Gordon Research Conferences

ALEXANDER M. CRUICKSHANK

The Gordon Research Conferences for the summer of 1986 will be held in New Hampshire.

Purpose. The object and exclusive purpose of the Gordon Research Conferences is to foster and promote education and science by organizing and operating meetings of research scientists with common interests in the fields of chemistry or related sciences for the purpose of discussions and the free exchange of ideas, thereby stimulating advanced thinking in research at universities, research foundations, and industrial laboratories. This type of meeting is a valuable means of disseminating information and ideas to an extent that could not be achieved through the usual channels of publication and presentation at scientific meetings. In addition, scientists in related fields become acquainted and valuable associations are formed that often result in collaboration and cooperative efforts among laboratories. It is hoped that each conference will extend the Frontiers of Science by fostering a free and informal exchange of ideas among persons actively interested in the subject under discussion. The purpose of the program is to bring experts up to date on the latest developments, to analyze the significance of these developments and to provoke suggestions concerning the underlying theories and profitable methods of approach for scientific research. The review of known information is not desired.

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.

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 to be prepared as emanating from the Conferences. The recording of lectures by tapes, and so forth, and the photography of slides are prohibited.

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 on the application may be made. Attendance at each Conference is limited to approximately 100 conferees. *Deadline for receipt of applications is 6 weeks prior to the conference.*

The Director will submit the applications of those requesting permission to attend a Conference to the chairman for that conference. The chairman 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.

Important—Directions. A registration card will be mailed to those selected. Advance registration by mail for each conference is required and is completed on receipt of the registration card and the full fixed fee which is required in *advance of all participants and guests.*

1) The procedure for advance payment of full fixed fee required of scientists in the United States and Canada.

Advance registration by mail is required and is completed on receipt in this office of the registration card and the full fixed fee of participants and/or guests. Checks on U.S. Banks and in U.S. dollars are to be made payable to Gordon Research Conferences. Personal checks drawn on Canadian banks are not acceptable and will be returned.

2) The procedure for advance payment of full fixed fee required of scientists in foreign countries.

Advance registation by mail is required and is completed on receipt of the registration card and the receipt by our bank of the telegraphic transfer of the full fixed fee for participants and/or guests. It is absolutely necessary that *telegraphic transfers* be used and be made payable in U.S. dollars to *Fleet National Bank, Providence, Rhode Island, U.S.A. 02904.* The *telegraphic transfer* must indicate the account number 84-6500722 in order to be credited to the Gordon Research Conferences. Remittance information on the transfer must include the conferee's name and the conference title. *Checks of any type are not acceptable as payment—only telegraphic transfers.*

Registration card must be returned 3 weeks prior to the conference with the advance payment. A registration card not accompanied by the advance payment will not be accepted.

As you know, most Conferences are oversubscribed; therefore, I am sure you can appreciate our problems with other scientists who are qualified to attend but have been placed on a waiting list. *Please return your card immediately with the advance payment 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 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, and 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, and conferees) attends the Conference—that is, for the periods of from 1 to 4½ 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. (A) Conferees: All but $40 of the fixed fee will be refunded if an approved application is canceled not later than 2 weeks prior to the conference. (B) Guests: Accommodations (rooms and meals) are available for guests. Children must be at least 12 years of age. All such requests should be made at the time the

The author, director of the Gordon Research Conferences, is professor emeritus of chemistry, University of Rhode Island, Kingston 02281-0801.

attendance application is submitted because these accommodations, limited in number, will be assigned in the order that specific requests are received. The charge for room and meals for guests for five conference nights is indicated in the Fixed Conference Fee schedule. Full refund will be made if cancellation is received 2 weeks prior to the conference; otherwise, $40 will be forfeited. Guests are not permitted to attend the conference lectures and discussion groups.

Pets are prohibited at the Conference site.

Program. The complete program for the 1986 Gordon Research Conferences is published in *Science*, 7 March 1986. 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, Gordon Research Center, University of Rhode Island, Kingston, Rhode Island 02881-0801. Telephone: 401-783-4011 or 401-783-3372.

Mail for the office of the Director from 9 June to 22 August 1986 should be addressed to: Dr. Alexander M. Cruickshank, Director, Gordon Research Conferences, Colby-Sawyer College, New London, New Hampshire 03257.

Fixed Conference Fees—1986

New Hampshire	
Conferee (double occupancy)	$275.00
Nonresident conferee (meals, no room)	$235.00
Guest (room, meals)	$185.00

Children must be at least 12 years of age to have accommodations at host site (room and meals).

1) Full fixed fee charged regardless of time conferee attends Conference. Please note details of fees.

