Gordon Research Conferences: Program for 1969

Alexander M. Cruickshank

The Gordon Reseach Conferences for 1969 will be held from 9 June to 29 August at six educational institutions in New Hampshire: Colby Junior College, New London; New Hampton School, New Hampton; Kimball Union Academy, Meriden; Tilton School, Tilton; Proctor Academy, Andover; and Holderness School, Plymouth. From 23 June to 29 August conferences will be held at Providence Heights College, Issaquah, 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 conference.

Registration and Reservations. Attendance at the conferences is by application. Individuals interested in attending the conferences are requested to send their application to the director at least 2 months prior to the date of the conference.

Applications must be submitted in duplicate on the standard application form which may be obtained from 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. A registration card will be mailed to those selected. Advance registration by mail for each conference is required and is completed on receipt of the card and the 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 or for a single room, if no double rooms or roommates 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 (Sunday through Thursday).

The fixed fee will cover registration, room (except single room), 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 $65, 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 in the registration fee. *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. Pets are prohibited at the conference site.

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

Special Fund. A special fund is provided from the registration fee and is made available to the chairman of the conference for the purpose of increasing the 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 conferees' travel expenses, registration fee and/or subsistence expenses at the conference, or both. Total travel and subsistence expenses usually will not be provided.

The following is a schedule of fees for New Hampshire and Washington locations:

Fixed Fee		$130
(Registration, resident conferee)	50	
(Subsistence, including gratuities)	80	
Registration (nonresident)		65
Resident guest charges (Subsistence, including gratuities for five conference days)		80
Deposit (conferees only)		30

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

Program. The complete program for the 1969 Gordon Research Conferences is published in this issue of *Science*. Reprints are available on request.

Membership. Requests for membership in the conferences, or for additional information, should be addressed to: Alexander M. Cruickshank, Director, Gordon Research Conferences, Pastore Chemical Laboratory, University of Rhode Island, Kingston, Rhode Island 02881. Telephone: area code 401, 783-4011. Mail for the office of the director from 9 June to 29 August 1969 should be addressed to: Alexander M. Cruickshank, Director, Gordon Research Conferences, Colby Junior College, New London, New Hampshire 03257. Telephone: area code 603, 526-2870.

The program to be presented is as follows:

Colby Junior College

Hydrocarbon Chemistry

Samuel E. Horne, Jr., chairman; David M. Lemal, vice chairman.

9 June. L. Kaplan, "Photochemical rearrangements of the benzene rings"; I. E. Den Besten, "Valence isomers of naphthalene"; N. J. Turro, "Nature and behavior of organic molecules excited by light."

10 June. H. R. Menapace, "Cycodimerization of dienes by iron catalysis"; W. Keim, "Oligomerization and telomerization of conjugated dienes catalyzed by palladium"; W. Schneider, "Stereo selective synthesis of trans- and cis-1, 4-dienes."

11 June. R. G. Harvey, "Lithium-ammonia reduction of polycyclic aromatic hydrocarbons"; J. C. Bailar, "Selective homogenous hydrogeneration"; E. Hedaya and R. D. Miller, "Flash vacuum pyrolysis"; Part I, "High temperature rearrangements"; Part II, "Cyclobutadiene."

12 June. L. Freedman, "Cyclo and Yne reactions of arynes"; H. Stevens, "Dichloroketene chemistry"; H. Stetter, "New results in the chemistry of adamantane."

13 June. P. G. Gassman, "Reactions of strained ring compounds"; R. C. Fort, "Bridgehead free radicals."

Nuclear Chemistry

Sven Bjørnholm, chairman; Arthur M. Poskanzer, vice chairman.

16–20 June. Central themes will be nuclear spectroscopy and the physics and chemistry of superheavy elements. One, two, and several particle configurations, collective states, correlations between nucleons, branching rules. Nuclear radii, analogue states, shape isomers, nuclear moments and the solid state. Heavy ion spectroscopy; nuclei off the beta stability line; light nuclei. Prediction of chemical and physical properties of superheavy elements, present status and methods of search for these. Tomorrow's accelerators. Subject of broad interest: chemical composition of cosmic rays, nucleosynthesis in stars. (Speakers to be announced.)

Catalysis

Thomas R. Hughes, chairman; Allen N. Webb, vice chairman.

23 June. Joost Manassen, "The catalytic activity in heterogeneous systems of organic polymers containing functional groups"; H. C. Duecker, J. M. Maselli, and M. G. Sanchez, "Fluid bed oxidation of o-xylene over promoted vanadium oxide catalysts"; G. M. Kramer, "Carbonium ion behavior in strong acid systems"; D. H. Olson and E. Dempsey, "Structural studies on faujasites and their relevance for catalysis."

24 June. Michel Boudart, "Application of Mössbauer spectroscopy to adsorption and catalysis"; D. A. Shirley, "X-ray photoelectron spectrospcopy"; Kamil Klier, "Transition metal ions in molecular sieves"; Frank S. Stone, "Specific adsorption in ion-exchanged zeolite X and Y: heats of adsorption of CO and other gases."

25 June. J. A. Rabo and Charles L. Angell, "The structure and catalytic properties of rare earth Y zeolites"; Werner O. Haag, "Mechanistic studies of acid-catalyzed reactions on faujasite"; L. Vaska, "Reversible activation of covalent molecules by transition metal complexes."

26 June. G. R. Wilson and W. K. Hall, "Chemisorption of H_2 and O_2 on supported platinum"; R. van Hardeveld and F. Hartog, "The influence of metal particle size in nickel-on-aerosil catalysts on surface site distribution and on catalytic activity and selectivity"; J. H. Block, "Surface reactions and field induced surface reactions investigated by field ion mass spectrometry"; P. C. Gravelle, "Microcalorimetry and the determination of mechanisms in heterogeneous catalysis."

27 June. T. W. Leland, "Electronic factors in metal oxide catalysis"; A. J. Moffat and Alfred Clark, "Kinetics of the olefin disproportionation reaction."

Polymers

Conrad Schuerch, chairman; John R. Schaefgen, vice chairman.

30 June. (Charles Overberger, discussion leader): Morton Litt, "Synthesis and properties of polymers from cyclic imino ethers"; Norman Gaylord, "Alternating copolymers from complexed polar monomers." (Herbert Morawetz, discussion leader): Thomas G. Fox, "Polymer chemistry: past, present and future."

1 July. Introductory remarks. (Vivian Stannett, discussion leader): Francon Williams, "Radiation-induced polymerization by ions"; John Lyons, "Some effects of inhibitors in the radiolysis of polymers." (John Gardon, discussion leader): Charles M. Hanson, "The universality of the solubility parameter."

2 July. (Phillip Geil, discussion leader): B. Wunderlich, "Crystallization during polymerization"; Robert H. Marchessault, "Biosynthesis and texture

in natural polymers." (Murray Goodman, discussion leader): Craig W. Deutsche, "Optical activity associated with vibrations of helical polymers"; Yasunori Nishijima, "Fluorescence techniques for measurement of molecular motion in polymer solids and melts."

3 July. (Richard Falb, discussion leader): Lita Nelsen, "Properties of polyelectrolyte complexes of biomedical interest"; Victor E. Shashoua, "Electrically active protein and polynucleic acid membranes"; C. S. Kwan-Gett, "Artificial organs versus transplants."

4 July. Eugene D. Klug, "Recent advances in water soluble cellulose derivatives"; Drahoslav Lim, "Hydrophilic acrylic polymers."

Textiles

William O. Statton, chairman; Robert W. Work, vice chairman.

7 July. J. O. Warwicker, "A new model for interpreting fiber structure and properties"; H. Berg, "Changes in fiber structure and properties caused by heat treatments."

8 July. C. R. Jones and T. Mason, "The physics of yarn heating in false twist processes"; A. H. Nissan, "Drying of sheets"; D. Patterson, "Photoconductivity and the fading mechanisms of dyes."

9 July. H. Shenton and J. Dow, "Textiles from fibrillated films"; R. H. Marks, "New structures in textiles from film and fiber"; H. W. Krause, "Open-end spinning."

10 July. I. C. Watt, "Hydrophilic interactions of keratin"; G. Blankenberg, "Hydrophobic interactions of keratin"; J. N. Kerawalla, "Role of cord properties in tire impact resistance."

11 July. D. J. Johnson, "Structure of graphitized fibers."

Scientific Information Problems in Research

Kenneth H. Zabriskie, Jr., chairman.

July 14–18. (Speakers and subjects to be announced.)

Corrosion

J. Bruce Wagner, Jr., chairman; Robert P. Frankenthal, vice chairman.

21 July. (K. R. Lawless, discussion leader): K. Klier, "Chemisorbed layers on nickel and iron single crystals"; A. Melmed, "Oxidation and other studies by ellipsometry, FEM and LEED." (R. P. Frankenthal, discussion leader): S. Brenner, and J. T. McKinney, "FIM atom probe measurements"; J. E. Epperson, "An x-ray diffraction analysis of the structure of thin oxide films grown on copper single crystals."

22 July. (P. Pemsler, discussion leader): J. Cathcart, "The oxidation of ternary uranium alloys"; B. Cox and P. J. Shirvington, "Electron conduction during the formation of oxide films on zirconium alloys." (W. Smeltzer, discussion leader): C. Fujii and R. Meussner, "Wüstite growth"; A. Jenkins, "Some aspects of gas phase control in the high temperature oxidation process."

23 July. (C. Tedmon, discussion leader): Z. Hed, "The mode of oxidation in the cobalt-chromium system"; D. L. Douglass, "The effect of silicon and manganese on the oxidation behavior of nickel chromium and cobalt-chromium alloys." (C. E. Birchenall, discussion leader): S. Mrowec, "Current oxidation research at Krákow"; P. M. O'Donnell, "Fluoridation of metals."

24 July. (J. Waber, discussion leader): F. S. Pettit, "The simultaneous attack of alloys by oxygen and another oxidant and its relation to accelerated corrosion in Na_2SO_4"; A. U. Seybolt, "Salt-oxygen oxidation of Ni-20 Cr and stainless steels." (H. Uhlig, discussion leader): A. Rhamel, "The scaling of iron between 700° and 800°C in CO/CO_2 mixtures containing small concentrations of gaseous sulfur compounds"; G. S. Simkovich, "The effect of gas solubilities upon oxidation and sulfidation rates."

25 July. (J. Berkowitz, discussion leader): H. Podgurski, "Nitrogenation of iron-aluminum alloys: the adsorption and solution of nitrogen in nitrogenated iron-aluminum alloys"; W. Hagel, "Nitrification of chromium."

Elastomers

S. L. Aggarwal, chairman; Kenneth W. Scott, vice chairman.

28 July. (R. A. Livigni, discussion leader): M. Morton and R. D. Sanderson, "The nature of the propagating chain end in the organoalkali polymerization of dienes"; D. P. Tate, A. E. Oberster and A. F. Halsa, "The effect of polar modifiers on the alkyllithium polymerization, copolymerization and metalation of polybutadiene." (M. P. Dreyfuss, discussion leader): Takeo Saegusa, "Controlled block polymerization of tetrahydrofuran and new aspects of tetrahydrofuran polymerization kinetics."

29 July. (Rodney D. Andrews, discussion leader): G. Ver Strate, C. Cozewith, E. N. Kresge and Z. W. Wilchinsky, "Studies on the relationship between the structure of ethylene- propylene elastomers and their stress-strain properties"; E. H. Andrews and P. E. Reed, "The dependence of mechanical properties on crystalline morphology in natural rubber." (Earl C. Gregg, discussion leader): Joginder Lal, "Effect of cross-link link structure on properties of natural rubber"; E. B. McCall, "Relation between structure of vulcanizates and their thermal and oxidative aging."

30 July. (G. Gee, discussion leader): Herman F. Mark, "Recent progress in elastomers"; Geoffrey Allen, "Some recent studies of the thermodynamics of rubber elasticity"; Willem Prins, "Structure-elasticity relations in swollen polymer networks"; D. W. Saunders, "Conformational energies from temperature dependence of stress-optical properties in crosslinked systems."

31 July. (R. S. Stein, discussion leader): M. Takayanagi, "Description of viscoelastic properties of polyphase systems." (J. C. Halpin, discussion leader): Thor L. Smith, "Strength of elastomers under biaxial tensile conditions"; R. St. John Manly, "Application of scanning electron microscopy to polymers"; G. Kraus and J. T. Gruver, "Morphology of fracture surfaces of carbon black reinforced rubbers by scanning electron microscope."

1 August. (Roger P. Kambour, discussion leader): E. F. T. White, "The mechanical properties of block polymer." (A. I. Medalia, discussion leader): W. M. Hess and L. L. Ban, "High resolution electron microscopy of carbon blacks and polymers"; Leon St. Pierre, "Interfacial phenomena and mechanical properties of elastomers."

Food and Nutrition

Imri J. Hutchings, chairman; Richard H. Barnes, vice chairman.

