administration."

12 August. (Frederick Coulston, chairman): George J. Cosmides, "Training programs in toxicology." Panel: George T. Edds, C. H. Hine, Gabriel L. Plaa, and Charles L. Winek.

Chemistry and Physics of Solids: Cooperative Phenomena

Elliott W. Montroll and Robert Nathans are chairman and vice chairman, respectively.

15–19 August. "Survey of experimental work on liquid helium relating to cooperative phenomena"; "Theory of cooperative phenomena in helium"; "Selected topics in superconductivity"; "Laser experiments on fluids"; "Ferroelectric transitions"; "Critical phenomena"; "General theory phase transitions"; "Theory of laser and neutron experiments on cooperative phenomena"; "Phase transitions in biological systems"; "Magnetic critical phenomena"; "Specific heat measurements and critical points." The following persons have been invited to speak: Victor J. Emery, J. Robert Schrieffer, George B. Benedek, S. S. Alpert, W. Cochran, M. E. Fisher, Martin Blume, Elliott W. Montroll, Peter Heller, and D. T. Teaney.

Infrared Spectroscopy

Robert M. Hexter is chairman.

22 August. Jon Hougen, "Recent advances in molecular dynamics"; J. C. D. Brand, "Vibrational structure of electronically excited states."

23 August. W. G. Spitzer, "Spectra of impure, one-dimensional and three-dimensional solids"; J. C. Decius, "Relaxation and line width."

24 August. Herbert D. Kaesz and Anton Burg, "Vibrational spectra of inorganic compounds"; F. A. Miller, "Vibrational spectra of inorganic compounds."

25 August. Clifford Hand, "Infrared spectroscopic studies of chemical ki-

netics"; T. K. McCubbin, "Recent developments in spectrometer design."

26 August. Theodore L. Brown, "Intensities."

Scattering Experiments with Lasers

S. P. S. Porto is chairman.

Light Scattering from Laser Beam.

29 August–2 September. W. B. Bridges and M. DiDomenico, Jr., "Characteristics of available lasers"; C. H. Townes, D. H. Rank, B. P. Stoicheff, H. Z. Cummins, and E. I. Gordon, "Rayleigh and Brillouin scattering"; P. J. W. Debye, A. D. May, G. B. Benedek, and L. Wilcox, "Critical phenomena scattering"; R. Loudon, D. A. Kleinman, S. P. S. Porto, A. Weber, and S. A. Ramsden, "Raman and Thompson scattering."

Tilton School

Biochemistry and Agriculture

Paul D. Strickler and Edward E. Smissman are chairman and vice chairman, respectively.

Light and Life.

13 June. H. Rapoport, "Photolysis and biosynthesis"; P. Kropp, "Photolysis in organic synthesis"; R. Hubbard, "Aspects of the chemistry of vision."

14 June. K. V. Thimann, "Recent studies on the mechanism of phototropism"; F. B. Salisbury, "Biological time measurements in photoperiodism"; P. L. Adkisson, "Photoperiodic control of insect diapause"; T. H. Goldsmith, "Visual systems of insects."

15 June. R. L. Airth, "Biochemistry of bioluminescence"; H. H. Seliger, "Physical aspects of bioluminescence"; C. L. Hannay, "Biological application of electron microscopy"; W. Z. Butler, "Spectroscopy *in vivo*."

16 June. J. Van Overbeek, "Herbicide mechanisms"; L. P. Vernon, "Photosynthetic electron transfer and phosphorylation reactions in bacteria"; J. Bassham, "Photosynthesis."

17 June. R. L. Amy, "Effects produced in living cells by a ruby laser beam"; H. Gysin, "Photosynthetic inhibitors."

Friction, Lubrication, and Wear

Douglas Godfrey and Henry Gisser are chariman and vice chairman, respectively.

20 June. Deformation during sliding and rolling (M. B. Peterson, discussion leader): W. A. Glaeser, "Action of dislocations during sliding and rolling"; A. T. Male, "Coefficients of friction in metalworking: correlation of ring-test data with cold drawing results."

21 June. New concepts in "boundary" lubrication (W. E. Campbell, discussion leader): W. O. Winer, "Behavior of fluids under combined influence of high pressure and high shear stress"; D. Godfrey, "Oil cavitation under boundary lubrication conditions."

22 June. Elastohydrodynamic lubrication (R. A. Burton, discussion leader): D. Dowson, "Elastohydrodynamic lubrication—its application and limitations"; L. B. Sibley, "Elastohydrodynamic lubrication and its correlation with failure in rolling bearings."

23 June. Friction of polymeric materials (R. P. Steijn, discussion leader): K. C. Ludema, "Frictional and viscoelastic properties of polymers"; C. W. McCutchen, "Lubrication of animal joints."

24 June. Viscoelastic properties of lubricants (B. W. Kelly, discussion leader): H. Gisser, "Friction of polymer solutions."

Program Summary, Gordon Research Conferences for 1966:

Date	Colby Junior College	New Hampton School	Kimball Union Academy
13–17 June	Hydrocarbon chemistry	Environmental sciences: water	Lipid metabolism
20–24 June	Nuclear chemistry	Nucleic acids	Research at high pressure
27 June–1 July	Catalysis	Proteins	Cell structure and metabolism
4–8 July	Polymers	Chemistry of heterocyclic compounds	Coenzymes and metabolic pathways
11–15 July	Textiles	Statistics in chemistry and chemical engineering	Chemistry, physiology, and structure of bones and teeth
18–22 July	Food and nutrition	Scientific information problems in research	Physical metallurgy
25–29 July	Corrosion	Organic reactions and processes	Chemistry at interfaces
1–5 August	Elastomers	Steroids and other natural products	Solid state studies in ceramics
8–12 August	Separation and purification	Inorganic chemistry	Toxicology and safety evaluations
15–19 August	Medicinal chemistry	Radiation chemistry	Chemistry and physics of solids: cooperative phenomena
22–26 August	Cancer	Analytical chemistry	Infrared spectroscopy
29 Aug.–2 Sept.	Dielectric Phenomena	Science of Adhesion	Scattering experiments with lasers

Chemistry and Physics of Space

Lawrence H. Aller and Edward C. T. Chao are chairman and vice chairman, respectively.