2) Fixed fees cannot be prorated or reduced for anyone (speakers, discussion leaders, and conferees).

3) Nonresident conferees are expected to eat all meals in the Conference Dining Room and, therefore, the fixed fee for nonresidents includes the full meal charge.

4) Offsite accommodations (hotel, motel, and so forth) near the host schools are available; however, early reservations are recommended. The office will send on request a list of outside housing for your information and use.

Science of Adhesion

New Hampton School

Terry St. Clair, chairman; James Koutsky, vice chairman.

18 August. (Matthew Tirell, discussion leader): Alphonsus Pocius, "Surface preparation and adhesive bonding of aerospace materials"; Albert Yee, "The role of molecular motions in the deformation of polymer adhesives and composites." (Matthew Tirell, discussion leader): Paul Zoeller, "Thermoplastics as matrix resins for composites."

19 August. (Lawrence Drzal, discussion leader): Willard Bascom, "Adhesion of thermoplastic resins to carbon fiber using the single fiber critical length test"; C. S. P. Sung, "Recent applications of FT-IR ATR and photoacoustic dichroism techniques for polymer surface characterization." (Lawrence Drzal, discussion leader): James Wightman, "Surface chemistry aspects of polymer/metal adhesion."

20 August. (John Outwater, discussion leader): Stephen Senturia, "Silicon microstructure for adhesion measurement"; Don Hofer, "Adhesion of polymers for microelectronics." (John Outwater, discussion leader): Amitava Gupta, "Characterization of organic matrix-carbon fiber interfaces."

21 August. (Joseph Antonucci, discussion leader): Waldemar de Rijk, "Dental adhesion: Bonding or luting"; Robert Foister, "Three phase boundary expansion in thin liquid films." Wolfgang Knauss, "Interdisciplinary research in adhesives."

22 August. (James Koutsky, discussion leader): N. H. Sung, "The role of coupling agents in adhesion promotion of bonded joints"; Herzl Chai, "Effect of bond thickness on the mode I failure of adhesive joints."

Biology of Aging

Plymouth State College (S)

Joan Smith-Sonneborn, chairman; Jim Joseph, vice chairman.

21 July. Molecular genetics of Alzheimers disease (Caleb Finch, discussion leader): Charles Marotta, Patricia Merz, Sayetta Zain. Molecular approaches to mechanisms of aging (Ed Schneider, discussion leader): Arlan Richardson, Robert Smookler Reis.

22 July. The cell biology of senescence (Vincent Cristofalo, discussion leader): David Gershon, Tom Norwood, James Smith, Klaus Bayreuther. Comparative systems, aging and developmental genetics (Joan Smith-Sonneborn, George Baker, discussion leaders): Mary Lou Pardue, Tom Johnson, R. S. Sohal.

23 July. Chromosomal and DNA damage and repair in the aging process (Ron Hart, discussion leader): Errol Friedberg, Michael Frye, Larry Loeb. Molecular basis for beneficial effects of dietary restriction (Ray Walford, discussion leader): Art Turturro, Richard Weindruch.

24 July. Gene regulation and expression (discussion leader to be announced): John Papaconstantineau, David Danner, George Webster, Michael Klass. Comparative molecular and cellular basis for developmental and premature aging disorders (George Martin, discussion leader): Ted Brown, Joe Christian.

25 July. Relationship between membrane and cell functional changes in senescence (Jim Joseph, discussion leader): Fulton Crews, Mayhr Shinitzky, Friedhelm Schroeder, Arnold Lippa, Costas Loullis.

Analytical Chemistry

New Hampton School

Larry R. Faulkner, chairman; Bruce Chase, vice chairman.

11 August. (M. Buchanan, discussion leader): B. S. Freiser, "New developments in FT/MS"; N. Winograd, "New approaches to the study of solids and surfaces using particle beams." (A. Scheeline, discussion leader): R. P. Van Duyne, "The laser spectroscopy of surfaces: Structure and dynamics"; L. D. Schmidt, "Microstructure of small particles."

12 August. (A. T. Zander, discussion leader): P. W. Bohn, "Nonclassical excitation phenomena applied to problems in solid state chemistry"; D. L. Allara, "Quantitative reflection infrared spectroscopy of thin films"; (M. Kaiser, discussion leader): L. W. Jelinski, "Modern NMR spectroscopy. New methods for the characterization of structure and dynamics in materials"; G. D. Wignall. "Characterization of synthetic polymers by neutron scattering."