4 August. Single cell protein: G. H. Evans, "Industrial production of single cell protein from hydrocarbons"; Steven R. Tannenbaum, "Biological aspects of

single cell protein production and utilization." Protein foods: Ernest J. Briskey, "Advances in the biochemistry of muscle as a food"; Tommy Nakayama, "Utilization of inexpensive and/or unusual protein sources."

5 August. Enzymes in food systems: Herbert O. Hultin, "Effect of subcellular location on the activity of glycolytic enzymes in muscle tissue"; Thomas Richardson, "Enzyme derivatives and immobilized enzymes in food processing analysis." Viral and bacterial food contamination: T. J. Sinskey, "The problem of viruses in foods"; R. V. Lechowich, "Toxin production and the nature of the toxin produced by type E *Clostridium botulinum*."

6 August. Aging: Calvin A. Lang, "Macromolecular changes during the life span of the mosquito and mouse"; Denham Harmon, "Free radical theory of aging: effect of diet on mortality rate"; Johan Bjorksten, "Correlation between nutrition and age dependent changes."

7 August. Nutrition and disease: Albert B. Lorincz, "Effects of limiting amino acids on malignant tumors"; J. B. Longnecker, "Experimental PKU in brain DNA and protein synthesis"; B. T. Burton, "Nutritional therapy in kidney failure."

8 August. Food from wastes: John H. Litchfield, "Process developments in the utilization of wastes for food"; Frank V. Kosikowski, "Product developments in the utilization of wastes for food."

Medicinal Chemistry

Joseph P. Dailey, chairman; M. H. Pindell, vice chairman.

11 August. M. H. Richmond, "Extrachromosomal drug resistance in bacteria"; David Smith, "Biochemical basis for R-factor mediated drug resistance in enteric bacteria"; William Williams, "Capacitation of sperm and fertility control"; Harry Rudel, "Fertility control without inhibition of ovulation."

12 August. Charles Parker, "Immunochemical mechanisms of drug allergy"; Edgar Haber, "Immunologic studies with small polypeptides"; Anthony Menaco, "Antilymphocyte serum: mechanism of action and tolerance"; Samuel Baron, "Induction of interferon by synthetic polymers."

13 August. Peter Ramwell and Jane Shaw, "Biology of the prostaglandins"; Bengt Samuelson, "Chemistry and metabolism of the prostaglandins." Special topics.

14 August. Ara der Marderosian, "Pharmaceutical agents from marine sources"; Paul Scheuer, "Marine toxins from invertebrates"; Martin S. Stempien, Jr., "Chemistry of antibiotics from marine sources"; Bruce Halstead, "Marine biotoxins and their relationship to drug development."

15 August. D. R. Bennett, "Biological activities of silicon containing compounds"; Ralph J. Fessenden, "The biochemistry of organosilicon compounds."

Separation and Purification

Robert B. Long, chairman; Robert E. Sparks, vice chairman.

18 August. H. W. Quinn, "Silver ion-olefin complexes and separation of olefins in non-aqueous systems"; W. Featherstone, "Recovery of styrene with silver fluoborate solutions"; T. Ueno and T. Nakano, "Separation of xylenes with $HF \cdot BF_3$."

19 August. R. E. Sparks, "Complexing in the artificial kidney"; N. N. Li, "Permeation through liquid membranes"; S. T. Hwang, "Transport of dissolved gases through membranes."

20 August. A. B. Welty, Jr., "Fundamentals of SO_2 recovery from stack gases"; L. Stankus, "Processes for SO_2 recovery from stack gases"; J. D. Henry, Jr., "Continuous flow column crystallization."

21 August. W. D. Betts, "Scale-up of continuous column crystallizers"; G. W. Girling, "Scale-up of continuous column crystallizers"; L. R. Snyder, "Intermolecular interactions in chromatography."

22 August. B. L. Karger, "Gas chromatography using water as a liquid phase"; A. W. Kingsbury, "Continuous counter-current ion exchange."

Cancer

Hilary Koprowski, chairman; Robert A. Good, vice chairman.

25 August. (Frank H. Ruddle, session chairman): H. Harris, "The expression of genetic information: A study of hybrid animal cells"; B. Mintz, "Clonal patterns in development." (Guiseppe Attardi, session chairman): J. Davison, "In vitro repression of lambda DNA transcription."

26 August. (Robert Love, session chairman): J. P. Revel, "Intercellular contacts between normal cells"; V. Ginsburg, "Carbohydrate antigens of cell surfaces." (Lionel A. Manson, session chairman): F. Bach, "In vitro immunological studies"; F. Snyder, "Significant deviations in occurrence and metabolism of glyceryl ethers in neoplasms as compared to normal tissues."

27 August. (Baruj Benacerraf, session chairman): A. Mitchison, "Recognition of antigen by receptors on lymphocytes: The general theory and its qualification by antigen-concentrating mechanisms"; H. Claman, "Interactions between thymus and bone marrow cells." (Robert A. Good, session chairman): W. E. Paul, "Genetic control of immunogenicity"; F. Rapp, "Immunogenetic conversion of cells by oncogenic viruses."

28 August. (Vittorio Defendi, session chairman): H. C. Pitot, "Regulatory mechanisms in meoplasia"; M. L. Mendelsohn, "Population kinetics and tumor growth." (Henry C. Pitot, session chairman): E. Farber, "Nuclear regulation of growth control of tumor cells"; I. B. Weinstein, "Changes in transfer RNA during carcinogenesis."

29 August. (Alfred Gellhorn, session chairman): R. T. Prehn, "Dedifferentiation of cancer cells"; V. Defendi, "Variability of expression of viral genomes in tumor cells."

New Hampton School

Magnetic Resonance

J. S. Waugh, chairman; Daniel Kivelson, vice chairman.

9 June. C. MacLean, "Electric field effects in the NMR of liquids"; R. Bersohn, "Some aspects of optical pumping"; E. L. Hahn, "Deuteronomy."

10 June. O. Jardetzky, "NMR studies of selectively deuterated enzymes"; R. Shulman, "NMR studies of heme proteins"; H. Wolf, "ESR of triplet excitons in organic crystals."

11 June. A. Redfield, "Spin diffusion"; U. Haeberlen, "Line widths and relaxation times in multiple-pulse NMR experiments"; H. Fischer, "Dynamic polarization of nuclei in chemical reactions."

12 June. D. Shirley, "Dynamic effects in angular correlation of gamma rays"; A. Abragam, (subject to be announced); K. Hausser, "Optical nuclear polarization in organic crystals."

13 June. M. Goldman, "Paramagnetic resonance with highly polarized electron spin systems"; R. Blinc, "Spin relaxation, critical fluctuations, and liquid crystals."

Nucleic Acids

Robert M. Bock, co-chairman; Jerome Vinograd, co-chairman.

16 June. (Donald Crothers, chairman): Structure and interactions of DNA. (Donald Brown, chairman): Tertiary structures; mitochondrial and eukaryotic DNA.

17 June. (R. L. Sinnsheimer, chairman): Synthesis, repair and modification of DNA. (Robert Rownd, chairman): Control of replication of DNA.

18 June. (H. Gobind Khorana, chairman): Chemical synthesis of ordered polynucleotides. (Peter Gilham, chairman): Structure-function relations of transfer, ribosomal and viral RNA.

19 June. (Dieter Soll, chairman): Origin, localization and functions of modified bases in RNA. (Robert Bock, chairman): Conformation and crystal structures of nucleic acids.

20 June. (Thomas August, chairman): Transcription of RNA from DNA and RNA templates.

Proteins

C. W. Hirs, co-chairman; H. K. Schachman; co-chairman; R. L. Hill, co-vice chairman; Gordon A. Tomkins, co-vice chairman.

June 23–27. Protein conformation. Enzyme, structure and function. Structure and variability of antibodies. Synthesis of proteins. Methodology in protein research. Proteins with specialized properties or functions.

Chemistry of Heterocyclic Compounds

James A. Moore, chairman; Jacob Szmuszkovicz, vice chairman.

30 June–4 July. Frederick Greene, "Chemistry of three-membered heterocyclic systems"; Jackson Hester, "Oxidation products and rearrangements of aminoindoles"; Alan Katritzky, "Some recent advances in heterocyclic chemistry"; David Lemal, "Cyclic diazenes and their azo counterparts"; Robert Moriarty, "Photochemistry and dipolar additions in sulfur-nitrogen mesoionic systems"; Roy Olofson, "New synthetic methods initiated by base-induced C-H ionization"; Kevin Potts, "Synthesis and reactions of new mesoionic compounds"; Jürgen Sauer, "New cycloaddition and fragmentation reactions of heterocyclic systems"; Peter Scheiner, "Tetrazole photochemistry"; Jacques Streith, "Photochemistry of pyridinium ylids"; Carroll Temple, Jr., "Synthesis and reactions of 7-aza-pteridines"; Edwin Ullman, "Nitronylnitroxides and related stable free radicals"; Heinz Viehe, "Chemistry around Ynamines."

Statistics in Chemistry and Chemical Engineering

Wesley L. Nicholson, chairman; John W. Gorman, vice chairman.

7 July. (Richard J. DeGray, chairman): Carl A. Bennett, "Where is the information?" (Martin B. Wilk, chairman): Frank Proschan, "Application of statistical methods to reliability problems."

8 July. (John J. Gart, chairman): David R. Cox, "Analysis of binary data." (Brian L. Joiner, chairman): Ewan S. Page, "The influence of computer development on statistical analysis."

9 July. (Ralph A. Bradley, chairman): Geoffrey H. Ball, "Cluster analysis—the sorting of unlabeled objects into groups and its application to chemistry and chemical engineering." (Kent Quisel, chairman): Arthur Bobis, "The use of quantitative techniques in selecting research projects"; Anthony Atkinson, (subject to be announced).

10 July. (Spencer M. Free, chairman): Byron W. Brown, "Design of clinical assays of analgesics." (J. Leroy Folks, Jr., chairman): Alonzo Church, Jr., "Application of nonlinear least squares to spectroscopy data."

11 July. (Richard A. Freund, chairman): William D. Lamb, "A decision theoretic approach to quality control."

Radiation Chemistry

Robert R. Hentz, chairman; Peter J. Dyne, vice chairman.

14 July. (F. Williams, discussion leader): J. Jortner, "The nature and properties of excess electrons in liquids." (S. O. Nielsen, discussion leader): I. A. Taub, "Transient solvated electrons in pulse-irradiated ice and viscous polar and nonpolar liquids."

15 July. (A Hummel, discussion leader): A. Mozumder, "Theoretical approach to electron thermalization and charge neutralization in irradiated condensed media." (S. Lipsky, discussion leader): R. B. Cundall, "The role of excited states in the radiolysis of organic liquids."

16 July. (M. Anbar, discussion leader): R. A. Marcus, "Electron transfer processes." (L. Kevan, discussion leader): J. Cunningham, "Energy migration and trapping in irradiated inorganic solids."

17 July. (J. M. Warman, discussion leader): C. E. Klots, "Elementary physical processes in gas-phase radiolysis." (P. J. Dyne, discussion leader): Contributed papers.

18 July. (G. G. Meisels, discussion leader): S. Gordon, "Pulse radiolysis of gases."

Organic Reactions and Processes

Stanley J. Brois, chairman; Cheves Walling, vice chairman.

21 July. K. Mislow, "Recent progress in phosphorous stereochemistry"; J. D. Morrison, "Asymmetric reactions of chiral organometallics"; A. Fava, "Stereochemistry of sulfur derivatives."

22 July. F. Ramirez, "New synthetic applications of the oxyphosphorane carbon-carbon condensation"; H. J. Bestmann, "Alkylidene phosphoranes as nucleophilic reactants in organic chemistry"; G. Märkl, "Syntheses and reactions of aromatic phosphorous heterocycles."

23 July. R. Hoffman, "Theory of converted reactions"; L. A. Paquette, "A potpourri of thermal and photochemical bond reorganizations and cyclo-additions"; G. A. Roth, "The stereochemistry of some sigmatropic rearrangements."

24 July. G. L. Closs, "Mechanism studies on the pyrolyses of small ring compounds"; H. Shechter, "Newer aspects of ring strain"; J. E. Baldwin, "New cyclo-addition, -elimination and -rearrangement reactions."

25 July. H. C. Brown and M. M. Rogic, "Syntheses via organoborane"; M. J. S. Dewar, "Heteroaromatic boron chemistry."

Steriods and Other Natural Products

Werner Herz, chairman; Paul J. Scheuer, vice chairman.

28 July–1 August. W. A. Ayer, "Structural and synthetic studies on some lycopodium alkaloids"; J. F. Baldwin, "Ylide rearrangements in synthesis and biosynthesis"; J. A. Edwards, "Synthesis of antheridiol"; C. H. Eugster, "Pleasure with plant pigments"; N. Finch, "Total synthesis of the prostaglandins"; K. Koch, "Factors from the nebramycin complex"; J. P. Kutney, "Recent studies in alkaloids"; J. Levisalles, "Recent progress in steroid chemistry"; S. W. Pelletier, "Di- and sesquiterpene synthesis"; K. Schreiber, (subject to be announced); G. Stork, "Approaches to pentacyclic triterpene total synthesis"; M. Uskokovic, "Novel synthesis of quinine, quinidine and related alkaloids."