27 June. Meteorites I (Edward Anders, chairman): Edward Anders "Introduction to meteorite session"; Hans Voshage, "On relationship between cosmic ray exposure age, compositional, and structural properties of iron meteorites"; Dieter Heyman, "Radiation ages and gas retention ages of stony meteorites." *Meteorites II* (Michael Duke, chairman): John Reynolds, "Xenon and krypton anomalies in meteorites"; Randall van Schmus, "Metamorphic evolution of chondritic meteorites"; John Wood, "Composition and implication of metal grains in chondrites"; G. Reed, "Mercury content and the thermal history of meteorites."

28 June. Meteorites III (Brian Mason, chairman): Roman Schmitt, "Elemental abundances in stony meteorites"; Richard McCrosky, "The distribution of orbits and masses of asteroidal (?) meteorites (results of the Prairie Network observations). *Meteorites IV* (John Wood, chairman): Gordon Goles, "Genetic relationship among stone meteorites."

29 June. Solar physics (Leo Goldberg, chairman): Charles Hyder, "Outer solar envelope"; Elske Smith, "Solar flares." *Interplanetary plasma and solar wind* (W. Hess, chairman): (speakers and subjects to be announced).

30 June. Particulate matter in the solar system: Paul Hodge, "Dust in the solar system." *Surfaces of the moon and Mars* (E. M. Shoemaker, chairman): (speakers and subjects to be announced).

1 July. High energy astrophysics (A. G. W. Cameron, chairman): R. Felton, "Gamma ray astronomy."

Chemistry and Physics of Isotopes

Robert N. Clayton and Max Wolfsberg are chairman and vice chairman, respectively.

4 July. Theory of isotope effects (M. J. Stern, chairman).

5 July. Isotope effects in organic chemistry (V. J. Shiner, chairman).

6 July. Isotope effects in inorganic chemistry (chairman to be announced).

7 July. Isotope geochemistry (I. Friedman, chairman).

8 July. Isotope separation (J. S. Drury, chairman).

Chemistry of Carbohydrates

Rex Montgomery and Louis Long, Jr., are chairman and vice chairman, respectively.

11 July. Molecular weight determination of polysaccharides, including polyelectrolytes (C. T. Greenwood, discussion leader). W. Banks, "Number-average methods of molecular weight determinations"; D. A. I. Goring, "Light scattering and viscometry; C. T. Greenwood, "Molecular weight distributions"; S. R. Erlander, "Problems in the determination of molecular weights of polyelectrolytes."

12 July. Steric and dipole non-bonded interactions in carbohydrates (R. U. Lemieux, discussion leader). S. J. Angyal; R. J. Ferrier; H. Z. Sable; R. U. Lemieux; (Subjects to be announced).

13 July. Round-table discussions of topics to be selected at the conference (R. Montgomery and L. Long, Jr., discussion leaders).

14 July. Branched chain and unsaturated sugars (J. K. N. Jones, discussion leader). A. Rosenthal; J. R. Dyer; D. Horton; W. G. Overend (subjects to be announced).

15 July. Reactions and properties of carbohydrate inclusion compounds (D.

New Hampshire and Washington

Tilton School	Proctor Academy	Crystal Inn
Biochemistry and agriculture	Nuclear structure physics	
Friction, lubrication, and wear	Interaction and transport in physical chemical and biological systems	Immunochemistry and immunobiology
Chemistry and physics of space	Theoretical chemistry	Chemistry and physics of cellular materials
Chemistry and physics of isotopes	Lasers in medicine and biology	
Chemistry of carbohydrates	Biomathematics	Resonance phenomena in metals
Chemistry and physics of coatings and films	Biological regulatory mechanisms	Molecular pathology
High-temperature chemistry	*	Chemistry and psychophysiology of odor and flavor
Physics and physical chemistry of biopolymers	*	Tetrapyrrole biosynthesis
Dissolution and crystallization of calcium phosphates	*	Plasma physics
Geochemistry	*	Chemistry and physics of paper
Industrial hygiene: metals and minerals in work environment	Factors influencing myocardial contractility	Numerical data of science and technology: generation and critical evaluation
Thin films	Science and technology of biomaterials	Spectral line shapes and neutral atom interactions

French, discussion leader). D. French, "Physico-chemical aspects of the Schardinger dextrins and their inclusion compounds"; H. Schlenk, "Interactions of Schardinger dextrins with organic acids and enzymes"; F. Cramer, "Catalytic and electronic effects of inclusion compounds"; J. L. Lach, "Complexes of Schardinger dextrins in pharmaceutical systems."

Chemistry and Physics of Coatings and Films

J. Kenneth Craver and George L. Brown are chairman and vice chairman, respectively.

18 July. Calvin E. Schildknecht, "Polymer morphology in relation to polymer structure in films"; M. L. Wallach, "Light Scattering of polymer films"; Robert J. Samuels, "Studies of anisotropic morphology in polypropylene."

19 July. Leonard Weiss, "Biophysical films and surfaces"; Charles M. Hansen, "A three-dimensional solubility parameter and the prediction of polymer solubility."

20 July. J. K. Wise and Clara Smith, "Infrared spectral examination of resin-fiber interactions"; G. Dale Cheever, "Definition of variables to characterize the physical and chemical states of phosphated steels."

21 July. J. E. Guillet, "Photo chemistry of high polymers"; H. Burrell, "Non-pigmented, opaque coatings."

22 July. V. C. Haskell, "Computer simulation of gel film structure."

High Temperature Chemistry

LeRoy Eyring and Daniel D. Cubicciotti, Jr., are chairman and vice chairman, respectively.

25 July. Carl Wagner, "Thermodynamics of ternary systems of ionic crystals"; Wayne L. Worrell, "High-temperature galvanic cell measurements using solid-oxide electrolytes"; Erich Gebhardt, "Solid solubility and precipitation processes in supersaturated gas-metal-mixed crystals"; Hans Nowotny, "Stability and crystal structure of refractory phases."

26 July. Mass spectroscopy (Richard F. Porter, chairman): F. E. Stafford, "Mass spectrometric investigation of boron hydrides pyrolysis intermediates"; John H. Norman, "Vaporization studies of the alkali and alkaline earth metal oxides"; Edmond Murad, "Bond dissociation energies in groups IIIA and IIIB monofluorides"; Richard C. Schoonmaker, "Torsion and mass spectrometric studies of the vaporization of metallic phosphides."

