Gordon Research Conferences

Alexander M. Cruickshank

The Gordon Research Conferences for the summer of 1979 will be held in New Hampshire and California.

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. 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. Sufficient time is available to stimulate informal discussion among members of each conference. In addition, scientists in related fields become acquainted and valuable associations are formed that often result in collaboration and cooperative efforts among laboratories. 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.

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 scientific research. The review of known information is not desired.

In order to protect individual rights and to promote discussion it is an established requirement of each conference that no information presented is to be used without specific authorization of the individual making the contribution, whether in formal presentation or in discussion. Scientific publications are not prepared as emanating from the Conferences. The recording of lectures by tapes and so forth and the photography of slides are prohibited.

The author, director of the Gordon Research Conferences, is professor of chemistry, Pastore Chemical Laboratory, University of Rhode Island, Kingston 02881.

Registration and Reservations

Individuals interested in attending the Conferences are requested to send their applications to the office of the Director. It is important that you submit your application promptly in order that it may be given early consideration by the review committee. This is particularly necessary for those Conferences which are customarily oversubscribed and for which it is often necessary to establish a waiting list.

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 may be made on the application. 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 applicants so as 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 is required for each conference and is completed on receipt of the card and the deposit of $30. The advance deposit is not required of scientists arriving in the United States from foreign countries. Checks are to be made payable to the Gordon Research Conferences. The deposit will be credited against the fixed fee for the conference.

Card must be returned 3 weeks prior to the conference with the $30 deposit or the approved application will be canceled. The fixed fee may be paid in advance if the conferee so desires.

A registration card not accompanied by the deposit will not be accepted.

As you know, most Conferences are oversubscribed, therefore, I am sure that you can appreciate our problems with scientists who are qualified to attend but who have been placed on a waiting list. **Please return your card immediately with the deposit to assure your attendance and accommodations.**

Special Fund

A special fund is provided from the registration fee and is made available to the chairman of each 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 Board of Trustees of the Conferences has established a fixed fee for all resident participants (speakers, discussion leaders, conferees) at each conference. This fee was established to encourage attendance for the entire conference and to provide the Special Fund which is available to each conference chairman. *The fixed fee will be charged regardless of the time a participant (speakers, discussion leaders, conferees) attends a conference—that is, for the periods of from 1 to 4 1/2 days.*

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

Cancellation

The conferee deposit will be forfeited (is not refundable) if an approved application for attendance at a conference is cancelled. *The deposit is not transferable to another conferee or conference.*

Guests

Accommodations are available for guests. (Children must be 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. Guests are not permitted to attend the conference lectures and discussion groups.

A deposit of $30 is required for each guest reservation. This deposit will be re-

funded if cancellation is received 2 weeks prior to the conference.

Pets are prohibited at the conference sites.

Program

The complete program for the 1979 Gordon Research Conferences is published in *Science*, 16 March 1979. Reprints are available on request.

Requests for applications to the Conferences or for additional information should be addressed to: Dr. Alexander M. Cruickshank, Director, Gordon Research Conferences, Pastore Chemical Laboratory, University of Rhode Island, Kingston, Rhode Island 02881. Telephone: 401-783-4011/3372.

Mail for the office of the Director from 11 June to 24 August 1979 should be addressed to: Dr. Alexander M. Cruickshank, Director, Gordon Research Conferences, Colby-Sawyer College, New London, New Hampshire 03257. Telephone: 603-526-2870.

Fixed Conference Fees—1979

New Hampshire

*Resident Fee: $185 includes $50 registration fee, room and meals.

*Non-resident Fee: $150 includes $50 registration fee and meals.

Guest: $135 for room and meals

Deposit: $30 is required of all participants and guests

California

*Resident Fee: $200 includes $50 registration fee, room and meals.

Guest: $150 for room and meals

Deposit: $30 is required of all participants and guests.

The program to be presented is as follows:

Science of Adhesion

New Hampton School

Albert C. Zettlemoyer, chairman; Leighton H. Peebles, Jr., vice chairman.

20 August. Surface science (R. M. Stromberg, chairman): W. D. Bascom, C. R. Singleterry, and P. Peyser, "Long range surface forces"; T. G. M. Van de Ven, "Some new aspects of wetting and spreading." Electrostatics and adhesion (M. L. Hair, chairman): C. B. Duke, "Electronic states in polymers"; T. J. Fabish, "Contact charge exchange spectroscopy"; H. Gibson, "Electrostatic charging and polymer structure correlations."

21 August. Polymers (Steve Carr, chairman): J. A. Emerson, G. L. Wilkes, "Physical aging of glassy network polymers"; N. W. Tschoegl, "The role of viscoelasticity in adhesion." (Alan Gent, chairman): L. H. Sharpe, "Conductive adhesives."

22 August. Anodized aluminum (Frank Kelley, chairman): N. T. McDevitt, "Chemical properties of a thin anodic oxide layer on aluminum alloys studied with reference to adhesive bonding"; J. A. Marceau, "Role of adherend surface treatment on the durability of adhesive bonded aircraft structures." Failure mechanisms (J. R. Huntsberger, chairman): A. G. Smith, "De-adhesion of paint from steel by corrosion processes"; H. Leidheiser, Jr., "De-adhesion of paint from galvanized steel and de-cohesion of zinc during deformation."

23 August. Failure mechanisms (Shelton Mostovoy, chairman): A. J. Kinlock, "Environmental failure mechanism of adhesive joints"; D. L. Hunston, W. D. Bascom, "Micro-mechanism of adhesive bond failure." Bio-adhesion (R. Baier, chairman): J. Klawitter, "Bonding of carbon to bone."

24 August. Special adhesion problems (Leighton H. Peebles, Jr., chairman): D. E. Packham, "Substrate topography in polyethylene-metal bonding"; Kevin Kendall, "Cracks at interfaces in composites."

Analytical Chemistry

New Hampton School

Jack W. Frazer, chairman; Milos Novotny, vice chairman.

Some topical areas to be covered include: Ion Selective Electrodes, Laser Spectroscopy, Pattern Recognition Technology, Solvent Extractions of Metal Chelates, Stop Flow Techniques, and Isotachophoresis.

13 August. (W. D. Shults, session chairman): Jiri Janata, "Electrochemistry of CHEMFETs"; Wilhelm Simon, "Liquid membrane ion selective electrodes, neutral carriers for anions"; Tomas Hirschfeld, "Analytical chemistry from the information theoretic viewpoint." The poster session will be initiated during one evening session.

14 August. (Joel Harris, session chairman): G. Sam Hurst, "Analytical applications of resonance ionization spectroscopy"; James R. DeVoe, "Laser enhanced ionization in flames"; Stanley L. Grotch, "Observations on the uses of multivariate techniques in geochemical exploration."

15 August. (James W. Robinson, session chairman): Herman Haglund, "Present status and current research in isotachophoresis"; David M. Hercules, "Comparison of surface analysis techniques"; Henry Freiser, "Solvent extractions of metal chelates"; Marjorie G. Hornig, "Applications of GC-MS-COM analytical systems to biomedical problems."

16 August. (Merle Evenson, session chairman): Gary M. Hieftje, "New methods for measurement of transient events"; David S. Auld, "Direct observation of transient ES complexes by radiationless energy transfer: implication to enzyme mechanisms"; Frederick Brech, "The role of analytical chemistry in authentication of ancient and medieval art objects"; Keith Hodgson, "The determination of metal ion structure using x-ray absorption spectroscopy—metals in proteins, ions in solution and amorphous materials."

17 August. (Jack W. Frazer, session chairman): Richard Zare, "Laser fluorescence analysis"; Milos Novotny, "Discussion of 1980 Gordon Research Conferences."

The poster session initiated on Monday evening will have the materials left on display until Friday. They will include at least three audio-visual presentations. Participants who choose to present a poster of their research should contact the conference chairman at 415-422-6879 to reserve space.

Analytical Pyrolysis

Holderness School

I. N. Einhorn, chairman; H. L. C. Meuzelaar, vice chairman.

2 July. (R. A. Boyd, discussion leader): R. Porter, "Study of polymer lattices"; I. N. Einhorn, "Thermal degradation and mechanisms in step-growth polymers." (C. E. R. Jones, discussion leader): I. Luederwald, "Pyrolysis/mass spectrometry of polymers"; D. A. Chatfield, "Thermal degradation of natural and synthetic materials."

3 July. (D. C. deJongh, discussion leader): F. Shafizadeh, "Pyrolytic reactions of carbohydrates—transformations and phase changes"; A. Yergy, "Thermal reactions in small molecules—polypeptides." (H. L. C. Meuzelaar, discussion leader): A. Harper, "Patterned recognition techniques in chemistry."

4 July. (E. Reiner, discussion leader): H. L. C. Meuzelaar, "Pyrolysis/mass spectrometry: aspects for long term reproducibility"; Y. Haverkamp, "Pyrolysis/mass spectrometry of microbacteria." (K. Biemann, discussion leader): H. R. Schulten, "Pyrolysis field ionization and field desorption mass spectrometry."

*Fixed fees cannot be prorated or reduced for anyone.

5 July. (I. N. Einhorn, discussion leader): K. Biemann, "Gas chromatography–mass spectrometry techniques." H. G. Wiedermann, "Applications of thermal analysis"; R. Saferstein, "Pyrolysis applications in forensic science."

6 July. (J. D. Seader, discussion leader): Y. M. Bracewell, "Pyrolysis applications in soil sciences"; N. E. Vanderborgh, "Pyrolysis techniques in geosciences."

Animal Cells and Viruses

Tilton School

J. Michael Bishop and Sondra Schlesinger, co-chairpersons.

18–22 June. Novel and emerging viral agents; viral agents associated with chronic disease (B. Fields, session chairman); Persistent infections (J. Stevens, session chairman); Host response to infection (F. Lilly, session chairman); Cytopathogenicity: biochemical mechanisms; viral and host genetic determinants (P. Choppin, session chairman); Replication of viral genomes (I. Kennedy, session chairman); Genesis of viral mRNAs (P. Sharp, session chairman); Genetic interactions between viral and host genomes: gene transfer (R. Weinberg, session chairman); Viral oncogenesis (A. Levine, session chairman); Viruses as probes of differentiation (G. S. Martin, session chairman). Poster sessions are planned.

Atherosclerosis

Kimball Union Academy

Joseph L. Goldstein and Daniel Steinberg, co-chairpersons.

25 June. Biology of membranes (Morris J. Karnovsky, chairperson): James E. Rothman, Richard G. W. Anderson, Robert Rosenberg. Platelets and prostaglandins (Philip W. Majerus, chairperson): Philip W. Majerus, Philip Needleman, Richard Franson.

26 June. Inborn errors of metabolism causing human atherosclerosis (Michael S. Brown, chairperson): Gerd Utermann, Michael S. Brown, William R. Hazzard, Nicholas B. Myant. Model systems for studying atherosclerosis in animals (Robert W. Mahley, chairperson): Robert W. Mahley, E. J. Walter Bowie (Robert W. Wissler, Thomas B. Clarkson, discussants).

27 June. Endothelial and smooth muscle cells (Russell Ross, chairperson): Russell Ross, Michael A. Gimbrone, Jr., Stephen M. Schwartz (DeWitt S. Goodman, discussant). LDL receptors in specialized tissues (Joseph L. Goldstein, chairperson): Denis Gospodarowicz, Joseph L. Goldstein, Daniel Steinberg.

28 June. Reverse cholesterol transport (Richard J. Havel, chairperson): Christopher J. Fielding, Philip J. Barter, Christian A. Drevon (John A. Glomset, discussant). Abnormal lipid deposition in tissues (Donald M. Small, chairperson): Donald M. Small, Elspeth B. Smith, George H. Rothblat (Olga Stein, discussant).

29 June. Role of HDL in pathogenesis of atherosclerosis (Daniel Steinberg, chairperson): Gerd Assmann, Shlomo Eisenberg, Yechezkiel Stein.

Applicants to this conference are invited to submit with their application an abstract to be considered for possible presentation as a poster. There will be four poster sessions during the conference.

Atomic Physics

Brewster Academy

Aaron Temkin, chairman; Stephen Lundeen, vice chairman.

25 June. Laser excitation in external fields (F. M. Pipkin, discussion leader): R. R. Freeman, "Experimental investigations of excited states in extremely strong external fields"; K. T. Lu, "Theoretical aspects of diamagnetism in laser excitation"; D. Kleppner, "General discussion of laser experiments in external fields."

26 June. Electron scattering resonances and dielectronic recombination (P. G. Burke, discussion leader): A. K. Bhatia, "Calculation of resonances in electron scattering from atomic systems"; W. W. Smith, David Clark, "Observation of H^- resonances in $n = 2, 3$ region via $h\nu + H^-$"; V. L. Jacobs, "New developments in the theory of dielectronic recombination." Recombination processes (A. H. Gabriel, discussion leader): H. Griem, "Recombination processes in gases and plasmas."

27 June. Interference and coherence effects (J. Macek, discussion leader): R. Morgenstern, "Interference effects in He^+-He excitation and charge exchange"; K. Rubin, "Coherence effects in atomic collisions." Superradiance (L. Spruch, discussion leader): S. Haroche, "Superradiance."

28 June. Parity violating gauge theory calculations and positron experiments (J. Sucher, discussion leader): J. Sucher, "Introduction to and present status of atomic parity violation in theory and experiment"; H. P. Kelly, "New many body calculations on atomic bismuth"; S. Berko, "Low energy positron and positronium experiments with emphasis on QED applications." Asymmetry of charge transfer into the continuum (M. Menendez, discussion leader): J. W. McGowan, "Experimental aspects"; R. Shakeshaft, "Theory of charge transfer into the continuum."

29 June. Excimer lasers (K. Smith, discussion leader): M. R. Flannery, "Theory"; A. V. Phelps, "Electron collision processes in excimer lasers." Laser-atom experiments (A. Ashkin, discussion leader): V. G. Minogin, V. S. Letokhov, "Speculations on laser-atom experimental phenomena."

Bacterial Cell Surfaces

New Hampton School

David Mirelman and Hiroshi Nikaido, co-chairpersons.

2 July. β-Lactam antibiotics in cell wall research (in commemoration of the 50th year anniversary of the discovery of penicillin) (J. T. Park, chairperson); synthesis and assembly of bacterial peptidoglycan (U. Schwarz, chairperson).

3 July. Membrane biogenesis I (M. Schaechter, chairperson); membrane biogensis II (Loretta Leive, chairperson).

4 July. Outer membrane—structural dynamics and functions (C. Schnaitman, chairperson); active transport (chairperson to be announced).

5 July. Chemotaxis (chairperson to be announced); cell surface in interaction with the outside world. I. Macromolecule-cell interactions (chairperson to be announced).

6 July. Cell surface in interaction with the outside world. II. Cell-cell interactions (M. R. J. Salton, chairperson).

There will be poster sessions throughout the meeting. Those who wish to present posters are requested to send the title and the abstract of the presentation to one of the co-chairpersons before 1 May 1979.

Biological Regulatory Mechanisms

Holderness School

Keith Yamamoto and Max Gottesman, co-chairmen.

25–29 June. Initiation of transcription (E. P. Geiduschek, chairman); Termination of transcription (S. Adhya, chairman); DNA transposition and transformation (N. Grindley and R. W. Davis, chairmen); RNA processing (J. Abelson, chairman); Control of translation (F. W. Studier); Eukaryotic regulatory mole-

cules (F. C. Bancroft, chairman); Regulation at the cell membrane (J. Beckwith, chairman); Developmental regulation (S. Brenner, chairman).

Biomaterials, Science and Technology of

Tilton School

Larry L. Hench, chairman; Donald Gibbons, vice chairman.

16–20 July. Fundamental biological factors affecting biomaterial-tissue interfaces: G. H. Pigott, "Effects of material shapes on tissue reactions"; T. Salthouse, "Cell-implant interfaces: EM studies of ultrastructure effects": A. Hoffman, "Unusual effects of surface chemistry on protein and cell interaction: *in vitro* and *in vivo*"; K. Gilding, "Effect of surface charge, microstructure and composition art biological response to polymers"; J. Wilson, "Histological response of polymers with variable surface charge, microstructure and composition." The dental-biomaterial interface: R. James, "Ultrastructure of implant tissue interfaces." The implant-heart tissue interface: R. Grant, "Biochemistry and ultrastructure of cell culture on controlled surface reactive materials"; M. Jarcho, "Interfacial behavior of dense hydroxyl apatate implants"; J. Klawipter, "Modelling of implant interface biochemical behavior." Biological and physical events at the stimulatory electrode-tissue interface: R. James, "Ultra structure of dental implant-tissue interfaces"; R. B. Beard, "Events in cardiac tissue"; M. A. Herbert, "Events in skeletal muscle"; J. Black, "Events in mineralized tissue." Blood-biomaterials interface in circulating assist devices: D. Jeffrey, "Introduction to the problem"; D. Coleman, "Smooth surfaces"; D. Gibbons, "Chemically active and textured surfaces." An open forum. Control of cardiovascular-implant interactions. Biomaterials with controlled interfaces (short papers session). Interfacial effects on controlled drug release. Ethical issues in implant research. Recent advances in biomaterial interfacial studies and clinical applications (short papers session).

Bones and Teeth, Chemistry, Physiology and Structure of

Kimball Union Academy

Harald Schraer, chairman; Lawrence G. Raisz, vice chairman; Karl Meyer, honorary chairman.

9 July. Bone cell differentiation (David J. Simmons, session chairman): Brian Hall, "Embryonic origin of bone cells"; E. A. Tonna, "Bone cell transformations tracer evidence"; Harvey Patt, "Role of osseous environment in blood cell formation"; Don Walker, "Osteoclast lineage: use of genetically determined markers and purified mononuclear cell populations in osteopetrotic mice." Poster session: posters selected from submitted abstracts (Lawrence G. Raisz, session chairman): Send three copies of a 500-word abstract by 1 May 1979 to Lawrence G. Raisz, University of Connecticut Health Center, School of Medicine, Farmington, Conn. 06032.

10 July. Current research on the etiology and pathophysiology of alveolar bone destruction (Paul Goldhaber, session chairman): Sigmund S. Socransky, "Microorganisms involved in alveolar bone destruction"; Robert J. Genco, "Role of immunological factors in alveolar bone loss"; Michael L. Kaplan and Marjorie K. Jeffcoat, "Radiopharmaceutical uptake, blood flow and alveolar bone loss." Cell calcium and calcification (James R. Coleman, session chairman): Kenneth Simkiss, "Heavy metal probes of intracellular and extracellular mineralization"; Andrew P. Somlyo, "Subcellular localization of cell calcium *in situ*."

11 July. Cell calcium and calcification (continued) (James R. Coleman, session chairman): Anthony Scarpa, "Mitochondria and the control of cell calcium"; H. Clarke Anderson, "Matrix vesicles and cell mediated calcification"; William J. Landis, "Electron probe X-ray microanalysis and the status of current concepts of mineralization"; William F. Neuman, "Current status of bone fluid." Parathormone, biosynthesis, intracellular processing and secretion (David V. Cohn, session chairman): J. Habener, H. Kronenberg and J. T. Potts, "Biosynthesis of preproparathormone and parathyroid secretory protein"; J. J. Morrissey and D. V. Cohn, "Intracellular processing and secretion of parathormone and other secretory proteins by dispersed parathyroid cells"; E. N. Brown and G. D. Aurbach, "Use of dispersed parathyroid cells to study normal and abnormal parathyroid secretion."

12 July. Parathormone, biosynthesis, intracellular processing and secretion (continued) (David V. Cohn, session chairman): J. N. M. Heersche, "Regulation of hormone responsiveness of bone *in vitro*"; K. J. Martin, E. Slatapolsky and S. Klahr, "Possible cleavage of parathormone as a prerequisite for target organ activation"; M. P. M. Herrmann-Erlee and J. W. Hekkelman, "Action of parathormone and parathormone fragments on embryonic bone *in vitro*; dissociation of CAMP and bone resorbing response"; R. R. MacGregor, "Cleavage of parathormone and proparathormone by specific tissue enzymes." Special lecture: Owen Lovejoy, "New perspectives on human origins."

13 July. Calcium pyrophosphate deposition disease (CPDD) (David S. Howell, session chairman): Daniel J. McCarty, "Definition and nature of CPDD"; D. S. Howell, "Pyrophosphate metabolism in cartilage"; Graham Russell, "*In vitro* studies in calcium pyrophosphate deposition and a current view of CPDD in perspective."

Calcium Phosphate

Plymouth State College

Marion D. Francis and George Nancollas, co-chairmen.

18 June. (R. A. Young, chairman): W. E. Brown, "Crystal structures of calcium phosphates"; (J. R. Lehr and P. E. Mackie, discussion leaders). (B. O. Fowler, chairman): J. P. Yesinowski, "Spectroscopy of synthetic calcium phosphates and mineralized tissue. High resolution P^{31} NMR of solids"; (E. S. Etz, discussion leader). (J. C. Elliott, chairman): G. Bonel, "Lattice substitutions and contaminants"; (R. Z. LeGeros, discussion leader).

19 June. (E. D. Eanes, chairman): J. L. Meyer and L. Chow, "Thermodynamic and kinetic properties of calcium phosphate phase transitions"; (F. C. M. Driessens, discussion leader). (J. A. Gray, chairman): G. H. Nancollas, "The mineralization of calcium phosphates"; (G. Montel and J. C. Heughebaert, discussion leaders). (W. I. Higuchi, chairman): J. Christoffersen, "The dissolution of calcium phosphates"; (J. F. Fox, discussion leader).

20 June. (J. Arends, chairman): E. C. Moreno, "Adsorption at calcium phosphate surfaces of proteins, peptides and amino acids"; (D. I. Hay, discussion leader). (P. Somasundaran, chairman): G. S. Ingram, "Interaction of ionic species with apatite"; (M. B. Tomson, discussion leader). (J. F. Ferguson, chairman): R. A. Gulbrandsen, "Calcium phosphates in natural waters"; (J. D. H. Williams, discussion leader).

21 June. (N. D. Charkes, chairman): M. D. Francis, "Calcium phosphates in diagnostic nuclear medicine." (A. S.

Posner, chairman): J. Arends, "Reprecipitation of hydroxyapatite in tooth enamel defects"; (J. Wefel, discussion leader). (M. D. Francis, chairman): A. H. Reddi, "Endochondral bone differentiation: A challenge for the calcium phosphate chemists."