Inorganic Chemistry

Jack Halpern, chairman; Irving Sheft, vice chairman.

4–8 August. Coordination chemistry and homogeneous catalysis: J. P. Collman, "Mechanistic patterns in homogeneous catalysis"; P. M. Henry, "Homogeneous metal ion oxidations of unsaturated substrates." (Short contributions by various speakers), "Aspects of the catalytic chemistry of rhodium complexes." Metal ions in biological systems: G. L. Eichorn, "Coordination in biological macromolecules"; R. H. Abeles, "Studies on the mechanism of action of B_{12} coenzymes"; R. W. F. Hardy and R. C. Burns, "Nitrogenase characterization and reactions"; L. L. Ingraham, "Biological redox reactions involving metal ions"; R. J. P. Williams, "Metal ions in degradative biochemical processes." Inorganic chemistry at high temperatures and pressures: J. L. Margrave, "Exploitation of high temperatures and high pressure in inorganic chemistry"; H. T. Hall, "High pressure syntheses"; F. T. Greene and T. A. Milne, "High pressure mass spectrometry"; R. T. Meyer, "Thermokinetics and vaporization of pulse heated refractory materials"; L. S. Nelson, "High temperature studies with the falling sample technique." G. C. Kennedy, "Chemical evolution of the crust and upper mantle of the earth."

Analytical Chemistry

R. A. Brown, chairman; Donald T. Sawyer, vice chairman.

11 August. J. N. Damico, "Field ionization mass spectrometry"; M. S. B. Munson, "Chemical ionization mass spectrometery"; J. L. Koenig, "Laser Raman spectroscopy."

12 August. M. N. Myers, "Ultrahigh pressure gas chromatography"; J. J. Kirkland, "Liquid-liquid chromatography"; (D. T. Sawyer, moderator of open session).

13 August. R. F. Large, "Practice and utility of electroanalytical mechanistic studies"; E. G. Baker, "Derivation of polymer structure at the molecular level from solubility measurements."

14 August. W. H. McFadden, L. H. Phifer, Frederic Rieders, "Trace organic analysis"; (D. T. Sawyer, moderator of open session).

15 August. J. P. Walters, "Investigation and control of short time reactions in high voltage spark discharges."

Chemistry and Physics of Cellular Materials

A. N. Gent, chairman; John K. Backus, vice chairman.

18 August. K. C. Rusch, "Load-compression behavior of foamed materials"; M. A. Mendelsohn, R. H. Runk, H. J. Connors and G. B. Rosenblatt, "Polyurethane liner materials for the Poseidon launcher"; G. Raumann, "Requirements and behavior of foam backings."

19 August. D. D. Guequierre, "Filtration technology and the development of a fiber-based controlled porosity filter material"; S. E. Jamison, "Fiber-foam structures and their stabilization against disintegration by liquids"; C. E. Rogers, "Molecular diffusion in thin films."

20 August. H. Bartl and F. Wingler, "Hollow beads and foams from vinyl chloride-ethylene copolymers"; C. W. Stewart, "Bubble nucleation and growth in elastomers"; M. J. Owen and T. C. Kendrick, "The surface chemistry of polyurethane foam formation."

21 August. C. P. Fenimore, "Combustion processes and testing in plastics"; A. F. Roberston, "Surface flammability measurements: objectives, methods and problems"; I. N. Einhorn and K. C. Frisch, "Mechanism of thermal degradation of model carbamates"; R. K. Traeger and R. D. Hermansen, "Mechanics and properies of structural foams."

22 August. L. C. Rubens, "Isotropic expansion of cast polychlorostyrene compositions to low density cellular products"; E. F. Cuddihy and J. Moacanin, "Corona discharge and gaseous diffusion in rigid closed-cell foams"; D. R. Otis, "Impact loading of a closed-cell foamed elastomer."

Science of Adhesion

Charles A. Kumins, chairman; Justin C. Bolger, vice chairman.

25 August. Adhesion systems and their mechanisms: Peter Walker, "Photoadhesion"; George Wallis and Dan Pomerantz, "Electrostatic bonding"; Oswald Bergmann, "Explosive bonding"; Thomas Salzer, "Ultrasonic bonding."

26 August. Fracture mechanics: Sheldon Mostovoy, "Interphrase fracture of composite bodies"; Max L. Williams, "Continuum mechanics and adhesion"; Praveen Chaudhari, "Superplasticity."

27 August. Surface chemistry: Walter Drost-Hansen, "Structure of water at surfaces"; Michael L. Hair, "Infra-red studies of glass and silica and their coupling agents"; Werner Funke, "Solid-polymer interaction"; Eugene F. Huget and Gerhard M. Brauer, "Surface chemistry of dental materials."

28 August. Composites: James D. Ray, "High temperature composites"; Robert Shaver, "Whisker reinforced composites." Separation phenomena: William Mahieu, "Electrical and luminescent effects of fracture in composites"; Robert J. Good, "Heat effects in adhesive separation."

29 August. Specific systems: Anton Hehn, "Adhesion of metals and nonmetals in ultra high vacuum"; N. Eugene Stucker, "Cured rubber-ply adhesion."

Kimball Union Academy

Lipid Metabolism

Roy Vagelos, chairman; Howard A. Eder, vice chairman.

9 June. (Roy Vagelos, chairman): M. Daniel Lane, "Activation of liver and adipose tissue acetyl CoA carboxylases"; Philip W. Majerus, "Regulation of acetyl CoA carboxylase in rat liver and hepatoma." Alfred W. Alberts and H. Richard Levy, discussants. (George J. Popjack, chairman): Konrad Bloch, "Some aspects of microbial fatty acid synthesis"; Salih J. Wakil, "Fatty acid metabolism and control."

10 June. (David M. Gibson, chairman): Minor J. Coon, "Electron carriers in fatty acid hydroxylation"; Jon Bremer, "Factors influencing the intracellular fate of fatty acids." Klaus Brendel, discussant. (Charles C. Sweeley, chairman): Esmond E. Snell, "Biosynthesis of sphingosine and dihydrosphingosine in yeast"; Shimon Gatt, "Enzymatic hydrolysis of sphingolipids and phos-

pholipids. Interaction of enzymes with lipid substrates."

11 June. (John Law, chairman): William Lands, "Selective incorporation of unsaturated acids into glycerolipids"; Bernard Agranoff, "Role of dihydroxyacetone phosphate in phospholipid synthesis." Ronald Pieringer, discussant. (Phillips W. Robbins, chairman): Mary Jane Osborn, "Biosynthesis of lipopolysaccharide of *Salmonella typhimurium*"; Jack Strominger, "Role of lipids in cell wall biosynthesis." William J. Lennarz, discussant.

12 June. (Eugene P. Kennedy, chairman): Anthony Martonosi, "Role of phospholipids in Ca^{++} transport and ATPase activity of skeletal muscle microsomes"; H. Ronald Kaback, "Functional dissociation of transport from barrier function in isolated bacterial membrane preparations." (Howard A. Eder, chairman): Daniel Branton, "Lipids as determinants of biological membrane structure."

13 June. (Howard Goldfine, chairman): David Silbert, "Bacterial fatty acid mutants: role of fatty acids in biological membranes"; C. Fred Fox, "Requirements for lipid in expression of membrane function." Robert Simoni, discussant.

Lasers in Medicine and Biology

H. Christian Zweng, chairman; William T. Ham, Jr., vice chairman.

16 June. Laser instrumentation and technology (F. Brech, chairman); R. L. Fork, "Laser as a microprobe for investigating the distribution of photopigment and hence phototropic response of the fungus *Phycomyces*"; F. M. Johnson, "Recent progress in lasers and laser instrumentation"; W. L. Anderson, "Use of scattered laser radiation for counting and sizing small biological objects"; F. Brech, "Application of laser Raman spectroscopy to biological species"; K. W. Marich, "Laser microprobe system in medical field." Physical-chemical laser effects and modeling (E. Cohen, chairman): S. F. Cleary, "A physical model for laser retinal danger—physical phenomena associated with laser absorption in the retina"; R. H. Wiley, "Chemistry of focused laser degradations to some deuterated analogs of the reactions as described last year"; G. Czerlinski, "Interaction of high laser-power densities with homogeneous biological systems—physico-chemical basis of the phenomena"; R. H. Wiley, "Degradation of the rhodopsin in retinal tissue—initial data from UV reflectance measurements"; E. Cohen, "Current investigations of laser irradiation of human plasma proteins"; L. Miro, "Action of laser light on bilirubin."

17 June. Clinical laser applications (F. A. L'Esperance, chairman): L. M. Aiello, "Treatment of diabetic retinopathy with laser photocoagulation"; D. Laub, "Tattoo removal by lasers"; Hunter L. Little, R. R. Peabody, and F. A. L'Esperance, "Argon laser applications in ophthalmology"; S. Stellar, "Treatment of experimental brain tumors by means of high-powered carbon dioxide laser with the aid of the surgical microscope"; L. Goldman, "7 years' experience in treating dermatological lesions with laser radiation"; Z. Naprstek, "Laser surgical research." Holography in biology (R. Van Ligten, chairman): W. L. Anderson, "New developments in hologram microscopy"; S. A. Collins, "Holographic microscopy in conjunction with departments of microbiology and pharmacology"; M. N. Stein, "Image formation of coherent radiation in the eye."

18 June. Laser eye damage studies (R. Honey, chairman): T. P. Davis, "Ocular effects of CW laser radiation HeNe and Nd YAG lasers in rabbits and monkeys"; D. N. Farrer, "Changes in subjective visual acuity as a function of various macular exposures in collaboration with Dr. Ham"; P. Lappin, "Relative sensitivity of different areas of the retina of the rhesus monkey to laser radiation"; A. J. Welch, "Waveform analysis of evoked potentials in flash-blindness and retinal burn studies." Stanford Research Institute presentation on threshold damage data. Medical College of Virginia presentation threshold damage data. W. Mautner, "Assessment of mild retinal injury: electrophysiological data of subvisible lesions." Laser safety (G. Wilkening, chairman): A. E. Sherr, "Absorption at wavelengths of commercial lasers by plastic products—results from exposure, effects on a rabbit eye afer irradiation through plastics." Air Force safety presentation. Army safety presentation. C. F. Tedford, "Navy's viewpoint on laser safety considerations"; G. Wilkening, "Safety (at Bell Telephone)"; Henry J. L. Rechen, "Discussion of Public Law 90-602."

19 June. Tissue and cell effects (D. E. Rounds, chairman): F. S. Barnes, "Experimental results in generating acoustic waves with a laser pulse and their characteristics as they propagate through soft biological materials"; F. S. Barnes, "Physics of the necrotaxis of rbc's after being exposed to a laser"; M. Berns, "In vitro production of chromosomal and nucleolar lesions with argon laser microbeam"; M. T. Edgerton, "Film showing use of laser microprobe for cell population studies in the production of cancer"; R. L. Fork, "Laser for stimulating nerve cells in the visceral ganglion of the marine snail *Aplysia*"; I. Gamow, "Photopism—bending of phycomyces in the presence of an argon laser"; W. A. Maxwell, "High intense light on various microorganisms, photodynamic responses of various microorganisms when irradiated with coherent light from a continuous-wave helium neon gas laser in the presence of an exogenous sensitizing dye"; R. Rajaraman and O. P. Kamra, "Comparative study of the ultra-structural responses in *Ulva lactuca* cell due to ruby and neodymium laser radiations"; D. E. Rounds, "Response of living cells to sublethal levels of ruby laser energy." Lasers in dentistry (R. H. Stern, chairman): J. C. Adrian, "Effects of neodymium laser radiation on the dental pulp"; R. H. Stern, "Comparison of Q-switched neodymium, Q-switched ruby, normal mode ruby, pulsed CO_2 laser effect on human enamel"; R. H. Stern, "Evaluation of agents to enhance enamel-laser surface interaction"; J. Vahl, "Electron microscopical and x-ray crystallographic investigations of teeth exposed to laser rays."

20 June. Laser pathology (E. B. Helwig, chairman): E. Friedman (subject to be announced); T. Kuwabara, "Electron microscopic studies of the retinal light damage including laser radiation"; D. Smart and Neil Manson, "Histology of human retinal laser lesions"; J. H. Johnson, "Ruby laser effects on microcirculation."

Cell Structure and Metabolism

Lowell E. Hokin, chairman; Marilyn G. Farquhar, co-vice chairman; Edward Kravitz, co-vice chairman.