27 July. Second and third law considerations (Don L. Hildenbrand, chairman): Alfred Büchler, "The choice between second and third law treatments; molecular structure considerations"; Don L. Hildenbrand, "Molecular constants of gases from second law entropies"; Donald D. Wagman, "Factors influencing the use of second and third law treatments of equilibrium data"; William Weltner, Jr., "Thermodynamics of $C_3(g)$; a major second law—third law discrepancy."

28 July. O. J. Kleppa, "Thermochemistry of mixed oxide phases"; Robert J. Thorn and George Winslow, "Defect-theory of nonstoichiometry: current status of its application to the uranium dioxide phase"; David White, "Dissociation of the gaseous rare earth monoxides"; Kenneth Pitzer, (subject to be announced).

29 July. Harold Schäfer, "Preparation and thermodynamics of niobium oxide phases with the ratio O/Nb between 2, 4 and 2,5″; Philipp Gross, "The equilibrium between aluminum tribromide, aluminum monobromide and aluminum."

Physics and Physical Chemistry of Biopolymers

Michael Laskowski, Jr., and Oktay Sinanoğlu are chairman and vice chairman, respectively.

1 August. Water structure (H. S. Frank, chairman): D. P. Stevenson, "Experimental evidence bearing on the structure of liquid water"; D. F. Hornig, "Raman spectra of liquid water." *Denaturation* (Milton Levy, chairman): J. F. Brandts, "The validity of the two-state model for conformational reactions of biopolymers"; Charles Tanford, "The state of proteins in concentrated urea and guanidine hydrochloride solutions."

2 August. Transitions (H. K. Schachman, chairman): George Némethy, "Ligand interaction and conformation stability"; J. F. Foster, "Microheterogeneity of proteins." Interactions with small molecules (Jacinto Steinhardt, chairman): P. H. von Hippel, "Salt-biopolymer interactions"; Arnold Wishnia, "Hydrocarbon-protein interactions."

3 August. Polypeptides (S. N. Timasheff, chairman): Murray Goodman, "Stereochemical studies on polypeptides"; Oleg Jardetzky, "Nuclear magnetic resonance of peptides and nucleotides." Energy transfer (R. F. Steiner, chairman): Richard Bersohn, "Energy transfer in biopolymers"; D. F. Bradley, "Optical properties of biopolymers and molecular aggregates."

4 August. Conformation (P. J. Flory, chairman): W. G. Miller, "Calculations relevant to protein conformation and comparison with measurements on synthetic polypeptides"; H. A. Scheraga, "Theoretical determination of sterically allowed conformations of polypeptide chains." *Business meeting* (J. T. Edsall, chairman): D. S. Greenberg, "Should your son be a science advisor?"

5 August. Panel discussion (Oktay Sinanoğlu, chairman): participants to be announced.

Dissolution and Crystallization of Calcium Phosphates

Walter E. Brown and John D. Hatfield are co-chairman.

8 August. Selected short communications (abstracts to be submitted before 15 June). H. Newesely, "The existence and chemical behavior of calcium polyphosphates in calcified tissues"; E. Hayek and H. Konetschny, "Infrared research on the products of the reaction of $CaHPO_4$ with $CaCO_3$ in aqueous systems." *Thermodynamic properties*: E. C. Moreno, "Sparingly soluble calcium phosphates"; J. D. Hatfield, "Activities of the components in the system CaO-P_2O_5-H_3PO_4 through use of Gibbs-Duhem equation."

9 August. Surface properties: M. D. Francis, J. A. Gray, and W. J. Griebstein, "Surface phases and their influence on behavior of calcium phosphate solids"; Y. Avnimelech, "Ion-exchange and electrophoretic properties of hydroxyapatite in the 3-component system." *Nucleation and growth*: G. H. Nancollas, "Theoretical considerations and experimental tests of nucleation processes."

10 August. Nucleation and growth (continued): A. J. Tousimis, "Electron microscope and electron probe study of bone"; K. Lonsdale, "Conditions of growth and composition of urinary calculi"; F. G. Carpenter, "Precipitates from sugar solutions"; A. S. Posner and E. D. Eanes, "Kinetics of nucleation in synthetic systems"; S. A. Leach, "Dental calculus"; O. R. Trautz, J. LeGeros, R. Z. LeGeros, and E. Klein,

"Effect of F^-, CO_3^{--}, M_g^{++}, and Na^+ on the growth rate and shape of apatite crystallites."

11 August. Caries and transport in teeth: P. R. Patel, "Diffusion in enamel"; H. J. Höhling, "Crystal chemical studies of carious enamel and dentin." *Defects and dislocations*: B. S. H. Royce, "Effects on dissolution and crystallization."

12 August. Preparation and properties of hydroxyapatite: B. O. Fowler, "Infrared spectra in the characterization of apatites"; J. C. Elliott, "Crystal preparation and infrared studies of apatites"; D. R. Simpson, "Synthesis and stabilities of apatites."

Geochemistry

Robert M. Garrels and Charles L. Christ are co-chairmen.

15–19 August. Chemical cycles and the history of the oceans: Eville Gorham, "Some factors affecting the chemistry of lake waters and sediments"; Philip H. Abelson, "Carbon compounds on the primitive earth"; William T. Holser, "Geochemical cycles of sulfur and bromine"; Peter Williams, "The cycles of organic carbon in the oceans"; Peter Weyl, "Negative feedback and the stability of the environment on the surface of our planet"; Kenneth Deffeyes, "Atmosphere, hydrosphere, and their interaction with the lithosphere viewed as a chemical plant"; Edward Goldberg, "Chemical mass-balance relations among various geospheres"; M. K. Horn, "Computer-derived geochemical balances and element abundances"; Geoffrey Nicholls, "Sediments, sedimentary rocks, metamorphosed sediments, and their bearing on the history of the oceans"; Fraser P. Fanale, "Origin and evolution of the rare gases in the atmosphere"; Donald Baker, "Distribution and nature of carbon in sediments"; Donald E. White, "Problems of the origin of water and carbon dioxide"; Sidney P. Clark, "Temperature and composition differences between continental and oceanic mantle."

Industrial Hygiene: Metals and Minerals in the Work Environment

Elmer P. Wheeler and Kenneth W. Nelson are chairman and vice chairman, respectively.