22 June. (H. Newesely, chairman): M. Jarcho, "Dense polycrystalline hydroxyapatite as a bone implant material"; H. M. Rootare, "Surface structure of synthetic sintered hydroxyapatite ceramic."

Cancer

Colby-Sawyer College

L. Bernard Weinstein, chairman; Frederick F. Becker, vice chairman.

Interaction Between Multiple Factors in Cancer Causation

20–24 August. Epidemiologists; tumor virologists; chemical carcinogeneticists; tumor biologists. The purpose of this conference is bring together individuals from the diverse disciplines of cancer epidemiology, viral oncology, chemical carcinogenesis, radiation carcinogenesis, tumor promotion, and cancer genetics and biology to discuss advances in these areas with an emphasis on possible interactions between multiple factors in the causation of human cancer. The multi-step nature of carcinogenesis will also be stressed. Speakers will include: Robert Miller, Joseph Fraumeni, Richard Peto, Raymond L. Erickson, Fred Rapp, Takashi Fujimura, Stuart Yuspa, Curtis Harris, Dezider Blumberger, Frederick F. Becker, John B. Little, Stuart Linn, Miroslav Radman, Eliezar Huberman, George Todaro.

Carbohydrates, Chemistry of

Tilton School

S. Hanessian, chairman; P. Sandford, vice chairman.

25 June. E. Kabat, "Immunochemical studies on the combining sites of lectins and their use in cell fractionation"; P. Garegg, "Some aspects of glycoside synthesis"; R. W. Binkely,"The application of photochemical reactions in carbohydrate synthesis"; J. Lehmann, "Probing the active site of glycosylases"; S. Roseman, "Potential role of carboyhydrates in cell-cell recognition and adhesion."

26 June. K. L. Rinehart, Jr., "Biosynthesis and mutasynthesis of aminocyclitol antibiotics"; F. LeGoffic, "The aminoglycoside antibiotics and their receptors"; A. Kozikowski, "Target pseudomonic acid: progress in the synthesis of a therapeutically important tetrasubstituted tetahydropyran"; J. W. Westley, "Biosynthesis, structure and activity of the polyether antibiotics"; Y. Kishi, "Synthetic studies in the field of natural products chemistry."

27 June. J. Montreuil, "Structure and function of glycoconjugates"; C. C. Sweeley, "Glycoconjugate characterization and metabolism in normal and transformed cells"; W. Wierenga, "Recent studies on the mechanism of deoxyribonucleosyl nucleoside condensations"; K. K. Ogilvie, "From substituted ribose to t-RNA—a synthetic approach"; J. F. Kennedy, "Carbohydrate matrices and carbohydrate directed enzymes in the field of immobilization."

28 June. B. Ganem, "Ansa macrolide synthesis. An approach to (−) maytansine using a carbohydrate precursor"; J. F. Stoddart, "Ups and downs on the way from carbohydrates to enzyme analogues"; M. Fisher, "Chemistry of the avermectins"; G. R. Gray, "New synthesis of 2-deoxyaldoses"; H. G. Khorana, "Some chemical studies in biological membranes."

29 June. P. J. Gorin, "Protozoal polysaccharides with possible biological activities." Contributed short papers. The program will also include poster presentations and two discussion group sessions; one on physical methods (moderators, L. D. Hall and G. A. Jeffrey) and another on synthetic methods (moderators, D. Horton and W. A. Szarek).

Catalysis

Colby-Sawyer College

John B. Butt, chairman; Eric W. Stern, vice chairman.

25–29 June. K. C. Taylor and J. C. Schlatter, "Selective reduction of nitric oxide over noble metals"; C. H. Bartholomew, "CO hydrogenation over borohydride reduced catalysts"; W. N. Delgass, "Kinetic and spectroscopic characterization of iron and iron-alloy Fischer-Tropsch synthesis catalysts"; Alexis T. Bell, "Fischer-Tropsch synthesis over Ruthenium catalysts"; S. W. Weller, "Sintering of supported oxide catalysts"; Henry Wise, "Carbon as a surface intermediate and poison in metal-catalyzed hydrocarbon synthesis"; F. M. Dautzenberg, "Highly dispersed modified platinum catalysts"; Atsumu Ozaki, "Activation of nitrogen over Ruthenium catalysts"; Robert H. Grubbs, "Metallacycles as intermediates in metal-catalyzed reactions of olefins"; Jule A. Rabo, "Mechanistic studies of CO + H_2 synthesis over group VIII metals"; Herman Pines, "Fifty years in catalysis: reflections"; Robert K. Grasselli, "Mechanistic aspects of selective catalytic oxidation and ammoxidation of olefins"; K. I. Zamaraev, "Possible ways and perspectives of solar energy conversion via catalytic processes"; Hans A. Benesi, "Determination of surface acidity of solid catalysts."

Catecholamines

Proctor Academy

Donald J. Reis, chairman; Irwin J. Kopin, vice chairman.

13 August. Biosynthesis (T. H. Joh, discussion leader); Receptors (R. Lefkowitz, discussion leader).

14 August. Transduction: receptor to cell (E. Costa, discussion leader); Development and trophic support of catecholamine neurons *in vitro* and *in vivo* (R. Bunge, discussion leader).

15 August. Trophic support (continued): L. Ceruleus, "Peptides and behavior"; (G. Aghajanian, discussion leader).

16 August. Nutrition and catecholamines (R. Wurtman, discussion leader); Clinical genetics of catecholamine systems (R. Weinshilboum, discussion leader).

17 August. Catecholamines and hypertension (I. J. Kopin, discussion leader).

Cell Contact and Movement

Proctor Academy

J. P. Trinkaus, chairman; Ira Pastan, vice-chairman.

2 July. Invasiveness (Ira Pastan, discussion leader): C. A. Erickson and J. A. Weston, "Movements along neural crest pathways by neural crest and other embryonic cells"; J. Folkman, "Invasive properties of tumor induced endothelium"; P. A. Ward, "Chemotactic mechanisms in inflammation"; G. Poste, "Tumor cell variants with enhanced invasive and metastatic properties." Cell junctions—a dynamic view (Daniel Goodenough, discussion leader): D. A. Goodenough, "The gap junction: a crystal mediating intercellular communication"; A. E. Warner, "The making and breaking of junctions in early embryos"; D. D. Sabatini, "Development of membrane polarization and tight junctions in cultured epithelial cells."

3 July. Adhesive relations of cells in culture (Fred Grinnell, discussion leader): K. M. Yamada, "Structure and

function of the adhesive glycoprotein fibronectin''; R. O. Hynes, ''Fibronectin in cell adhesion and movement''; H. Kleinman, ''Interaction of adhesive proteins with collagen and cells''; F. Grinnell, ''Source of substratum for cell spreading in culture.'' Adhesive specificity (Jack Lilien, discussion leader); D. R. McClay, ''Changes in adhesive recognition during sea urchin development''; J. E. Lilien, ''Specific adhesion among chick neural retinal cells''; M. Edidin, ''Histocompatibility-2 antigens modify cell to cell adhesion''; P. B. Armstrong, ''Modulation of tissue affinities in culture.''

4 July. The contractile system I. Structure and function (Robert Goldman, discussion leader): R. D. Goldman, ''The cytoskeleton and cytomusculature of moving cells''; K. R. Porter, ''The structure of the cytoplasmic ground substance''; K. Fujiwara, ''Molecular mechanism of cytoplasmic contractility''; G. Albrecht-Bühler, ''Orientation of microfilaments and centrioles with reference to the direction of cell locomotion.'' The contractile system II. Linkage to the cell surface (John Condeelis, discussion leader): G. A. Dunn and J. P. Heath, ''The locomotory machinery of fibroblasts and its relation to the substratum''; J. F. Ash, ''Control of the dynamic distribution of plasma membrane proteins by the cytoskeleton''; J. S. Condeelis, ''Actin-plasma membrane associations during ligand induced capping and amoeboid movement''; J. M. Oliver, ''Microtubules, microfilaments and the regulation of surface topography.''

5 July. The contractile system III. Linkage to the cell surface (Emil Unanue, discussion leader): S. de Petris, ''Distribution and mobility of plasma membrane components of lymphocytes''; E. R. Unanue, ''Capping of lymphocyte surface molecules and its relationship to the cytoskeleton''; S. Silverstein, ''Particle bound ligands and membrane receptors in phagocytosis''; D. Branton, ''Protein interactions in the control of intramembrane particle movement.'' Control of protrusive activity of the cell surface I (Michael Abercrombie, discussion leader): W.-T. Chen, ''Retraction induced protrusive activity''; N. K. Wessells, ''Protrusive activity of extending neurites''; D. Bray, ''Tension guidance of extending nerve growth cones''; T. E. Schroeder, ''Microvilli and the extension of the cell surface.''

6 July. Control of protrusive activity of the cell surface II (David Begg, discussion leader): C. Allen, ''Redistribution of microfilaments during protrusive activity of the margins of tissue cells''; D. F. Albertini, ''Hormonal control of changes in cell shape''; D. A. Begg, ''Formation and functional significance of microvilli in the fertilized sea urchin egg''; D. L. Taylor, ''Polymerization and solation in the extension of pseudopods.''

Ceramics, Solid State Studies in

Brewster Academy

Ben A. Wilcox, chairperson; Fred F. Lange, vice-chairperson.

Ceramics at High Temperatures: Defects, Mass Transport, Environmental Degradation

30 July. (A. D. Franklin, discussion leader): L. Eyring, ''Defects in fluorite related ceramics: high resolution electron microscopic, thermodynamic, and kinetic studies''; R. Dieckmann and H. Schmalzried, ''Defect structure and transport properties of magnetite and the relation to oxidation of wustite.'' (B. J. Wuensch, discussion leader): N. L. Peterson, ''Diffusion and correlation effects in oxides''; Z. A. Munir, ''Transient evaporation of ionic crystals.''

31 July. (A. H. Heuer, discussion leader): G. Thomas, ''The structure of grain boundaries in ceramics''; R. M. Cannon, ''Grain boundary migration and the effect on sintering.'' (J. A. Pask, discussion leader): G. Petzow, ''Sintering of silicon nitride base ceramics''; D. E. Day, ''Corrosion of alumina by steam.''

1 August. (D. R. Clarke, discussion leader): L. W. Hobbs, ''*In situ* oxidation of solids in the high voltage electron microscope''; D. D. Cubicciotti, ''Oxidation of nitride ceramics.'' (R. E. Tressler, discussion leader): L. C. DeJonghe, ''Gas-solid reactions: reduction of ferrites''; D. W. Readey, ''Gaseous corrosion of oxides.''

2 August. (F. F. Lange, discussion leader): Short topical presentations on research in progress. S. Goldstein, ''Fakes and forgeries of ancient glass.''

3 August. (R. W. Vest, discussion leader): M. Kleitz, ''Potentiometric measurements with solid electrolytes: applications to gas sensing''; R. J. Bratton, ''Thermal barrier coating evaluations in a gas turbine environment.''

Chemotherapy of Experimental and Clinical Cancer

Holderness School

Paul L. Kornblith, chairman; Robert E. Parks, Jr., vice chairman.

16 July. Introductory remarks: K. Folkers. Basic considerations in chemotherapy development (M. Fink, discussion leader): F. Schabel, ''Quantitation of effects of drug therapy''; E. Freireich, ''Methods of selection of agents for clinical trial''; J. Millar, ''Effects of cytotoxic agents on normal tissue.'' Correlations of findings in experimental systems to treatment (J. Venditti, discussion leader): J. Venditti, ''Relation of animal models to the production of effectiveness of therapy''; W. Shapiro, ''Considerations in the design of animal models for study of chemotherapy.''

17 July. Dose-time considerations in drug delivery (C. Nichol, discussion leader): D. Zaharko, ''Pharmacokinetic concepts and cancer treatment''; F. Sirotnak, ''Transport and kinetic correlates for selective action of folate analogs''; V. Levin, ''Drug delivery to solid tumors.'' Approaches to tumor control through effects on cellular differentiation (G. Mueller, discussion leader): G. Mueller, ''Modulation of cell differentiation as a route to therapy of cancer''; M. Sporn, ''Retinoic acid and related compounds in tumor treatment.''

18 July. Deaminase inhibitors (R. Parks, discussion leader): R. Parks, ''Studies with isolated enzymes''; D. Johns, ''Deaminase inhibitors in animal tumor systems''; J. Smyth, ''Clinical trials of deaminase inhibitors.'' Progress in antifolate study (A. Mittelman, discussion leader): G. Grindey, ''MTX and thymidine interaction''; C. Nichol, ''Lipid soluble folate antagonists.''

19 July. Cellular studies of drug action (P. Kornblith, discussion leader): S. Salmon, ''Role of human tumor cloning in tissue culture in prediction of drug response''; B. Smith, ''Cellular biological effects of chemotherapeutic agents''; D. Thomas, ''Development of a predictive model for therapy based on human tumor cell cultures.'' Symposium on the status of clinical chemotherapy (W. Wood, discussion leader): E. Frei, III, ''Symposium on the status of clinical chemotherapy.''

20 July. Interaction of radiation and chemotherapy (F. Muggia, discussion leader): J. Schwade, ''Radiosensitizers''; T. Phillips, ''Experimental studies on radiation chemotherapy interactions''; T. Dougherty, ''Hematoporphyrins and phototherapy.''

Coating and Films, Chemistry and Physics of

Proctor Academy

Harry L. Frisch, chairman; S. S. Labana, vice-chairman.

6–10 August. D. Z. Bacher and P. E.

Pearce, "Micellization of water base polymers"; D. Bassett, "The preparation and properties of nonuniform emulsion polymers"; J. H. Hartshorn, "Time-lapse infrared spectroscopic investigation of alkyd and linseed oil cure mechanisms"; J. Holubka, "Mechanism of paint adhesion loss under corrosion"; M. Kryszewski, "Electrical properties of thin polymer films"; T. K. Kwei and H. N. Zyazirani, "Selective crosslinking of polymer networks via dual reactive groups"; W. Overdiep, "The sagging balance: a new instrument to characterize the rheology of resins during curing"; S. P. Pappas, "UV and thermal curing by cationic polymerization"; D. Paul, "The effect of history on sorption and transport in glassy polymers"; S. Prager, "Diffusion controlled formation of porous film structures in ternary polymer systems"; B. Ranby, "Photocuring of surface coatings—excited states and exciplex formation"; C. Rogers, "Photooxidation and degradation of polymers and coatings"; L. E. Scriven, "Flow phenomena in coating application processes"; J. A. Simms, "Coatings from ABA block copolymers."

Corrosion

Colby-Sawyer College

Frederick S. Pettit, chairman; Ronald Latanision, vice-chairman.

23 July. Thin films on metals (Ronald Latanision, discussion leader): Gerald P. Huffman, "Application of Mossbauer spectroscopy in oxidation and corrosion studies"; M. J. Graham, "Thin film formation and growth." Thick films on metals and alloys (Dave Whittle, discussion leader): Gregory Yurek and C. E. Meyers, "Kinetics and mechanisms of the transformation of wustite into magnetite"; W. W. Smeltzer, "Microstructure and transport properties of Al_2O_3 films on nickel-aluminum alloys"; Fred Rhines, "Influence of oxide scale microstructure on oxidation of nickel."

24 July. Atomic defects and oxide solutions (George Simkovich, discussion leader): Rodney A. McKee, "Defect kinetics and metal oxidation"; H. Schmalzried and R. Dieckmann, "Demixing and void formation in oxide solid solutions during exposure to thermodynamic potential gradients." Oxide scale adhesion (J. Bruce Wagner, Jr., discussion leader): B. Beranger and C. Coddet, "Stress development and relief during the oxidation process-influence of atmosphere"; F. H. Stott, F. A. Golightly and G. C. Wood, "Factors affecting growth and adhesion of α-Al_2O_3 scales to alloys"; Gerald B. Gibbs, "Some factors affecting the growth and adhesion of single-layer and duplex oxide scales."

25 July. Mixed oxidant attack of metals and alloys (Wayne L. Worrell, discussion leader): Hans J. Grabke and D. S. Williams, "Influence of sulfur on the carburization and oxidation of alloys"; Roger A. Perkins, "Influence of sulfur on the protective capability of Cr_2O_3 scales." Hot corrosion and erosion (Gerald H. Meier, discussion leader): R. A. Rapp, D. A. Shores and W. C. Fang, "Chemistry and electrochemistry of hot corrosion"; John Stringer, "Erosion-corrosion interaction"; Alan V. Levy, "Erosion of oxide-sulfide scales on metals."

26 July. Interaction between corrosion and mechanical properties (John Cathcart, discussion leader): J. K. Tien and J. M. Davidson, "The effect of oxidative processes on mechanical behavior"; Alfred Rahmel, "Interaction between corrosion and creep of the base material"; Peter Hancock and John Nicholls, "The influence of surface layers on the mechanical properties of the underlying alloy." Future research directions for high temperature corrosion (Paul Pemsler, discussion leader): C. E. Birchenall, "University viewpoint"; Phillip Parrish, "Government viewpoint"; Steve Spacil, "Industrial viewpoint"; Graham C. Wood, "U.K.-Europe university viewpoint"; M. Van de Voorde, "U.K.-Europe government—industrial viewpoint."

27 July. Corrosion of ceramics (Dave L. Douglass, discussion leader): Ivan B. Cutler, "Gaseous and slag corrosion of ceramics"; Daniel Cubicciotti, "Oxidation of Si_3N_4."

There will be poster sessions throughout the week to which all conference participants are invited to contribute material. A discussion period for posters will be held at the end of the meeting on Thursday evening.

Cyclic Nucleotides

Kimball Union Academy

Alton Steiner, chairman; John Exton, vice-chairman.

11 June. Models of hormone-stimulated adenylate cyclase (J. Perkins, chairman): A. Levitsky, D. Cassel, L. E. Limberg. Reconstitution of hormone-stimulated adenylate cyclase (J. Perkins, chairman): P. Steinweiss, A. Spiegel, J. Perkins, "Desensitization of hormone-stimulated adenylate cyclase."

12 June. Calmodulin (W. Y. Cheung, chairman): J. H. Wang, C. B. Klee, C. O. Brostrom, T. C. Vanaman. Role of phosphorylation, calcium and cyclic nucleotides in regulating muscle (R. S. Adelstein, chairman): J. T. Stull, R. S. Adelstein, S. V. Perry.

13 June. Regulation of non-muscle structural proteins by calcium and cyclic nucleotides (A. R. Means, chairman): B. R. Brinkley, D. L. Taylor, J. R. Dedman. Mutant cells and cyclic nucleotides (P. Coffino, chairman): M. Gottesman, O. M. Rosen, B. Schimmer.

14 June. Cyclic nucleotides and the nervous system (P. Greengard, chairman): U. Walter, M. Nirenberg, K. Minneman; I. Pastan, "Gazing into the fluorescent ball: patches, pits and proteins."

15 June. Role of protein kinases in development and differentiation (R. A. Jungmann, chairman): M. Hunziger-Dunn, Y. S. Cho-Chung, D. A. Chambers.

Developmental Biology

Proctor Academy

Anthony P. Mahowald, chairperson; Joseph G. Gall, vice chairperson.

30 July–3 August. Genetic fine structure. I. Reorganization of the genome (I. Dawid, chairperson): P. Leder, S. Tonegawa, W. Gehring, R. Davis. Genetic fine structure. II. Control regions (M. L. Pardue, chairperson): D. Hogness, R. Axel, S. Parkson, E. Davidson. *In vitro* transcription systems (D. Brown, chairperson): J. Gurdon, R. Roeder, M. Gefter, K. Parker. Processing of primary transcripts (R. Perry, chairperson): B. O'Malley, J. Lingrel, J. Darnell. Oogenesis (J. Gall, chairperson): F. Kafatos, A. Spradling, I. Dawid, D. Shapiro. Regulation and function of mRNA in early development (R. Raff, chairperson): J. Lengyel, F. Wilt, E. Davidson, E. Weinberg. Developmental neurobiology (D. Kankel, chairperson): C. Levinthal, E. Macagno, J. Palka, R. Russell. Developmental genetics of early development (W. Gehring, chairperson): C. Nüsslein, T. Kaufman, D. Hirsh, G. von Ehrenstein, A. Mahowald. Use of teratocarcinomas to study early development (G. Martin, chairperson): S. Strickland, D. Solter, L. Grabel, C. Graham.

Drug Metabolism

Holderness School

George J. Wright, chairman; Edward Bresnick, vice chairman.

23 July. (Grant R. Wilkinson, chairman): William F. Trager, "Stereospecific metabolism of drugs"; Robert L.

Smith, "Polymorphism in human drug metabolism." (Jerome Edelson, chairman): Jerome Edelson, "Metabolism of a group of tetrahydrocarbazoles"; Anthony Zacchei, "Comparison of disposition and metabolism of related indanyloxyacetic acids, saluretic/diuretic agents."

24 July. (Nicholas C. Weber, chairman): Jerome E. Bakke, "Metabolism of xenobiotic conjugates in the gastrointestinal tract and their possible significance"; Donald D. Kaufman and Gerald G. Still, "Plant and soil bound residues, their formation, metabolism and significance"; Ralph O. Mumma, "Occurrence, metabolism and biological significance of xenobiotic amino acid conjugates." (Jack W. Frazer, chairman): Jack W. Frazer, "Computerized apparatus for the study of enzyme catalyzed reactions"; Catherine Fenselau, "Middle molecule mass spectrometry."

25 July. (Robert P. Hanzlik, chairman): Robert H. Abeles, "Enzyme inactivators"; Robert Rando, "Design of highly specific irreversible enzyme inhibitors"; Robert P. Hanzlik, "Mechanism-based irreversible inhibition of cytochrome P_{450}." (Edward Bresnick, chairman): Edward Bresnick, "Macromolecular interactions of drugs and effects"; Tom Argyris, "Transcriptional effects of inducers on skin."

26 July. (Gilbert J. Mannering, chairman): Gilbert J. Mannering, "Depressant action of interferon inducing agents on hepatic P_{450} systems"; F. De Matteis, "Relationship between the P_{450} system and the stimulation of heme synthesis and degradation"; Almira Correia, "Regulation of the free heme pool in the liver." (Leon Golberg, chairman): Leon Golberg, "Metabolic insight in risk assessment of chemicals: a sop to Cerberus?"