13 August. (B. Chase, discussion leader): T. P. Lodge, "Diffusion of branched polymers in concentrated solutions"; S. J. Martin, "Characterization of copolymer distributions." (R. E. Shoup, discussion leader): J. W. Jorgenson, "Nano-scale separations in capillary tubes"; W. H. Pirkle, "Design of chiral stationary phases for chromatographic separation of optical isomers."

14 August. (F. E. Lytle, discussion leader): E. Gratton, "Analysis of fluorescence decay of complex systems using phase fluorometry"; R. P. Haugland, "Fluorescent dyes for simultaneous multiple component analysis." (J. W. Robinson, discussion leader): T. A. Nieman, "Chemiluminescence in analytical chemistry—recent techniques and applications to analysis of 'Real Samples' "; M. E. Meyerhoff, "Recent advances in polymer membrane based ion-selective and gas sensing electrodes."

15 August. (H. D. Abruna, discussion

leader): W. R. Heineman, "Immunoassay with electrochemical detection"; C. R. Martin, "Membranes, modified electrodes and electrochemical sensors."

Animal Cells and Viruses

Tilton School

Arnold J. Berk, co-chairman; Mary-Jane Gething, co-chairman.

16 June. Cellular organization (Richard Hynes, discussion leader): Michael Sheetz, Tim Mitchison. In vivo gene expression (Arnold Berk, discussion leader): Harold Varmus, Piet Borst, Max Birnsteil, Yan Kitajewski.

17 June. In vitro transcription (Philip Sharp, discussion leader): Pierre Chambon, Robert Roeder. Immune response (Fred Alt, discussion leader): Walter Schaffner, Phillipa Marrack, Malcolm Gefter.

18 June. DNA replication (Bruce Stillman, discussion leader): Judy Campbell, Bill Sugden, David Clayton. Oncogenes (J. Michael Bishop, discussion leader): Bill Hayward, Kelly Tatchell.

19 June. Cell surface receptors and signaling (Joseph Goldstein, discussion leader): Tony Hunter, Harvey Lodish. RNA processing (Michael Green, discussion leader): John Abelson, Marvin Wicken.

20 June. Protein targeting to membranes and organelles (Mary-Jane Gething, discussion leader): Michael Douglas, Ray Deshaies.

Atomic and Molecular Interactions

Plymouth State College (S)

William J. Meath, chairman; F. Fleming Crim, vice chairman.

28 July. (J. M. Lisy, discussion leader): T. R. Dyke, "IR absorption spectroscopy of van der Waals complexes in molecular beams"; U. Buck, "Anisotropic van der Waals interactions from beam scattering and cluster spectroscopy"; A. J. Stone, "Van der Waals molecules: The distributed multipole model and ab initio perturbation theory." (S. Chapman, discussion leader): P. E. S. Wormer, "Ab initio calculations of isotropic and anisotropic dispersion energies and related properties"; W. Meyer, "Ab initio calculations of potential energy curves for bonded and nonbonded interactions involving atoms in excited and metastable states."

29 July. (W. Klemperer, discussion leader): S. J. Riley, "Chemical reactions involving metal clusters"; G. Scoles, "IR spectroscopy and the vibrational relaxation of molecules in and on molecular clusters"; R. O. Watts, "Theoretical studies of cluster interactions and their relation to experiment." (W. A. Steele, discussion leader): M. L. Klein, "Computer simulation studies of the properties of condensed systems"; W. A. Lester, "Quantum Monte Carlo for the energy and other properties of atoms and molecules."

30 July. (D. J. Auerbach, discussion leader): S. T. Ceyer, "Dynamics of molecular chemisorption, site conversion and activated dissociative adsorption on Ni(III)"; V. Celli, "Physisorption potentials between molecules and metallic and nonmetallic surfaces"; F. B. Dunning, "Applications of spin polarization measurements to surface studies." (W. C. Stwalley, discussion leader): P. R. Brooks, "Laser studies of transition states in chemical reactions"; R. F. Wyatt, "Theoretical treatments of laser-molecule interactions including applications to laser assisted processes in large systems."

31 July. (D. Secrest, discussion leader): C. Wittig, "Reaction dynamics at predetermined geometries using molecular complexes"; D. G. Truhlar, "The relationship of dynamic results to specific features of the potential energy surface for reactive and inelastic collision processes"; M. H. Alexander, "Collisions involving open-shell systems: Dynamics on multiple potential energy surfaces." (J. N. Murrell, discussion leader): E. A. Mason, "The role of anisotropic intermolecular forces in the transport and equilibrium properties of gases."

1 August. (F. F. Crim, discussion leader): D. E. Pritchard, "Classical resonances in vibration-rotation energy(?) transfer": J. P. Toennies, "Mechanism of vibrational coupling in molecular collisions."