22 August. "Mineral dust inhalation, deposition, and/or retention" (Paul Gross, chairman; Morton Corn, discussion leader). "Respiratory uptake, transport, storage, and excretion of metals" (Bernard Altshuler, chairman: Paul E. Morrow, discussion leader).

23 August. "Collection and analysis metal dusts and fumes" (N. E. Whitman, chairman: Ralph G. Smith, discussion leader). "Collection and evaluation of airborne mineral dust samples" (J. W. Hammond, chairman: discussion leader to be announced).

24 August. "Relationship of levels of toxic metals in the body to signs and symptoms of occupational disease" (B. D. Dinman, chairman: George Roush, discussion leader). "Biochemical tests to relate exposure to body burden, intake, excretion, or disposition" (Kenneth W. Nelson, chairman: R. G. Keenan, discussion leader).

25 August. "Epidemiological evidence of occupational disease in mining, metallurgical, and mineral industries" (Lester V. Cralley, chairman: Lewis J. Cralley and Mildred Kindricks, discussion leaders). "Threshold limit values for metals and minerals—validity and changes as a result of current research and epidemiological studies" (Allen D. Brandt, chairman: Hervey B. Elkins, discussion leader).

26 August. "Control of occupational exposures" (Kenneth M. Morse, chairman: K. E. Robinson, discussion leader). New materials, equipment, and methods: summary.

Thin Films—Nucleation, Growth, and Structure

Klaus H. Behrndt is chairman.

29 August. Nucleation (N. Cabrera, discussion leader): G. M. Pound, "Nucleation theory"; H. Poppa, "Heterogeneous nucleation experiments inside the electron microscope and results." (E. J. Scheibner, discussion leader): G. Ehrlich, "An atomic view of surface diffusion"; A. U. MacRae, "Nucleation as observed by LEED."

30 August. Epitaxy and lattice imperfections (H. G. F. Wilsdorf, discussion leader): J. H. van der Merwe, "Theoretical considerations on crystalline overgrowths," L. Brockway and A. Rowe, "Complex stacking faults in substrate annealed films." (G. Ehrlich, discussion leader): M. Harsdorf, "The effects of gas adsorption on epitaxy."

31 August. Phases and ordering processes (P. Flinn, discussion leader): H. Richter, "Ordered agglomerates in amorphous and liquid elements"; S. Mader, "Metastable alloy films." (R. W. Hoffman, discussion leader): K. H. Behrndt, "Phase- and order-transitions in films."

1 September. Nucleation and growth as affected by deposition methods (W. R. Sinclair, discussion leader): J. M. Blocher, "Chemical vapor deposition"; G. Eichkorn and H. Fischer, "Electrodeposition." (K. H. Behrndt and M. H. Francombe, discussion leaders): "Preferences and prejudices on film deposition and interpretation."

2 September. Nucleation and growth as affected by deposition methods (continued) (G. Hass, discussion leader): H. Schroeder, "Oxide films formed from solution"; E. Ritter, "Reactive evaporation." (G. K. Wehner, discussion leader): D. M. Mattox, "Deposition by exploding wire and ion plating"; M. H. Francombe, "Sputtering."

Proctor Academy

Nuclear Structure Physics

Harry E. Gove and John P. Schiffer are chairman and vice chairman, respectively.

Electromagnetic transitions and interactions in nuclei and related phenomena.

13 June. S. J. Skorka, "Systematics of transition probabilities in nuclei with $A<40$"; D. Kurath, "Shell model effects in electromagnetic transitions"; G. R. Bishop, "Inelastic electron scattering."

14 June. D. G. Ravenhall, "Charge radii of nuclei"; E. K. Warburton, "Gamma ray angular correlations and transition rates"; S. D. Bloom, "Matrix elements from beta decay."

15 June. P. H. Stelson, " 'Vibrational' nuclei"; F. G. J. Perey, "Coupled channel calculations and transition probabilities from inelastic particle scattering."

16 June. A. M. Green, "Collective excited states in light nuclei"; P. Axel, "Radiation widths of higher excited states"; C. F. Clement, "Direct capture."

17 June. S. Raboy, "Study of nuclear structure by muonic x-rays"; E. Hayward, "The giant electric dipole resonance."

Interaction and Transport in Physical, Chemical, and Biological Systems

Fred M. Snell and Alexander Mauro are chairman and vice chairman, respectively.

20 June. Macroscopic theory I (R. Schlögl, chairman): J. C. M. Li, "Non-linear systems and the thermokinetic potential"; O. Kedem, "The interpretation of tracer measurements." *Statistical theory I* (V. S. Vaidhyanathan, chairman): R. Mazo, "Brownian motion and theories of transport processes"; R. H. Aranow, "A statistical description of porous media."

21 June. Macroscopic theory II (K. S. Speigler, chairman): J. L. Ericksen, "Theories of structures continuum"; F. M. Snell, "A macroscopic description of the stress tensor in multicomponent systems." *Statistical theory II* (A. Sauer, chairman): R. Bearman, "Statistical thermodynamics of pure fluids and fluid mixtures"; T. Hill, "Theoretical studies on steady state transport across membranes."

22 June. Theory and models (T. Teorell, chairman): Y. Kobatake, "Flows through charged membrane; with reference to mass movement"; D. C. Mikulecky, "Theoretical approaches to oscillations in membrane systems." Multicomponent systems (C. N. Longsworth, chairman): L. G. Gosting, "Studies of diffusion with the Gouy interference techniques"; E. N. Lightfoot, "Diffusional interaction in liquids and gels."

23 June. Physical chemical systems I (F. G. Helfferich, chairman): I. F. Miller, "Transport processes in porous, fixed-charge membranes"; A. Mauro, "Heterogeneous vs. homogeneous regimens in physical and physiological membranes." *Physical chemical systems II* (R. M. Barrer, chairman): G. Eisenman, "Some novel electrical properties of fixed-charge ion exchange membranes with very tight pores"; H. P. Gregor, "Equilibria and transport in multilayer membrane systems"; T. E. Thompson, "Lipid bilayer membranes."

24 June. Biological systems (K. S. Cole, chairman): I. Tasaki, "Electrochemical properties of the squid axon membrane"; W. H. Freygang, "Models of muscle membrane."

Theoretical Chemistry

William T. Simpson and John A. Pople are chairman and vice chairman, respectively.