27 July. (Patrick J. Murphy, chairman): Peter Moldeus, "Drug metabolism in isolated hepatocytes"; Jordan L. Holtzman, "The use of short-term cultures of hepatocytes for drug metabolism studies."

Dynamics of Gas-Surface Interactions

Plymouth State College

E. F. Greene, chairman; M. J. Cardillo, vice chairman.

13 August. Elastic scattering: J. H. Weare, "Surface resonances and the gas-surface potential"; M. J. Cardillo, "Atom scattering as a probe of surface structure." Inelastic scattering: D. R. Miller, "Surface phonon excitations"; L. Wharton, "Direct measurements of inelastic scattering."

14 August. Poster session. Adsorbed species, I: B. A. Joyce, "Growth and doping kinetics in molecular beam epitaxy of III-V compounds and alloys"; M. V. Klein, "Raman scattering from molecules adsorbed on metal surfaces."

15 August. Desorption: T. E. Madey, "Electron stimulated desorption"; P. J. Estrup, "Kinetics of thermal desorption." Adsorbed species, II: G. Ehrlich, "Surface diffusion in adsorbed layers"; R. F. Willis, "Reflection electron scattering and the vibrational states of adsorbates."

16 August. Surface reactions, I: R. J. Madix, "Elementary kinetic processes on single crystals"; D. Auerbach, "Dynamics of the catalytic oxidation of CO." Surface reactions, II: D. E. Rosner, B. Halpern, J. Kiela, "Chemical energy accommodation in highly exoergic surface catalyzed reactions"; G. A. Somorjai, "High and low pressure studies of the dynamics of surface catalyzed reactions on single crystals."

17 August. Adsorption: J. C. Tully, "Computer simulation of gas-surface dynamics"; G. Ertl, "Energetics and dynamics of chemisorption on metals."

Elastin

Colby-Sawyer College

J. A. Foster, chairperson; L. Sandberg, vice chairperson.

11 June. Primary structure-soluble elastin and crosslinked peptides (L. Sandberg, chairperson): R. Anwar, R. Mecham, L. Sandberg. Ultrastructure and confirmation (J. Gosline, chairperson): L. Gotte, M. Long.

12 June. Biosynthesis I—organ culture and cell-free synthesis (J. Rosenbloom, chairperson): J. Foster, J. Rosenbloom. Biosynthesis II—*in vivo* and tissue culture (C. Franzblau, chairperson): J. Rucker, C. Franzblau.

13 June. Post-ribosomal modifications and interactions (E. Harris, chairperson): A. Kadar, R. Siegel, E. Harris. Elastolytic enzymes and inhibitors (J. Travis, R. Senior, chairpersons): J. Travis, R. Senior.

14 June. Elastin involvement in pulmonary disease (C. Kuhn, chairperson): A. Cohen, C. Kuhn. Open poster session. All interested participants are encouraged to bring posters of their current research.

15 June. Elastin involvement in cardiovascular disease (D. Kramsch, chairperson): H. Kagen, D. Kramsch.

Elastomers

Colby-Sawyer College

James E. McGrath, chairman; Lewis J. Fetters, vice chairman.

16 July. Elastomer synthesis: P. Teyssie, " 'Happenings' in the field of polybutadiene"; (R. A. Livigni, discussion leader). S. Inoue, "Narrow molecular weight distribution elastomeric epoxide polymers and copolymers"; (N. Calderon, discussion leader). G. Pampus, "Preparation and properties of new sol/gel elastomers"; (L. J. Fetters, discussion leader) J. P. Kennedy, "New methods for the synthesis of telechelic polymers and oligomers"; (D. H. Richards, discussion leader).

17 July. Polyurethanes: C. Macosko, "Reaction injection molding"; (A. L. Fricke, discussion leader). L. E. Hewitt, "Characterization of thermoplastic polyurethanes with emphasis on thermal methods of analysis"; (S. L. Cooper, discussion leader). Physical behavior of filled elastomers: A. N. Gent and C. T. R. Pulford, "Wear of and by rubber"; (T. L. Smith, discussion leader). V. J. McBrierty, "Fundamental aspects of filled elastomers"; (R. S. Stein, discussion leader).

18 July. Elastomer melt/bulk and surface characterization: J. L. White, "Influence of reinforcing particles on the rheological properties of polymer melts and elastomer processing"; (W. W. Graessley, discussion leader). G. Kraus, "Morphology and mechanical behavior of asphalts modified with butadiene-styrene block polymers"; (J. D. Ferry, discussion leader). D. J. Meier, "The deformation of elastomeric block copolymers"; (R. S. Porter, discussion leader). D. W. Dwight, "Characterization of elastomer surfaces"; (J. J. O'Malley, discussion leader).

19 July. Elastomers in thermoplastics: F. Haaf, "Structure-property relationships of elastomeric modifiers for thermoplastics"; (L. M. Robeson, discussion leader). G. Riess, "Dispersions of elastomers in thermoplastics"; (P. C. Juliano, discussion leader). J. D. D'Ianni, "Impact of the energy outlook on research and development in the rubber industry"; H. E. Schroeder, discussion leader).

20 July. Short contributions of recent research in elastomers: G. B. Butler, "Modification of polydienes via triazolinediones"; (A. Halassa, discussion leader). N. W. Tschoegl, "Volume relaxation in elastomers"; (G. L. Wilkes, discussion leader). G. S. Fielding-Russell, "Rubber to cord adhesion"; (K. L.

DeVries, discussion leader). R. E. Cohen, "Compatibility in elastomer blends"; (T. C. Ward, discussion leader).

Elementary Particle Interactions

Proctor Academy

Henry Frisch, chairman; Michael Chanowitz, vice chairman.

20–24 August. Deep inelastic processes and scaling tests (J. Vander Velde, session chairman). Searches for new phenomena (M. Schwartz, session chairman). Physics of heavy quarkonium states (K. Gottfried, session chairman). Charmed and other flavored states (G. Trilling, session chairman). Jets, high P_T and dileptons—experiment (P. Piroue, session chairman). Asymptotically free perturbation theory (I. Hinchliffe, session chairman). The "standard" model of the weak and electromagnetic interactions (M. K. Gaillard, session chairman). Beyond the "standard" model of the weak and electromagnetic interactions (K. Lane, session chairman). Open for new results (M. Chanowitz, H. Frisch, session chairmen).

Energy Coupling Mechanisms

Proctor Academy

Sidney Fleischer, chairman; Youssef Hatefi, vice chairman.

16 July. Session I—Membrane structure, orientation of membrane components (S. Fleischer, chairman): Biochemical studies: S. Fleischer, "Overview and recent studies"; R. Capaldi, "Structure of cytochrome oxidase based on specific labeling and crosslinking"; L. Packer, "Chemical modifications of bacteriorhodopsin"; Y. Ovchinnikov, "Biochemical and sequence studies of bacteriorhodopsin"; (J. Reynolds, discussion leader). Membrane structure, orientation of membrane components—Biophysical studies: J. Kent Blasie, "X-ray and neutron diffraction studies"; J. S. Leigh, "EM image reconstitution studies"; J. Seelig, "NMR studies"; C. Tanford, "Pumps and channels"; (W. Stoeckenius, discussion leader). Session II—Biophysical techniques to study structural and motional parameters of membrane components (B. Chance, chairman): B. Chance, "Overview"; P. Mueller, "Physical properties of lipid bilayers"; L. Powers, "Oriented lipid bilayers containing proteins"; J. Stomatoff, "X-ray diffraction from lipid bilayers and lipid bilayers containing proteins"; R. Henderson, "Methodological problems of low dose electron microscopy"; M. Ericińska, "EPR and optical studies of oriented membrane proteins"; J. Vanderkooi, "Distance measurements between membrane proteins"; Configuration, orientation, motion and distance measurements: (Panel discussion, Watt Webb, discussion leader).

17 July. Session III—Electron transport (Y. Hatefi, chairman): Mechanisms of electron transport; Y. Hatefi, "Overview"; H. Beinert, "At the level of NADH and succinate dehydrogenase"; T. Ohnishi, "At the level of ubiquinone-cytochromes *b*"; B. Chance, "At the level of cytochromes"; (E. Margoliash, discussion leader). Electron transport—mechanisms of energy transduction: P. Hinkle, "Protonmotive redox loops"; A. Lehninger, "Proton stoichiometry"; M. Avron, "Energy transduction in photosynthetic electron transport"; (L. Ernster, discussion leader). Electron transport—regulation of electron transport and respiratory chain energy transduction: T. King, "From NADH and succinate to ubiquinone"; D. Wilson, "From ubiquinone to oxygen." Session IV—Membrane biogenesis (A. Tzagoloff, chairman): Mitochondrial genome; G. Schatz, "Overview"; R. Morimoto, "Physical mapping"; C. Dujon, "Genetic analysis"; G. Macino, "Sequencing of mitochondrial DNA." Membrane biogenesis—organization of mitochondrial genes: A. W. Linnane, "ATP'ase genes"; R. Butow, "Var I protein"; H. R. Mahler, "Cytochrome *b* region." Membrane biogenesis—synthesis and transport of proteins in organelles: R. Poyton, "Cytochrome oxidase precursor"; N. Chua, "Mechanism of transport of ribulose diphosphate subunits into chloroplasts"; W. Sebald, "Evolution of ATP'ase proteolipids." Session V—Molecular aspects and mechanisms for transport of cations and anions in energy transducing membranes (E. Carafoli and M. Klingenberg, chairmen): L. deMeis, W. Hasselbach and M. Green, "Cation transport-sarcoplasmic reticulum"; (M. Tada, discussion leader). E. Carafoli, T. Gunter, A. Shamoo and G. F. Azzone, "Cation transport-mitochondria"; M. Klingenberg, F. Palmieri and B. Reynafarje, "Anion transport"; (J. R. Williamson, discussion leader).

18 July. Session VI—Structure of F_1 or F_1-like ATPases, nucleotide and P_i binding sites (P. Pedersen, chairman): P. Pedersen, "Overview"; L. M. Amzel, "Structure of rat liver F_1 (x-ray crystallography)"; A. Senior and J. Downie, "Contribution of genetic analysis to understanding the structure-function relationships of *E. coli* ATP'ase"; (P. D. Boyer, discussion leader). H. Penefsky, "Role of nucleotide and P_i binding sites in the mechanism of action of F_1"; E. Moudrianakis, "Transphosphorylation reactions in coupling factors"; G. Schafer, "Studies with nucleotide analogs"; Y. Kagawa, discussion leader). Session VII—Complete ATP synthetase complexes—interconversions of chemical and electrical energy (B. Beechey, chairman): B. Beechey, "Overview"; Y. Hatefi, "Bovine heart F_0-F_1 (complex V)"; Y. Kagawa, "Thermophilic bacterium F_0-F_1"; I Ryrie, "Yeast F_0-F_1"; P. Pedersen, "Rat liver F_0-F_1"; A. V. Babakov, "*S. faecalis* F_0-F_1"; (V. Skulachev, discussion leader).

19 July. Session VIII—Transport, motility and colicin action in bacteria (R. Kaback, chairman): P. Mitchell, "Overview—electrochemical proton gradients and active transport"; R. Kaback, "Electrochemical proton gradients and active transport in bacterial membrane vesicles"; W. Konings, "The electrochemical proton gradient in rhodopseudomonas spheroides"; J. Lanyi, "Mechanisms of sodium transport in halobacterium halobium"; J.-S. Hong, "Possible involvement of energy coupling factor in bacterial active transport"; C. Slayman, "Direct measurements of membrane potential in an energy coupling membrane"; R. McNab, "Bioenergetics of bacterial flagella"; B. Kagan, "Voltage dependent channels induced by colicins." Session IX—Transport in eukaryotic systems (R. Kaback, chairman): U. Hopfer, "Kinetics and mechanism of sodium dependent glucose transport"; J. Reeves, "Sodium-calcium exchange in cardiac membrane vesicles"; A. Scarpa, "Biological amine transport in storage vesicles"; S. Schuldiner, "Role of transmembrane *p*H gradient in adrenaline transport by chromaffin granule membrane vesicles"; G. Rudnick, "Platelet serotonin transport"; B. Kanner, "Transport in synaptosome vesicles."

20 July. Session X—Physiopathology—transmembrane electrochemical ion gradients and receptor linked message transmission processes (L. Kohn, chairman): A. Peterkofsky, "Protonmotive force dependent regulation of the adenylate cyclase system in *E. coli*"; A. Blume, "Transmembrane ion gradient changes in cultured neuronal cells"; L. Kohn, "Hormone, toxin and interferon induced changes in electrochemical ion gradients: relationships to message transmission." Physiopathology—mito-

chondrial membrane bioenergetics and disease (A. Scarpa, chairman): S. DiMauro, "Mitochondrial myopathies—which and how many?" P. Pederson, "Bioenergetics of tumor cells"; G. Radda, "NMR studies of intact tissue: disease aspects."

16–20 July. In addition to the oral presentations and discussion, posters will be an important part of the conference.

Environmental Sciences: Air

New Hampton School

John H. Seinfeld, chairman; George M. Hidy, vice chairman.

Tropospheric Chemistry and Gas-to-Particle Conversion

18 June. Homogeneous chemistry of the troposphere (Julius Chang, session chairman): Paul Crutzen, "Outstanding questions in the chemistry of the natural troposphere." (William Glasson, session chairman): Jack Calvert, "Outstanding questions in the homogeneous chemistry of the polluted troposphere."

19 June. Homogeneous chemistry of the troposphere (Kenneth L. Demerjian, session chairman): James N. Pitts, Jr., "Atmospheric chemistry of toxic substances." (Donald Stedman, session chairman): Douglas D. Davis, "Measurements of stable and short-lived species in the troposphere."

20 June. Gas-to-particle conversion (C. S. Kiang, general chairman; Anthony Cox, session chairman): Will Castleman, Jr., "Assessment of our understanding of fine particle formation by nucleation in the atmosphere." (David Miller, session chairman): James P. Friend, "Gas-to-particle conversion in the SO_2-sulfate system."

21 June. Gas-to-particle conversion (William Pierson, session chairman): Ruprecht Jaenicke, "Physical aspects of atmospheric aerosols with special emphasis on Aitken nuclei." (S. K. Friedlander, session chairman): Benjamin Y. H. Liu, "Measurement of ultrafine aerosols."

22 June. Visibility (Glen Hilst, session chairman): Robert J. Charlson, "The relationship between visible haze and fine particles."

Enzymes, Coenzymes and Metabolic Pathways

Kimball Union Academy

Eugene H. Cordes and George R. Stark, co-chairmen.

16 July. E. Grunwald, "Mechanisms of proton transfer reactions in aqueous solutions"; W. P. Jencks, "When is an intermediate not an intermediate? Enforced mechanisms for carbonium, carbanion and acid-base catalyzed reactions"; F. Westheimer, "Mechanisms of chemical hydrolysis of phosphate esters"; I. A. Rose, "Partitioning of intermediates in the hexokinase reaction"; J. R. Knowles, "Stereochemical restraints on phosphoryl transfer: The use of chiral [^{16}O, ^{17}O, ^{18}O] phosphate monoesters"; B. D. N. Rao, "The interconversion step in some phosphoryl transfer enzymes: A ^{31}P-NMR study"; F. Eckstein, "Interaction of nucleoside phosphorothioates with nucleotide polymerases."

17 July. H. Muirhead, "The three-dimensional structure and active site of an M-type pyruvate kinase"; P. R. Evans, "Structure, activity and control of phosphofructokinase from *B. stearothermophilus*"; J. D. Corbin, "Structure and mechanism of activation of cAMP-dependent protein kinases"; W. Stoeckenius, "The structure and function of the purple membrane"; R. Mathies, "Resonance raman studies of rhodopsin and bacteriorhodopsin"; P. Rentzepis, "Electron and proton transfer processes in membranes."

18 July. P. Bey, "Enzyme-activated irreversible inhibition of ornithine decarboxylase by substrate and product analogues"; J. R. Knowles, "Inactivation of β-lactamases: murder or suicide?"; P. R. Ortiz de Montellano, "Mechanism of inactivation of cytochrome P-450 by allylisopropylacetamide and ethynyl compounds"; D. V. Santi, "Suicide inhibitors in pyrimidine metabolism"; J. Lehn, "Cryptate: substrate complexes as models for enzymes"; K. S. Suslick, "Synthetic analogues of myoglobin and hemoglobin"; T. C. Bruice, "Mechanism of oxygen activation and dehydrogenation reactions involving flavins."

19 July. A. L. Fink, "The detection and characterization of intermediates in enzyme catalysis using subzero temperatures"; G. Petsko, "The crystal structures of enzyme substrate complexes stabilized by subzero temperature"; P. Douzou, "The study of biological hydroxylation mechanisms at sub-zero temperatures"; D. T. Sawyer, "Redox chemistry of dioxygen species and their chemical reactivity"; T. Kuwana, "Approaches to electrochemical evaluation of redox properties of biocomponents and to bioelectrocatalysis."

20 July. S. J. Benkovic, "Folate requiring enzymes in purine biosynthesis"; F. H. Gaertner, "Unique catalytic properties of enzyme clusters: the *arom* pentafunctional enzyme of *Neurospora*"; G. R. Stark, "Multifunctional enzymes of pyrimidine biosynthesis from mutants with amplified genes."

Applications

Scientists are invited to submit applications for attendance at the Gordon Research Conferences. An application blank is on page 1169 and may be submitted to Dr. Alexander M. Cruickshank, Director, Gordon Research Conferences, University of Rhode Island, Kingston, Rhode Island 02881.

Epithelial Differentiation and Keratinization

Tilton School

Irwin M. Freedberg and Isadore A. Bernstein, co-chairpersons.

6–10 August. This will be the first Gordon Research Conference directed specifically at problems of epithelial differentiation and keratinization. The major recent biochemical and molecular biological advances in the area indicate that new insights into the complex problems of the field will result. Throughout the conference the major emphasis will be upon participation by individual attendees in formal presentations and group discussions. Time and space will be available for poster presentations of results and/or problems.

During each session there will be several major presentations dealing with state of knowledge in each specific area. The emphasis in these presentations will be major new advances which may not be otherwise available to participants. Among the topics to be considered are: epithelial structure, models of epithelial differentiation, normal and pathologic epithelial differentiation *in vivo* and *in vitro*, physical and chemical epithelial carcinogenesis, epithelial repair, epithelial-mesenchymal interactions, biosynthesis of epithelial proteins, keratin, and nonkeratin epithelial proteins.

Fertilization and the Activation Process

Holderness School

Everett Anderson, chairman; Bennett M. Shapiro, co-chairman.

30 July. Gametes and the activation process (Everett Anderson, chairperson): Everett Anderson, "Comparative aspects of egg ultrastructure"; Yoshio

Masui, "Cytoplasmic factors inducing maturation"; E. B. Ridgway, "Ion changes (Ca^{++}) during activation of teleost eggs"; Richard A. Steinhardt, "Analysis of ionic changes during activation of sea urchin eggs." Gametes and the activation process (Bennett Shapiro, chairperson): Bennett M. Shapiro, "Activation of the sea urchin egg"; James Dumont, "Egg activation in amphibians"; Don Fawcett, "Comparative aspects of sperm ultrastructure"; David Whittingham, "Egg activation in mammals"; Barry R. Zirkin, "Sperm activation in mammals."

31 July. Fertilization in prokaryotes and lower eukaryotes (Ursula Goodenough, chairperson): Vivian MacKay, "Genetic control of conjugation in yeast"; Darryl A. Ray, "Surface glycoproteins in mating of *Chlamydomonas reinhardi*"; Gary Kochert, "Sexual pheromones in *Volvox* reproduction"; Jason Wolfe, "Communication between cells of complementary mating types of *Tetrahymena*." Triggers in egg activation and parthenogenesis (Luther Franklin, chairperson): Edward L. Chambers, "Further studies on Na^+ and Ca^{2+} fluxes at the initiation of activation"; David Epel, "Effects of Ca^{2+} and *p*H on egg metabolism"; Pierre Soupart, "Initiation of embryonic development by oocyte fusion procedure"; Matthew M. Winklers, "Intracellular *p*H and the regulation of protein synthesis in the sea urchin egg."

1 August. Sperm behavior during the fertilization process (Robert G. Summers, chairperson): Mildred Gordon, "The effects of animal lectins on the surface of mammalian sperm"; Dale D. Hoskins, "Development of sperm motility"; Stanley Meizel, "Biochemical mechanisms of the sperm acrosome reaction"; Robert Schackmann, "Ionic events associated with the acrosome reaction of *S. purpuratus* sperm"; Victor D. Vacquier, "Molecules involved in sperm-egg adhesion during sea urchin fertilization." Egg surface: sperm reception and the blocks to polyspermy (Ralph B. Gwatkin chairperson): Erwin Goldberg, "Immunological inhibition of fertility by the sperm specific LDH ($LDH\text{-}C_4$)"; William J. Lennarz, "Characterization of components involved in sperm-egg binding"; C. A. Shivers, "Immunological blocks to sperm reception"; Don P. Wolf, "Blocks to polyspermy in the egg."

2 August. Changes of the activated/fertilized egg and pronuclear development (Jerry L. Hedrick, chairperson): John C. Gerhart, "Reversal of the prospective ventral axis of *Xenopus* eggs by gravity"; Frank J. Longo, "Regulation of pronuclear development"; Gerald P. Schatten, "The movements of the pronuclei at fertilization"; Herbert Schuel, "Plasma membrane and cortical granule mediated blocks to polyspermy in sea urchin eggs." (Everett Anderson, chairperson): Kenneth Ryan, "Ethics in science."

3 August. Genetics of fertilization (Patricia Olds-Clarke, chairperson): Lee M. Silver, "A molecular analysis of mouse *T/t* complex genetics and spermatogenesis"; Robert P. Erickson, "Mechanisms involved in preferential fertilization by *t*-allele bearing sperm"; Samuel Ward, "Genetic dissection of nematode fertilization."

Few Body Problems in Chemistry and Physics

Brewster Academy

Donald J. Kouri, chairman; Roger G. Newton, vice chairman.