Cell Secretion and Its Control

23 June. (G. E. Palade, chairman): M. G. Farquhar, "Organization of the secretory apparatus"; D. D. Sabatini, "ER and ribosomal associated events"; J. Jamieson, "Intracellular transport." (A. B. Novikoff, chairman): G. E. Palade, "Discharge of secretory products"; A. B. Novikoff, "Cytochemical staining"; J. Morré, "Cell fractionation studies"; A. Jones, "Secretion of lipoproteins by hepatic cells."

24 June. (G. Whailey, chairman): C. Leblond, "Secretion of thyroglobulin"; J. Uhr, "Secretion of immunoglobulins by plasma cells"; T. Leffingwell, "Secretion of cell wall material by plant cells." (L. E. Hokin, chairman): R. W. Albers, "Na-K transport adenosinetriphosphatase;" R. H. Wasserman, "Calicum-binding proteins in calcium transport"; A. Karlin, "Acetylcholine receptors."

25 June. (H. Rasmussen, chairman): M. Schramm, "Cyclic AMP in enzyme secretion"; A. Robison, "Adenyl cyclase"; M. R. Hokin, "Role of phosphatidylinositol and phosphatidic acid in triggering of NaCl secretion in salt gland by acetylcholine." (W. W. Douglas, chairman): W. W. Douglas, "Acetylcholine-secretion coupling"; J. G. Forte, "Phospholipid turnover in secretion"; A. M. Poisner, "Role of calcium in secretion."

26 June. (E. A. Kravitz, chairman): P. Orkand, "The variety of nerve terminals—neurons and neurosecretion"; A. R. Martin, "Synaptic physiology." (M. A. Rizack, chairman): I. Edelman, "Mechanism of action of aldosterone."

27 June. (L. L. Iverson, chairman): F. C. MacIntosh, "The cholinergic synapse"; N. Kirchner, "The adrenergic synapse"; V. P. Whittaker, "Nerve ending particles."

Enzymes, Coenzymes, and Metabolic Pathways

Herbert Weissbach, chairman; Robert Abeles, co-vice chairman; Alton Meister, co-vice chairman.

30 June. Carboxylation (Robert Abels, chairman): H. G. Wood, "Biotin enzymes: role of biotin, metals and subunits"; M. Caplow, "Carbon dioxide activation and transfer—biotin catalysis"; D. Lane, "Investigation of the mechanism of activation of acetyl CoA carboxylase by citrate." Decarboxylation (Robert Abeles, chairman): L. O. Krampitz, "Role of thiamine diphosphate in the phosphoroclastic reaction"; G. Lienhard, "Mechanisms in thiamine catalysis. The decarboxylation of 2-(α-carboxy-α-hydroxyethyl)-3, 4-dimethylthiazolium chloride."

1 July. Some chemical approaches to enzyme mechanisms (William P. Jencks, chairman): A. S. Mildvan, "Studies of enzyme mechanisms by the techniques of nuclear magnetic relaxation"; F. H. Westheimer, "Marking the groups near the active sites of enzymes: the photolysis of diazoacyl derivatives"; C. Gitler, "Micellar catalysis. An enzyme model." Membrane structure (Saul Roseman, chairman): D. F. H. Wallach, "The structure of proteins in membranes and their relationship to membrane lipids"; N. Radin, "The assembly of membranes"; discussants—E. D. Korn, "Membranes as dynamic systems"; G. Schatz, "Biogenesis of mitochondrial membranes."

2 July. Transport (Ronald Kaback, chairman): S. Roseman, "Studies on the relationship between a bacterial phosphotransferase and sugar permease system"; D. L. Oxender, "Shockable binding protein from bacteria"; discussants—M. L. Morse, "The phosphotrans-

Program Summary, Gordon Research Conferences for 1969:

Date	Colby Junior College	New Hampton School	Kimball Union Academy
9–13 June	Hydrocarbon chemistry	Magnetic resonance	Lipid metabolism
16–20 June	Nuclear chemistry	Nucleic acids	Lasers in medicine and biology
23–27 June	Catalysis	Proteins	Cell structure and metabolism
30 June–4 July	Polymers	Chemistry of heterocyclic compounds	Enzymes, coenzymes, and metabolic pathways
7–11 July	Textiles	Statistics in chemistry and chemical engineering	Chemistry, physiology, and structure of bones and teeth
14–18 July	Scientific information problems in research	Radiation chemistry	Chemical oceanography
21–25 July	Corrosion	Organic reactions and processes	Chemistry at interfaces
28 July–1 Aug.	Elastomers	Steroids and other natural products	Toxicology and safety evaluations
4–8 August	Food and nutrition	Inorganic chemistry	Solid state studies in ceramics
11–15 August	Medicinal chemistry	Analytical chemistry	Chemistry and physics of solids
18–22 August	Separation and purification	Chemistry and physics of cellular materials	Ion exchange
25–29 August	Cancer	Science of adhesion	Chemistry of molten salts

* Week not available

ferase system in *Staphylcoccus aureus*"; G. Scarborough, "A function of ATP in the lactose transport system of *E. coli*"; J. B. Armstrong, "A sugar requiring enzyme system for the cleavage of ATP." Amino acid activating reactions (Alan Mehler, chairman): Jean-Pierre Waller, "Chemical aspects"; discussant—C. Allende, "Reaction catalyzed by the threonyl-RNA synthetase from rat liver"; K. Bruce Jacobson, "Biological aspects."

3 July. Enzymes involved in mRNA translation (Philip Leder, chairman): A. J. Wahba, "Initiation of protein synthesis in *Escherichia coli*"; H. Dickerman, "Studies on Met t-RNA^{fMet} transformylase"; K. Moldave, "Aminoacyl transfer reactions in a mammalian system"; P. Leder, "Protein synthesis in bacteria"; J. E. Allende, "Requirements for peptide biosynthesis in a wheat embryo system." Enzymatic joining of polynucleotides: biology and chemistry (Maurice Bessman, chairman): M. Gellert, "Enzymatic joining of DNA strands."

4 July. Metabolic disorders (Bert N. LaDu, chairman): C. R. Scriver, "Genetic control of membrane transport in mammalian systems"; L. Rosenberg, "Inherited disorders demonstrating coenzyme dependency."

Chemistry, Physiology, and Structure of Bones and Teeth

James T. Irving, chairman; Stephen M. Krane, vice chairman.

7 July. Submitted papers (abstracts should be sent to Stephen Krane, Massachusetts General Hospital, Fruit Street, Boston, Massachusetts 02114, before 1 May 1969). Calcium kinetics (L. J. Richelle, chairman): C. Onkelinx, "Symbolic models in calcium kinetics."

8 July. Calcium kinetics, part II: D. O. Welch, "Physical processes in calcium kinetics"; P. Saville, "Calcium kinetics in clinical practice and in animal research"; D. S. Riggs, "How well does negative feedback regulate plasma calcium?" Catabolism of the organic matrices of bones and teeth (D. Dziewiatkowski, chairman): J. E. Eastoe, "The nature and function of hard tissue matrices."

9 July. Catabolism of the organic matrices of bones and teeth, part II: M. J. Baer, "The turnover of the organic matrices of the cranio-facial complex as indicated by vital staining"; E. A. Tonna, "Observed changes in skeletal cells and matrices with increasing age"; R. E. Wuthier, "Lipids of cartilage and bone." Extraskeletal activities of calcium (A. B. Borle, chairman): S. Ebashi, "Regulation of contraction-relaxation cycle of muscle by calcium ion."

10 July. Extraskeletal activities of calcium, part II: M. P. Blaustein, "Calcium ions and plasma membranes"; A. B. Perris, "Calcium homeostasis and the control of mitotic activity in normal and irradiated lymphoid and hemopoietic tissue"; A. M. Poisner, "The role of calcium in secretory processes." Growth hormone and the skeleton (W. H. Harris, chairman): A. G. Frantz,

New Hampshire and Washington

Tilton School	Proctor Academy	Holderness School	Providence Heights College
Chemistry of carbohydrates	Polymer physics	*	*
Molecular pharmacology	Molecular energy transfer	*	*
Microbiological deterioration	Glass	*	Plasma physics
Coal science	Lysosomes	Photosynthetic organelles	Environmental sciences: air
Chemistry and physics of space	Physical acoustics	*	Physical metallurgy
Hormone action	Chemistry and metallurgy of semiconductors	*	Molecular pathology
Numerical data of science and technology	Chemistry and physics of paper	Chemistry and physics of isotopes	Quantum solids and fluids
Nuclear structure physics	Biomathematics	*	Animal cells and viruses
Photonuclear reactions	*	*	Chemistry and psychophysiology of odor and flavor
Organic photochemistry	*	Chemistry and physics of liquids	Biochemistry in agriculture
Thin films	*	Operations research and management science	Postharvest physiology
Chemistry and physics of coatings and films	*	Geochemistry	Laser interaction with matter

"Contemporary concepts of the physiology of growth hormone."

11 July. Growth hormone and the skeleton, part II: A. E. Wilhelmi, "The chemistry and structure of growth hormone"; C. B. Sledge, "The effects of growth hormone on cartilage"; W. H. Harris, "The effects of growth hormone on bone"; R. P. Heaney, "The effect of excess and deficiency of growth hormone on calcium kinetics."

Chemical Oceanography

V. J. Linnenbom, chairman; N. W. Rakestraw, vice chairman.

14 July. (E. D. Goldberg, discussion leader): "Current problems in chemical oceanography." (K. K. Turekian, discussion leader): "Trace element distribution in the oceans."

15 July. (N. R. Andersen, discussion leader): "Isotopic methods, radioactive and stable." (F. A. Richards, discussion leader): "Dissolved gases."

16 July. (D. W. Hood, discussion leader): "The organic chemistry of seawater." (D. W. Menzel, discussion leader): "The chemistry of primary production."

17 July. (R. M. Pytkowicz, discussion leader): "The physical chemistry of seawater." (D. E. Carritt, discussion leader): "Recent developments in analytical methods."

18 July. (John Lyman, discussion leader): General review of conference; future plans.

Chemistry at Interfaces

Robert S. Hansen, chairman; E. D. Goddard, vice chairman.

21 July. Molecular beams (Howard Saltsburg, chairman): Joe N. Smith, Jr., "Nonreactive scattering of molecular beams from solid surfaces"; Robert P. Merrill, "Reactive scattering of molecular beams from solid surfaces"; Cecil W. Nutt, "Molecular beam studies of certain energy transfer processes which lead to chemical reaction at gas-surface collisions."

22 July. Flocculation and stabilization (Robert B. Dean, chairman): M. R. J. Salton, "Bacterial cell surfaces and extracellular colloids"; Robert B. Dean, "Problems in flocculation and dewatering of activated sludge"; Egon Matijevic, "Flocculation and stabilization mechanisms."

23 July. Interfacial dynamics (J. Lucassen, chairman): R. J. Mannheimer, "Theory of interfacial viscoelastic measurements"; J. Lucassen, "Surface dilational properties"; J. A. Mann, Jr., "Ripple dynamics in membranes."

24 July. Micelles (L. Benjamin, chairman): Norbert Muller, "NMR studies of micelles"; J. P. Kratohvil, "Biological micelles"; Eugene H. Cordes, "Micelle catalysis."

25 July. Short topics and discussion.

Toxicology and Safety Evaluations

Mitchell R. Zavon, chairman; J. Wesley Clayton, vice chairman.

28 July. (Fred Snyder, discussion leader): A. C. Allison, "Effect of silica, asbestos and drugs on lysosomes"; J. R. Fouts, "The evaluation of drug safety and the induction of hepatic microsomal drug metabolizing enzymes." (J. Wesley Clayton, Jr., discussion leader): J. Weisburger, "Intestinal flora and enzyme destruction."

29 July. (Leon Goldberg, discussion leader): P. Lacy, "Pathobiology of the Islets of Langerhans—a case study"; R. Swarm, "The selection necessary in morphologic review." (Monique Braude, discussion leader): L. Lichtenstein, "Histamine release from leukocytes as a predictive test of sensitization."

30 July. (S. Laskin, discussion leader): (speakers to be announced), "Inhalation toxicology—past, present and future problems." (M. S. Slomka, discussion leader): W. Abrams *et al.*, "The use of clinical laboratory data in toxicologic investigations."

31 July. (M. R. Zavon, discussion leader): Problem session, round table discussion by conferees. (Gordon Newell, discussion leader): J. M. Kingsbury, "Phytotoxicology—application to general toxicology."

1 August. (B. Oser, discussion leader): N. Tauraso, "Problems of safety testing of biologic products."

Solid State Studies in Ceramics

Alan D. Franklin, chairman; Stanley B. Austerman, vice chairman.

4 August. M. P. Tosi, "Review of models of bonding"; I. M. Boswarva, "Interatomic forces in oxides"; O. L. Anderson, "Pressure dependence of elastic properties"; G. R. Barsch, "Third order elastic constants of non-metallic solids."

5 August. G. K. Lewis, "Mössbauer studies of the oxidation states of iron under pressure"; R. Weeks, "Paramagnetic states of some diamagnetic oxides: crystalline and glassy"; F. A. Wedgwood, "Neutron diffraction studies of uranium sulfide and related compounds"; H. Shechter, "Anharmonicity in thorium oxide."