27 June. (J. O. Hirschfelder, chairman): E. B. Wilson, Jr., "Second-order density matrices"; D. Smith, "Some remarks concerning the N-representability problem." (H. Shull, chairman): W. A. Goddard, "An improvement

over the Hartree-Fock method"; L. J. Sham, "The inhomogeneous electron gas."

28 June. (M. Karplus, chairman): A. Dalgarno, "Rotational excitations at thermal energies"; J. C. Y. Chen, "Resonances in electron scattering by molecules." (R. Parr, chairman): A. C. Wahl, "*Ab initio* wave functions and the accurate description of diatomic systems"; H. Conroy, "Accurate solutions to the molecular Schrödinger equation."

29 June. (J. A. Pople, chairman): S. Nagakura, "Electronic states of complex molecules"; Mrs. A. Pullman, "Application of quantum theories to problems of biochemistry." (K. Ruedenberg, chairman): S. Fraga and F. Birss, "General self-consistent field procedure"; J. Koutecky, "The theory of alternate hydrocarbons."

30 June. (D. McClure, chairman): W. Klemperer, "Studies on excited electronic states of molecules"; P. J. Stevens, "Spectroscopic assignments from the dispersion of the Faraday effect." (O. Sinanoglu, chairman): S. T. Epstein, "Potentials, local and otherwise"; M. Newton, "Non-empirical molecular orbital theory for large molecules."

1 July. (R. Mazo, chairman): J. Jortner, "Two-photon processes"; A. Suna, "Some applications of Green's function methods in exciton theory."

Lasers in Medicine and Biology

Gerard Grosof and M. Zaret are chairman and vice chairman, respectively.

4 July. New laser technology: (speakers and subjects to be announced). *Biological effects of lasers*: G. Czerlinski, "Fundamental aspects of laser radiation in relation to biological systems"; D. Rounds, R. Olson, and F. Johnson, "Two-photon absorption in biological matter"; W. Hildreth, "Photolysis and photosynthesis by pulsed lasers."

5 July. Laser cell and tissue irradiation: M. Bessis, "Laser microbeam irradiation of cells"; S. Inoue, "Microbeam analyses of living cell fine-structure"; J. Daniel, "Applications of lasers to embryology"; E. Klein and S. Fine, "Potential hazards of laser radiation."

6 July. Laser surgery: S. Stellar, "Laser effects on tissue: with special reference to nervous system tissue"; A. Ketcham and R. Hoye, "Laser radiation combined with other anti-tumor

modalities: and experimental study"; T. Brown, R. McLaurin, and C. True, "Laser neurosurgery—experimental and clinical studies"; E. Ritter and L. Goldman, "Laser investigative studies in vascular dynamics."

7 July. Ophthalmic effects of laser radiation: H. Sperling, "The effect of intense monochromatic light on the spectral sensitivity of the eye"; W. Ham, Jr., and W. Geeraets, "Ocular hazards from laser radiation"; G. Grosof, "Analysis of ocular hazards." *Behavioral effects of laser radiation*: H. Taylor and R. Ebbers, "Behavioral effects of laser radiation on macaque mulatta"; J. Kovaric, "Effects on gross performance following visual ablation with the laser."

8 July. Some other topics: R. Stern, R. Sognnaes, and F. Goodman, "Laser effect on human enamel"; H. Sperling, "Report of the Laser Committee of the National Academy of Sciences—National Research Council."

Biomathematics

G. Octo Barnett and G. D. McCann are chairman and vice chairman, respectively.

11–15 July. Mones Berman, "In vivo kinetics"; John Milsum, "Optimum biological systems"; Sam Mason and Michael Athans, "The mathematical representation of systems"; Manfred Clynes, "Rein control as a biological design principle"; William Yamamoto, "Respiratory control system"; Eugene Yates, "Adrenal control system"; Jordan Baruch, "The empathic computer"; Joseph Weizenbaum, "Some potential roles for computers in psychiatry and medicine"; William C. Hoffman, "Topology of visual perception"; George Moore, "A survey of spike train genesis models"; Ira Richer, "The integration of neural modeling and data analysis in nervous system research"; Sol Golomb, "Genetics"; Robert Rosen, "Topology"; Douglas Chapman, "Recent developments in animal population dynamics"; Hyman Landau, "Structure as affected by individual interactions"; Nathan Keyfitz, "Themes in mathematical demography"; Anatol Rapoport, "Biological implications of statistical graph theory."

Biological Regulatory Mechanisms

Boris Magasanik is chairman.

18–22 July. A discussion of the con-

trol of enzyme synthesis in microorganisms. The following persons have been invited to speak: Jonathan Beckwith, Georges Cohen, Ellis Englesberg, Jonathan Gallant, Luigi Gorini, Herman Kalckar, Adam Kepes, Edward Lin, Werner K. Maas, Frederick C. Neidhardt, Aaron Novick, P. Slonimski, H. Edwin Umbarger, and J. M. Wiame.

Factors Influencing Myocardial Contractility

Ralph D. Tanz is chairman.

22–26 August. The contractile "defect" in heart failure (Frederick Kavaler, chairman): Panel discussion, Eugene Braunwald, Charles Chidsey, Allan J. Brady, Brian F. Hoffman, and Edmund H. Sonnenblick. *Contractile behavior of cardiac muscle* (Bernard C. Abbott, chairman): Allan J. Brady, "Mechanics of isolated papillary muscle"; Herbert J. Levine, "Muscle mechanics in the in situ heart." Discussants: Eric O. Feigl, "Mechanics in vitro"; Norman R. Alpert, "Mechanics in vitro"; Vincent J. Fisher, "Mechanics in situ"; Edmund Sonnenblick, "Mechanics in vitro." *Contractile behavior of the heart* (Edward Hawthorne, chairman): H. W. Vayo, "Mathematical considerations in evaluating contractile behavior of the in situ heart"; Michael Wilson, "Left ventricular dimension-flow relations in unanesthetized dogs"; Laval Cothran, "Instantaneous changes in left ventricular wall thickness in the unanesthetized horse"; Jere Mitchell, "Dimensional analysis of left ventricular function"; John Ross, Jr., "Contractile state of the intact heart characterized by tension-velocity relations"; Julio Davilla, "Measurement of left ventricular volume." *Behavior of heart cells in tissue culture* (Robert L. DeHaan, chairman): Robert L. DeHaan, "The contractile stimulus—pacemaker activity in cultured heart cells"; Isaac Harary, "Effects of lipids on contractility of cultured heart cells"; Don Lehmkuhl, "Electrical activity of cultured chick heart cells." Discussants: Robert D. Cahn, "Changes in enzyme patterns in functional heart cells in culture"; Billy K. Yeh, "Intercellular conduction in cultured heart muscle cells"; Gerda E. Mark, "Morphology and contractile behavior of cultured heart cells: influence of oxygen concentration." *Excitation—contraction coupling* (Saul Winegrad, chairman): Rolff Niedergerke, "The role of calcium"; Lois W. Tice, "Histochemistry of internal membrane sys-