13–17 August. R. D. Levine, "Small system dynamics—the information theoretic approach"; M. Baer, "Approximation methods for reactive scattering"; F. S. Levin, "Applications of connected kernal methods to nuclear reactions"; D. K. Hoffman, "Generalized BBGKY hierarchy for reacting fluids using connected kernal dynamical equations"; E. F. Redish, "Connected kernal approach to embedding of few body models of nuclear reactions in *N*-body scattering theory"; R. A. Marcus, "Semi-classical mechanical approach to quantization"; D. G. Truhlar, "Current status of the theory of collisional dissociation in chemical systems"; G. Schatz, "The use of stochastic methods in studies of molecular collisions"; R. B. Gerber, "New developments in the inversion of scattering data"; M. Shapiro, "Franck-Codon factor approach to reactive collisions"; W. A. Lester, Jr., "Electronic transitions in atomic and molecular collisions"; T. K. Lim, "Efimov states in molecular systems"; P. Brumer, "On erogodicity in classical systems"; A. Lau, "Laser controlled atomic and molecular collisions: field dependent rate 'constants' "; T. Osborne, "Connected kernal methods in statistical mechanics"; P. Pechukas, "Trapped trajectories and transition state theory"; C. Chandler, "A two Hilbert space view of nonrelativistic multichannel quantum scattering theory"; W. Reinhardt, "Spectra of one electron atoms in external fields"; W. Sandhas, "Few-body dynamics including Coulomb forces"; I. Sloan, "New methods for numerical solutions of integral equations in scattering theory"; D. Brayshaw (subject to be announced); J. R. Taylor, "Three-body collision rates"; I. J. R. Aitchison, "New topics on 2-3 scattering." Poster session will be held Thursday evening.

Fiber Science

Colby-Sawyer College

Stanley E. Ross, chairman; Colin Brown, vice chairman.

2 July. Symposium on structure—property relationships (J. Zimmerman, discussion leader): R. D. Chapman, D. A. Holmer, O. A. Pickett, K. R. Lea, and J. H. Saunders, "Relationships between chemical structure and properties of fibers from partially aromatic polyamides"; R. A. Schutz, "New aspects of structure-property relationships of semicrystalline polymers as fibers." (E. Peters, discussion leader): J. W. S. Hearle, "Fiber fracture and fatigue and relationship to structure and morphology."

3 July. Symposium, continued (C. Williams, discussion leader): H. M. Heuvel, R. Huisman, "Physical structure of high speed spun polyethylene terephthalate and polyamide yarns"; J. P. Bell, A. J. Hughes, G. E. Sweet, "Structure and stress cracking studies of fibers using selective degradation techniques." (O. Heuberger, discussion leader): H. Herlinger, P. Hirt, W. Denneler, Ch.-J. Tschang, W. Aldinger, H. Dolmetsch, E. Schollmeyer, A. Gröbe, "Correlation of chemical and physical structure of elastomer fibers to their elastic behavior and textile properties."

4 July. (G. C. Tesoro, discussion leader): R. Sakurai, "New advances in the modification of synthetic fibers"; B. Miller, "Current concepts of textile ignition." (S. B. Sello, discussion leader): S. L. Vail, "New approaches to low formaldehyde finishing of cellulosics"; G. M. Bryant, A. T. Walter, "Foam impregnation of fabrics at controlled low wet pick-ups."

5 July. (S. Backer, discussion leader): P. Grosberg, "Rheology of nonwoven fabrics"; J. Skelton, "Flex fatigue behavior of woven fabrics." (S. Goldwasser, discussion leader): R. McGregor, R. D. Gilbert, L. M. Harvey, "New studies on the use of ESR to measure the mobility of penetrant molecules in relation to the environmental stability of dyed materials."

6 July. (S. K. Batra, discussion leader): R. Shishoo, "Effect of moisture and temperature on the viscoelastic properties of textile fibers"; D. Brookstein, W. Z. Black, S. Schulman, "On the thermal conductivity of fibers."

Fluids in Permeable Media—

Physics and Chemistry of Displacement

Kimball Union Academy

T. M. Geffen, chairman; R. L. Reed and R. S. Schechter, co-vice chairman.

13 August. Displacement mechanisms (F. Stalkup, session chairman): S. C. Jones, "Some surprises in the transport of oils through porous media"; A. Payatakes, "Ganglia population movement, bank formation"; A. Metzner, "Crystallization of polymers attending flow through porous media." Fluid properties: R. K. Knight, "Polymer inaccessible pore volume—myth or fact"; R. Fummerfelt, "Measurement of dynamic interfacial properties and their effects on coalescence rates"; J. C. Slattery, "Interfacial viscometry"; J. S. Huang and M. W. Kim, "Phase transitions in a microemulsion."

14 August. Micellar fluids structures (E. Clippinger, session chairman): Y. Talmon, "Fast-freeze electron microscopy of fluid microstructures"; S. Prager, "Statistical mechanics modeling of fluid microstructures using voronoi tesselation"; W. J. Benton, "Interfacial behavior accompanying contact of oil with aqueous solutions of petroleum sulfonates"; R. Larson, "Monte Carlo simulation of surfactant microstructure." Phase behavior of micellar fluids: M. Bourrel, "Phase behavior for mixtures of non-ionic and anionic surfactants"; A. Hall, "Phase behavior and interfacial tension"; M. Baviere, "Effects of alcohols on microemulsion sensitivity to water-oil ratios"; D. Siano, "Stratified sedimentation in hydrophobic colloids and microemulsions."

15 August. Fluid-solid interactions (J. C. Melrose, sessions chairman): R. L. Reed and R. N. Healy, "Contact angles of equilibrated microemulsion systems"; H. T. Davis and K. Mohanty, "Thin film states, wettability and origins of heterogeneous behavior in porous media"; L. Noll, "Enthalpy of adsorption of sodium dodecylbenzene sulfonate from water and from toluene onto solids." Fluid-solid interactions: F. Dullien, "Influence of wettability of sandstones on drainage and imbibition relative permeability and capillary pressure characteristics"; R. E. Meyer, "Adsorption of inorganic ions on minerals"; N. Morrow, "Contact angles and capillary number"; S. Wellington; "Millipore filtration of biopolymers in relation to molecular weight distribution."

16 August. Micellar flooding. (L. W. Lake, session chairman): G. Hirasaki and Fred Helfferich, "Displacement in multiphase-multicomponent systems"; C. Huh, "Optimization of microemulsion flooding"; S. P. Gupta, "Compositional effects on displacement mechanisms of a field micellar fluid"; W. Holm, "Effects of phase relationships and injected micellar composition on oil recovery"; S. J. Salter, "Effects of divalent ions on microemulsion flooding"; B. W. Gash, "Effect of slug degeneration on oil displacement by micellar fluids."

17 August. CO_2 flooding (R. L. Reed and R. S. Schechter, session co-chairmen): R. S. Metcalfe and R. L. Henry, "Phase equilibria effects on CO_2 flooding of crude oil"; F. M. Orr, "CO_2-crude oil displacement mechanisms"; W. F. Yellig, "Mechanisms of CO_2-reservoir oil displacement"; R. W. Watkins, "Effects of porous media pore structure on residual oil saturation to miscible displacement."

An application blank for attendance at the Gordon Research Conferences may be found on page 1169.

Food and Nutrition

Colby-Sawyer College

Benjamin Borenstein, chairman; Norman N. Potter, vice chairman.

30 July. Chemistry and toxicology of irradiated foods (Ari Brynjolfsson, discussion leader): Irwin A. Taub, "Radiation chemistry of basic food components"; Charles Merritt, "Analysis of radiolytic products"; Walter Fiddler, Herbert Blumenthal, "Analysis of nitrites and nitrosamines"; Joyce McCann, "In vitro methods for evaluating potential carcinogenicity and mutagenicity"; Peter S. Elias, "Evaluating the long-term safety of irradiated foods."

31 July. Dietary fiber in the gastrointestinal tract: food and nutritional implications (George Inglett, discussion leader): H. H. Sandstead, "Effects of dietary fiber on mineral requirements, plasma lipids and glucose metabolism"; David Kritchevsky, "Dietary fiber and its effect on lipid metabolism"; A. A. Salyers, "Action of human colon bacteria on dietary fiber components." (H. H. Sandstead, discussion leader): G. E. Inglett, "Structure and composition of fibers before and after human gastrointestinal action"; Albert I. Mendeloff, "Gastrointestinal disorders and dietary fiber."

1 August. Cold exposure: thermoregulation as a new variable in the obesity equation (Steve Kreitzman, discussion leader): J. Himms-Hagen, "Is obesity due to a defect in non-shivering thermogenesis?" L. Landsberg, "Environmental alterations of the sympathetic nervous system: implications for thermogenesis"; E. Danforth, "Environmental alterations in thyroid metabolism and thermogenesis." Prostaglandins and nutrition (Jacqueline Dupont, discussion leader): Howard Sprecher, "Fatty acid precursors of prostaglandins: elongation, desaturation and lipolysis"; William E. M. Lands, "Regulation of enzymatic synthesis and degradation of prostaglandins": Antoine J. Vergroesen, "Pathophysiological effects of prostaglandin metabolism, modified by dieteary changes."

2 August. (Melvin M. Mathias, discussion leader): Vincent A. Ziboth, "Essential fatty acid deficiency and prostaglandin metabolism"; Jacqueline Dupont, "Dietary linoleate concentration and prostaglandin synthesis"; Dong-Ho Hwang, "Effects of different dietary polyunsaturated fatty acids on prostaglandin biosynthesis"; Lawrence J. Machlin, "Vitamin E and selenium effects on prostaglandin metabolism." Imitative aspects of obesity (Stanley M. Garn, discussion leader).

3 August. Nutrition guidelines and goals (Norman N. Potter, discussion leader): Roger G. Hansen, "Recommended dietary allowances, 1979"; Mark D. Hegsted, "USDA nutrition research program."

Free Radicals

Proctor Academy

Douglas C. Neckers, chairman; Gerhard L. Closs, vice chairman.

11 June. Earl Huyser, "Chain reactions of organic peroxides"; James Wilt, "A comparison of halosilanes and haloalkanes in various free radical processes"; F. S. Rowland, "Halogen atom additions to π systems as studied with radiotracer ^{18}F and ^{38}Cl."

12 June. Gordon Hamilton, "Radicals species derived from O_2 in model and enzymic reactions"; John Groves, "Molecular mechanisms of oxygen activation and transfer in hydroxylation and epoxidation reactions"; Teddy Traylor, "Free radical reaction in heme catalyzed oxidations."

13 June. Thomas Tidwell, "Intramolecular free radical displacement reactions"; Alwyn G. Davies, "Studies of small rings and σ-radicals"; Jerome Berson, "Recent studies on biradicals."

14 June. Robert Stein, "Autoxidation in biomembranes—model and natural"; Christopher Foote, "Electron transfer photooxidation." Poster session.

15 June. Hanns Fischer, "Termination kinetics of some transient radicals in liquids"; Keith Ingold, "Recent studies on free radicals by E.P.R. spectroscopy."

Fuels Science

Plymouth State College

Lester G. Massey, chairman; Wendell Wiser, vice-chairman.

2 July. Tar sands and oil shale (T. F. Yen, session chairman): Otto P. Strauz, "Some aspects of the chemistry of oil sands bitumen"; Alex G. Oblad, "Chemistry of recovery and processing of bitumen and synthetic crudes from Utah's tar sands"; John H. Campbell, "Reaction kinetics of oil shale retorting"; Donald Fausett, "Reaction mechanisms of oil shale retorting"; T. F. Yen, "Structural studies of the bitumen and kerogen in oil shale."

3 July. Coal and residuals: gasification, pyrolysis, liquefaction (David S. Ross, session chairman): Derek Williams, "The chemical composition of extracts derived from coal by supercritical gas extraction"; Richard Schlosberg, "Fundamental coal studies under simulated conversion conditions"; Dale Briggs, "Colloid chemistry of liquefied coal systems"; Bradley Bockrath, "Kinetic evaluation of hydrogen donor solvents"; Herman Feldman, "Catalysis of char gasification."

4 July. Coal and residuals: gasification, pyrolysis and liquefaction (Karl Vorres, session chairman): Norman C. Deno, "Determination of aliphatic groups in coal"; Joanne Pabst, "Catalysis of coal gasification by potassium compounds"; R. W. Coughlin, "Electrochemical gasification of coal"; John W. Larsen, "Reactions of coal with phenol"; Thomas Mitchell, "Reactivity and product composition function on rank."

5 July. Flames and combustion technology (Charles T. Ratcliffe, session chairman): Jost O. Wendt, "Mechanism of NO_x formation during pulverized coal combustion"; M. F. R. Mulcahy, "Kinetics of carbon combustion and burnout of pulverized fuel"; Gail D. Ulrich, "Mechanism of sub-micron fly ash formation: application to coal combustion."

6 July. Internal combustion engine fuels: fuel combustion technology (Thomas W. Bierl, session chairman): James C. Keck, "Laminar combustion of practical fuels under conditions encountered in internal combustion engines and burners"; Daniel J. Seery, "Combustion of micronized coal/oil slurries."

Glycoproteins and Glycolipids

Kimball Union Academy

Phillips W. Robbins, chairman; Donald M. Marcus and Pamela Stanley, co-vice chairmen.

6 August. (A. Kobata, chairman): Jeremy Carver and Frank Maley, "Chemical structure." (Guido Guidotti, chairman): Dan Branton and M. Tanner, "Cell membrane glycoproteins."

7 August. (Carlos Hirschberg, chairman): Stuart Kornfeld, William Lennarz and Ralph Schwarz, "Synthesis and processing of glycoproteins and glycolipids." (Pamela Stanley, chairman): Harry Schachter and Robert Hill, "Synthesis and processing of glycoproteins and glycolipids."

8 August. (Gilbert Ashwell, chairman): Sam Barondes and Leonard Kohn, "Cell membrane carbohydrate receptors." (Elizabeth Neufeld, chairman): William Sly and Philip Stahl, "Cell membrane carbohydrate receptors."

9 August. (K. Suzuki, chairman): Oscar Touster and John O'Brien, "Catabolism of glycoproteins and glycolipids." (Donald Marcus, chairman): Victor Ginsburg and S. Hakomori, "Carbohydrate antigens."

10 August. (Rosalind Kornfeld, chairman): Clinton Ballou and Om Bahl, "Function of carbohydrate in secretion of macromolecules and cellular adhesion."

Heterocyclic Compounds, Chemistry of

New Hampton School

Ernest Wenkert, chairman; Englebert Ciganak, vice chairman.

9–13 July. J. F. Biellmann, "The chemistry and biochemistry of pyridinium compounds"; R. Bucourt, "Cephalosporin chemistry"; S. Danishefsky, "Synthesis of heterocyclic natural products"; D. A. Evans, "Ionophore total synthesis"; H. W. Gschwend, "Heteroatom-facilitated lithiation as a tool in heterocyclic synthesis"; E. C. Kornfeld, "Synthesis of ergoline-like substances"; P. D. Magnus, "Spirocyclic ethers, a new class of compounds"; H. W. Moore, "Zwittazido cleavage"; L. A. Overman, "Applications of sigmatropic rearrangements to heterocyclic synthesis"; R. V. Stevens, "Studies on the synthesis of heterocyclic natural products"; M. Tiecco, "Radical functionalization of heteroaromatic compounds"; M. Tišler, "Heterocyclic formamidines and formamidoximes as synthons"; H. G. Viehe, "Radico- and electro-philes in heterocyclic synthesis"; E. Winterfeldt, "Unsaturated lactams in stereoselective alkaloid synthesis."

Inorganic Chemistry

New Hampton School

John P. Fackler, chairman; Jack M. Williams, vice-chairman.

Structure/Reactivity Relationships in Inorganic Chemistry

6 August. Asymmetric synthesis and catalysis (S. J. Lippard, chairman): B. Bosnich, "Catalytic asymmetric synthesis. The ultimate synthetic method"; J. M. Lehn, "Macrocyclic ligands and binuclear cryptates." Poster presentations. (J. P. Fackler, Jr., chairman): A. Balch, "Novel aspects of the chemistry of diphosphine bridged binuclear metal complexes"; V. Goedken, "Structure-reactivity relationships in highly conjugated macrocyclic ligand complexes"; F. L. Urbach, "New binuclear copper complexes and their redox properties."

7 August. Organometallic reactions (H. Kaesz, chairman): T. Marks, "Structure/reactivity relationships in actinide chemistry"; H. Schmidbaur, "Recent advances in the coordination chemistry of ylides"; C. Lukehart, "Metalla-β-diketones and their derivatives." Magnetic and spectroscopic studies of anisotropic compounds (R. Herber, chairman): F. DeSalvo, "Two dimensional effects in the physical and chemical properties of layered compounds"; M. Gerloch, "Chemical information from paramagnetism"; J. Reedijk, "Synthesis, structure, and magnetic exchange properties of dimeric, tetrameric and linear-chain type fluoro-bridged transition metal coordination compounds."

8 August. Nuclear magnetic resonance and other spectroscopic studies (J. Faller, chairman): J. Waugh, "Applications of solid state NMR to inorganic chemistry"; (speaker to be announced), "NMR in two frequency dimensions"; J. Faller, "Applications of new NMR techniques to structures and mechanisms." A. Cowley, "Structure/reactivity—the UV photoelectron spectroscopic view"; P. S. Prigosin, "^{15}N, ^{31}P and ^{195}Pt NMR stud-

ies of platinum complexes''; Ralph W. Rudolph, ''The NMR spectra of naked metal clusters.''

9 August. Theoretical implications (W. Goddard, chairman): M. Hall, ''New developments in molecular orbital methods: theory and applications''; R. Hoffman, ''Structure and mobility in cluster complexes''; I. B. Bersuker, ''Implications of the Jahn-Teller theorem.'' Polynuclear complexes—biological and otherwise (E. Stiefel, chairman): R. Holm, ''Mo-Fe-S cluster chemistry''; T. Spiro, ''Resonance Raman spectra of Fe-S and Cu-proteins''; D. Coucouvanis, ''The use of tetrahedral mercaptides in the synthesis of active site analogues.''

10 August. Developments (J. Williams, chairman): R. Eisenberg, ''Approaches to the activation of CO and CO_2''; J. Williams, ''Catalyst modeling using neutron crystallography.''

Inorganic Geochemistry

Holderness School

C. Wayne Burnham and George W. Fisher, co-chairmen; E. Horikoshi, vice chairman.

Equilibrium and Kinetic Properties of Silicate Melts

20 August. Thermodynamic models of melts (A. Navrotsky, chairman): I. Carmichael, Y. Bottinga. Structural models of melts (D. Fraser, chairman): P. Hess, W. Burnham.

21 August. Physical properties of melts (H. Shaw, chairman): H. Waff, G. Brown. Solution equilibria (J. Thompson, chairman): J. Blencoe, A. Philpotts.

22 August. Crystal-liquid equilibria (D. Presnall, chairman): I. Kushiro, M. Drake. Vapor-liquid equilibria (B. Musen, chairman): D. Eggler, J. Holloway.

23 August. Diffusion in melts (A. Lasaga, chairman): A. Hoffman, A. Cooper. Kinetics of crystallization (J. Hays, chairman): R. Kirkpatrick, N. Gray.

24 August. Mechanisms of intrusion (D. Wones, chairperson): B. Marsh, W. Hildreth.

Interfaces, Chemistry at

Kimball Union Academy

Brian A. Pethica, chairman; I. J. Heilweil, vice-chairman.

2 July. Monolayers at liquid interfaces (E. D. Goddard, chairman): N. L. Gershfeld, ''Phase transitions in monolayers''; D. A. Cadenhead, ''Molecular packing in steroid/lecithin monolayers''; E. Sackmann, ''Lateral organization of lipid-water and lipid-air interfaces''; other contributions to be announced.

3 July. Interfacial rheology of liquid interfaces (R. S. Hansen, chairman): F. C. Goodrich, ''The extension of Gibbs conventions to dynamic properties''; J. A. Mann, ''Molecular dynamics of surface rheology''; D. Langevin (subject to be announced).

4 July. Liquid thin films (S. G. Mason, chairman): D. A. Haydon, ''The adsorption of lyophilic molecules into lipid bilayers''; A. Scheludko and D. Platikanov, ''Line tension''; H. Ti Tien, ''Ultrathin films and energy transduction''; other contributions to be announced.

5 July. Phase transitions in surface and colloid systems. (F. A. Putnam and R. G. Laughlin, co-chairmen): P. S. Pershan, ''Phase transitions in two and three dimensions''; J. C. Lang, ''Phase diagram of surfactant systems''; W. G. Miller, ''Surface phase transitions in microemulsion systems.''

6 July. The oxide-water interface (L. Abrams, chairman): T. W. Healy, ''The TiO_2/water interface''; G. Joptien, ''The SiO_2/water interface.''

Ion Containing Polymers

Plymouth State College

A. Eisenberg, chairman; R. C. Slagel, vice chairman.

30 July. Ion aggregation (A. Eisenberg, chairman): M. Pineri, ''Novel methods for characterising ionic aggregates''; F. Kaufman, ''Ionic aggregation in TTF donor polymers.'' The solid state (R. Longworth, chairman): R. S. Stein, ''X-ray and neutron small angle scattering by macromolecular systems''; W. J. MacKnight, ''Structure and properties of isonomers.''

31 July. Solutions (A. J. Hopfinger, chairman): M. Fixman, ''Theory of polyelectrolytes in dilute solution''; J. S. Tan, ''Interactions of water-soluble polymers with small ions and molecules.'' Solutions (A. Rembaum, chairman): N. Ise, ''New approach to polyion catalysis''; D. Meisel, ''Polyelectrolyte effects on photoinduced electron transfer reactions.''

1 August. Organic (H. Makowski, chairman): G. B. Butler, ''Ion containing polymers via modification of polydienes with triazolinediones.'' Materials (J. E. McGrath, chairman): R. D. Lundberg, ''The viscoelastic properties of sulfonated ionomers.'' Materials (M. Goldstein, chairman): C. Masson, ''Liquid silicates as ionic polymers''; D. Day, ''Alkali ion motion in inorganic glasses.''

2 August. Applications (R. C. Slagel, chairman): W. Grot, ''Applications for 'Nafion' perfluorosulfonic acid products''; L. Bowman, ''Quaternized glass beads for exclusion chromatography of water soluble polymers.'' Short presentations (S. L. Cooper, chairman).

3 August. Applications (B. M. Culbertson, chairman): S. D. Bruck, ''Polyelectrolyte hydrogels and other ionic polymers in biomedical applications''; C. Christopher, ''Application of water soluble polymers to enhanced oil recovery.''

Ion Exchange

Kimball Union Academy

John Miller, chairman; Gilbert E. Janauer, vice-chairman.