At least 20 minutes of discussion will follow each speaker's presentation. In addition two poster sessions will be held in the evenings which will enable the presentation of about 50 posters in all. Conference participants who wish to present a poster on their research should indicate this when returning the conference application form.

Basement Membranes

New Hampton School

Merton Bernfield, chairman; Paul Bornstein, vice chairman.

23 June. Molecular and supramolecular structure of basement components (Rupert Timpl, discussion leader): Heinz Furthmayr, "Organization of basement membrane macromolecules"; Antonio Martinez-Hernandez. "The organization of a well-organized basement membrane: Descemet's membrane"; Mats Paulsson, "Structure and function of basement membrane proteoglycans." Functional domains of basement membranes (George Martin, discussion leader): Robert Burgeson, "Characterization of the subbasal lamina—the anchoring fibril network"; Charles Leblond, "Relation between the basotubules of basement membrane and the microfibrils of connective tissue."

24 June. Molecular biology of basement membrane components (Richard O. Hynes, discussion leader): Brigid Hogan, "Molecular cloning, genomic organization, and expression of a novel 43K glycoprotein secreted by mouse parietal endoderm cells"; Yoshi Yamada, "Structure and regulation of laminin and type IV collagen genes"; Markku Kurkinen, "Type IV collagen genes." Molecular biology of basement membrane components and receptors (Darwin J. Prockop, discussion leader): Michael Pierschbacher, "Arg-Gly-Asp: Link between cell and matrix"; Mark Sobel, "Characterization of human laminin receptor cDNA clones."

25 June. Cell interactions with basement membranes (Elizabeth D. Hay, discussion leader): Klaus von der Mark, "Role of laminin and laminin receptor in adhesion, proliferation and spreading of myoblasts"; Alan Rapraeger, "Proteoglycans of the epithelial cell surface: Localization as cytoskeleton-anchored complexes to sites of matrix assembly"; Lance A. Liotta, "Characterization of the human carcinoma laminin receptor." New aspects of basement membrane function (Marilyn Farquhar, discussion leader): Enrique Rodriguez-Boulan, "Substrate attachment and epithelial polarity"; Mina J. Bissell, "Cell interactions in gene regulation in the mammary gland."

26 June. Basement membranes in vascular biology (Paul Bornstein, discussion leader): Robert D. Rosenberg, "Heparin-like molecules regulate the EGF receptor on smooth muscle cells"; E. Helene Sage, "Structural and secretory characteristics of type VII collagen"; Mark H. Ginsberg, "Platelets as a model for cellular recognition on noncollagenous glycoprotein constituents of the extracellular matrix." Special lecture: George E. Palade, "Control of protein and membrane traffic in eukaryotic cells."

27 June. Basement membranes in neurobiology (Uel J. McMahan, discussion leader): Louis Reichardt, "Regulation of neuronal outgrowth on ECM and cell surfaces"; Paul C. Letourneau, "Interactions of neurons with fibronectin and laminin"; David Schubert, "Characterization of an adheron protein involved in nerve cell adhesion and survival."

Participants who wish to present posters should include titles, brief abstracts, and the

name of the relevant session in their application. A limited number of scholarships is available, on a competitive basis, to assist in the attendance of postdoctoral and senior graduate students. Individuals wishing to be considered for this support should include a curriculum vitae, the title, abstract, and session topic and whether they prefer to present in a poster or platform session.

Bioelectrochemistry

Plymouth State College (N)

Howard Wachtel, chairman; Betty F. Sisken, vice chairman.

9 June. M. Blank, "Membrane surface control of electrical excitation"; A. Sheppard, "Transition between strong and weak EM field influence on neuroelectric activity"; D. Carpenter, "Contemporary views of neuroelectrogenesis"; M. Luttges, "Interaction of neurochemical and neuroelectric signals."

10 June. P. Czerski, "Genetic and teratological effects of EM fields"; W. Winter, "Effect of EM fields on cell transformation"; D. Erwin, "In vitro EM field effects on enzyme systems"; R. Goodman, "Effects of EM fields on transcription and translation"; B. Greenberg, "EM field trophic effects on plant cells."

11 June. R. Korenstein, "In vitro trophic effects of electric fields"; J. Speadaro, "Bioelectric stimulation of bone growth"; S. Smith, "Effects of EM fields on ionizing radiation sensitivity"; A. Liboff, "Bioeffects of geomagnetic fields."

12 June. A. Pilla, "Membrane kinetic models of pulsed EM field effects"; A. Grodzinsky, "Models of fibroblast stimulation by EM fields"; E. Neuman, "Mechanisms of cell fusion by electric fields"; A. Chiabrera, "Cell surface models of EM transduction"; M. McLeod, "Cyclotron resonance models of magnetic field bioeffects."