tems"; John Gergeley, "Articulate relaxing factor"; Carl Honig, "Soluble relaxing factor"; Werner R. Loewenstein, "Role of calcium in junctional membrane processes." *Energetics* (W. F. Mommaerts, chairman): Colin L. Gibbs and N. Ricchiuti, "Energetics on cardiac contraction on the basis of heat measurement"; William Whalen, "Oxygen availability in muscle." Discussants: Maurice Visscher, "Heat of contraction"; Bernard C. Abbott, "Heat of contraction." *Agents influencing myocardial contraction—catecholamines* (Sidney Ellis, chairman): Theodore Cooper, "Influence of cardiac innervation on the response of the heart to adrenergic agents"; Steven Mayer, "Biochemical mechanisms and catecholamine actions." Discussants: Michael Brody, "Immunological sympathectomy"; Jay Roberts, "Consequences of reserpinization"; Robert Furchgott, "Catecholamine storage and uptake"; Charles Chidsey, "Catecholamine depletion." *Agents influencing myocardial contraction: cardiac glycosides* (Albert Wollenberger, chairman): K. S. Lee, "The effect of cardiac glycosides on sarcoplasmic reticulum fragments from heart muscle"; Ralph Tanz, "Possible relationship between ouabain-induced augmentation and endogenous cardiac catecholamine release"; Neil C. Moran, "The relationship of contractile frequency to the positive inotropic action and binding of cardiac glycosides." Discussants: Alfred Farah, "Metabolic considerations"; James Spann, Jr., "Catecholamines"; Julius B. Kahn, Jr., "Binding." *Agents influencing myocardial contraction—hormonal (agents other than catecholamines)* (Gordon L. Farrell, chairman): Marilyn E. Hess, "Relationship between the thyroid gland and myocardial metabolism and function"; Allan M. Lefer, "Myocardial contractility in experimental adrenal insufficiency and hypercorticalism." Discussants: Neil C. Moran, "Thyroid-catecholamine interactions"; Alvaro L. Gimeno, "Androgens and estrogens"; Jan Koch-Weser, "Angiotensin"; Jiro Nakano, "Oxytocin and vasopressin."

Science and Technology of Bio-materials

E. I. Salkovitz is chairman.

29 August. Physical properties of biological materials (John L. Bethune, chairman): Jerome Wolken and Sidney Galler. *Physical properties of biological materials* (continued) (Jerome

Wolken, chairman): John L. Bethune and Charles Bean.

30 August. Orthopedic implants (E. I. Salkovitz chairman): Patrick G. Laing, "Biological environments"; M. H. Shamos, "Physical properties of bone." *Cario-vascular implants* (James A. Bougas, chairman): James A. Bougas and speaker to be announced.

31 August. Potentialities of new biomaterials (S. Silverman, chairman): R. Jaffe, "Metals"; J. Hobstetter, "Ceramics"; J. Hoffman, "Polymers." A case study—development of dental materials (Evan Greener, chairman): G. Paffenbarger.

1 September. Degradation of biomaterials (Norbert Greene, chairman): Norbert Greene, "Metals"; Fred Leonard, "Polymers." The impact of solid state physics on life sciences (chairman to be announced).

2 September. Bio-materials engineering (Heinz Wilsdorf, chairman): Silas Braley, "Soft tissue replacements in subdermal engineering"; (speaker and subject to be announced).

Crystal Inn

Immunochemistry and Immunobiology: Antigens

Alec Sehon and Dan H. Campbell are chairman and vice chairman, respectively.

20 June. Factors involved in immunogenicity (F. Haurowitz, chairman): M. Sela, "Antibodies to synthetic antigens"; P. H. Maurer and T. J. Gill, III, "Polypeptides as antigens"; S. M. Beiser, "Artificial antigens"; (L. Levine, discussion leader). *Mechanism of adjuvant action* (E. Suter, chairman): F. L. Adler and B. H. Waksman, "Enhancing and depressing factors in immunogenicity"; J. G. Harter "Endotoxins."

21 June. Specific determinants (Y. Yagi, chairman): E. A. Kabat, "Antigenic determinants of polysaccharides"; D. Pressman, "Heterogeneity of antihapten antibodies"; B. Levine, "Immunochemistry of penicillin hypersensitivity"; T. Webb, "Antigenicity of proteins"; N. J. Crumpton, "Antigenic determinants of sperm whale myoglobin."

22 June. Fate of the antigen (D. H. Campbell, chairman): G. Nossal, "Electron microscopic and autoradiographic localization of antigen"; J. S. Garvey, "Role of retained antigen in immune mechanisms"; R. S. Speirs, "Cellular localization of antigen"; J. S. Ingraham,

"Subcellular localization of antigens"; (F. J. Dixon, discussion leader).

23 June. Cellular antigens (D. Pressman, chairman): G. Möller, "Allogeneic cells in tissue transplantation"; J. Lindenmann, "Immunogenicity of viral oncolysates"; A. H. Nowotny, "Bacterial endotoxins." Auto-antigens (F. Milgrom, chairman): E. M. Roitt, "Organ specific auto-antigens"; M. Kaplan, "Auto-antigens of heart."

24 June. Purification of antigens and allergens (A. Sehon, chairman): T. P. King, "Ragweed pollen allergen"; W. E. Vannier and A. H. Sehon, "Immunosorbents."

Chemistry and Physics of Cellular Materials

Ralph H. Hansen and K. C. Frisch are chairman and vice chairman, respectively.