20 August. New materials (H. Walton, chairman): L. Roubinek, ''Nitrate-selective amidine resins''; W. C. Bauman, ''Three-phase ion composites''; M. Baldwin, J. Barret, ''New structures in ion-exchange resins''; R. E. Robinson, ''High density anion resins for metallurgical applications''; M. P. Grammont, ''Brominated high-density anion resins.''

21 August. Theoretical aspects (F. Helfferich, chairman): V. Soldatov, ''Multi-component equilibria''; M. McBride, ''Cation exchange in montmorillonites: interpretation of selectivity variations''; D. Tondeur, ''Continous separations by changes in thermal equilibria''; L. Liberti, ''Kinetics of $SO_4^=$/Cl^- exchange on weak-base resins''; (R. E. Anderson, chairman): D. Clifford, ''Selectivity in anion-exchange resins.'' Followed by a discussion group on Cl^-/$SO_4^=$ equilibria.

22 August. Inorganic ion exchangers: The rebirth of inorganic ion exchange (H. Sherry, chairman): R. M. Barrer, ''Ion-exchange in zeolites''; G. H. Kuehl, ''Zeolites as detergent builders''; R. B. Barrett, ''Role of ion-exchange in *in-situ* leaching of copper and uranium''; R. F. Bartholomew, ''Ion-exchange properties of glass.''

23 August. Liquid phase adsorption (J. Sherman, chairman): C. Horvath, ''Thermodynamics of adsorption and solvent effects''; V. L. Snoeyink, ''Polymeric adsorbents''; M. Manes, ''Carbonaceous adsorbents''; E. M. Flanigan, ''A new hydrophilic molecular sieve: Silicate''; (speakers to be announced): ''Looking back to the first Gordon Research Conference on Ion Exchange.''

24 August. Energy-related ion-ex-

change (G. Janauer, chairman): F. Helferich, "Diffusion and transport in multiphase systems"; J. S. Falcone, "Effects of Mg^{++} and Ca^{++} activity reduction on composition of reservoir brines"; E. Sondreal, "Ion exchange in lignites"; F. X. McGarvey, "Recovery of uranium from alkaline and neutral chloride-containing solutions."

Laser Matter Interaction

Tilton School

Keith Boyer, chairman; John Alcock, vice-chairman.

13 August. Laser plasma interaction theory (R. Morse, chairman): B. Langdon, D. Forslund, M. Rosen, B. Bezzerides, E. Williams, J. C. Virmont. Laser absorption and back-scatter experiments. (J. Dawson, chairman): D. Giovanielli, V. Rupert, H. Baldis, A. Hoffman, F. Mayer, G. Enright, L. Goldman.

14 August. Energy spectrum and transport (G. McCall, chairman): E. Eidmann, K. Mitchell, R. Benjamin, S. Bodner, E. Fabre, C. Yamanaka, T. H. Tan. Pellet design and stability (R. Kidder, chairman): J. Boris, G. McClelland, E. Lindman, G. Zimmerman, R. Kopp, R. McCrory, K. Mima.

15 August. Laser pellet experiments (R. Dautray, chairman): G. McCall, M. Campbell, J. Soures, M. Richardson, Soviet contributions. Electron and ion beam fusion and plasma heating physics (S. Witkowski, chairman): M. Widner, P. Nix, A. A. Pietrzyk, R. Johnson.

16 August. Diagnostics (R. Ramsden, chairman): N. M. Celgio, T. Yamanaka, A. Hauer, B. Yakobi. Drivers (N. Rostoker, chairman): P. Miller, R. Arnold, D. Keefe, L. Thode, W. Krupke.

17 August. Summary (A. Hertzberg, chairman): critical evaluation of present status and unresolved problems.

Lipid Metabolism

Kimball Union Academy

M. Daniel Lane, chairman; Robert W. Mahley, vice chairman.

18 June. Genetic control and development of lipid metabolism (R. Bell, session chairperson): D. F. Silbert, "Membrane sterol-phospholipid interrelationships in sterol auxotrophs of mouse fibroblasts; C. R. R. Raetz, "Isolation and properties of mutants in membrane lipid synthesis"; B. C. Reed, "Surface receptor regulation in differentiating 3T3-L1 preadipocytes"; R. A. Coleman, "Selective changes in microsomal enzymes of glycerolipid synthesis during preadipocyte differentiation"; L. S. Wise, "Development and regulation of lipoprotein lipase in 3T3 preadipocytes." Poster session. Vitamin K and prostaglandins (M. D. Lane, session chairperson): J. W. Suttie, "Vitamin K-dependent carboxylase"; F. A. Kuehl, "Products of arachidonic acid metabolism in pathological processes"; M. I. Siegel, "Regulation of arachidonate metabolism via lipoxygenase."

19 June. Membranes (R. E. Pagano, session chairperson): T. E. Thompson, "Compositional transbilayer asymmetry and movement of phospholipids in membranes"; V. A. Parsegian, "Forces stabilizing the assembly of lipid aggregates"; W. W. Webb, "The meaning of membrane and molecular mobility"; T. Y. Tsong. "Control of membrane porosity." Poster session. Membranes (R. O. Poyton, session chairperson): H. M McConnell, B. Smith, W. Parce and J. Humphries, "Molecular motions in membranes and the immune response"; R. E. Pagano, D. K. Struck, A. J. Schroit, "Introduction of hapten-conjugated and fluorescently labeled phospholipids into plasma membranes of mammalian cells via lipid vescicles"; M. J. Osborn, "Fluid dynamics of the outer membrane of *Salmonella*."

20 June. Membrane assembly, turnover and function (M. J. Osborn, session chairperson): R. O. Poyton, "Synthesis and assembly of yeast cytochrome c oxidase"; D. J. Doyle, "Turnover of plasma membrane glycoproteins and glycolipids of hepatoma cells"; R. M. Bell, "Asymmetric synthesis of phospholipids and triacylgylcerol in hepatic microsomal vesicles"; P. H. Fishman, "Gangliosides as effectors of cholera toxin action." Poster session. Regulation of cholesterol metabolism (S. Wakil, session chairperson): H. B. Brewer, "Cellular regulation of cholesterol synthesis"; M. Krieger, "Reconstitution of low density lipoproteins with compounds containing unsaturated fatty acids and polyisoprenoid groups"; A. A. Kandutsch, "Mechanism of regulation of HMG-CoA reductase."

21 June. Lipoproteins-lipid mobilization (D. McGarry, session chairperson): D. Steinberg, "Hepatic versus extrahepatic degradation of lipoproteins"; R. L. Jackson, "Molecular interaction of lipoproteins and apolipoproteins with lipoprotein lipase"; J. C. Khoo and L. Berglund, "Hormone-sensitive lipase from adipose tissue"; R. L. Veech, "Malonyl-CoA levels in relation to fatty acid synthesis and ketogenesis." Fatty acid oxidation—site and regulation (J. Khoo, session chairperson): J. D. McGarry, "Regulatory interactions in hepatic fatty acid synthesis and oxidation"; P. B. Lazarow, "Role of peroxisomes in beta-oxidation of fatty acids"; G. Mannaertes, "Comparative roles of mitochondria and peroxisomes in hepatic fatty acid oxidation."

22 June. Regulation of fatty acid synthesis (D. Steinberg, session chairperson): K-H. Kim, "Regulation of acetyl-CoA carboxylase by covalent modification"; G. Hardy and P. Cohen, "Regulation of acetyl-CoA carboxylase by phosphorylation-dephosphorylation"; S. J. Wakil, J. K. Stoops, J. Matticks and Z. Zahner, "Regulation of fatty acid synthetases from eukaryotes."

Liquids, Chemistry and Physics of

Holderness School

B. J. Alder, chairman; R. Scott, vice-chairman.

13 August. P. G. de Gennes, "Polymer statistics"; D. Patterson, "Orientational order in hydrocarbon mixtures"; E. Helfand, "Brownian dynamics"; A. Bellemans, "Chain dynamics."

14 August. J. T. Hynes, "Collisional and hydrodynamic contributions to molecular motion"; R. Dorfman, "Statistical foundation of hydrodymanics"; G. Ahlers, "Evolution of turbulence in fluid flow"; P. Martin, "Onset of turbulence."

15 August. A. W. Castleman, "Small clusters"; K. Binder, "Nucleation in lattice gases"; B. Halperin, "Melting theory in two dimensions"; J. Weeks, "Roughening transition."

16 August. D. Oxtoby, "Theoretical studies of vibrational relaxation in liquids"; A. Laubereau, "Vibrational dynamics in liquids"; C. Harris, "Vibrational dephasing in liquids"; M. Cohen, "Nature of the glass transition"; D. Turnbull, "Amorphous metals."

17 August. F. Hensel, "Expanded fluid metals"; P. N. Vorontsov-Velyaminov, "Ionic fluids"; W. Ebeling, "Transport properties of fused salts."

Macromolecules and Behavior

Brewster Academy

E. L. Bennett, chairman; M. M. Rapport, vice chairman.

16 July. Role of neurotransmitters (J. McGaugh, chairman): P. Gold, H. C. Fibiger, P. Mandel, H. Matthies, A.

Cherkin, J. Flood, J. Sirlin. Steroids as modulators of behavior. (B. McEwen, chairman): S. Carter-Porges, F. Nottebohm, B. McEwen.

17 July. Role of peptides (H. Gainer, chairman): W. Gispen, B. Bohus, R. L. Moss, R. A. Barraco, A. Dunn, H. Gainer, H. Tamir. Role of DNA and RNA. I. R. Brown, W. E. Hahn, L. Grouse, B. Kaplan, P. Mandel, H. Hydén, L. Uphouse.

18 July. Role of proteins, phosphoproteins, and glycoproteins (V. Shashoua, chairman): S. Rose, H. Hydén, E. L. Bennett, S. Bondy, M. Gibbs, P. Mandel, T. Rainbow. (E. L. Bennett, chairman): Y. Ehrlich, A. Routtenberg, G. S. Lynch, M. Karnovsky, H. Mahler, T. Ueda, C. Zomzely-Neurath.

19 July. Model systems (C. Christian, chairman): A. Arch, A. A. Moscona, T. Teyler, C. Christian, E. Wasterlain. Panel discussion: Conceptual problems and new approaches—where do we go from here? (L. Irwin, chairman): R. A. Barraco, S. Bondy, A. Cherkin, A. Dunn, Y. Ehrlich, W. Greenough, H. Hydén, H. Mahler, P. Mandel, J. McGaugh, B. McEwen, S. Rose, V. Shashoua.

20 July. Neuroimmunology and localization (M. M. Rapport, chairman): N. Schupf, V. Shashoua, S. Karpiak, S. Mahadik.

Program Summary, Gordon Research Conferences

	Colby-Sawyer College New London, N.H.	New Hampton School New Hampton, N.H.	Kimball Union Academy Meriden, N.H.	Tilton School Tilton, N.H.
11–15 June	*Elastin	Nucleic Acids	Cyclic Nucleotides	Theoretical Biology and Biomathematics
18–22 June	Nuclear Chemistry	Environmental Sciences: Air	Lipid Metabolism	Animal Cells and Viruses
25–29 June	Catalysis	Proteins	Atherosclerosis	Carbohydrates, Chemistry of
2–6 July	Fiber Science	Bacterial Cell Surfaces	Interfaces, Chemistry at	Polymer Colloids
9–13 July	Polymers	Heterocyclic Compounds, Chemistry of	Bones and Teeth, Chemistry, Physiology and Structure of	Nuclear Structure Physics
16–20 July	Elastomers	Organic Reactions and Processes	Enzymes, Coenzymes, and Metabolic Pathways	Biomaterials, Science and Technology of
23–27 July	Corrosion	Natural Products	Point and Line Defects in Semiconductors	*Food Microbiology
30 July–3 August	Food and Nutrition	Statistics in Chemistry and Chemical Engineering	Toxicology and Safety Evaluations	Muscle, Ionic Channels in, and Other Excitable Membranes
6–10 August	Medicinal Chemistry	Inorganic Chemistry	Glycoproteins and Glycolipids	*Epithelial Differentiation and Keratinization
13–17 August	Separation and Purification	Analytical Chemistry	Fluids in Permeable Media	Laser Interaction with Matter
20–24 August	Cancer	Adhesion, Science of	Ion Exchange	Transport Phenomena in Lipid Bilayer and Biological Membranes

*New conferences in 1979.

Magnesium in Biochemical Processes and Medicine

Plymouth State College

Mildred S. Seelig, chairperson; Jack W. Coburn, vice chairperson.

6 August. Factors affecting magnesium requirements and distribution (Jerry K. Aikawa, chairperson): Jerry G. Chutkow, "Influence of dietary cations other than magnesium on symptoms and other abnormal findings in experimental magnesium deficiency: in rats"; Nancy W. Alcock, "Influence of dietary cations other than magnesium on symptoms and other abnormal findings in experimental magnesium deficiency: other species"; Michael E. Maguire, "Hormonal modulation of magnesium transport and magnesium modulation of hormone response"; Jahangir A. Khajawaja, "Regulation of cellular levels of Mg^{2+} and Ca^{2+} in mammalian tissues"; Yoshinori Itokawa, "Relationships between magnesium and thiamine: experimental studies." Poster session, Methodology. New enzymatic and biochemical findings and technics (Warren E. C. Wacker, chairperson): Nicholas J. Birch, "Lithium-magnesium enzymatic interactions"; Antonio Scarpa, J. Teresa Tiffert, F. J. Brinley, Jr., "Metallochrome indicators of ionized cytosolic magnesium in cells

1979 Schedule—New Hampshire and California

Proctor Academy Andover, N.H.	Holderness School Plymouth, N.H.	Brewster Academy Wolfeboro, N.H.	Plymouth State College Plymouth, N.H.	Miramar Hotel, Santa Barbara
Free Radical Reactions	Physical Organic Chemistry (Hydrocarbon Chemistry)	Space Plasma Physics	*Red Cells	
Plant Cell and Tissue Culture	Mammary Gland Biology	Magnetic Resonance	Calcium Phosphates	
Polyamines	Biological Regulatory Mechanisms	Atomic Physics	Molecular Pharmacology	Marine Natural Products
Cell Contact and Movement	*Analytical Pyrolysis	Nonlinear Optics and Lasers	Fuel Science	
Physical Metallurgy	Solids, Chemistry and Physics of	Molecular Pathology	Quantum Solids and Fluids, Dynamics of	
Energy Coupling Mechanisms	Chemotherapy of Experimental and Clinical Cancer	Macromolecules and Behavior	Quantitative Structure Analysis	
Organic Photochemistry	Drug Metabolism	Microbiological Degradation	Tumor Immunology	
Developmental Biology	Fertilization and the Activation of Development	Ceramics, Solid State Studies in	*Ion Containing Polymers	
Coatings and Films, Chemistry and Physics of	Postharvest Physiology	Micellar and Macromolecular Catalysis	Magnesium in Biochemical Processes and Medicine	
Cathecholamines	Liquids, Chemistry and Physics of	Few Body Problems in Chemistry and Physics	*Dynamics of Gas-Surface Interactions	
Elementary Particle Interactions	Inorganic Geochemistry	Molten Salts and Metals	*Remote Sensing of the Earth's Surface from Space	

and cell fractions: nerve axons, muscle transport and enzymatic significance''; Bonnie F. Sloane, ''Electron probe analysis of magnesium in cell organelles: transport by vascular smooth muscle mitochondria.''

7 August. Magnesium deficiency during pregnancy and infancy (Reginald C. Tsang, chairperson): Kenneth Weaver, ''Implications of magnesium deficiency in the etiology of eclampsia''; Anthony D. Care, ''Magnesium homeostasis in the fetus and the neonate: effects on calcitonin and parathyroid hormone in maternal, fetal and neonatal blood''; John O. Forfar, ''Magnesium status in the newborn infant with particular reference to maternal vitamin D intake, neonatal convulsions and hormonal interrelationships''; Leo Stern, ''Electrocardiographic changes caused by exchange transfusion with ACD-blood''; Francisco R. Carrazza, ''Magnesium metabolism during early therapy of dehydration of marasmus-diarrhea, and in nutritional and resistant rickets.'' Poster session. Cellular immunology/neoplasia/immunologic deficiency (Ronald J. Elin, chairperson): George M. Hass, Raymond M. Galt, ''Immunologic facets of magnesium deficiency induced lymphoreticular neoplasia''; Alan D. Perris, ''Effects of magnesium and calcium on thymic lymphocytes: influence of low and high levels on mitosis and on cell-mediated immunity''; Francine Gaudin-Harding, Sylvie Claverie, Jacques Banchereau, Bernard Lebel, Jacques Armier, Annie Lefevre, Moncef Guenounou, ''Alteration of the immune response in magnesium deficient rodents''; Jean-Georges Henrotte, ''Correlation of erythrocyte magnesium with HLA classification and auto-immune disease.''

8 August. Magnesium and cardiac integrity and function (Kul D. Chadda, chairperson): Sherman Bloom, ''Influence of magnesium/calcium on respiration of myocardial mitochondria: relevance to myocardial necrosis''; David Lehr, ''Correlation of myocardial magnesium loss with changes of other biochemical parameters elicited by cardiotoxic doses of χ and β-adrenergic amines''; Hans G. Classen, ''Influence of magnesium aspartate HCL on transport stress, cannibalism, and myocardial electrolytes in pigs and rats without magnesium deficiency''; Michael P. Ryan, ''Magnesium/potassium interrelationships in tissues of cardiac patients and of others on diuretic therapy in lymphocytes''; P. O. Wester, T. Dyckner, ''Magnesium/potassium interrelationships in tissues of cardiac patients and of others on diuretic therapy in muscle''; Heikki Karppanen, ''Possible role of magnesium, potassium, calcium and sodium interaction in etiology of ischemic heart disease: intervention plans in Finland.'' Poster session. (Francis J. Haddy, chairperson): Günter Siegel, ''Magnesium binding of vascular connective tissue and its relation to smooth muscle cell function''; Burton M. Altura, ''Role of magnesium and calcium in contraction of hypertensive and diabetic blood vessels''; Gerard A. Charbon, ''Vasodilator properties of magnesium in anesthetized and conscious dogs.''

9 August. Magnesium handling by abnormal and normal kidneys (Richard M. Freeman, chairperson): Herta Spencer, ''Magnesium balance in renal failure''; Gerald DiBona, ''Role of magnesium retention in sodium wasting in chronic renal insufficiency''; Cristobal G. Duarte, ''Plasma concentration and renal excretion of magnesium in potassium-depleted rats and in such rats treated with mineralocorticoids''; Se Mo Suh, ''Renal concentrating ability on magnesium-depleted, non-hypercalcemic rats''; Gary A. Quamme, ''Effects of calcitonin and acid/base perturbation on renal tubular reabsorption of magnesium.'' Poster session. Metabolic interrelationships: carbohydrate/lipid/magnesium (Robert Whang, chairman): Hugh Mather, ''Diabetes mellitus amd magnesium''; Edmund B. Flink, ''Binding of magnesium by elevated free fatty acids in dogs and man''; Yves Rayssiguier, ''Effects of magnesium deficiency on plasma lipids in rats fed diets rich in carbohydrates''; H. J. Holtmeir, W. H. Davis, Effect of magnesium supplementation on plasma lipids in man.''

10 August. Neurochemistry/psyche urology/magnesium (Walter B. Essman, chairperson): Jean Durlach, ''New observations in latent tetany of chronic magnesium deficiency: diurnal variations''; Gustawa Stendig-Lindberg, N. Rudy, ''Serum magnesium concentration—biochemical key factor in delerium tremens: stepwise regression analysis of intensive one-year study.'' Biochemical developments in neurotransmission involving magnesium: Stanley Misler, ''Cationic inhibition of end-plate potential: magnesium antagonism of quantal release''; W. Paul Hurlbut, ''Effects of Mg^{2+} on rate of quantal release of transmitter at neuro-muscular junction''; H. B. Longenecker, Jr., ''Zinc effect on magnesium-dependent processes involving neurotransmission.''

Poster session: *6-7 August*, Methodology and biochemistry; *8-9 August*, Experimental and clinical findings involving magnesium deficiency, metabolic abnormalities and dietary imbalances that increase needs; epidemiologic data.

Magnetic Resonance

Brewster Academy

Jiri Jonas, chairman; Myer Bloom, vice-chairman.

18 June. (Charles P. Slichter, session chairman): Y. Roinel, ''Nuclear antiferromagnetism and neutrons''; John S. Waugh, ''Exotic aspects of magic angle spinning''; M. M. Pintar, ''Spin polarization torsional spectroscopy.'' (Daniel Fiat, session chairman): Richard R. Ernst, ''Multiple quantum spectroscopy, relaxation and double resonance''; Alex Pines, ''Developments in multiple quantum NMR.''

19 June. (Karl H. Hausser, session chairman): Erwin L. Hahn, ''Parallels of magnetic resonance in quantum optics''; Ernst Brun, ''The ruby NMR laser, its instabilities and phase transitions''; Constantino S. Yannoni, ''Optical detection of coherent nuclear spin resonance transients.'' (Pierre Laszlo, session chairman): Theodore L. Brown, ''Applications of nuclear quadrupole double resonance spectroscopy''; Chris J. Winscom, ''Determination of the ^{14}N quadrupole tensor of diaza-aromatic molecules in their lowest excited triplet state by ODNQR.''

20 June. Poster session—Polymers (Dean C. Douglass, poster session chairman): Dean C. Douglass and Vincent J. McBrierty, ''NMR of composite polymers''; Roger A. Assink, ''^{1}H and C-13 relaxation studies of two phase polymeric systems''; Jacob Schaefer, ''N-15 cross-polarization NMR studies of metabolism in soybeans''; David L. VanderHart, William L. Earl and Allen N. Garroway, ''Spin-spin and spin-lattice contributions to C-13 rotating frame relaxation and linewidths in polymers''; Gary E. Maciel, ''C-13 studies of solid natural polymers''; James. R. Lyerla, ''Temperature dependence C-13 studies of semicrystalline polymers.'' Poster session—Surfaces, superionic conductors and intercalation compounds (Robert W. Vaughan, poster session chairman): Robert W. Vaughan, M. Polak and A. Highe, ''Nuclear double resonance interferometric spectroscopy of quadrupole nuclei: ^{23}Na in the beta-aluminas''; Robert G. Bryant, ''NMR problems at the water-macromolecule interface''; H. A. Resing, A. N. Garroway, T. J. Tinnavaia and D. Slodtfeld-Ellingsen, ''High resolution ^{13}C NMR of solids applied to chemisorbed and physisorbed

molecules''; Bernard G. Silbernagel, ''Atomic and molecular diffusion in sulfide intercalation compounds''; Walter N. Hardy and Phillip Kubik, ''NMR studies of hydrogen adsorbed on graphite.'' (Myer Bloom, session chairman): Alfred G. Redfield, ''Kinetic and nuclear Overhauser effect studies of biopolymers''; Eric Oldfield, ''High field NMR of membranes''; R. G. Griffin, ''Solid state NMR studies of biological systems.''