13 June. R. Cadossi, "Oncological uses of EM fields"; S. Pollack, "Bone healing by EM fields"; R. Bentall, "Wound healing by EM fields."

Bioengineering and Orthopedic Sciences

Proctor Academy

Eric L. Radin, chairman; Hari Reddi, vice chairman.

The Relationship Between Physical Factors and Cellular Metabolism in Connective Tissue

4 August. Cellular metabolism (Hari Reddi, discussion leader): Issac Binderman, Gideon Rodan, Arnold Caplan. Bone (David Burr, discussion leader): Dwight T. Davey, Lance Layton.

5 August. Bone (Joe Lane, discussion leader): Sylvia Fitton-Jackson, Webster S. S. Jee, Phillip Lintihac. Ligament (Wayne Akeson, discussion leader): David Butler, Kathryn G. Vogel.

6 August. Cartilage (Victor Goldberg, discussion leader): Dennis Lowther, Louis Lippiello, James Kimura, Alice Maroudas. Cartilage repair (Eric L. Radin, discussion leader): Theodore R. Oegema, Robert Salter, Savio Woo, Ken Brandt.

7 August. Bone-prosthesis interface (Jorge Galante, discussion leader): Steve Titlebaum, Larry Matthews, Thomas Albrektsson. Michael Flint, "Metaplasia of tendon as a result of mechanical stress."

8 August. Models of OA (Bruce Caterson, discussion leader): Drogaslov Mitrovic, Roland Moskowitz, Helen Muir, Elizabeth Myers.

Applications

Scientists are invited to submit applications for attendance at the Gordon Research Conferences. An application blank is on page 1199 and may be submitted to Dr. Alexander M. Cruickshank, Director, Gordon Research Conferences, University of Rhode Island, Kingston, Rhode Island 02881-0801.

Biological Regulatory Mechanisms

Holderness School

Susan Gottesman, co-chairman; Leland Hartwell, co-chairman.

16 June. Transcriptional regulation (Sankar Adhya, discussion leader): DNA replication and segregation (Stuart Austin, discussion leader).

17 June. Life styles/global regulatory systems (Sydney Kustu, discussion leader): Cell surface receptors) Jeremy Thorner, discussion leader).

18 June. Post-translational processing, modification and protein turnover (Alex Varshavsky, discussion leader): DNA rearrangements (Nancy Kleckner, discussion leader).

19 June. Morphogenesis (David Botstein, discussion leader): Genes in development (Patrick O'Farrell, discussion leader).

20 June. Cell-cell interactions (Dale Kaiser, discussion leader).

Physics and Physical Chemistry of Biopolymers

Holderness School

N. Allewell, chairman; N. Kallenbach, vice chairman.

23 June. Solvation (V. Adrian Parsegian, discussion leader): V. Adrian Parsegian, "Direct measurement of solvation forces between macromolecules"; Lawrence Pratt, "Ion motion near interfaces"; Julia Goodfellow, "Water-biopolymer interfaces"; Arieh Warshel, "Correlating structure, energy and function in solvated proteins." DNA bending (Don Crothers, discussion leader): Don Crothers, "Origin of sequence dependent DNA bending"; Paul Hagerman, "Sequence dependence of DNA structure"; Tom Tullius, "Footprinting analysis of DNA conformation"; Michael Levitt, "Computer simulation of DNA bending."

24 June. Protein structure (David Davies, discussion leader): David Davies, "Structure and mechanism of aspartyl proteases"; David McKay, "Structure and mechanism of *Pseudomonas* toxin"; Patricia Weber, "Structural studies of c type cytochromes"; Roger Burnett, "Adenovirus architecture." Protein folding and stability (C. Robert Matthews, discussion leader): C. Robert Matthews, "Point mutations and protein folding in DHFR"; Thomas Alber, "Thermal stability of phage T4 lysozyme"; Peter Kim, "Antipeptide antibodies"; Richard Lerner, "Early events in protein folding."

25 June. Protein-nucleic acid interactions (Marvin Caruthers, discussion leader): Marvin Caruthers, "Cro-DNA interactions"; Tim Lohman, "*Escherichia coli* SSB protein interactions with DNA"; Irina Russu, "NMR studies of Eco RI endonuclease DNA interactions"; Carl Pabo, "Designing lambda repressor variants"; Lynne Regan, "RNA-protein interactions in transfer RNA synthetase." Function and mechanism (Norma Allewell, discussion leader): Leroy Liu, "Interaction of topoisomerases with DNA"; Robert Gennis, "Structure and function of *E. coli* cytochrome terminal oxidases"; Bianca Conti-Tronconi, "Brain and muscle acetylcholine receptors"; Heinrich Roder, "NMR hydrogen exchange studies of cyt c."