27 June–1 July. I. N. Einhorn, "The flammability characteristics of cellular materials"; J. K. Backus, "The thermal decomposition and flammability of selected urethane foam systems"; C. J. Benning, "Foaming polyethylene—theoretical mechanism studies"; F. D. Hartley, "Methods and techniques of studying the kinetics and mechanism of polyurethane foam formation"; K. C. Frisch and S. L. Reegen, "Kinetics and mechanism of catalyzed isocyanate-alcohol reactions"; A. J. Lowe, R. Dyke, M. G. Hardy, and L. M. Molinario, "The composition and behavior of hydroxyl-containing intermediates for rigid urethane foams"; J. K. Lepper, H. G. Hammon, and P. R. Thompson, "Compressive creep of foams"; J. A. Hartsock, "Creep of a rigid urethane foam in shear"; F. J. McGarry, "Rigid foam as a structural material"; R. L. Hamilton, "Water vapor permeation in foamed plastics"; E. F. Cuddihy, J. Moacanin, and J. Farrar, "Outgassing rates and some electrical properties of rigid closed-cell foams under reduced pressures"; H. A. Ehrenfreund, "Selection of wall thickness and cell size in extruded foamed thermoplastics"; R. J. Boudreau, "Studies relating surface tension and foam stabilization and chemical composition in silicone-polyether surfactants."

Resonance Phenomena in Metals

Vincent Jaccarino and Harry Suhl are chairman and vice chairman, respectively.

11–15 July. Y. Yafet and S. Shultz, "Theoretical and experimental aspects of conduction electron spin resonance"; R. G. Chambers and A. Kip, "Theoretical and experimental aspects of cyclotron resonance"; P. E. Wigen, "Ferromagnetic resonance in thin films"; M. Peter, "Electron paramagnetic resonance of impurities in metals"; R. J. Elliott. "Theory of rare earth metals"; R. Bowers, C. Grimes, and W. Walsh, Jr., "Relation between resonance and plasma phenomena in metals"; T. Moriya and A. Narath, "Nuclear magnetic resonance and relaxation"; M. Weger and A. C. Gossard, "Nuclear magnetic resonance in superconductors."

Molecular Pathology

Earl P. Benditt and Wilbur Thomas are chairman and vice chairman, respectively.

18–19 July. "The smooth endoplasmic reticulum and detoxification."

20–21 July. "Mitochondria and their oxidative systems in response to injury."

21–22 July. "Lysosomes."

Chemistry and Psychophysiology of Odor and Flavor

William L. Sulzbacher and Dean Foster are co-chairmen.

25-29 July. Chemical and physical properties of odor and taste compounds: "A consideration of those properties common to all stimulating agents not shared by any non-stimulating compounds"; "Review of the sources of energy and such other critical physical dimensions as volatility, solubility, particle or molecular size, etc."; "Key chemical attributes such as reactivity, class and structure"; "Simple and complex systems or the effect of mixtures and impurities on properties of a compound." *The basic biochemical structure and mechanisms composing smell and taste receptors*: "Histology and chemistry of the receptor and supporting cell systems"; "The relation between smell, taste and the other receptor systems"; "Comparative (lower animal vs. human) studies of the microstructure of receptors"; "Effects of special (inadequate) stimulation by intravenous injection and electrical currents on odor and taste." *Instrumentation and methodology applied to the chemical and physical investigation of odor and flavor*: "Impact of GLC on

flavor research"; "Comparison of detectors; mass spectroscopy; use of infrared and other spectrophotometric methods"; "Detecting instruments other than GLC"; "Methods of sampling and transferring components; other methods of separation, thin layer, column, etc." *Absolute and differential sensitivity to the total range of odorous and sapid compounds*: "Olfactometry and thresholds by classical psychophysical methods, magnitude estimation and ratio scaling"; "Speed of reaction to single, to mixed, and to a succession or series of stimuli"; "Environmental and experiential influences on sensitivity including adaptation or fatigue (other instrumentation and methodology)"; "Mucous, saliva and thresholds"; "Genetic variations in sensitivity"; "Directional or stereosmic and stereogustatory sensations." *Taste and odor qualities*: "Psychometric methods, words and similarities analysis of qualities"; "Phenomenological analysis by flavor chemists and perfumers"; "Learning accurately to characterize response by our chemical senses"; "Familiarity, pleasantness, preference and other psychologic dimensions of odors and tastes"; "Odor opposites, masking, or cancellation"; "Single vs. mixed stimuli." *The electrophysiology of the chemical senses*: "Neuroanatomical considerations as they affect quantitative and qualitative studies"; "Recording techniques and special advantages of position, type and animal"; "Stimulus-response sensitivity and accuracy with different compounds, concentrations, purities and the like"; "Peripheral-central implications for identification"; "Adaptation." *Endocrine, metabolic and pathologic influences on odor and taste responses*: "Definitions of anosmia, parosmia, hyperosmia, ageusia as to frequency and dimensions of response"; "Metabolic determinants of reaction"; "Partial vs. 'true' vs. absolute insensibility"; "Hormones and the manipulation of sensitivity"; "Disease states of special research interest." *Natural product chemistry and applications to flavor science*: "Role of fats, proteins, carbonyls, carbohydrates and other organic groups"; "Review of the effects of inhibitors"; "Studies involving potentiators, precursors and enzymes"; "The value of ambiguous stimulus materials"; "Natural and radiation-induced flavor deterioration"; "Flavors in fermented products"; "Perfume and flavor design." *The elements and postulates essential to a theory which can adequately explain taste (gustation)*: "Sum-

mary description of known taste mechanisms, the basic attributes"; "The meaning and importance of 'primary' qualities"; "The differences between stimulus qualities"; "Data or evidence which is missing"; "A summary and evaluation of current theories." (Chairmen and speakers to be announced.)

Tetrapyrrole Biosynthesis

Robert F. Labbe and Donald T. Tschudy are chairman and vice chairman, respectively.

1 August. Porphyrin and heme chemistry (S. F. McDonald, chairman): J. E. Falk, "Chemistry of porphyrins and metalloporphyrins." (E. Margoliash, chairman): R. Lemberg, "Structure-function relationships of hemes."

2 August. Enzymic mechanisms (June Lascelles, chairman): David Shemin, "Heme biosynthesis." (J. E. Falk, chairman): Bruce Burnham, "Chlorophyll and vitamin B_{12} biosynthesis."