6 August. J. D. Axe, "Optical properties and lattice dynamics of fluorite structure compounds"; J. F. Scott, "Raman studies in oxygen lattices."

7 August. H. L. Davis, "Relationship between calculated band structure and physical properties of NaCl-type actinide compounds"; A. H. Kahn, "Band structure of $SrTiO_3$ and related oxides."

8 August. W. Williams, "Influence of effective carrier concentration on physical properties of transition metal carbides"; R. G. Lye, "Interatomic bonding in cubic transition metal carbides."

Chemistry and Physics of Solids

Robert Gomer, chairman; Leo M. Falicov, vice chairman.

Surface Phenomena

11 August. A. J. Bennett, "Electronic properties of metal surfaces"; A. A. Maradudin, "Phonon properties of surfaces"; L. Trilling, "Gas-surface collisions."

12 August. G. Ehrlich, "Chemisorption"; D. Newns, "Theoretical aspects of chemisorption on metals"; T. Rhodin, "Charge transfer and binding on metal surfaces."

13 August. L. Falicov, "Semiconductor surfaces"; A. J. Arthur, "Adsorption on semiconductors"; G. Halsey, "Physical adsorption."

14 August. C. Duke, "Theory of LEED"; P. Estrup, "Some experimental aspects of LEED"; J. T. McKinney, "The atom-probe."

15 August. T. Wolfram, R. E. DeWames, "Surface spin waves"; W. Plummer, "Tunneling resonances in adsorption"; L. W. Swanson, "Energy distribution in field emission."

Ion Exchange

Richard M. Diamond, chairman; Robert E. Anderson, vice chairman.

18–22 August. Structure and characterization of ion exchange materials: R. Wiley, D. Freeman, J. Stamberg, R. Buvet, H. Sherry. (G. E. Boyd, A. Clearfield, discussion leaders.) Non-

aqueous and mixed solvent exchange: G. Janauer, Y. Marcus, H. Gregor. (K. A. Kraus, discussion leader.) Chromatography: F. Nelson, O. Samuelson, C. A. Horvath, F. W. E. Strelow. (H. Walton, discussion leader.) Membranes: W. MacRae, H. Bixler. (K. S. Spiegler, discussion leader.) Selected topics: (R. Anderson, discussion leader.) New materials and applications: I. Abrams, R. Kunin, B. Zabin. (B. Schwartz, discussion leader.)

Chemistry of Molten Salts

Richard W. Laity, chairman; G. Pedro Smith, vice chairman.

25–29 August. Structure. Transport properties. Concentrated electrolytic solutions. Fused salt batteries for electric vehicles. Chemistry of transition metal ions. Program chairmen and speakers: C. A. Angel, M. Goldstein, P. B. Macedo, C. Moynihan, G. P. Smith, J. P. Devlin, J. K. Wilmshurst, N. H. Nachtrieb, R. W. Laity, S. J. Yosim, R. A. Rightmire, J. George, T. Bradley, E. J. Cairns, K. E. Johnson, E. M. Larsen, R. E. Hester, S. Petrucci, G. J. Safford, J. van der Elsken.

Tilton School

Chemistry of Carbohydrates

G. Norris Bollenback, chairman.

Molecular Pharmacology

Oleg Jardetzsky, chairman; W. Gilbert, vice chairman.

How Do Small Molecules Do Great Things?

16 June. Isolation and identification of small molecule receptors (E. Haber, discussion leader): discussants, W. Gilbert, "Repressors"; Frank Richards and H. Eisen, "Antibodies"; Lowell Hokin and R. L. Post, "Transport proteins"; A. S. V. Burgen, "Drug receptors."

17 June. Structure of small molecule receptor complexes (D. C. Phillips, discussion leader): discussants, F. M. Richards, H. G. Wyckoff, D. H. Meadows, G. C. K. Roberts, and E. Reich, "Ribonuclease"; E. E. Hazen, A. Cotton, C. B. Anfinsen, J. Markley, and O. Jardetzky, "Micrococcal nuclease"; A. Berger and J. Drenth, "Papain."

18 June. Topic I. Nucleic acid complexes (E. Reich, discussion leader): discussants, W. Fuller, S. I. Chan and A. Rich, "X-ray, NMR and molecular model building"; D. Crothers, M. Waring and L. Lerman, "Intercalation." Topic II. Theory of molecular interactions (A. A. Patchett, discussion leader): discussants, O. Sinonoglu and G. Nemethy.

19 June. Functional changes in receptors (N. Weiner, discussion leader): discussants, Ellwood Jensen, "The estrogen system"; T. Mansour and F. J. Reithel, "Protein-protein interactions"; D. E. Koshland and B. G. Malmström, "Conformation changes"; P. V. Hippel, "Solvent effects."

20 June. Transmission mechanisms (A. S. V. Burgen, discussion leader): discussants, J. P. Changeux, "Excitable membranes"; G. A. Robison, "Adenyl cyclase."

Microbiological Deterioration

John J. Beereboom, chairman; Ellis B. Cowling, vice chairman.

23 June. (J. W. Eckert, discussion leader): S. Falkow, "Resistance transfer factors"; J. Spizzizen, "Genetics of bacterial sporulation"; R. D. Hinsdill, "The nature of bacteriocins."

24 June. (A. Stern, discussion leader): P. C. Kearney, "Microbiology of pesticide disposal"; B. D. Church, "Useful conversions of agricultural waste products"; W. M. Van Horn, "Ecology of stream pollution"; I. Gellman, "Microbiology of pulp and paper mill effluent."

25 June. (N. Grier, discussion leader): A. Demain, "Microbiology of fermentation processes"; R. Raymond, "Hydrocarbon fermentations"; D. Perlman, "Transformations of antibiotics."

26 June. (G. Haas, discussion leader): A. Sussman, "Germination of fungal spores"; G. W. Gould, "Germination of bacterial spores"; S. Richardson, "The preservation of ancient buildings."

27 June. (O. Wyss, discussion leader): Summary and discussion.

Coal Science

R. Tracy Eddinger, chairman; George R. Hill, vice chairman.

30 June. Origin of coal (R. A. Friedel, discussion leader): I. G. C. Dryden, "Aspects of the origin of coal"; H. W. Sternberg, "Possible relationship between alkylated coal and petroleum asphaltenes"; S. R. Silverman, "Origin of petroleum." Sulfur in coal (T. K. Janes, discussion leader): H. Gluskoter, "Sulfur in coal"; W. Johnston, "Chemistry and the kinetics of the desulfurization of coal during pyrolysis and gasification."

1 July. R. A. Durie, "Spectroscopic studies of the reactions of sulfur compounds in flames." Hydrogenation of coal-derived oils (H. P. Leftin, discussion leader): F. W. Camp, "Upgrading athabasca bitumen by coking and hydrotreating"; G. Kölling, "Partial hydrogenation and hydrocracking of polycyclic aromatics"; E. Gorin, "Mineral components in coal extract and their effect on hydrotreating catalysts."

2 July. Fluidized-bed combustion of coal (L. C. F. Blackman, discussion leader): P. L. Waters, "Heat-release and heat-transfer in fluidized-bed combustion systems"; G. G. Thurlow, "Fluidized combustion research in England: BCURA and National Coal Board"; J. W. Bishop, "Development of the direct contact fluidized bed boiler"; N. V. Kirov, "Characterization and combustion of chars."

3 July. Plasma reactions of coal (V. Krukonis, discussion leader): R. E. Gannon, "Coal-hydrogen reactions at high temperature"; K. Littlewood, "Plasma processing of coal." Fossil fuel versus nuclear energy (J. B. Walker, Jr., discussion leader): W. B. Behnke, "Fossil versus nuclear—the decade ahead."

4 July. Coal pyrolysis and liquefaction (G. R. Hill, discussion leader): H. S. Rao, "The products of coal pyrolysis and their mechanism of formation"; R. C. Neavel, "Hydrogen-donor depolymerizational liquefaction of coal."

Chemistry and Physics of Space

Donald E. Gault, chairman; A. G. W. Cameron, vice chairman.

7 July. Solar neutrinos and interstellar grains (chairman to be announced): Raymond Davis, "The search for solar neutrinos"; John Gaustad, "Interstellar grains." Protostars (F. L. Whipple, chairman): L. V. Kuhi, "Young stars"; Eric Becklin, "IR stars and nebulae."

8 July. Molecules in interstellar space (chairman to be announced): B. F. Burke, "OH radio sources"; C. H. Townes, "NH_3 and H_2O in interstellar space." Nucleosynthesis and element abundances (George Reed, chairman): J. W. Truran, "Synthesis of the iron group elements and heavy nuclei in supernovae"; G. G. Goles, "Cosmic

abundances—an iconoclastic approach."

9 July. Meteorite evolution (J. I. Goldstein, chairman): J. A. Wood, "History of parent bodies—evidence from meteorites"; K. Keil, "Polymict-brecciated chondrites and implications to history of meteorite parent bodies." Meteorite crystallization ages (J. H. Reynolds, chairman): G. J. Wasserburg, "Fine time resolutions in the formation of planetary objects"; G. W. Wetherill, "Rubidium-strontium measurements on stone meteorites."

10 July. Topical subjects and recent results in meteoritics (T. P. Kohman, chairman): (Speakers and subjects to be announced.) Planetary atmospheres (John A. O'Keefe, chairman): S. I. Rasool, "Evolution of atmospheres of Mars and Venus"; H. D. Holland, "The history of terrestrial CO_2 and O_2."

11 July. Prebiological chemical evolution (H. D. Holland, chairman): C. A. Ponnamperuma, "Prebiological organic chemistry"; J. W. Schopf, "Micropaleotological and organic geochemical evidence of Precambrian life."

Hormone Action

James R. Florini, chairman.

Effects of Hormones on RNA and Protein Synthesis

14 July. J. Bonner, "Chemistry of gene control"; R. G. Cutler, "Methods and problems in hybridization reactions with nucleic acids of higher organisms"; G. M. Tomkins, "Hormonal regulation of gene expression in mammalian cells"; F. T. Kenney, "Hormonal regulation of enzyme synthesis in the liver"; W. D. Wicks, "Role of cyclic AMP in the regulation of enzyme synthesis"; H. P. Bär, "Molecular aspects of hormone action on membrane-bound adenyl cyclase."

15 July. E. V. Jensen, "Estrogen-receptor interaction in target tissues"; G. C. Mueller, "Studies on the role of estrogen receptors in hormone response"; T. A. Hamilton, "Early estrogen action: the role of histones and nonhistone proteins in the control of chromatin template activity"; J. Gorski, "The effect of estrogen on the synthesis of specific proteins."

16 July. J. D. Wilson, "The intranuclear binding of testosterone in rat prostate"; S. Liao, "Androphilic proteins and the mode of action of androgens on RNA synthesis"; J. R. Florini, "Effects of testosterone on RNA synthesis in muscle"; I. G. Wool, "Insulin and the regulation of protein biosynthesis"; H. M. Katzen, "Insulin in the regulation of the soluble and subcellular bound multiple hexokinases."

17 July. A. Korner, "Growth hormone and translational control of protein synthesis"; J. Kostyo, "Early effects of growth hormone on protein metabolism in muscle"; J. R. Tata, "Coordinated changes in cellular structure and synthetic activity during hormone action"; O. Hechter, "Reflections on the action of steroid and nonsteroid hormones."

18 July. J. Drews, "Selective inhibition by prednisolone of RNA synthesis in thymus cells"; A. M. White, "The inhibition of protein synthesis in muscle by glucocorticoids and its reversal by anabolic steroids."

Opportunities will be provided for very brief presentation of recent results by other participants in the conference.

Numerical Data of Science and Technology

Norwood B. Gove, chairman; Ralph R. Hultgren, vice chairman

Its Generation and Critical Evaluation

21–25 July. Transport data (Y. S. Touloukian, chairman). Nuclear physics data (D. T. Goldman, chairman). Thermodynamics of phases of variable composition (R. R. Hultgren, chairman). Generation and critical evaluation of thermal data on organic compounds. Chemical kinetic data. Modern uses of computers. Generation and critical evaluation of biological data. Geophysical data. Fundamental constants. Language of science. Philosophy of critical evaluation.

Nuclear Structure Physics

Linwood L. Lee, Jr., chairman; Ben F. Bayman, vice chairman.

Nuclear Structure through Nuclear Reactions

28 July. Form factors in single-nucleon and multi-nucleon transfer reactions. Uses of polaryid beams in nuclear structure studies.

29 July. Reliability of single-nucleon spectroscopic factors from stripping reactions, from studies of isobaric analog resonances. Shell model reaction theories.

30 July. Microscopic studies of inelastic scattering and charge-exchange reactions. Origin of the nuclear optical potential.