26 June. New methods (Al Redfield, discussion leader): Al Redfield, "Use of isotopes to determine structures of large biopolymers by nuclear magnetic resonance": Michael Sternberg, "Computer-aided design for protein modeling"; Michael Connolly, "Molecular graphics"; Dennis Hare, "Distance geometry calculations"; Peter Wright, "New 2D NMR methods for studying large proteins." Gary K. Ackers,

"Strategies for the physical study of biological functions."

27 June. Biological frontiers (Robert Stroud, discussion leader): Robert Stroud, "Transmembrane channel forming proteins"; D. Lansing Taylor, "Structure and regulation of cytoplasm"; William Weis, "Receptor binding to influenza virus"; James McGhee, "Lineage-specific gene expression during development."

Bones and Teeth

Kimball Union Academy

Arnold J. Kahn, chairman; Irving Shapiro, vice chairman.

14 July. Immune cell influences on remodeling, resorption and inflammation (E. Amento, discussion leader): G. Mundy, "Cytokines in bone turnover"; D. Cosman, "Biology and biochemistry of interleukin-1"; discussants, M. Horowitz, D. Lacey, S. Goldring. Intracellular membrane transport, acid vesicles and bone resorption (P. Schlesinger, discussion leader): Q. Al'Aqwati, "Role of acid vesicles in cellular homeostasis"; F. Maxfield, "Acidification of intracellular acid vesicles"; discussants, R. Baron, H. Blair.

15 July. Developmental biology of mineralized tissues (H. Slavkin, discussion leader): F. Wilt, "Molecular mechanisms of invertebrate biomineralization"; J. Victor Ruch, "Cell-cell interaction in tooth development"; discussants, M. McDougal, M. Snead, D. Noden. New faces of 1986 (I. Shapiro, discussion leader): A series of short talks selected from poster presentations. Special attention will be given to younger investigators, first-time participants and new observations deemed to be of particular relevance to Conference topics.

16 July. Enzymology of bone resorption: Is there a role for the osteoblast? (S. L. Teitelbaum, discussion leader): G. Vaes, "The proteases in bone resorption"; H. Welgus, "Protease inhibitors and the regulation of connective tissue remodeling"; discussants, J. Heath, N. Partridge. New imaging and labeling techniques in skeletal tissue research (I. M. Shapiro, discussion leader): J. Haselgrove, "In situ imaging of growth cartilage"; A. Nanci, "Use of protein A gold immunoglobulin techniques in bones and teeth"; D. Sawyer, "Imaging free intracellular calcium"; A. Boyde, "Optical imaging of hard tissues."

17 July. Cell activation by hormones and growth factors (A. Speigel, discussion leader): M. Sporn, "Transforming growth factors—biology and chemistry"; G. Litwack, "Glucocorticords: Receptors and mode of action"; discussants, J. Burch, E. Canalis. (A. Kahn, discussion leader): B. deCrombrugghe, "Collagen gene expression: Regulation at the transcriptional and translational level.

18 July. Skeletal diseases of children: The chondrodyplasias (D. Rimoin, discussion leader): A. R. Poole, "Immunolocalization and immunochemical studies of cartilage"; L. A. Murray, "Collagen abnormalities in skeletal chondrodysplasias"; F. Ramirez, "Collagen gene defects."

Participants are encouraged to submit abstracts on the topics of the conference for poster presentations held during the afternoons preceding the evening sessions. A limited number of these abstracts will also be selected for oral delivery during the Tuesday evening "New Faces" session. Interested parties are requested to send copies of their abstracts directly to Dr. Irving Shapiro, Department of Biochemistry, University of Pennsylvania, School of Dental Medicine, 4001 Spruce Street, Philadelphia 19104.

Calcium Oxalates

Kimball Union Academy

Birdwell Finlayson, chairman.

9 June. (W. G. Robertson, discussion leader): G. Mandel, "Three-dimensional modeling of the calcium oxalate surface"; J. Adair, "Interfacial phenomena at the calcium oxalate monohydrate water interface"; R. Ryall, "Growth and aggregation in crystallizers–tubular reaction crystallizers"; G. Nancollas, "Effect of urinary anions and their complexes and separated urinary components on mineralization of reactions." (B. Finlayson, discussion leader): H. Furedi-Milhofer, "Simultaneous precipitation of multiple species."