3 August. Regulatory mechanisms (Samuel P. Bessman, chairman): June Lascelles, "Regulation of porphyrin biosynthesis." (David Shemin, chairman): Samuel P. Bessman and Arthur Grayzel, "Regulation of heme-protein biosynthesis."

4 August. Abnormalities in heme biosynthesis (Samuel Schwartz, chairman): Allan G. Redeker and Donald T. Tschudy, "Clinical and experimental porphyrias." *Bile pigments* (Nathaniel I. Berlin, chairman): Cecil J. Watson, "Occurrence and chemistry of bile pigments."

5 August. (Robert A. Aldrich, chairman): David L. Drabkin and Rudi Schmid, "Enzymic formation of bile pigments."

Plasma Physics

Betsy Ancker-Johnson and James E. Drummond are chairman and vice chairman, respectively.

8 August. Natural plasmas (chairman to be announced): (speaker to be announced), "In space"; A. Ron, "In solids." *Production of plasmas, their heating and cooling* (John Marshall, chairman): (speaker to be announced), "Turbulent heating"; T. K. Allen, "Injection."

9 August. Production of plasmas, their heating and cooling (continued) (Russell Kulsrud, chairman): Murray Lampert, "Solids"; Alan F. Haught,

"Laser production." *Instabilities* (William E. Drummond, chairman): (speaker to be announced), "Classification"; (speaker to be announced), "Turbulence."

10 August. Instabilities (continued) (Maurice Glicksman, chairman): B. Lehnert, "Experimental evidence—gases." *Instabilities (continued)* (H. S. Robertson, chairman): Betsy Ancker-Johnson, "Experimental evidence and evaluation—solids."

11 August. Confinement (E. G. Harris, chairman): T. K. Fowler, "Limitations"; (speaker to be announced), "Perspectives"; J. B. Taylor, "Confinement." *Emission* (Gordon S. Kino, chairman): J. L. Hirschfield, "Gases"; Abraham Bers, "Solids—theory."

12 August. Waves and other diagnostics (C. B. Wharton, chairman): George Bekefi, "Gases"; S. J. Buckbaum, "Solids."

Chemistry and Physics of Paper

J. Kenneth Craver is chairman.

15 August. R. D. Preston, "The biosynthesis of cellulose"; H. I. Bolker, "Evidence for acid-labile bonds between lignin and carbohydrates."

16 August. R. St. John Manley, "The fine structure of native and regenerated cellulose"; G. Jacquelin, "The streaming potential at cellulose-fiber surfaces."

17 August. Bengt Rånby and Erik Forslind, "On cellulose-hemicellulose-water interactions in paper-pulp fibers"; Heribert Meyer, "Hydrodynamics of web formation"; Derek Page, "The physical effects of high consistency refining."

18 August. J. A. Van den Akker, "The optics of paper"; Lyle C. Jenness, "Enzymatic refining"; E. G. Bobalek, "Cellulose pulp-polymer composites"; V. T. Stannet, "The chemistry of cellulose graft polymerizations."

19 August. Otto Kallmes, "New views on the mechanical properties of paper."

Numerical Data of Science and Technology: Generation and Critical Evaluation

Y. S. Touloukian and N. B. Gove are chairman and vice chairman, respectively.

22 August. National standard reference data programs (F. D. Rossini, chairman): M. Kotani and R. M. S.

Hall. G. Waddington, "An assessment of the international picture of standard reference data programs." (Chairman to be announced): W. H. Evans, and H. J. Hoge, "Problems encountered in the generation of standard reference data in the physical sciences—general considerations"; J. R. Rice, "On tools and philosophy of data analysis"; J. Hilsenrath, "New horizons in numerical analysis of experimental data."

23 August. Status reports on major continuing reference data programs with emphasis on technical problems (Everett R. Johnson, chairman): B. J. Zwolinski, "Selected values of physical properties of organic substances"; D. R. Stull, "JANAF thermochemical data"; R. R. Hultgren, "Thermodynamic data on metals." (C. W. Beckett, chairman): R. B. Stewart and J. G. Hust, "Thermodynamic data for cryogenic fluids"; (speaker to be announced), "Thermodynamic and transport data compilations in the USSR"; R. Duff, "High pressure data."

24 August. Status reports on major continuing reference data programs with emphasis on technical problems (continued) (N. B. Gove, chairman): (speaker to be announced), "Neutron cross section data"; (speaker to be announced), "Nuclear level data"; C. F. Barnett, "Atomic collision cross section data." (F. Schulman, chairman): L. E. Kuentzel, "Infrared spectral data"; (speaker to be announced), "Crystallographic data"; (speaker to be announced), "Diffusion data in fluids"; (speaker to be announced), "Chemical kinetics data."

25 August. (H. Wooster, chairman): (speaker to be announced), "An assessment of the national picture of physical constants analysis and information centers"; E. L. Brady, "The coordination of U.S. reference data programs and the formulation of new projects." (Y. S. Touloukian, chairman): (speaker to be announced), *Special lecture.*

26 August. (Chairman to be announced): E. R. Cohen, "Fundamental constants"; Hojgaard Jensen, "Units and conversions"; *Special problems*: Panel.

Spectral Line Shapes and Neutral Atom Interactions

S. Y. Ch'en and Gordon L. Hammond are chairman and vice chairman, respectively.

29 August. R. G. Breene, Jr., "The current status of line shape theories, with emphasis on the limitations of the approximations." (M. Takeo, discussion leader). H. R. Griem, "Recent developments in resonance broadening"; (H. Kuhn, discussion leader).

30 August. M. Takeo, "Fine structure broadening theory"; S. Y. Ch'en, "Alkali fine structure observations"; F. Schuller, "An improved impact theory"; R. Granier, "Experimental comparison with Schuller's theory." (B. Vodar, discussion leader.)

31 August. O. Jefimenkc, "Satellite band theories and observations"; R. O. Garrett, "The influence of satellites on line shapes." (L. Klein, discussion leader.) G. T. Lalos, "High temperature line shapes and satellites." (H. Jacobson, discussion leader.)

1 September. R. Bernstein, "Atomic beam measurements of interatomic forces"; C. B. Meyer, "Frozen matrix line shapes"; W. R. Hindmarsh, "Force constants from spectral line shapes." (E. Rothe, discussion leader.) R. A. Bell, "Neutral atom broadening in stellar atmospheres." (L. Aller, discussion leader.)

2 September. H. Margenau, "Summing up and prognosis."