31 July. Nuclear structure studies at intermediate energies. Static nuclear moments from nuclear reaction studies.

1 August. Nuclear structure studies with heavy ion reactions.

Photonuclear Reactions

Henry S. Valk, chairman; Brian M. Spicer, vice chairman.

4 August. Introductory remarks. X-ray total absorption measurements. X-ray scattering (elastic, inelastic and resonance fluorescence). Electron scattering—excitation of individual levels. Electron scattering—excitation of giant resonances.

5 August. Hartree-Fock approach to giant resonance structure. Continuum calculations of dipole states. Structure of the giant resonance—vibrational splitting. Structure of the giant resonance —(p,γ) reactions.

6 August. Quasi-elastic scattering: short range correlations. Quasi-elastic scattering: momentum distribution of nucleons. Electrodisintegration. Muon and pion excitations of the giant resonance.

7 August. Structure of the giant resonance—isospin dependence in intermediate and final states. Isospin purity in dipole states. X-ray reactions above the giant resonance including E2 giant resonance. 3 and 4 nucleon problems —electromagnetic aspects.

8 August. Major new facilities. Review and summary.

Organic Photochemistry

N. C. Yang, chairman; Paul J. Kropp, vice chairman.

11 August. Theoretical and experimental spectroscopy (N. C. Yang, discussion leader): M. Kasha, R. Hochstrasser.

12 August. Photochemistry (P. Kropp, discussion leader): W. G. Dauben, F. Mallory.

13 August. Photochemistry (O. L. Chapman, discussion leader): P. de Mayo, H. Hart.

14 August. Singlet state oxygen (A. Trozzolo, discussion leader): C. Foote, D. Kearns. Chemiluminescence (J. Meinwald, discussion leader): E. H. White.

15 August. Photobiology (N. Turro, discussion leader): M. Kamen, A. A. Lamola.

Thin Films

Siegfried Mader, chairman; Thomas E. Hutchinson, vice chairman.

Formation and Diffusion-Induced Changes

18 August. (J. R. Parsons, discussion leader): D. B. Dove, "Scanning electron diffraction studies of thin films"; W. A. Jesser and J. W. Matthews, "Pseudomorphic growth and misfit accommodation in single crystal films." (K. H. Behrndt, discussion leader): R. Niedermayer, "Kinetic theory of nucleation and growth."

19 August. (T. E. Hutchinson, discussion leader): T. N. Rhodin, "Some considerations for atomistics of film growth"; R. Weil, "Structure and properties of electrodeposits." (L. I. Maissel, discussion leader): K. L. Chopra, "Unusual structures in sputtered films."

20 August. (P. A. Turner, discussion leader): C. Weaver, "Diffusion and compound formation in metallic films"; R. L. Richards, "Diffusion in metallic film couples." (S. Mader, discussion leader): H. E. Cook, "Interdiffusion in layered films."

21 August. (H. B. Huntington, discussion leader): R. Rosenberg, "Electromigration mechanisms in films"; I. A. Blech, "Electron microscopy of electromigration in Al films." (R. B. Marcus, discussion leader): J. C. Slonczewski, "Effects of atomic rearrangements in magnetic films."

22 August. (R. L. Schwoebel, discussion leader): N. A. Gjostein and H. P. Bonzel, "Surface diffusion"; W. T. Peria, "Surface characterization by Auger electron spectroscopy."

Chemistry and Physics of Coatings and Films

Walter S. Ropp, chairman; Kurt C. Frisch, vice chairman.

25 August. (Harold E. Weisberg, chairman): W. H. Slabaugh, "Filiform corrosion"; Vladimir Hospadaruk, "Mechanisms of corrosion control by organic coatings"; Norman Hackerman, "Corrosion inhibition."

26 August. R. M. Fitch, "Organosols —kinetics and mechanism of polymerization"; George A. Senior, Jr., "Non-aqueous acrylic dispersion coatings"; D. W. J. Osmond, "Sterically stabilized dispersions."

27 August. (Philip Heiberger, chairman): E. B. Bradford, "The effect of organic media on the morphology of block copolymers"; K. C. Frisch, "Structure and properties of urethane vehicles"; M. Wismer and Paul Prucnal, "Olefin diene interpolymers in coatings."

28 August. I. M. Krieger, "Iridescence of dispersions"; D. K. Owens and R. C. Wendt, "Estimation of surface free energy of polymer films"; Tibor Mahr, "Coalescence of synthetic latices: surface energy through differential calorimetry."

29 August. (Kurt C. Frisch, chairman): John D. Fairing, "Fractography of composite materials"; Howard S. Bender, "Relation of mechanical properties to coatings performance."

Applications

Scientist are invited to submit applications for attendance at the Gordon Research Conferences. Application blanks may be obtained by returning the postcard on page 1118A to Alexander M. Cruickshank, Director, Gordon Research Conferences, University of Rhode Island, Kingston, R.I. 02881.

Proctor Academy

Polymer Physics

John D. Hoffman, chairman.

9–13 June. Polymer crystal physics: morphology; x-ray and structure; kinetics of crystallization; NMR, mechanical and dielectric relaxation; relationship between crystal structure, morphology, and physical properties in bulk polymers and single crystals; aspects of crystalline polymer behavior bordering on rheology; nucleation and growth; spherulitic and fibrillar polymer properties; contractility; deformation. Physics of amorphous polymer system: theory of glass transition; the amorphous mechanical alpha and gamma loss mechanism; molecular aspects of polymer rheology; theories of fracture; physical behavior of weakly crystalline system. (Speakers to be announced.)

Molecular Energy Transfer

Charles S. Parmenter, co-chairman; Jeffrey I. Steinfeld, co-chairman.

16 June. (I. Amdur, chairman): Sheldon Datz, "Inelastic scattering measurements with molecular beams." (R. B. Bernstein, chairman): Max Wolfsberg, "Exact classical calculations of vibrational energy transfer"; R. Gordon, "New solution to the coupled-channel quantum scattering problem: rotational excitation"; B. R. Johnson, "Exact multichannel scattering computations compared with various decoupling approxi mations"; W. A. Lester, Jr., "Statistical approach to the strong coupled multichannel scattering problem: rotational excitation."

17 June. (E. W. Schlag, chairman): K. E. Shuler, "The kinetic equations of energy transfer"; E. W. Schlag, "Cross sections from time-defined experiments." (Roy Gordon, chairman): H. F. P. Knaap, "The Senftleben-Beenakker effect"; R. F. Snider, "Quantum theory of external field effect on the transport properties of gases."

18 June. (W. C. Gardiner, chairman): W. C. Gardiner, "Shock tube studies of vibrational relaxation"; T. G. Winter, "Ultrasonic studies of molecular relaxation in gases." (W. Flygare, chairman): T. Oka, "Selection rules in rotational relaxation"; A. M. Ronn, "Microwave-infrared double resonance."

19 June. (A. B. Callear, chairman): E. Fink, "Electronic quenching and rotational energy transfer in monochromatically excited HD"; R. N. Zare, "Collisional depolarization measurements in small molecules." (J. T. Yardley, chairman): Ali Javan, "M.I.T. experiments on molecular energy transfer and vibrational relaxation in CO_2: a review"; C. B. Moore, "Berkeley laser experiments of vibrational relaxation in gases."

20 June. (D. W. Setser, chairman): Peter Rentzepis, "Vibrational relaxation times of electronically excited azulene, benzophenone and related molecules"; D. W. Setser, "Collisional deactivation probabilities for chloroethanes in the 70–90 kcal mole^{-1} region."

Glass

F. M. Ernsberger, chairman; Morton E. Milberg, vice chairman.

23 June. D. Kuhlmann-Wilsdorf, "On surface tension and surface stress"; S. M. Wiederhorn, "Strength-related surface phenomena"; K. H. G. Ashbee, "Fracture surface energy and Auerbach's constant."

24 June. D. M. Marsh, "Microhardness, plastic flow and fracture of glasses"; J. S. Nadeau and J. H. West-

brook, "Microindentation of glass and quartz: its implications for adsorption, surface structure and deformation mechanisms"; K. Peter, "Microindentation phenomena, and topography of fractured surfaces"; A. Fayet, "Surface studies current at St. Gobain Research Laboratories."

25 June. H. Scholze, "Attack of dilute acids on glass surfaces"; J. P. Poole, "Fluoride-hydroxide exchange at silicate glass surfaces"; G. Peschel, "The properties of a silica surface and its influence on the structure of an adjacent liquid layer."

26 June. W. A. Pliskin, "Water stability of silica, silicate and borosilicate glass films of micron thickness"; C. C. Sartain, "Conduction mechanisms in implanted-ion layers."

27 June. J. F. Antonini, "The use of mass spectrography to characterize fresh fracture surfaces in ultra high vacuum"; G. Hochstrasser, "The use of electron paramagnetic resonance to characterize fresh fracture surfaces in ultra high vacuum."

Lysosomes

A. B. Novikoff, chairman; H. G. Hers, co-chairman.

Lysosomes and Storage Diseases

30 June. A. B. Novikoff, "Cytological forms in relation to lysosomal functions." Lysosomes in normal cells: Z. A. Cohn, "Heterophagy and autophagy"; A. L. Tappel, "The acid hydrolases"; S. Fowler, "Lysosomes and degradation of lipids"; N. N. Aronson, "Lysosomes and degradation of mucopolysaccharides and glycoproteins"; J. W. Coffey, "Lysosomes and degradation of proteins."

1 July. H. G. Hers, "Type II glycogenosis as a model of inborn lysosomal disease"; K. Suzuki, "Chemical composition of isolated pathological cytosomes from lipid storage diseases." Hurler syndrome: A. Dorfman, "General clinical and biochemical description"; F. Van Hoof, "The role of lysosomes—electron microscopic and enzymic study"; J. S. O'Brien, "Enzyme defects in gangliosidoses"; E. F. Neufeld, "Interaction of various genotypes in cell culture"; B. Shannon Danes and A. Bearn, "Genetic study."

2 July. Fabry, Gaucher, and Niemann-Pick diseases: D. S. Fredrickson, "General clinical and biochemical description of Gaucher's and Niemann-Pick diseases"; C. C. Sweeley, "Clinical and biochemical description of Fabry's disease"; B. W. Volk, "Electron microscopic and histochemical studies of Gaucher's and Niemann-Pick diseases"; R. O. Brady, "Enzymic studies." Metachromatic leucodystrophy: H. Jatzkewitz, "Metachromatic leucodystrophy as an inborn error of metabolism"; A. Gregoire-Résibois, "Ultrastructure."

3 July. Amaurotic idiocies: Lars Svennerholm, "General clinical and biochemical description"; R. D. Terry, "Ultrastructural studies of Tay-Sachs disease"; W. Zeman, "Ultrastructural studies of Batten's disease"; H. Jatzkewitz, "Enzymic studies"; C. deDuve, Banquet talk.

4 July. Other diseases: S. Goldfischer, "Lysosomes and pigments in liver: Lipofuscin; Wilson's disease; Dubin-Johnson's syndrome"; I. M. Arias, "Epinephrine metabolism and Dubin-Johnson pigment"; J. N. Kanfer, "Sphingolipid metabolism in Chediak-Higashi syndrome."

Physical Acoustics

W. J. Spencer, chairman; C. Elbaum, co-chairman; C. K. Jones, co-chairman.

Emphasizing Wave Interactions in Solids

7 July. D. I. Bolef, "Resonant interactions of high frequency phonons with spin systems in solids"; E. H. Gregory, "Acoustic nuclear magnetic resonance"; N. S. Shiren, "Spin-phonon interactions in paragmagnets at praetersonic frequencies."

8 July. A. V. Granato, "Application of third order elastic moduli to thermal and acoustic properties"; M. A. Breazeale, "Ultrasonic measurement of third order elastic constant temperature dependence"; K. Dransfeld, "Surface waves."

9 July. P. G. Klemens, (subject to be announced); H. J. Maris, "Ultrasonic attenuation and phonon-phonon interactions"; M. F. Lewis, "Attenuation of high frequency elastic waves."

10 July. J. A. Rayne, "Electronic attenuation mechanisms in metals and superconductors"; E. R. Dobbs, (subject to be announced).

11 July. I. Rudnick, "Investigation of the lambda transition in liquid helium"; C. W. Garland, "Ultrasonic investigation of critical points and phase transitions."

Chemistry and Metallurgy of Semiconductors

J. W. Foust, Jr., chairman; J. J. Duga, vice chairman.

14 July. (T. C. Harman and C. D. Thurmond, session chairmen): C. J. Frosch and F. A. Trumbore, "Luminescent 3-V compounds with emphasis on GaP"; D. W. Shaw, "Kinetic studies of GaAs epitaxial growth"; J. Miller, "Compositional control in compound crystals"; R. Berman, "Use of infrared reflection spectra to measure doping distributions."

15 July. (J. J. Duga and R. C. Keezer, session chairman): Neville Mott, "Theory of conducting glasses and switching devices"; S. R. Orshinsky, "Amorphous switching devices"; J. D. MacKenzie, "Electronic conduction in noncrystalline solids"; A. R. Hilton, "Optical properties of calcognide glasses."