21 June. (Clyde A. Hutchinson, Jr., session chairman): Gerhard L. Closs, ''Time-resolved and other CIDNP studies''; Alexander D. Trifunac, ''Nanosecond EPR and flow NMR studies in radiation and photochemistry''; J. H. van der Waals, ''The photo-excited triplet state: quantum beats and spin relaxation processes.'' (Klaus Möbius, session chairman): William B. Mims, ''Electron spin echoes and the observation of ligand interactions in metalloproteins''; Dietmar Stehlik, ''RS saturation spectroscopy as detected by optical nuclear polarization.''

22 June. (Herbert S. Gutowsky, session chairman): David M. Grant, ''C-13 magnetic resonance of molecules in argon matrices at cryogenic temperatures''; David White, ''NMR of matrix isolated molecules: probing molecular structure and the solid matrix environment''; C. MacLean, ''Alignment effects in high resolution NMR, induced by the magnetic field.''

Mammary Gland Biology

Holderness School

Dale E. Bauman, chairman; Russell Hilf, vice-chairman.

18 June. Regulation of mammary gland metabolism (N. J. Kuhn, discussion leader): R. Dils, ''Fatty acid biosynthesis and esterification: control systems unique to mammary gland''; D. H. Williamson, ''Role of ketone bodies in metabolism of rat mammary gland''; G. Peeters, ''Amino acid catabolism and synthesis.'' Mineral metabolism during lactation (M. Peaker, discussion leader): R. Horst, ''Calcium and phosphorus regulation in the peripartal dairy cow''; J. Hegenauer, ''*In vivo* and *in vitro* supplementation of milk with iron and copper.''

19 June. Mammary gland hormone receptors (J. L. Wittliff, discussion leader): T. G. Muldoon, ''Functional significance of estrogen receptor multiformity in mouse''; R. L. Shiu, ''Interaction of prolactin and growth hormone in long term tissue culture''; P. A. Kelly, ''Regulation of steroid and polypeptide hormone receptors.'' Control of the initiation of lactation (I. Forsyth, discussion leader): H. A. Tucker, ''Comparative aspects of hormonal control of lactogenesis''; R. J. Collier, ''Induction of lactation in nonpregnant animals.''

20 June. Preneoplastic mammary lesions (P. Gullino, discussion leader): D. Medina, ''*In vivo* and *in vitro* models for mammary preneoplasia''; G. Slemmer, ''Interaction between different mammary cell types during progression and metastasis of breast neoplasia''; C. W. Welsh, ''Prolactin supression and the prophylaxis of murine mammary tumorigenesis.'' Advances in prognosis and therapy of human breast cancer (R. Hilf, discussion leader); N. Petrakis, ''Breast fluid markers of neoplastic potential''; L. M. Schiffer, ''Cell kinetics of animal and human breast cancers and potential relationship to therapy.''

21 June. Molecular aspects of milk protein structure and synthesis (B. L. Larson, discussion leader): J. Rosen, ''Regulation of casein gene expression in the rat''; L. Houdebine, ''Regulation of casein gene expression in the rabbit and ewe''; J-C. Mercier, ''Primary structure of secretory lactoprotien precursors-enzymatic processing-molecular evolution''; S. Patton, ''Membranes, microtubules, and milk secretion.''

22 June. Mammary development and the endomembrane system (T. W. Keenan, discussion leader): F. B. P. Wooding, ''Ultrastructural characterization of milk secretion''; M. Ollivier-Bousquet, ''Relationship between a possible internalization of prolactin and exocytosis of milk proteins''; M. Bernfield, ''Mammary epithelial basel lamina: formation and turnover.''

Marine Natural Products

Miramar Hotel

Francis J. Schmits, chairman; D. John Faulkner, vice-chairman.

25–29 June. P. T. Murphy, ''Some pharmacologically active compounds from marine organisms''; B. Tursch, ''Chemical research on marine animals from Laing Island (Papua-New Guinea)''; K. L. Rinehart, ''Antimicrobial, antiviral, and cytotoxic compounds from marine organisms''; R. Jacobs, ''Pharmacological properties of certain marine-derived compounds''; W. H. Fenical, ''Bioactive compounds and zooxanthellae-host chemistry''; J. A. Marshall, ''Synthesis of cytotoxic marine diterpenoids''; R. E. Moore, ''Constituents of toxic blue-green algae''; I. Kitagawa, ''Chemical studies on oligoglycosides of marine and terrestrial origins''; D. Morse, ''Biochemical/environmental control of reproduction, larval recruitment and metamorphosis in abalone''; Y. Shimizu, ''Pursuit of biologically significant compounds in marine organisms''; Leo Buss, ''Patterns in chemical defense among marine invertebrates.'' Contributed papers.

Medicinal Chemistry

Colby Sawyer College

Jerry A. Weisbach, chairman; Nathan Sperber, vice chairman.

6 August. Aminoglycoside antibiotics (Peter J. Daniels, chairman): T. L. Nagabhushan, ''Chemical and biological aspects of some novel aminoglycoside-aminocyclitol antibiotics''; L. E. Bryan, ''Bacterial resistance and transport of aminoglycoside antibiotics''; G. A. Ellestad, ''Glycocinnamoylspermidines, a new class of antibiotics.'' Antiplatelet drugs and thrombosis (Joseph P. Buyniski, chairman): Horst König, ''Preclinical and early clinical results of a new class of inhibitors of platelet aggregation''; Joseph P. Buyniski, ''Anagreline: a new antithrombotic drug''; Malcolm Johnson, ''Ticlopidine: preclinical pharmacology and initial clinical observations.''

7 August. New antihypertensive drug development (William A. Pettinger, chairman): William A. Pettinger, ''Blood pressure regulation sites and mechanisms of action of antihypertensive drugs''; W. Kobinger, ''Central and peripheral alpha-adrenergic mechanisms of lowering blood pressure''; John Francis, ''New chemical leads in antihypertensive compounds''; Charles Sweet, ''Biological systems for discovery and development of new antihypertensive drugs.'' Inhibitors of the renin-angiotensin system (Michael J. Antonaccio, chairman): Miguel Ondetti, ''Structure-activity relationships of angiotensin-converting enzyme inhibitors''; Michael J. Antonaccio, ''Cardiovascular effects of inhibitors of the renin-angiotensin system in animal models''; Haralambos P. Gavras, ''Clinical aspects of inhibitors of the renin-angiotensin system.''

8 August. Dermatopharmacology (Edward C. Gomez, chairman): Walter Voigt, ''Inhibitors of 5α-reductase''; Gary Peck, ''The effect of synthetic retinoids in the treatment of cystic acne, keratinizing dermatoses and basal cell carcinoma''; Werner Bollag, ''Retinoids in dermatology''; Barry Lutsky, ''Syntheses and antiinflammatory properties of 7α-halogenocorticoids''; Edward C.

Gomez, "Drugs affecting sebaceous gland growth." Genetic engineering (Frank Young, chairman): H. Boyer, "Genetic engineering and polypeptide hormone research"; R. Erikson, "Application of genetic engineering to industrial fermentations"; Frank Young, "Impact of recombinant molecule technology on applied microbiology"; Walter Gilbert, "Cloning of eukaryotic genes."

9 August. Cardiotonics: amrinone—a new inotropic agent (Adawia A. Alousi, chairman): George Y. Lesher, "Chemistry and syntheses of amrinone"; Adawia A. Alousi, "Cardiotonic activity of amrinone in the normal and failing heart of experimental animals"; E. Sonnenblick, "Amrinone therapy in heart failure"; William Grossman, "Clinical evaluation of amrinone in patients with congestive heart failure." (Irving J. Greenblatt, chairman): Clement L. Markert, "New kinds of animals produced by genetic and embryonic engineering."

10 August. Special topics in medicinal chemistry (Frank H. Clarke, chairman): (speakers and subjects to be announced).

Micellar and Macromolecular Catalysis

Brewster Academy

Richard L. Reeves, chairman; Eugene H. Cordes, vice-chairman.

6 August. The structure of aqueous micelles (E. D. Goddard, discussion leader): Dirk Stigter, "Structure of ionic micelles and their electric double layer in aqueous media"; Fred Menger, "On the structure of micelles." Solubilization in micelles (N. Muller, discussion leader): Mats Almgren, "Dynamic and static aspects of solubilization in ionic micellar solutions"; Pasupati Mukerjee, "Spectral studies of microenvironments, locations, and distribution of solutes in micelles"; Hans Ache, "Micellar systems studied by positron annihilation techniques."

7 August. Photoreactions in micelles (J. K. Thomas, discussion leader): Nicholas Turro, Jr., "Photochemical and photoluminescent probes for micellar structure and reactions"; Michael Graetzel, "Light-energy conversion through micellar and redox catalysis." Polymer-promoted reactions: (discussion leader to be announced): Norio Ise, "Solvation-desolvation and polymer 'catalysis' "; Francesco Ciardelli, "Stereospecificity in polymer-promoted reactions."

8 August. Enzymes in micelles (discussion leader to be announced): Edward Dennis, "Catalysis by lipolytic enzymes at micellar interfaces"; Pier Luisi, "Solubilization of enzymes in organic solvents." Reactions in oriented monolayers (D. Whitten, discussion leader): Hans Kuhn, "Photoprocesses in monolayer assemblies"; Edward Arnett, "Chiral monolayers."

9 August. Microemulsions (Lee Magid, discussion leader): Hans-Friedrich Eiche, "Our present understanding on inverted micelles and microemulsions"; Raymond Mackay, "Reactions and interactions in microemulsions." Poster session.

10 August. Reactions in vesicles (E. H. Cordes, discussion leader): Janos Fendler, "Surfactant vesicles as membrane mimetic agents. Characterization and utilization"; Toyoki Kunitake, "Synthetic molecular membranes and their catalytic function."

An application blank for attendance at the Gordon Research Conferences may be found on page 1169.

Microbiological Degradation

Brewster Academy

Donald A. Klein, chairperson; Antonio H. Romano, vice chairperson.

23 July. (Frederic K. Pfaender, chairperson): Richard T. Wright, "Recent developments in quantitating microbial activity in the environment"; Randolph L. Ferguson, "Measurement techniques for characterizing microbial community composition and activity." (Al W. Bourquin, chairperson): P. Hap Pritchard, "Aquatic microcosm systems for toxic organic compound exposure studies."

24 July. (H. M. Tsuchiya, chairperson): Alan T. Bull, "Microbial communities—biodegradation and pollution." (J. Lemke, discussant): D. W. Ribbons, "Evolution of microbial degradative pathways." (A. L. Demain, chairperson): L. C. Vining, "The role of antibiotics in producer organisms."

25 July. (Gerhard J. Haas, chairperson): J. G. Zeikus, "Microbial metabolism of lignocellulose"; Douglas E. Eveleigh, "Enzymatic conversion and utilization of cellulosic biomass." (Arthur M. Kaplan, discussant). (Donald P. Cox, chairperson): Fusako Kawai, "Microbial mechanisms for degradation of polyethylene glycol compounds"; G. K. Watson, "Polyethylene glycols and the biodegradation of nonionic surfactants."

26 July. (Donald A. Klein, chairperson): Anne O. Summers, "Microbial transformations of metals"; John S. Thayer, "The methylation of metals—some biological and environmental implications"; Joseph J. Cooney, "Poster presentation summary." (Antonio H. Romano, chairperson): R. S. Wolfe, "Role of methanogens in nature."

27 July. (Carl Morris and Arthur Stern, co-chairpersons): David Brusick, "Recent developments—eucaryotic mutagenicity assays"; David Hughes, "Summary of the conference."

Microbiological Safety of Foods

Tilton School

John A. Troller, chairman; Z. John Ordal, vice chairman.

23 July. Food preservation systems—mechanisms and applications (R. B. Tompkin, discussion leader): K. E. Stevenson, "Sulfites and SO_2"; F. F. Busta, "Sorbates"; R. B. Tompkin, "Nitrites"; J. H. Silliker, "Controlled atmospheres."

24 July. Detoxification of mycotoxins (L. B. Bullerman, discussion leader): R. J. Bothhast, "Detoxification of aflatoxin in feeds"; E. H. Marth, "Chemical and biochemical degradation of mycotoxins." *Salmonella* (R. F. Gomez, discussion leader): H. Pivnick, "Nurmi concept for preventing *Salmonella* infections in chickens."

25 July. Bacterial growth at temperature extremes (C. L. Duncan, discussion leader): W. E. Inniss, "Molecular basis for the growth of psychrophilic and psychrotrophic microorganisms"; T. D. Brock, "Molecular basis for the growth of bacteria at high temperatures." Stress (Z. J. Ordal, discussion leader): J. J. Iandolo, "Effects of stress on cell physiology."

26 July. Microbial adhesion (C. Vanderzant, discussion leader): J. W. Costerton, "The occurrence and importance of adherent bacterial populations"; D. C. Savage, "The adhesion of microorganisms in the alimentary tract of mammals." Sanford Miller, "Through the looking glass—a scientist's schizophrenia."

27 July. (J. A. Troller, discussion leader): J. C. Measures, "Chemical basis for the growth of microorganisms at low a_w"; Hans Riemann, "Conference summarization."

Molecular Pathology: Host Defense in Neoplasia

Brewster Academy

Stanley Cohen, chairman; Harold F. Dvorak, vice chairman.

9 July. Isaiah Fidler, "Biological vari-

ability of metastatic neoplasms''; Stanley Cohen, ''Effect of lymphokines on tumor cell migration''; Ralph Snyderman, ''Tumor-derived inhibitors of inflammation''; Peter Ward, ''Chemotaxis of neoplastic cells''; Lance Liotta, ''Degradation of basement membrane by invading tumor cells.''

10 July. Henry Winn, ''Antibody and tumor rejection''; Eric Martz, ''Destruction of tumor cells by activated T cells''; Ben Papermaster, ''Lymphokine-mediated tumor destruction in man''; Samuel Salvin, ''Lymphokine-mediated tumor destruction in experimental animals.''

11 July. George Poste, ''Encapsulated mediators as agents of cell activation''; John Hibbs, ''Macrophage activation and tumor cell killing''; John A. Mannick, ''The effect of immune RNA on neoplasms''; Julia Philips-Quagliata, ''Hybrid resistance to neoplasms''; Adrianne Rogers, ''Nutritional effects on chemical carcinogenesis.''

12 July. Harold Dvorak, ''Tumor mediators and the tumor microenvironment''; John Codington, ''Role of tumor cell surface glycoproteins''; Robert Langer, ''Inhibition of angiogenesis by cartilage''; Byron Waksman, ''Perspectives in regulatory control mechanisms.''

13 July. Michael Bennett, ''Virus-associated tumors and NK cell activity''; Martin Hirsch, ''Host factors in viral oncogenesis''; Lois Epstein, ''Effect of interferon on tumor cells.''

Molecular Pharmacology

Plymouth State College

Zach W. Hall, chairperson; Leonard Kohn, vice chairperson.

25 June. Voltage-sensitive ion channels (William Catterall, chairperson): Clay Armstrong, Michael Raftery. Acetylcholine receptor (Arthur Karlin, chairperson): Jonathan Cohen, Paul Adams.

26 June. Acetylcholinesterase and surface proteins (Zach Hall, chairperson): Jean Massolie, John Heuser, Joshua Sanes. β-Adrenergic receptors (Perry Molinoff, chairperson): Elliot Ross, John Perkins.

27 June. Amino acid receptors (Roger Nicoll, chairperson): Richard Olsen, Robert McBurney. Regulation of adenyl cyclase (Dan Storm, chairperson): Jerry H. Wang, Claude Klee.

28 June. Growth and differentiation factors in neuronal development (Paul Patterson, chairperson): Hans Thoenen, Ira Black (subject to be announced): Gerald Fischbach, Harold Reuter.

29 June. Toxins, hormones and cyclic nucleotides (Leonard Kohn, chairperson): Evelyn Grollman, Michael Field, Paul Greengard.

In addition, there will be poster sessions on Monday and Wednesday afternoons from 4 to 6 p.m. Those wishing to present posters should submit an abstract to the conference chairman by 1 May 1979.

Molten Salts and Metals

Brewster Academy

J. Braunstein, chairman; William W. Warren, vice chairman.

20–24 August. Topics to be covered will include: experimental and theoretical studies of structure of ionic liquids; experimental and theoretical studies of structure of liquid metals; ionicity of liquid alloys; electrochemical studies of molten salts with applications to batteries and fuel cells. The format will consist of oral presentations by some of the participants and poster presentations by other participants. Some of the topics presented in the poster sessions will be selected by the participants for further discussion and presentation. (Speakers will be announced.)

Muscle, Ionic Channels in, and Other Excitable Membranes

Tilton School

Lawrence Goldman, chairman; Harald Reuter and Louis J. DeFelice, co-vice chairmen.

This conference will stress fundamental, biophysical aspects of the functioning of ionic channels in the membranes of nerve, skeletal and cardiac muscle, and of the acetylcholine stimulated channels of the neuromuscular junction. Emphasis will be on the problems of channel gating and ion translocation utilizing a variety of approaches including fluctuation analysis, studies on the asymmetrical displacement current, pharmacological probes and developmental aspects.

30 July. Channel gating: there are several distinct processes in the activation of the sodium conductance (L. Goldman, chairman): F. Bezanilla, ''Inactivation of gating currents''; H. Meves, ''Inactivation of the sodium permeability in perfused squid giant axons''; W. Nonner, ''On inactivation of Na channels in myelinated nerves''; (Discussant); J. W. Moore, ''In squid axons, onset gating currents are sensitive to Ca^{++} but the reset gates are not.'' Ion translocation and channel selectivity—introductory comments (B. Hille, chairman): S. Hagiwara, ''Permeation properties of the K channel for the anomalous rectification of the star fish egg''; P. Horowicz, ''Ionic fluxes in the inward rectifier of frog muscle''; P. R. Stanfield, ''Blocking particles and inward rectification in frog skeletal muscle''; R. J. French, ''Do blocking ions see the potassium channel as a rigid structure?''

31 July. Electrical noise in nerve and other membranes—hot cell noise impedance and spontaneous oscillation (L. J. DeFelice, chairman): F. Conti, ''Noise of sodium current inactivation in frog node''; F. J. Sigworth, ''Inferences about channels in nerve from ensemble fluctuation analysis''; E. Neher, ''A second look at Ach receptor channels: merits and shortcomings of single channel recording versus noise analysis''; H. Lecar, ''The unit channel.'' Ionic channels in tissue cultured cells—introductory comments (T. G. Smith, chairman): F. Sachs, ''Electrophysiological properties of tissue cultured striated muscle''; M. Lieberman, ''Ionic channels in tissue cultured cells: cardiac muscle''; J. L. Barker, ''Post-synaptic pharmacology of cultured mouse spinal neurons''; P. G. Nelson, ''Evoked synaptic function in cultured mouse spinal neurons.''

1 August. Pharmacological probes—neurotoxins as probes of excitable membrane ionic channels (T. Narahashi, chairman): M. Lazdunsky, ''Affinity labeled neurotoxins as probes of excitable membranes''; G. S. Oxford, ''Involvement of specific amino acid residues in sodium channel inactivation''; (discussants); P. G. Schrager, ''Chemical probes of excitable membranes''; G. Ehrenstein, ''A comparison between channel-opening and channel-closing drugs.'' Neuromuscular junction—introductory comments (C. S. Stevens, chairman): S. Schuetze, ''Changing properties of acetylcholine activated channels during development''; J. H. Steinbach, ''Mechanism of local anesthetic effects on the postjunctional membrane as revealed by analysis of single channel currents''; P. R. Adams, ''Is conformational change or association-dissociation the rate limiting step in the gating of acetylcholine activated channels?'' (discussant); E. X. Albuquerque, ''Voltage and time dependent properties of the ionic channel of the nicotinic receptor.''

2 August. Cardiac muscle—introductory comments (H. Reuter, chairman): M. Morad, ''Inward retification in cardiac muscle''; R. W. Tsien, ''Inward current channels in cardiac cells''; (discussants); J. L. Kenyon, ''Transient out-

ward current of cardiac Purkinje fibers''; A. M. Brown, ''A new voltage clamp technique for single cardiac cells.'' Charge movements in skeletal muscle membrane—introductory comments (W. Almers, chairman): R. H. Adrian, ''Analysis of membrane charge movement''; M. F. Schneider, ''Charge movement and contractile activation''; R. F. Rakowsky, ''Charge immobilization.''

3 August. Special session—introductory comments (R. D. Keynes, chairman): W. K. Chandler, ''Calcium transients in skeletal muscle fibers''; V. Hille, ''How do ions cross ionic channels?''

Natural Products

New Hampton School

Milan Uskokovic, chairman; Bert Fraser-Reid, vice-chairman.

23–27 July. Julius Axelrod, ''The phospholipid methylation and membrane structure and function''; Enrico G. Baggiolini, ''Synthesis of biotin''; Robert Boeckman, Jr., ''New developments in methodology for the construction of complex molecules''; Ajay K. Bose, ''Negative chemical ionization mass spectrometry techniques for biologically active compounds''; Hector F. DeLuca, ''The vitamin D endocrine system: a new contribution to medicine''; Paul A. Grieco, ''Bicyclo[2.2.1]heptanes as building blocks in natural products total synthesis''; C. R. Hutchinson, ''Biosynthesis of macrolide antibiotics''; Y. Kishi, ''Synthetic studies in the field of natural products chemistry''; Raymond U. Lemieux, ''Typing reagents for human blood groups by way of chemical synthesis''; Basil Lythgoe, ''Synthesis of vitamin D_3 and its hydroxy derivatives by the A $\rightarrow$ CD approach''; W. H. Orme-Johnson (subject to be announced); Upendra K. Pandit, ''Coenzyme models in C–H and C–C bond—formation reactions''; Martin F. Semmelhack, ''Applications of arene metal complexes in organic synthesis''; Maurice Shamma, ''Recent developments in isoquinoline alkaloids''; Joseph Tufariello, ''Nitrones in synthesis''; James D. White, ''Studies on the total synthesis of boromycin.''