10 June. Oxalate metabolism (H. Williams, discussion leader): K. Richardson, "Pathways of oxalate synthesis"; R. Watts, "Dynamics of overall oxalate metabolism in man and clinical applications"; K. Schmidt, "Ascorbic acid and oxalate"; H. Williams, "Critique." Oxalate and the intestinal tract (R. Watts, discussion leader): L. Smith, "Urinary oxalate in 'idiopathic' stone-formers"; M. Favus, "Trans-membrane transport of oxalate"; M. Allison, "Intestinal bacteria and the metabolism of oxalate."

11 June. Models (S. Khan, discussion leader): M. Menon, "Mitochondrial involvement in calcium and oxalate transport"; R. Conyers, "An integrated hormonal and metabolic model for calcium oxalate urolithiasis"; N. Mandel, "Crystal cell interaction"; J. Elferink, "Interaction of calcium oxalate crystals with polymorphonuclear leucocytes." (B. Finlayson, discussion leader): M. Resnick, "A history of urinary stone disease"; L. Cifuentes Delatte, "Significance of Randall's plaque in oxalate—urolithiasis."

12 June. Plants (J. Raven, discussion leader): V. Franceschi, "The induction of calcium oxalate crystal formation in plants"; F. Loewus, "The role of ascorbic acid and its precursors in oxalate formation in plants"; R. Borchert, "Calcium detoxification—the role of calcium oxalate system in plants"; J. Raven, "Discussion and critique." (K. Cromack, discussion leader): K. Whitney, "Calcium oxalate formation by fungi"; W. C. Graustein, "The ecophysiology of calcium oxalate in soil(s)."

13 June. (M. A. Webb, discussion leader): H. Arnott, "Twinning in the calcium oxalate crystals of plants"; A. Cody, "In vitro studies of crystals that mimic the morphology of plant calcium oxalate crystals"; H. Horner, "The role of membranes and nucleation sites in the formation of calcium oxalate crystals in plants"; B. Finlayson, "Closing remarks."

Abstracts of posters should be sent to Dr. Saeed Khan, Department of Pathology, University of Florida, Box J-275, Gainesville, FL 32610.

Cancer

Colby-Sawyer College (N)

George Poste, chairman; Gloria Heppner, vice chairman.

4 August. New insights into the regulation of growth control in normal and neoplastic cells (G. Heppner, chairman): L. Wakefield, "Roles of transforming growth factors in autocrine and paracrine control of cell function"; T. Slaga, "Cellular and molecular mechanisms of skin tumor promotion and progression"; B. Vogelstein, "Gene amplification in primary human tumors"; P. Rigby, "The regulation of cellular gene expression by viral transforming proteins." (R. Baserga, chairman): M. Rosenberg, "Transcription modulation by adenovirus EIA proteins"; G. Matlashewski, "p53 and human tumors"; J. Izant, "Antisense RNA as a molecular tool for genetic analysis."

5 August. Regulation of stem cell populations in normal and neoplastic issues (E. A. McCulloch, chairman): M. A. S. Moore, "Stimulating and inhibitory factors in hematopoietic cell growth"; D. Boettinger, "Oncogenes and hematopoietic cell differentiation"; A. W. Burgess, "Hematopoietic growth factors, receptors and neoplasia"; L. Cantley, "Phosphatidylinositol metabolism and ion transport in cell proliferation and differentiation." (S. Salmon, chairman): A. Bernstein, "Retrovirus-mediated modulation of hematopoietic cells and opportunities for gene therapy"; C. S. Potten, "Intesti-

nal stem cells and gastrointestinal carcinogenesis"; D. Von Hoff, "Human tumor clonogenic stem cell assays: Applications in drug testing and clinical oncology."

6 August. New experimental methods and strategies for genomic analysis and modification of gene expression in tumor cells (R. Williamson, chairman): M. A. Van Dilla, "Chromosome-specific human gene libraries: Construction and availability"; G. Jay, "Experimental strategies for modification of histocompatibility antigens in tumor cells"; R. Myers, "Saturation mutagenesis of cloned DNA and the analysis of gene function"; P. Kavathas, "Amplification of transfected genes." (R. Kerbel, chairman): F. W. Alt, "Expression and function of the *myc*-family of cellular oncogenes"; H. Westphal, "The activity of tumor virus genes and their control in transgenic mice"; E. Stanbridge, "Chromosome and micronucleus transfer techniques in studying gene function in tumor cells."