16 July. (G. A. Wolff and B. Schwartz, session chairmen): R. N. Hall, "Diffusion oddities and anomalies in semiconductors"; J. M. Black, "Metal film failure by electromigration." General discussion.*

17 July. (R. Mazelsky and J. W. Faust, Jr., session chairmen): General discussion;* C. L. Menzemer, "Patent law."

18 July. (L. R. Weisberg, session chairman): T. J. Parker, "Diffusion and defects in silicon"; J. B. Wagner, "Microhomogeneities in silicon and germanium."

* Attendees may bring a few slides for short discussions pertinent to the program.

Chemistry and Physics of Paper

Bengt Leopold, chairman; Howard S. Gardner, vice chairman.

21 July. (Harry L. Spiegelberg, discussion leader): Richard W. Perkins, "Mechanics of the wood cell wall"; Renata Marton, "Fine structural parameters of pulp fibers"; N. J. Pagano, "Micromechanics of composite materials."

22 July. (Eric L. Ellwood, discussion leader): Alf deRuvo, "Relation between bonding potential and sheet strength"; Otto J. Kallmes, "Behavior of paper under in-plane stress"; Huntley G. Higgins, "Fracture phenomena in paper."

23 July. (Kenneth W. Britt, discussion leader): Josef Kubát, "Mechanical behavior of paper"; J. A. Van den Akker, "The structure of paper"; Hans

W. Giertz, "The matrix model structure of paper."

24 July. (J. Kenneth Craver, discussion leader): Philip Luner, "Organization of wood polymers at interfaces"; Hans Schott, "Clay-cellulose interaction"; Egon Matijević, "Particle-ion interaction."

25 July. (Howard S. Gardner, discussion leader): John W. Vanderhoff and E. B. Bradford, "The simulation of binder migration in latex-base coatings using a model system"; James V. Robinson, "Particle size and scattering coefficient of pigments."

Biomathematics

Julia T. Apter, chairman; Derek Fender, vice chairman.

28 July. (Fred Grodins, discussion leader): Stephen Kahne, "Optimization techniques"; C. K. Gordon, "Topological methods in biologic and behavioral sciences." (D. Fender, discussion leader): Hans Bremermann, "Evolution, optimization and the problem of numerical effort"; Robert Taylor, "Strategic problems in parameter estimation"; Julia T. Apter, "Some biological examples using parameter estimation."

29 July. (Hans Bremermann, discussion leader): F. Charette, "Optimization in endocrine systems"; R. Kalaba, "Fitting non-linear models of drug metabolism to experimental data." (Otto Schmitt, discussion leader): John Outerbridge, "Optimal saccade generation in the vestibulo-ocular system"; D. Fender, "How does the oculomotor control system decide on the optimum strategy for a particular tracking task."

30 July. (R. Kalaba, discussion leader): G. C. Cheng, "Neuronal topology"; Fred Grodins, "Respiratory system control." (Julia T. Apter, discussion leader): Otto Schmitt, keynote speaker, "A new mathematics for biologists—the next five years of biomathematics." Participants selected from audience, "Current problems in biomathematics."

31 July. (E. C. DeLand, discussion leader): P. Green, "Problems of sensorimotor structure"; Gerhard Werner, "Topology of body representation in primate cerebral cortex." (Robert Taylor, discussion leader): L. Slobodkin, "How animals minimize the probability of extinction"; Lee B. Lusted, "Receiver operating characteristic curves in decision making"; E. R. S. W. Crossman, "Optimization in socio-technical systems."

1 August. (Gerhard Werner, discussion leader): D. McRuer, "Optimization of human behavior among control systems"; G. Bekey, "Optimization in manual control systems"; R. Ledley, "Optimization and homeostasis."

Holderness School

Photosynthetic Organelles

Donald L. Keister, chairman; Anthony San Pietro, vice chairman.

Structure, Function, and Control Mechanisms

29 June. Martin D. Kamen, Introductory lecture.

30 June. Chloroplast structure and composition (L. P. Vernon, chairman): R. B. Park, L. P. Vernon. Membrane structure and development (L. Bogorad, chairman): P. Siekevitz, J. Schiff, P. Levine, A. Kahn, J. Lascelles.

1 July. Bacterial photosynthesis (R. K. Clayton, chairman): C. Sybesma, D. Fleischman, D. Mauzerall, D. Keister, J. Thornber. Control mechanisms in photosynthesis (H. Gest, chairman): D. Shemin, S. Kaplan, M Gibbs, J Preiss, J. Gibson.

2 July. Chloroplast photosystem II (B. Kok, chairman): H. T. Witt, G. Cheniae. Chloroplast photosystem I (G. Hoch, chairman): (speakers to be announced).

3 July. Membrane function and energy transduction (A. Jagendorf, chairman): B. Rumberg, R. McCarty, N. Good, J. Kahn, R. Dilley, A. Crofts. Special lectures: "The concept of the photosynthetic unit"; W. A. Arnold, "The physical approach"; H. Gaffron, "The biological approach."

4 July. Special topics.

Chemistry and Physics of Isotopes

William Spindel, chairman; V. J. Shiner, vice chairman.

21 July. Atom-molecule reactions—($H + H_2$) (Jacob Bigeleisen, chairman): D. J. LeRoy, "Experiments"; K. Morokuma, "Theory." Anharmonic isotope effects (Jacob Bigeleisen, chairman): John Overend, "Anharmonicities of the vibrations of polyatomic molecules"; V. W. Laurie, "Isotope effects on dipole moments.

22 July. Isotope effects on energy transfer (Max Wolfsberg, chairman): Clyde Hutchison, "Isotope effects on energy transfer in organic crystals"; E.

K. C. Lee, "Deuterium isotope effects observed in photochemical systems"; W. Siebrand, "Isotope effects on radiationless transitions." Isotope effects in geochemical processes (Sam Epstein chairman).

23 July. Cosmochemistry of isotopes (Dieter Heymann, chairman): R. O. Pepin, "Isotopic abundances of rare gases in the solar system"; T. P. Kohman, "Isotopic abundance variations in the solar system due to nuclear processes." P. A. Seegar, "Stellar nucleosynthesis and solar abundances." Isotope separation (Walter J. Haubach, chairman): E. von Halle, "A new German process for isotope separation"; Georghe Vasaru, "Isotope separation in Romania"; Walter J. Haubach, "Thermal diffusion research at Mound Laboratory."

24 July. Isotope effects in bio-organic systems (Stanley Seltzer, chairman). Y. Pocker, "Deuteron transfer in enzyme catalysis"; H. Bright, "Kinetic isotope effects in flavoprotein reactions." Contributed reports on research in progress (W. Spindel, chairman). Contributions should be sent to the Chairman at Belfer Graduate School of Science, Yeshiva University, 186th Street and Amsterdam Avenue, New York, New York 10033.

25 July. Present status of tunnelling effects (R. E. Weston, chairman): R. E. Weston, "Brief summary of evidence for tunnelling in gas-phase reactions"; E. F. Caldin, "Experimental work on tunnelling in proton transfer reactions in solution"; R. E. Davis, "A quest for quantum tunnelling."

Chemistry and Physics of Liquids

Cornelius J. Pings, chairman; Benjamin Widom, vice chairman.

11 August. (B. Widom, discussion leader): F. P. Buff, "Statistical mechanical theory of fluid interfaces"; J. Straub, "Measurements of surface tension of pure fluids in the critical region." (D. McIntyre, discussion leader): W. W. Webb, "Diffuse interface in critical liquid mixtures"; U. Ingard, "Light scattering from thermal fluctuations of liquid surfaces."

12 August. (G. M. Pound, discussion leader): H. Riess, "A critique of current nucleation theory"; P. P. Wegener, "Homogeneous nucleation of water and ethanol in supersonic flow." (P. A. Egelstaff, discussion leader): S. A. Rice, "Electronic states of van der Waals liquids"; J. E. Enderby, "Electronic states of liquid metal."

13 August. (W. H. Stockmayer, discussion leader): D. S. Eisenberg, "Structure and properties of water"; J. A. Barker, "Structure of liquid water by Monte Carlo calculations." (H. L. Friedman, discussion leader): F. H. Stillinger, Jr., "Statistical mechanical theories of water"; P. G. de Gennes, "Liquid crystals."

14 August. (C. J. Pings, discussion leader): Status reports—A. Levelt Sengers, "Scaling laws and critical exponents"; A. Rahman, "Molecular dynamics"; J. C. Thompson, "Metal-ammonia systems"; J. S. Rowlinson, "Mixtures"; B. Chu, "Scattering in the critical region"; R. Zwanzig, "Transport." (G. S. Rushbrooke, discussion leader): Open session for brief reports of current important work; speakers will be announced after the opening of the conference.

15 August. (F. H. Stillinger, Jr., discussion leader): M. E. Fisher, "Survey of theories of exponent renormalization at plait points"; R. B. Griffiths, "Boundedness of heat capacities and compressibilities at plait point curves"; W. I. Goldburg, "The effect of impurities on light scattering near the critical point."

Operations Research and Management Science

Sidney W. Hess, chairman; Richard E. Colgate, vice chairman.

18 August. Probabilistic forecasting (Milton L. Godfrey, chairman): George J. Feeney. Decision analysis (Sigurd L. Andersen, chairman): Ronald A. Howard.

19 August. Decision theory (George T. Foradori, chairman): Peter C. Fishburn. Long range planning (Keith Coad, chairman): Franz Edelman.

20 August. Non-linear programming (Donald S. McArthur, chairman): Kenneth Kortanek. O. R. at the local government level (George M. Parks, chairman): Louis C. Santone.

21 August. Are we solving the right problems? (Gifford H. Symonds, chairman): C. West Churchman. The profession and our societies (John F. Magee, chairman): Thomas E. Caywood and Robert M. Thrall.

22 August. Application of search theory to large scale operations including Mediterranean H-bomb search (Fred Schneider, chairman): Henry H. Richardson.

Geochemistry

Brian J. Skinner, co-chairman; Heinrich D. Holland, co-chairman.

Ore Deposits

25 August. Sulfide melts and sulfides in melts: B. J. Skinner, "Solubility controls of sulfides in hydrous and anhydrous magmas"; A. J. Naldrett, "Sulfide-oxide melts"; W. H. MacLean, L. A. Clark, and H. Shimazaki, "Liquidus phase relations in the system FeS-FeO-Fe_3O_4-Na_2O-SiO_2 and their geologic applications."

26 August. Water in silicate intrusions: H. P. Taylor, Jr., "Isotopic evidence for the origin of water in igneous rocks"; S. M. F. Sheppard, "Hydrogen and oxygen isotope studies of hydrothermal deposits"; B. B. Hanshaw, "Linear and convective hydrologic flow models near intrusives."

27 August. Experimental evidence for the composition of hydrothermal fluids: H. C. Helgeson, "Mass transfer among silicates, sulfides and hydrothermal solutions"; J. L. Haas, Jr., "The solution geochemistry of iron"; H. D. Holland, "The sulfur content of hydrothermal solutions"; J. J. Hemley, "The stability relations of alunite and compositional limits on hydrothermal solutions producing strong proton metasomatism."

28 August. Observational evidence for the origin and composition of hydrothermal fluids: E. Roedder, "Validity of T, P, and X data on ore fluids from fluid inclusion studies"; R. O. Rye and F. J. Sawkins, "Fluid inclusion and isotopic studies of the ores at Providencia, Mexico"; H. Ohmoto, "Fluid inclusion and isotopic studies of the ores at the Bluebell Mine, British Columbia."

29 August. Metallogenic provinces: R. E. Zartman, "The use of lead isotopes to distinguish between 'Laramide' and Precambrian mineralization in northwestern Montana and northern Idaho"; U. Petersen, "South American metallogenic provinces."

Providence Heights College

Plasma Physics

Burton D. Fried, co-chairman; Richard F. Post, co-chairman.

Nonlinear Phenomena in Collisionless Plasmas

23 June. Thomas Dupree, "Trapped particles and particle-wave interac-

tions"; Thomas M. O'Neil, "Large amplitude waves."

24 June. Marshall N. Rosenbluth and Ravinandra Sudan, "Mode coupling"; John Dawson, "Particle simulation and computer experiments."

25 June. Alec Galeev and Richard E. Aamodt, "Saturation effects on instabilities"; Paul H. Rutherford, "Fluctuations and anomalous diffusion."

26 June. Lonya Rudakov and Igor Alexeff, "Turbulent heating"; Roy Bickerton and Charles Kennel, "Collisionless shocks."

27 June. Roy Gould, "Plasma echoes."

Environmental Sciences: Air

August T. Rossano, Jr., chairman; James J. Morgan, vice chairman.