Nonlinear Optics and Lasers

Brewster Academy

Eli Yablonovitch, chairman; Christos Flytzanis, T. K. Gustafson and William Stwalley, co-vice chairmen.

2–6 July. Sessions will be held on nonlinear spectroscopy, short pulses and related phenomena, UV and IR generation, lasers in nuclear and astrophysics, multi-quantum vibrational excitation, new effects, techniques and lasers. A partial listing of speakers is: J. J. Ewing, ''Excimer lasers and backward stimulated Raman scattering''; S. R. Leone, ''Dimer lasers''; L. F. Mollenauer, ''Mode-locked color-center lasers''; John Walsh, ''Far-infrared free electron lasers''; J. F. Young, ''Energy transfer and anti-stokes generation''; V. N. Bagratashvili, ''Vibrational energy distributions in infrared multiphoton excitation''; R. G. Bray, ''High vibrational overtone spectroscopy from acetylene to benzene''; Donald Levy, ''Intramolecular energy transfer in Van der Waals molecules''; T. G. Giallorenzi, ''Integrated optics spectrum analyzers''; A. Yariv, ''Coherent wave interactions in nonlinear optics, holography, photon echoes, etc.''; J. J. Barrett, ''Photoacoustic Raman spectroscopy''; P. E. Toschek, ''Visual detection of electrodynamically stored ions''; A. Seilmeier, ''Picosecond double resonance spectroscopy of polyatomic molecules''; G. A. Kenney-Wallace, ''Picosecond studies of electron localization in liquids''; J. P. Heritage, ''Picosecond Raman gain spectroscopy on silver surfaces''; Dave Pritchard, ''Doppler measurement of velocity in collision processes''; Peter Sorokin, ''Infrared spectral photography''; S. D. Kramer, ''Laser assisted detection of neutrinos''; Michael Feld, ''Laser nuclear double resonance''; H. Haus, ''Mode-locked diode lasers''; R. Hochstrasser, ''Picosecond chemical dynamics''; D. MacDonald, ''Multiphonon induced infrared fluorescence''; John Hull, ''An improved laser test of the isotropy of space''; Robert Fisher, ''Wave conjugation in gain media.''

In addition, there will be a session for short reports on recent results: these talks will be contributed papers of high interest. In order to have work considered for this session, submit four copies of an abstract and one short summary to the chairman, Dr. Eli Yablonovitch, Division of Applied Sciences, Harvard University, Cambridge, Mass. 02138. It will not be possible to accept all submitted papers for presentation.

Nuclear Chemistry

Colby-Sawyer College

Noah R. Johnson, chairman; H. C. Britt, vice chairman.

This conference will emphasize nuclear structure and will cover both collective and noncollective aspects of high-spin states, nuclear shapes, giant resonances, boson approximations in nuclear structure calculations, fission isomers, nuclei far from stability, and nuclear structure results from medium energy experiments.

18 June. Yrast traps-theory and experiment (Sven Gösta Nilsson, discussion leader): Amand Fäessler, ''Description of the structure and decay of high-spin states''; T. L. Khoo, ''Yrast traps and very high-spin yrast states in dysprosium nuclei''; Peter Kleinheinz, ''High-spin shell model isomers around ^{146}Gd.'' Collective band structure at high spin (discussion leader to be announced): Stefan Frauendorf, ''Quasi-particle band structures above the yrast line''; Hans Emling, ''The collectivity of stable dysprosium nuclei at high spin.''

19 June. Spectroscopy in the gamma-ray continuum (F. S. Stephens, discussion leader): R. M. Diamond, ''Properties of high-spin states from studies of continuum gamma rays''; Bent Herskind, ''Correlation studies in the gamma-ray continuum.'' Giant collective modes in nuclei (Walter Greiner, discussion leader): Ricardo Broglia, ''Damping of single particle states in giant resonances''; Fred Bertrand, ''The giant monopole excitation—evidence and systematics.''

20 June. An examination of boson approximations in nuclear structure calculations (Ricardo Broglia, discussion leader): Akito Arima, ''The interacting boson model—its foundation and applications''; Teruo Kishimoto, ''Description of nuclear collective motions in terms of the boson expansion technique.'' (C. E. Bemis, discussion leader): Volker Metag, ''The spectroscopy of highly deformed fission isometric nuclei.''

21 June. Nuclei far from stability (P. Gregers Hansen, discussion leader): R. Klapisch, ''Mass and laser spectroscopy of extended series of isotopes''; John Wood, ''New systematics in the mercury region and recent work at UNISOR''; Ernst Roeckl, ''Decay of very neutron-deficient isotopes close to the proton drip line in the trans-tin-region.'' (H. C. Britt, discussion leader): J. Labeyrie, ''New understanding of geophysical problems through nuclear spectroscopic techniques.''

22 June. (R. K. Sheline, discussion leader): K. K. Seth, ''New insights into nuclear structure by medium energy probes.''

Nuclear Structure Physics

Tilton School

Gerald T. Garvey, chairman; Gerald E. Brown, vice chairman.

9–13 July. The following subjects will be covered: inelastic scattering; high-spin states; giant resonances and their decays; heavy ion reactions; and fundamental interactions and basic symmetries. The following persons have been invited to speak: W. Bertozzi, N. Hintz, T. L. Khoo, S. S. Hanna, H. E. Jackson, D. Youngblood, L. Blatt, G. Bertsch, W. Henning, K. Nagatani, J. Huizenga, M. Rho.

Nucleic Acids

New Hampton School

Martin Gellert and Gordon Tener, co-chairmen.

11–15 June. Oligonucleotide synthesis and uses (Ray Wu, chairman); DNA structure (J. A. Schellman, chair man); tRNAs, precursors, processing and recognition (W. McClain, chairman); mRNA processing (P. Leder, chairman); Nucleic acid recognition sites (M. Caruthers, chairman); Recombination (Paul Sadowski, chairman); Transformation in eukaryotes (G. Fink, chairman); Transspecies expression (Milton Gordon, chairman); Site specific mutagenesis (D. Nathans, chairman).

In addition all participants are encouraged to provide an abstract of their work on an 8½ by 11 inch sheet using large type or a poster to occupy no more than 1 square meter.

Organic Photochemistry

Proctor Academy

E. A. Chandross, chairman; Frederick D. Lewis, vice chairman.

23–27 July. J. I. Brauman, "Photochemistry of ions in the gas phase"; F. De Schryver, "Photochemistry of bichromophoric compounds"; D. M. Golden, "Infrared photochemistry of small organic molecules in the gas phase"; Z. Grabowksi, "Donor-acceptor molecules and twisted internal charge-transfer excited states"; H. G. Heller, "The photoreactions of photochromic fulgides"; W. Hertler, "Crystalline matrix photopolymerization"; G. Jones, "Photosensitized energy conversion: exciplex and energy transfer mechanisms"; G. Maier, "Photochemical routes to unusual molecules"; P. Mariano, "Mechanistic and synthetic aspects of iminium salt photochemistry"; J. R. Sheffer, "Organic solid state photochemistry"; R. Srinivasan, "Organic photochemistry with 6.7 eV photons"; A. Weller, "Magnetic field effects on photochemical reactions"; M. Wrighton, "Inorganic systems for solar energy conversion"; E. Yablonovitch, "I. R. laser chemistry—intramolecular energy redistribution."

Organic Reactions and Processes

New Hampton School

Milorad M. Rogic, chairman; Amos B. Smith, III, vice chairman.

16 July. Gordon A. Hamilton, "Model and enzymic redox reactions involving O_2 and reduced O_2 species"; Russell S. Drago, "Binding and activation of dioxygen"; Milan R. Uskoković, "Regio and stereoselectivity of nitrones in olefine cycloadditions"; Michael W. Rathke, "The preparation and reactions of sterically hindered secondary amines."

17 July. Cheves Walling, "Oxidations mediated by transition metal ions, some models and problems"; Engelbert Ciganek, "Some aspects of the intramolecular Diels-Alder reaction"; Michael P. Doyle, "Formation and reactions of organic dinitrogen compounds." Contributed short talks by conferees.

18 July. Hideki Sakurai, "Reactions of all allylsilanes and application to organic synthesis"; Stylianos Sifniades, "An L-lysine process via asymmetric transformation of aminocaprolactam." Contributed short talks by conferees.

19 July. Herbert C. Brown, "New reagents for hydroboration and organoboranes"; Jay K. Kochi, "Electrophiles, electron transfer, charge transfer and organometallic chemistry"; John S. Latin, "Space-age transportation."

20 July. Orville L. Chapman, "Photochemical rearrangements and dimerization of 2-phenoxy-4,5-benztropone"; Raymond A. Firestone, "Conformations of diradicals."

Physical Metallurgy

Proctor Academy

J. D. Embury, chairman; N. L. Peterson, vice-chairman.

Strain Localisation During Plastic Deformation

The theme of the conference will be strain localisation and the stability of plastic flow. It is hoped that this topic will serve to promote the exchange of views between those concerned with microstructural aspects of deformation and fracture and those interested in the macroscopic and phenomenological modelling of strain localisation and instability. Thus, the conference will encompass a wide range of topics including the occurrence of strain localisation in uni-axial and multi-axial flow, its role in fatigue and fracture, and the microstructural observations associated with flow localisation.

The evening session will have only one keynote address in order to leave more time for general discussion and the presentation of a few short prepared contributions. In addition, there will be a poster session displayed throughout the week. Any attendee at the conference may contribute to the poster session with displays which can be mounted onto the plywood sheets (2 feet by 4 feet high) which will be provided at the conference site. Material for the poster sessions or prepared contributions to the discussion periods should be addressed to: Dr. J. D. Embury, Department of Metallurgy and Materials Science, McMaster University, Hamilton, Ontario, Canada L8S 4L7.

9 July. (H. Mecking, chairman): A. Sleeswyk, "Mechanisms for strain localisation"; R. Asaro, discussant. G. Lutjering, "Microstructural aspects of localised plastic flow"; D. Warrington, discussant. (G. Langford, chairman): J. L. Martin, "A critique of *in situ* experiments related to strain distribution."

10 July. (J. Jonas, chairman): U. F. Kocks, "Descriptions of the stability of flow in uni-axial tension"; A. Ghosh, discussant. J. Duncan, "The stability of flow under multi-axial loading conditions"; S. S. Hecker, discussant. (B. Baudelet, chairman): O. Richmond, "Critical aspects of models of the stability of plastic flow."

11 July. (J. F. Knott, chairman): J. W. Hutchinson, "Flow localisation and fracture processes"; A. Needleman, discussant. G. T. Hahn, "Experimental evidence and models of fracture behavior"; A. Melander, discussant. (J. D. Embury, chairman): J. W. Rudnicki, "Strain localisation and fracture in pressure sensitive materials including geological applications."

12 July. (V. Gerold, chairman): L. M. Brown, "Strain localisation in fatigue–single phase materials"; P. Neumann, discussant, Z. S. Basinski (subject to be announced), H. Mughrabi, discusssant. (J. D. Embury, chairman): A. S. Argon, "A critical review of strain localisation in a variety of materials."

13 July. (H. Stuwe, chairman): C. Laird, "Strain localisation and fatigue in

multi-phase materials''; M. Meshii, discussant. R. Raj, ''Strain localisation at elevated temperatures.'' General discussion.

Physical Organic Chemistry

Holderness School

Robert D. Miller, chairman; D. G. Farnum, vice chairman.

11 June. Opening remarks (Robert D. Miller, discussion leader): Peter Vollhardt, ''Excessively unhappy hydrocarbons.'' (Israel Agranat, discussion leader): Milorad M. Rogic, ''Copper II induced cleavage of carbon-carbon bonds. On the question of nonenzymatic activation of molecular oxygen''; David M. Lemal, ''The tetrafluorocyclobutadiene mystery.'' (Gary I. Schuster, discussion leader): Donald G. Farnum, ''Synthesis of some $(CH)_n$ hydrocarbons''; Virgil Boekelheide, ''Synthesis of multibridged cyclophanes by benzocyclobutene ring closure.''

12 June. (Klaus Grohmann, discussion leader): Henning Hopf, ''Novel preparative uses of alkynes and cumulenes in hydrocarbon chemistry.'' (Dan Farcasiu, discussion leader): Clair J. Collins, ''Organic chemistry related to coal liquefaction''; Barry K. Carpenter, ''A simple model for structure-reactivity relationships in pericyclic and biradical reactions.'' (Pierre Vogel, discussion leader): Klaus Grohmann, ''Synthetic approaches to 13-methylphenalene''; Heinz A. Staab (subject to be announced).

13 June. (Raymond A. Firestone, discussion leader): Waldemar Adam, ''Bicyclic peroxides.'' (L. M. Stephenson, discussion leader): Maitland Jones, Jr., ''Gas phase carbene reactions''; Peter B. Dervan, ''The chemistry of some persistent 1,1-diazenes.'' (David M. Lemal, discussion leader): Raymond A. Firestone, ''Linnett structures for homolytic transition states''; Israel Agranat, ''Synthesis and properties of sterically crowded molecules''; Pierre Vogel (subject to be announced).

14 June. (Donald G. Farnum, discussion leader): Ian Flemming, ''Some uses of silicon compounds in organic synthesis.'' (Robert D. Miller, discussion leader): Satoru Masamune, ''Some new synthetic methods''; Dan Farcasiu, ''Homo-ene and homo-retroene reactions in bi- and polycyclic systems.'' (Barry K. Carpenter, discussion leader): Contributed papers.

15 June. (Peter B. Dervan, discussion leader): David G. Whitten, ''Photochemical reactions in organizates: reactions in micelles, monolayers and vesicles''; L. M. Stevenson, ''Recent developments in the singlet oxygen ene reaction''; Gary I. Schuster, ''Single electron transfer initiated production of reactive intermediates: chemical generation of electronically excited states.''

Plant Cell and Tissue Culture

Proctor Academy

Peter S. Carlson, chairperson; Frederick Meins, vice chairperson.

Plant Cell and Molecular Biology

18–22 June. Organization of the higher plant genome (R. Goldberg, discussion leader). DNA replication (J. Van't Hof, discussion leader). The cell cycle (G. Lark, discussion leader). Plant cell membranes (R. Spanswick, discussion leader). Recombinant DNA research with plant materials (R. Meagher, discussion leader): Genetic and epigenetic variation (T. Rice, discussion leader). Developmental biology (I. Sussex, discussion leader). Special lecture (speaker to be announced). Conference summary and discussion of research directions (Frederick Meins, discussion leader).

Point and Line Defects in Semiconductors

Kimball Union Academy

C. H. Henry, chairman; G. D. Watkins, vice chairman.

23 July. Dislocations (H. A. Queisser, chairman): A. Ourmazd, ''Electronic properties of dislocations and their relation to the dislocation core configuration''; P. M. Petroff, ''Electronic properties of defects at heterojunction interfaces''; H. Alexander, ''TEM and EPR studies of dislocations in silicon.'' Deep levels (D. V. Lang, discussion leader): B. Hamilton, A. R. Peaker, ''Deep state recombination in gallium phosphide''; D. Bois, ''Experimental study of the stable and metastable states of the deep 'O' center in gallium arsenide.''

24 July. Theory of point defects (A. M. Stoneham, discussion leader): M. Schlüter, G. A. Baraff, ''A self-consistent Green's function approach to localized defects''; J. Bernholc, ''Theory of electronic structure of point defects''; L. A. Hemstreet, ''A cluster approach to the study of deep levels.'' Defects at interfaces (P. Hirsh, discussion leader): A Bourret, ''Structures of dislocations and grain boundaries''; D. G. Ast, ''Grain boundaries in Si.''

25 July. Diffusion of defects at high temperatures (J. A. VanVechten, discussion leader): R. B. Fair, ''The effect of vacancy charge states on impurity diffusion''; S. M. Hu, ''Some aspects of point defects and diffusion in Si''; W. Schröter, ''Transition metal impurities in germanium and silicon.'' Degradation mechanisms (L. C. Kimerling, discussion leader): A number of short contributions to be announced.

26 July. Point defects (P. J. Dean, discussion leader): U. Kaufman, J. Schneider, ''EPR and optical spectra of 3d-ions in III-V semiconductors''; T. A. Kennedy, ''EPR studies of gallium vacancies and other defects in GaP''; F. W. Saris, ''Channeling studies of impurity-defect interactions.''

27 July. Point defects and crystal growth (R. N. Hall, discussion leader): R. N. Bhargava, ''Impurities and self-compensation in p-type zinc selenide''; E. Haller, ''The role of hydrogen in ultrapure germanium single crystals.''

Poster session: Participants are invited to contribute posters, if they wish to do so. To reserve space, please give the poster title and an outline of the contents in the application. A selection will be made if there are too many posters.

Polyamines

Proctor Academy

Uriel Bachrach, chairman; Seymour S. Cohen, vice chairman.

25–29 June. Control of polyamine biosynthesis: effect of cyclic AMP and hormones, Diane H. Russell, C. M. Caldarera. Antizyme and the genetic control of putrescine synthesis: E. S. Cannelakis, Herbert Tabor. Effect of polyamines on the synthesis and function of nucleic acids and proteins: T. Oka, Y. Takeda. Polyamine metabolism and new polyamines: H. G. Williams-Ashman, V. Zappia. Polyamines and neoplastic growth: R. K. Boutwell, Laurence J. Marton. Polyamines in plants, virus algae and parasites: S. S. Cohen. Perturbations of polyamine levels in various diseases: Owen M. Rennert, Robert A. Campbell. Polyamines in cellular growth and reproduction: David R. Morris, N. Seiler. Polyamines and behavior: L. Schanberg.

Polymer Colloids

Tilton School

Gary W. Poehlein, chairman; Robert Fitch, vice chairman.

2 July. (David Basset, discussion leader): Mohamad S. ElAasser, ''Analytical

purification methods for polymer colloids''; Ron Ottewill, ''Particle-particle interactions in polymer colloids.'' (Andrew Klein, discussion leader): Milton Kirker, Josip Kratohzil, ''Fluorescent polymer latexes.''

3 July. (Ritchie Wessling, discussion leader): Mamoru Nomura, ''Polymerization rates for emulsion copolymerization''; John Ugelstad, ''Swelling of polymer-oligomer particles-polymerization with initiation in monomer droplets.'' (Carlton Force, discussion leader): Harold Hoffenberg, A. R. Berens, ''Glassy state transport processes in polymeric colloids.''

4 July. (John Vanderhoff, discussion leader): W. Harmon Ray, ''The behavior of emulsion polymerization reactors''; Edward J. Glass, Jr., ''Water soluble polymers—application in oil recovery processes.'' (Edward Collins, discussion leader): Anthony J. McHugh, ''Particle chromatography.''

5 July. (W. Wilson White, discussion leader): A. S. Dunn, ''Use of polyvinyl alcohol as an emulsifier in emulsion polymerization''; M. D. Croucher, ''Sterically stabilized nonaqueous dispersions.'' (Gary W. Poehlein, discussion leader): Robert L. Rowell, ''Laser-Kerr studies of anisotropic colloidal particles.''

6 July. (Pranab Bagshi, discussion leader): Robert Fitch, ''Particle size distributions in emulsions and dispersions; experimental and theoretical considerations''; C. T. Havens, J. A. Mann, Jr., I. M. Krieger, ''Computer simulation of colloid dynamics.''

Polymers

Colby-Sawyer College

George B. Butler, chairman; James Economy, vice chairman.

9 July. (R. W. Lenz, discussion leader): H. Ringsdorf, ''Polyreactions in oriented systems: application in life sciences and material sciences''; C. D. Eisenbach, ''Photochromism of aromatic azo compounds in crosslinked and partially crystalline polymers.'' (R. Gilbert, discussion leader): Y. Iminishi, ''Stereoselective and asymmetric-selective polymerization of α-amino acid *N*-carboxyanhydrides''; B. Lotz, ''The structure of some transmembrane channels.'' (J. Economy, discussion leader): M. Litt, ''Electrical properties as a function of morphology in nylons and polyvinylidene fluoride''; G. T. Davis, ''Piezoelectric and pyroelectric polymers—mechanism and application.''

10 July. (E. Petrie, discussion leader): O. Vogl, ''Synthesis and comparative properties of head-to-head tail-to-tail polymers''; C. L. McCormick, H. H. Neidlinger, ''Random and graft copolymers for utilization in enhanced oil recovery.'' (J. Salamone, discussion leader): V. P. Zubov, ''Charge-transfer complex free monomer participation ratios in alternating copolymerization''; S. R. Turner, ''Novel acceptor polymeric systems based on trinitrofluorenone.'' (E. M. Pearce, discussion leader): A. Eisenberg, ''Physical properties of ion-containing polymers''; H. S. Makowski, ''Synthesis and properties of sulfonate-containing polymers.''

11 July. (J. P. Kennedy, discussion leader): P. Guisti, ''Synthesis of block copolymers via a direct cationic route''; R. M. Ottenbrite, ''Cyclic quaternary ammonium polymers.'' (J. Arthur, discussion leader): C. J. McDonald, ''Modification of polyacrylamide via the Mannich reaction''; P. Salvadori, ''Conformation-optical activity relationships in coisotactic copolymers containing aromatic side chains''; (P. W. Morgan, discussion leader): R. M. Ikeda, ''Mechanism of action of phosphorus-containing flame retardants in polymers.'' (E. J. Vandenberg, discussion leader): V. A. Zakharov, ''Polymerization of olefins on supported titanium-magnesium catalysts.''

12 July. (C. G. Overberger, discussion leader): I. M. Panayotov, ''Nature and reactions of the active centers in the anionic polymerization of polar monomers''; H. Sumitomo, ''Ring-opening polymerization of hetero bicyclic compounds.'' (T. E. Hogen-Esch, discussion leader): Z. J. Jedlinski, ''Some new aspects of polymerization of monosubstituted epoxides.'' (R. A. Hayes, discussion leader): S. Futamura, ''Mechanism and kinetics of copolymerization of tetrahydrofuran and propylene oxide.''