Atmospheric Aerosols

30 June–4 July. Introduction. Sources of atmospheric aerosols. Physical and chemical properties of atmospheric aerosols. Behavior and fate of atmospheric aerosols: dispersion; sinks; weather modification; atmospheric reactions; visibility reduction. Sampling and analysis of atmospheric aerosols. Effects of aerosols on biological systems; vegetation; animals; human. Social and economic effects of atmospheric aerosols. Air quality goals and criteria for atmospheric aerosols. Control of aerosol sources. Research needs.

Physical Metallurgy

J. Weertman, chairman; J. E. Hilliard, vice chairman.

7 July. (John Dorn, discussion leader): O. Sherby, "Creep of metals and metallic alloys above 0.4 T_m"; Henry Eyring, "Significant structures influencing viscous and plastic flow." (James C. M. Li, discussion leader): C. Barrett and W. Nix, "Experimental data on effective stress concept in high temperature creep of metals"; L. J. Cuddy, "Relationship between the internal stresses and structures developed during creep."

8 July. (W. J. McG. Tegart, discussion leader): G. B. Gibbs, "Theory of glide controlled by local obstacles: application to low and high temperature creep"; D. H. Avery, "Unidirectional and alternating strain behavior in a superplastic material." (John Hirth, discussion leader): T. Alden, "Recovery

creep and grain boundary sliding theories of superplasticity"; Wayne Hayden, "Dislocation processes during superplastic deformation of Fe-Ni-Cr alloys."

9 July. (D. T. Griggs, discussion leader): Neville Carter, "Preliminary results on hot creep of olivine"; C. B. Raleigh, "Mechanisms of creep in rocks"; H. C. Heard, "Steady-state flow in NaCl and $CaCO_3$"; (with formal discussion by N. Carter and C. B. Raleigh). (David Fischback, discussion leader): W. Green and E. Zukas, "High temperature creep of graphite"; A. Clauer, M. Seltzer and B. A. Wilcox, "High temperature creep of oxides."

10 July. (John Hockett, discussion leader): R. Arsenault, "The effects of internal stress on low temperature creep of BCC metals"; H. Conrad and G. Sargent, "Stress relaxation and thermally activated deformation in titanium at low temperatures"; Mark Meier, "The flow of glaciers: creep, slip, and gallop."

11 July. (N. J. Grant, discussion leader): George S. Ansell, "Steady-state creep of two phase systems"; B. H. Kear and G. R. Leverant, "Creep mechanisms in γ/γ' nickel base alloys."

Molecular Pathology

Robert M. O'Neal, chairman; Henry C. Pitot, vice chairman.

14 July. R. V. Rice, "Ultrastructure of the smooth muscle cell and its contractile proteins"; J. Marshall, "Physiology of the smooth muscle cell"; J. Kendrick-Jones, "Assembly of paramyosin molecules and the filamentous organization of invertebrate smooth muscle"; B. Panner, "Contractile protein in smooth muscle."

15 July. R. Nachman, "Contractile proteins in platelets"; G. Gasic, "Contractile properties of the cell membrane"; H. Puchtler, "Histochemistry of smooth muscle"; B. Lane, "Structure and function of smooth muscle."

16 July. R. Ross, "Hormonal response of the myometrium"; W. A. Thomas, "Cultured smooth muscle cells"; M. Ross, "Physiologic conversion of undifferentiated cells to smooth muscle"; R. Ellis, "The myoepithelial cell."

17 July. D. Haust, "Alternate potentials of the smooth muscle cell in health and disease"; J. Wiener, "Smooth muscle cells in experimental vascular disease"; R. Wissler, "Role of the

smooth muscle cell in atherosclerosis."

18 July. G. Majno, "Contractility of endothelial cells"; C. Becker, "Demonstration of contractile protein in endothelium, cells of heart valves, endocardium, intima, arteriosclerotic plaques, and in Aschoff bodies of rheumatic heart disease."

Quantum Solids and Fluids

A. S. Barker, co-chairman; Gerald D. Mahan, co-chairman.

Optical Properties of Metals

21 July. Introduction. (Speaker to be announced.) Photoemission (H. D. Hagstrum, chairman): D. E. Eastman, "Photoemission in metals." Alkali metals: N. V. Smith, "Optical studies of alkali metals."

22 July. Optical spectra (H. Philipp, chairman): U. Gerhardt, "Electronic structure of Cu and Ni from piezoreflectivity"; G. F. Dresselhaus, "One electron theory of interband transitions"; H. E. Bennett, "Optical plasmons and anomalous skin effect in silver"; A. J. Sievers, "Far infrared absorption in metals."

23 July. Surface plasmons (P. A. Wolff, chairman): D. Beaglehole, "The optical excitation of surface plasmons"; R. H. Ritchie, "Surface plasmons." Light scattering (E. Burstein, chairman): A. Mooradian, "Light scattering from electrons in solids"; P. M. Platzman, "X-ray scattering from electrons in metals."

24 July. Alloys (F. Abéles, chairman): S. Schnatterly, "Optical reflectivity studies of magnetic alloys"; B. I. Halperin, "Optical studies of antiferromagnetism in chromium and its alloys."

25 July. Electron energy loss: H. Raether, "Electron energy loss in metals."

Animal Cells and Viruses

George K. Hirst, chairman; James Darnell, vice chairman.

28 July–1 August. Boyce W. Burge, "Arboviruses"; R. Walter Schlesinger, "Adenoviruses"; Walter Eckhart, "DNA tumor viruses"; Peter K. Vogt, "RNA tumor viruses"; Donald F. Summers, "Polioviruses"; W. K. Joklik, "Reoviruses"; Purnell Choppin, "Myxoviruses"; Howard Green, "Cell fusion"; Leonard Warren, "Animal cell membranes."

Chemistry and Physiology of Odor and Flavor

Lloyd M. Beidler, chairman; David Moulton, co-vice chairman; Amos Turk, co-vice chairman; Irwin Hornstein, co-vice chairman.

4–8 August. Anatomical correlates of taste and odor. Selection of primary odors. Isolation of receptor proteins. Odor selection and purity. Molecular structure in taste and odors. Volatile analysis. Organoleptic evaluation. Recent advances in taste enhancers and modulators. Odors and animal behavior.

Biochemistry in Agriculture

A. Carl Leopold, chairman; Edward F. Rogers, vice chairman.

11 August. (G. F. Stewart, discussion leader): R. D. O'Brien, "An approach to the isolation of acetylcholine receptors"; R. J. Magee, "Chemical factors relating to organophosphorus insecticides"; Y. P. Sun, "Toxic interactions-insecticides"; G. C. LaBrecque, "Recent developments in insect population control with chemosterilants"; G. P. Georghiou, "Genetic bases of resistance to insecticides."

12 August. (E. F. Rogers, discussion leader): B. G. von Schmeling, "The search for systemic fungicides; their specificity, structure and activity relationships"; D. C. Erwin, "Possibilities and problems in control of verticillium wilt with chemotherapeutants"; J. W. McFarland, "Modern anthelmintic agents in agriculture"; T. A. Hymas, "Coccidiostats—past, present, and future."

13 August. (R. E. Cleland, discussion leader): A. B. Pardee, "Membrane transport proteins"; J. B. Hanson, "Ion transport in plant mitochondria"; E. Epstein, "Ion transport across plant cell membranes"; W. R. Benson, "Some current chemical research on pesticides at F.D.A."

14 August. (A. C. Page, discussion leader): L. Rappaport, "Regulation of dormancy in buds"; P. F. Wareing, "Abscisic acid and its action in plants"; H. N. Cathy, "Synthetic chemicals which limit plant growth"; J. Heslop-Harrison, "Some aspects of reproductive development in plants."

15 August. (A. C. Leopold, discussion leader): W. D. Mitchell, "Regulation of photoperiodic flowering"; C. E. Hess, "Naturally occurring growth substances regulating root initiation."

Postharvest Physiology

P. H. Heinze, chairman; H. K. Pratt, vice chairman.

18 August. Physiological phenomena of maturation and senescence (general) (J. B. Biale, discussion leader): A. C. Hulme. External control of maturation and senescence (R. Ulrich, discussion leader): L. L. Morris.

19 August. Physiological and biochemical problems in the postharvest handling of crops: metabolic disturbances, chilling, etc. (J. M. Lyons, discussion leader): I. Uritani and B. McGlasson.

20 August. The role of ethylene in senescence and other aspects of metabolism (M. Lieberman, discussion leader): H. Pratt and H. Imaseka. Hormonal control of aging (F. Abéles, discussion leader): Daphne Osborne and A. C. Leopold.

21 August. Protein and nucleic acid metabolism during maturation and senescence (J. E. Varner, discussion leader): D. R. Dilley and A. Richmond. Enzyme regulatory mechanisms of maturation and senescence (G. C. Laties, discussion leader): Roy Young and Joseph Sacher.

22 August. Membranes and organelles: structure, composition and changes during maturation and senescence (F. W. Mercer, discussion leader): W. Thomson and P. Mazliak.

Laser Interaction with Matter

Harlow G. Ahlstrom, co-chairman; Petras V. Avizonis, co-chairman.

25 August. Laser glass (Alex Glass, chairman): G. Young, "American Optical glass"; H. Lee, "Owens-Illinois glass"; (speaker to be announced), "C.G.E. glass"; J. Swain, "Survey of laser glasses." Laser devices (R. J. Collins, chairman): J. Swain, "Disk lasers"; E. D. Jones, "Picosecond lasers"; R. Rudder, "Subnanosecond lasers."

26 August. Nanosecond pulse heating (R. Kidder, chairman): D. H. Polk, (speaker to be announced), J. L. Bobin. Picosecond pulse heating (R. Osborne, chairman): R. Kidder, J. Shearer, and M. J. Lubin.

27 August. Injection (A. Bishop, chairman): P. Saunders, E. Fabre, M. J. Lubin, A. Haught, and W. J. Fader. Diagnostics (F. Ribe, chairman): M. A. Duguay and S. T. Shapiro, "Picopulses"; A. G. Englehardt, "Thomson scattering." Business meeting.

28 August. Long wavelength plasma heating (A. Kolb, chairman): John Dawson, R. Kidder, and A. Hertzberg. Colliding plasmas (John Walsh, chairman): G. J. Yevick and (speaker to be announced).

29 August. Lasers and CTR in panel discussion (P. V. Avizonis and H. G. Ahlstrom, moderators): panel: J. Dawson, R. Kidder, A. Hertzberg, J. Tuck, P. Veyrie, A. Bishop, N. Basov, A. Haught.

Calendar of Events

National Meetings

March

20–22. American Acad. of **Facial Plastic and Reconstructive Surgery**, New Orleans, La. (J. R. Anderson, 111 Tulane Ave., New Orleans 70112)

23–29. American **Crystallographic** Assoc., Seattle, Wash. (W. L. Kehl, Gulf Research and Development Co., P.O. Box 2038, Pittsburgh, Pa. 15230)

24–25. **Basis of Decision**, Brooklyn, N.Y. (C. McC. Brooks, Downstate Medical Center, State Univ. of New York, 450 Clarkson Ave., Brooklyn 11203)

24–25. **Laser Safety** Conf. and Workshops, 2nd, Cincinnati, Ohio. (L. Goldman, Laser Lab., Children's Hospital Research Foundation of the Medical Center of the Univ. of Cincinnati, Cincinnati)

24–27. American **Physical** Soc., Philadelphia, Pa. (W. W. Havens, Jr., The Society, 335 E. 45 St., New York 10017)

24–28. **Desalination**: Methods and Applications, Berkeley, Calif. (Continuing Education in Engineering, Univ. Extension, Univ. of California, 2223 Fulton St., Berkeley 94720)

25–27. American **Laryngological, Rhinological and Otological** Soc., Inc., New Orleans, La. (V. R. Alfaro, 917 20th St., NW, Washington, D.C. 20006)

26–28. National **Business Aircraft** Mfg. and Engineering Display, Wichita, Kan. (A. J. Favata, SAE Headquarters, 2 Pennsylvania Plaza, New York 10001)

26–28. Symposium on the **Engineering Aspects of Magnetohydrodynamics**, 10th, Cambridge, Mass. (J. Klepeis, Arrangements Committee, Avco Everett Research Lab., 2385 Revere Beach Parkway, Everett, Mass. 02149)

26–28. **George H. Hudson** Symp., 4th, Plattsburgh, N.Y. (M. H. Tourin, State Univ. College of Arts and Sciences, Plattsburgh 12901)

27. **Biochemistry, Assay and Nutritional Value of Vitamin E**, Rosemont, Ill. (W. Davin, Dawes Labs., Inc., 450 State St., Chicago Heights, Ill. 60411)

27–28. **Technical Writing** Inst., Lubbock, Tex. (M. Miles, Technical Writing Inst., Dept. of English, Texas Technological College, Lubbock 79409)

27–29. **Geological** Soc. of America, South-Central Section, Lawrence, Kans., "Basement Rocks of the Mid-Continent" and "Paleo-Environmental Implications of Palynology." (W. M. Merrill, Dept. of Geology, Univ. of Kansas, Lawrence 66044)