13 July. (J. McGrath, discussion leader): A. M. North, ''Relaxation studies relating physical properties of polymers to molecular motion''; W. W. Graessley, ''Melt rheology of polyethylene based on structurally simple model polymers.'' (V. Stannett, discussion leader): W. Schnabel, ''Flash photolysis and pulse radiolysis of polymers in solution.''

Postharvest Physiology

Holderness School

James K. Palmer, chairman; Roger Romani, vice chairman.

6–10 August. The program will include the following sessions and speakers: Hormonal regulation of ripening and senescence: M. Lieberman, A. K. Mattou, S. F. Yang, R. Zobel, E. Beyer, E. Sisler. Biochemistry and physiology of ripening and senescence (two sessions): R. Romani, D. Grierson, C. Lance, G. L. Staby, E. C. Tigchelaar, J. Lyons, B. D. Patterson, R. Tressl, C. Frenkel. Cell-wall structure and physiology: R. Pressey, M. Knee, J. Labavitch, S. Wallner, L. L. Strand. Quality and its maintenance postharvest: A. A. Kader, A. L. Burroughs, A. E. Watada, R. E. Young, R. W. Buescher. Storage and handling: L. L. Morris, W. J. Lipton, F. W. Liu, R. E. Woodruff, B. W. Pooviah, S. W. Porritt. Newer phytochemical research methods: J. J. Jen, J. C. Pech, J. K. Palmer. Postharvest worldwide: H. K. Pratt, E. Pantastico, L. Tannenbaum. Research for the future: J. K. Palmer, G. E. Hobson, W. J. Bramlage, N. E. Looney, N. Haard.

Proteins

New Hampton School

Thomas A. Steitz and Klaus Weber, co-chairmen.

25–29 June. Protein structure and function: kinases (Herman Watson, chairman); H. Muirhead, ''Structure of pyruvate kinase.'' Proteins function in bacterial chemotaxis (Robert M. Macnab, chairman): D. Koshland, Jr., ''Proteins and sensory transduction''; J. Adler, ''Role of protein methylation in bacterial chemotaxis''; J. Parkinson, ''Genetic methods for examining protein interactions in bacterial chemotaxis''; R. S. Zukin, ''Spectroscopic studies on isolated bacterial chemoreceptors''; F. Quiocho, ''Structure and function of periplasmic binding proteins.'' Structural proteins in cell motility (Ed Korn, chairman): D. DeRosier, ''Role of actin bundles in cell motility''; S. Brenner, ''Spectrinactin interactions.'' Fibrous proteins in non-muscle cells (David Gilbert, chairman): L. Wilson, ''Microtubule treadmills: dynamic cellular organelles for structure and movement.'' Protein folding I. Generalizations from known structures (Jane Richardson, chairman): C. Chothia, B. Matthews, R. Salemme. Nature and function of multiple conformations of protein structures (Steve Harrison, chairman): (speaker to be announced), ''Alternative conformations and contacts of coat protein subunits in tomato bushy stunt virus''; J. Baldwin, ''The structural changes in hemoglobin related to ligand binding and its allosteric mechanism''; D. Engelman, ''Small angle x-ray scattering in solu-

tions of kinase demonstrate conformational changes consistent with crystal structures." Proteins in cellular membranes (Richard Henderson, chairman): (speaker to be announced), "Structure of cytochrome oxidase." Protein folding II. Correlation of protein structure with solution properties (Frederick M. Richard, chairman): F. Gurd, J. Miller. New approaches to structural analysis of proteins (Peter B. Moore, chairman): P. Rentzepes, R. G. Shulman, B. P. Schoenborn.

Quantitative Structure Activity Relationships in Biology

Plymouth State College

John Topliss, chairman; Albert Leo, vice chairman.

16 July. Parameter: Marvin Charton, "Definition and estimation of steric parameters"; J. T. Chou, "Computer-assisted computation of partition coefficients from molecular structures using fragment constants"; P. C. Jurs, "Computer-assisted studies of chemical structure and biological activity using pattern recognition methods." Methods other than regression: Svante Wold and W. Dunn, III, "QSAR approached by SIMCA pattern recognition"; Gilda Loew, "Quantum chemistry applied to carcinogenesis problems."

17 July. Cancer therapy and induction: Bruce Cain, "QSAR of aminoacridines"; William Lijinsky, "Aspects of quantifying carcinogenesis and mutagenesis of *N*-nitroso compounds"; John Montgomery, "QSARs of anti-cancer agents—the nitrosoureas." Poster and computer demonstrations.

18 July. QSAR applications: V. Austel, "Stepwise application of structure-activity-classifications and quantitative structure-activity-relationships in drug design"; M. Yoshimoto, "QSAR in 7-methoxy-cephalosporins"; P. Magee, "A parametric method assisting bioactive and general synthesis"; R. Franke, "Use of entropy to measure informational content of biological response data"; P. Gund, "Utility of 3-D modeling."

19 July. Drug-receptor interactions, I: Pietro Pratesi, "Rigid ligands with muscarinic receptors"; Eugene Coats, "Separation of target site interaction from whole cell response via comparative QSAR"; G. Marshall, "Conformation parameters in drug design: mapping receptor sites." Poster and computer demonstrations.

20 July. Drug receptor interactions, II: P. Goodford, "Regression analysis of structure-function relationships"; P. Timmermans, "QSAR of anti-hypertensives"; M. Tichy, "QSAR of cytochrome 450."

Quantum Solids and Fluids

Plymouth State College

Philip Pincus and Robert Birgeneau, co-chairmen.

Melting, Structure, and Dimensionality

9 July. M. Kosterlitz, "Phase transitions in 2d"; I. Rudnick, "Superfluid transition in helium films"; G. C. Grimes, "The 2d liquid-to-crystal phase transition of electrons on a helium surface"; M. Schick, "Classification of commensurate order-disorder transitions on surfaces"; A. Thomy, "Survey of two dimensional phase transitions of physisorbed films on lemellar solids."

10 July. D. Nelson, "Two dimensional melting"; J. McTague, "Physiadsorbed monolayers: neutron scattering"; P. Horn, "Physiadsorbed monolayers: X-ray scattering"; W. McMillan, "Commensurate-incommensurate transition"; S. Fain, "Physiadsorbed monolayers: electron diffraction study of the commensurate and incommensurate transition."

11 July. D. Litster, "Nematic-smectic A transition: Scattering studies"; D. Johnson, "Smectic phase transitions: thermodynamic studies"; M. Lambert, "Smectic mesophases"; R. Pindak, "2d phase transitions in freely-suspended smectic liquid crystal films"; W. Helfrich, "Phospholipid monolayers and bilayers."

12 July. D. Stauffer, "Scaling theory of the sol-to-gel transition"; T. Tanaka, "Gelation: experiment"; L. Kadanoff (subject to be announced), S. Alexander, "Melting in 3d."

13 July. P. W. Anderson, "When is a solid a solid?"; G. Shirane, "Fluctuations in a ld liquid"; S. Solin, "Intercalation compounds."

Radiation and Acceleration in Space and Laboratory Plasmas

Brewster Academy

K. Papadopoulos, chairman; Martin Walt, vice chairman.

Objective: to bring physicists of many specialities—astrophysicists, space and magnetospheric physicists, laboratory plasma physicists—together to discuss new ideas in acceleration and radiation.

11 June. Overviews on acceleration and radiation processes (K. Papadopoulos, discussion leader): R. Blanford, "Overview of acceleration processes"; G. Bekefi, "Generation of submillimeter of microwave radiation"; V. Tsytovich, "New concepts on acceleration processes." Overviews of acceleration and radiation in space (A. Timothy, discussion leader): D. Stern, "Acceleration and radiation in the magnetosphere"; D. M. Rust, "Acceleration and radiation in the sun"; S. Colgate, "Phenomenology of solar flares."

12 June. Acceleration and radiation in the laboratory (A. Drobot, discussion chairman): A. Wong, "Acceleration and radiation processes in strong turbulence"; H. DeKluiver, "Current driven turbulence and their e-m signatures in toroidal and linear devices. The marginal stability concept applied"; P. Sprangle, "Free electron lasers." VLF emissions (R. Gendrin, discussion leader): R. Helliwell, "Measurements and simulations of triggered VLF emissions"; R. Sudan and J. Denevit, "Theory and simulation of triggered whistler radiation"; V. Karpman, "Nonlinear and modulational effects on large amplitude whistlers."

13 June. Solar acceleration and radiation (M. Kundu, discussion leader): R. P. Lin, "Acceleration in solar flares (observations)"; J. Heyverts, "Acceleration in solar flares (theory)"; R. Smith, "Type III solar radiobursts." Acceleration and radiation in the tail (A. Hasegawa, discussion leader): A. Galeev, "Acceleration processes in reconnection"; E. Sarris and T. Lui, "Particle acceleration in the magnetotail"; L. Fisk, "Acceleration in the solar wind."

14 June. Auroral acceleration and radiation (G. Paulikas, discussion leader): P. Palmadesso, "Theories of auroral kilometric radiation"; R. Johnson, Particle observations in the high latitude acceleration region"; J. Maggs, "Noise excitation in auroral arcs." Auroral acceleration and radiation (M. Shultz, discussion leader): C. Wu, "Kilometric and Jovian radiation"; K. Goertz, "Acceleration in double layers"; R. Lysak and M. Temerin, "Magnetospheric electric fields."

15 June. Summary and panel discussion. Future directions (M. Walt, discussion leader): B. Coppi, G. Gloekler, R. Kulsrud, S. Shawhan, V. Tsytovich.

Red Cells

Plymouth State College

H. F. Bunn and A. N. Schechter, co-chairmen.

11 June. Hemoglobin (H. F. Bunn, chairman): J. Baldwin, "High resolution

structure of hemoglobin''; M. McDonald, ''Non-enzymatic glycosylation''; F. Brown, ''NMR studies of the red cell''; C. Noguchi, ''^{13}C NMR studies of gelatin.'' Hemoglobin gene I (O. Smithies, chairman): D. Konkel, ''Structure of mouse hemoglobin genes''; T. Maniatis, ''Cloning linked hemoglobin genes''; H. Weintraub, ''Hemoglobin gene chromatin.''

12 June. Erythrocyte development and ontogeny I (A. Axelrad, chairman): N. Iscove, ''Burst promoting activity''; J. Adamson, ''Humoral effectors''; D. Housman, ''Mechanisms of commitment in mouse erythroleukemia.'' Poster session. Red cell membrane (A. Schechter, chairman): D. Branton, ''Protein interactions in the red cell membrane''; S. Lux, ''Diseases associated with spectrin abnormalities''; G. Guidotti, ''Membrane pumps.''

13 June. Sickle hemoglobin (W. Love, chairman): S. Edelstein, ''Structure of the sickle fiber''; R. Nagel, ''Structural information from mutants''; W. Eaton, ''Kinetics and thermodynamics of gelation''; R. Benesch, ''Gelation of sickle hemoglobin.'' Posters. Hemoglobin II (D. Nathan, chairman): B. Forget, ''Human globin gene structure''; S. Orkin, ''Restriction enzyme mapping of thalassemia genes''; A. Bank, ''Restriction enzyme mapping of sickle genes''; Y. Kan, ''Restriction enzyme mapping of sickle genes.''

14 June. Erythrocyte development and ontogeny II (V. Ingram, chairman): G. Stamatoyannopoulos, ''Fetal hemoglobin development''; A. Nienhius, ''Gene switching in sheep''; W. Wood, ''Fetal hemoglobin production *in vivo*.'' Special lecture: O. Smithies, ''Genetics from code to now.''

15 June. Red cell protein biosynthesis (I. London, chairman): R. Rifkind, ''Biosynthetic program in murine erytholeukemia cells''; H. Lodish, ''Biosynthesis of membrane proteins.''

Remote Sensing of the Earth's Surface from Space

Plymouth State College

L. Walter, chairman; J. Estes, co-chairman.

20–24 August. Spectral characterization of organic matter: N. Bunnik, H. Gausman, G. Suits. Composition and distribution of aerosols and radiative transfer: R. Turner. Water balance and evapotranspiration: C. Van Bavel, E. Kanemasu. Thermal and thermal inertia properties: R. Jackson, K. Watson. Soil moisture: T. Schmugge, T. Jackson. Crop yield: W. Malila, D. Herman. Crop stress: J. Hatfield, G. Boatwright. Global environment: E. Maxwell (subject to be announced). Remote sensing models: W. Wigton, D. Simonett, A. Park.

Separation and Purification

Colby-Sawyer College

Armand J. deRosset, chairman; Kang-Jen Liu, vice chairman.

13 August. (S. Wexler, session chairman): W. M. Rutherford, ''Separation of isotopes of liquid phase and gas phase thermal diffusion''; F. B. Hill, ''Hydrogen isotope separation using metal hydrides in cyclic processes''; J. A. Sullivan, ''Laser isotope separation.''

14 August. (P. Horowitz, session chairman): H. Small, ''Chromatographic separation of colloidal particles—principles and practice''; E. Gil-Av, ''Chiral recognition in partitioning systems''; P. Valentin, ''New developments in production scale gas chromatography.''

15 August. (J. Penniman, session chairman): C. E. Capes, ''Agglomerative separation in organic media''; S. Dennison, ''Clay separation by flotation''; R. B. Grieves, ''Separation of inorganic anions (primarily oxyanions) of industrial significance from dilute, multi-salt aqueous solutions by foam fractionation and by charged membrane ultrafiltration.''

16 August. (J. Sobel, session chairman): N. Catsimpoolas, ''Separation of cells by density gradient electrophoresis''; A. R. Cooper, ''Purification and fractionation of soluble polymers by ultrafiltration''; W. E. Greiner, ''Multistage countercurrent crystallization.''

17 August. (K. J. Liu, session chairman): R. P. Andres, ''The free jet deceleration process, a new method for separating gas molecules or aerosol particles of disparate mass''; J. L. Atwood, ''Liquid clathrates.''

Solids, Chemistry and Physics of

Holderness School

Peter Eisenberger, chairman; David Shirley, vice-chairman.

Synchrotron Radiation

9–13 July. Atomic and molecular spectroscopy: ''Theory,'' ''Resonances and correlation effects,'' ''Photodissociation,'' ''Time dependent phenomena.'' Properties of materials—disordered systems (pair correlations): ''Theory,'' ''Alloys and amorphous materials,'' ''Superionic conductors.'' Properties of materials—surfaces and catalysts: ''Theory,'' ''Bulk and absorbate electronic structure,'' ''Absorbate geometry,'' ''Structure of catalytic systems.'' Special techniques for studying materials: ''Anomalous scattering—RDF determination,'' ''Typography—defects,'' ''Microscopy/lithography-structure-pattern replication,'' ''Photoelectron diffraction and SEXAFS.'' Storage rings and experimental techniques: ''X-ray-high resolution (meV)-mirrors-monochromators,'' ''VUV-high speed data acquisition-reactions-monochromators.'' Speakers to be announced.

Statistics in Chemistry and Chemical Engineering

New Hampton School

John Mandel, chairman; William J. Hill, vice-chairman.

30 July. H. O. Hartley, ''Components of variance estimation with applications to chemical research problems''; (Richard L. Anderson, moderator). Barry H. Margolin, ''Statistical aspects of short-term tests for chemical mutagenicity''; (William G. Hunter, moderator).

31 July. Donald G. Watts, Douglas M. Bates, ''Curvature measures of non-linearity and their use in obtaining improved parameter confidence regions''; (Donald A. Gardiner, moderator). Elizabeth L. Scott, ''Risk analysis of methyl mercury poisoning''; (William H. Lawton, moderator).

1 August. David W. Bacon, Bruce R. Kowalski, Mary G. Natrella, Ronald D. Snee, ''Communicating new concepts between our disciplines; problems and solutions''; (Spencer M. Free, Jr., moderator). Hugo C. Hamaker, ''Inferences from chemical and physical measurements with special reference to problems of standardization'', (J. Stuart Hunter, moderator).

2 August. Edmund H. Nicklin, Albert S. Paulson, ''Robust analysis of data from designed industrial experiments; a generalized approach''; (Brian L. Joiner, moderator). James L. Hansen, ''Modelling dynamic chemical processes using time series''; (Paul W. Tidwell, moderator).

3 August. Joseph L. Ciminera, ''Statistical problems and procedures in the safety assessments of drugs and chemicals''; (William M. Wooding, moderator).

Theoretical Biology and Biomathematics

Tilton School

Charles DeLisi, co-chairman; Lee Segel, co-chairman.

11–15 June. Molecular recognition and signal transduction at the single cell level: Daniel Koshland, "Bacterial chemotaxis—a model adaptive system; Edward Purcell, "Some physics involved in chemoreception"; Sol Rubinow, "Enzyme transport along an axon"; John Rinzel, "Action potential propagation"; Lee Segel, "Influences of saturation and competition on synaptic facilitation"; Robert Zucker, "Experimental and theoretical approaches to synaptic facilitation"; Richard Bergman, "The random hit matrix model of receptor-cyclase coupling"; Charles DeLisi (subject to be announced); Kenneth Bischoff, "Influence and quantitation of drug effects on biochemical pathways." Information processing and behavioral control by systems of cells: John Cowan, "Neural networks"; Hans Meinhardt, "The activation of particular genes under the influence of a morphogen gradient"; Graeme Mitcheson, "A model for vein formation in plants"; Zvi Sacks, "Biological evidence bearing on the mechanism of vein formation in plants"; Tomaso Poggio, "A synaptic mechanism possibly underlying movement detection"; Edwin Land, "The retinex theory of color vision"; Joseph Keller, "Mathematical aspects of color vision"; John McCann, "Mechanisms for seeing lightness"; Shimon Ullman, "Directional sensitivity in the visual cortex"; Groups: ecology and epidemiology: Simon Levin, "Some models for the evolution of adaptive traits"; Robert May, "Parasitic infections: their transmission dynamics and effects upon the host population"; Lila Elveback, "Stochastic simulations of epidemic models"; James Yorke, "Seasonality and the requirements for perpetuation and eradication of viruses in populations"; Leslie Blumenson, "How the age distribution of carcinogenesis and subsequent tumor cell kinetics limit our ability to decrease the morbidity from cancer"; Alice Whittemore, "Cancer epidemiology."

Toxicology and Safety Evaluation

Kimball Union Academy

Hans P. Drobeck, chairman; Herbert Blumenthal, vice chairman.

30 July. Gerontologic toxicology (H. Grice, discussion leader): G. Roth, "Changes in hormone action during aging"; R. Vestal, "Altered physiology and drug disposition with aging"; D. McMartin, "Animal aging-tissue changes and toxicology."

31 July. Immunotoxicology (M. LaVia, discussion leader): M. LaVia, "Models for studies of immunomodulation by xenobiotics"; L. Loose, "Influence of organohalide xenobiotics on tumor immunity"; A. Barker, "Immunotoxic-carcinogenic assessment of inhaled particulates"; M. LaVia and B. Bozelka, "Effects of environmental agents on macrophage functions." Animal health—toxicology interface (J. Douglas, discussion leader): J. Parker, "Virus infections and animal quality"; A. Jonas, "Animal quality control or are we ready for an animal H.M.O.?"

1 August. Modern aspects of teratology (R. Hoar, discussion leader): M. Johnson, "Some biochemical and physiologic parameters of teratogenesis"; D. Kochhar, "Organ culture systems in teratology"; D. Hutchings, "Behavioral teratology: a new frontier in behavioral research." Regulatory problems-regulatory solutions (H. Blumenthal, discussion leader): T. Farber, "A regulatory process for the approval of carcinogens administered to food-producing animals"; J. Cotruvo, "Rational regulatory policies for non-threshold toxicants."

2 August. Metabolic and transplacental assessment of estrogen hormones (E. Helton, discussion leader): J. Goldzieher, "Geographic differences in the pharmacokinetics and metabolism of ethynyl estrogens"; W. Slikker, "Transplacental pharmacokinetics and metabolism of natural and synthetic estrogens in the rhesus monkey"; A. Hendrick, "Embryotoxic studies of synthetic estrogens and progestins in non-human primates." Subject to be announced (A. Wolven, discussion leader).

3 August. Predictive concepts in toxicology (F. Coulston, discussion leader): R. Hall, "A status report on the use of a decision tree for estimating toxic risk"; J. Wishnok, "Structural and simple mathematical approaches to quantitative problems in nitrosamine carcinogenicity and toxicity"; R. Abraham, "The role of nucleoploidy in hepatic carcinoma."

Transport Phenomena in Lipid Bilayers and Biological Membranes

Tilton School

Paul Mueller, chairperson; Sally Krasne, vice chairperson.

20 August. Physical properties of lipid bilayers (T. Thompson, chairperson): J. Seelig, W. Helfrich, B. Hudson. Interactions of ions with bilayers (A. Parsegian, chairperson): S. McLaughlin, L. Lis, W. Pangborn.

21 August. Gramicidin channels (D. Urry, chairperson): H. J. Apell, O. Anderson, L. Stryer. Channel permeability (G. Eisenman, chairperson): G. Szabo, D. Levitt, W. Webb.

22 August. Voltage gated channels (D. Tosteson, chairperson): A. Kinkelstein, R. Benz, M. Tosteson. Panel discussion: Methods of membrane reconsistution (P. Mueller, chairperson): A. Finkelstein, C. Miller, M. Montal, E. Racker, M. Raftery, A. Waggoner. Poster session.

23 August. Acetylcholine receptor (C. Stevens, chairperson): E. Racker, M. Raftery, J. Heuser. Sodium and calcium channels (S. Krasne, chairperson): R. Barchi, R. Llinas.

24 August. GAP junctions and ADH induced channels (E. Furshpan, chairperson): J. Wade, M. Bennett, E. Raviola.

Tumor Immunology

Plymouth State College

Robert S. Schwartz, chairman; William D. Terry, vice chairman.

23–27 July. Natural resistance to neoplastic cells (Noel Warner, chairman); Lymphocyte differentiation and malignant lymphoproliferative diseases (Max Cooper, chairman); Immunology of metastases (Michael Feldman, chairman); Modulation and deregulation of the neoplastic cell surface (Samuel Waksal, chairman); Immunotherapy (Steven Rosenberg, chairman); Hybridomas: potentials for tumor immunology (Malcolm Gefter, chairman); Modulation of cell surfaces by recombinant viral gene products (Richard Lerner, chairman); Immunological networks (Harvey Cantor, chairman); Suppressor cells in cancer-bearing individuals (Thomas Waldman, chairman).

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