7 August. New approaches to cancer immunotherapy (R. Herberman, chairman): J. Yang, "New approaches to therapy of cancer using activated lymphocytes and recombinant IL-2"; J. Cossman, "Strategies for targeted therapy of leukemia and lymphoma"; M. Hanna, "Autochthonous colon tumor cell vaccines"; J. M. Lord, "Genetically engineered immunotoxins for cancer therapy." Tumor necrosis factor (I. J. Fidler, discussion leader): B. Beutler, "Tissue responses to tumor necrosis factor/cachectin"; D. Goeddel, "Regulation and biological properties of tumor necrosis factor"; D. F. Mark, "Cloning of muteins of tumor necrosis factor."

8 August. Human T-cell lymphotropic viruses (F. Wong-Staal, discussion leader): F. Wong-Staal, "Introduction and overview"; M. Essex, "Immunobiology of T-cell lymphotropic retroviruses"; J. E. Clements, "Regulation of gene expression of neurotropic lentiviruses by immunological and viral factors"; W. Haseltine, "*Trans*-acting regulatory factors and replication of human T-cell lymphotropic viruses"; P. Fischinger, "Vaccine strategies for the control of human T-cell lymphotropic viruses."

Cardiac Inotropic Agents

Holderness School

Martin Morad, chairman; Thomas Smith, vice chairman.

9 June. (Dieter Lux, Susumu Hagiwara, discussion leaders): Richard Tsien, "Ca^{2+} channel in heart muscle"; Roberto Coronado, "Ca^{2+} channel in SR"; Wolfgang Trautwein, "Phosphorylation of Ca^{2+} channel." (Richard Tsien, Wolfhard Almers, discussion leaders): Arthur Brown, "Calcium channel toxins"; Harald Reuter, "Voltage dependence of Ca^{2+} channel agonists and their optical isomer."

10 June. (Martin Schneider, discussion leader): Alexander Fabiato, "Ca^{2+}-induced Ca^{2+} release versus I_{P3} induced Ca^{2+} release in heart muscle." Julio Vergara, "Evidences for a chemical mediator hypothesis in the Ca release from the SR in skeletal muscle"; Glenn Langer, "Sarcolemmal bound Ca^{2+} and its role in E-C coupling." (Andrew Somlyo, John Blinks, discussion leaders): James Metcalfe, "Ca^{2+} NMR"; Fredric Fay, "Ca^{2+} images of isolated cells."

11 June. (Wilhelm Hasselbach, Arnold Katz, discussion leaders): Munekazu Shigekawa, "Reaction mechanisms of SR Ca^{2+} pumping"; Larry Jones, "Regulation of SR Ca^{2+} pumping"; Ernesto Carafoli, "Plasma membrane Ca^{2+} ATPase." (Hiroshi Irisawa, Edward Carmeliet, discussion leaders): Akinori Noma, "ATP-dependent K^+ channels in the cardiac muscle"; N. B. Standen, "ATP-dependent K^+ channels in skeletal muscle."

12 June. (Robert Lefkowitz, Harald Reuter, discussion leaders): Robert Lefkowitz, "Molecular regulatory properties of adrenergic receptors"; Mark Green, "Relationships between the Reo virus receptor and the mammalian β-adrenergic receptor." (August Watanabe, Howard Morgan, discussion leaders): Joe Beavo, "Phosphodiesterase isozymes and their role in modulation of contraction"; Bernardo Nadal-Ginard, "Molecular biology of contractile protein gene family."

13 June. (Arnold Schwartz, Norio Taira, discussion leaders): Mike Bristow, "Denopamine and the distribution of β-receptor"; Gerit Isenberg, "Na-channel related positive inotropic agents."

Catalysis

Colby-Sawyer College (N)

Edwin L. Kugler, chairman; Richard D. Gonzalez, vice chairman.

23 June. T. R. Hughes, P. W. Tamm, W. C. Buss, R. L. Jacobson, Aromatization of hydrocarbons over platinum alkaline earth zeolites"; W. L. Callender, P. J. Conn, "The stability of a physical mixture reforming catalyst." C. L. Slichter, J. P. Ansermet, "NMR study of surface phenomena on transition metals."

24 June. R. B. Moyes, "Hydrogen in sulfide catalysts"; K. W. Zilm, "Magic angle spinning and low temperature NMR studies of adsorbates on supported metal catalysts." M. J. Yacaman, "Characterization of small particles on sulfide catalysts."

25 June. A. Corma, "Factors affecting zeolite behavior in catalytic cracking"; D. P. Leta, "Imaging secondary ion mass spectrometry for catalyst characterization." P. A. Jacobs, J. Martens, "Bifunctional conversion of long-chain paraffins on zeolites: Mechanistic and applied aspects and use as a test reaction."

26 June. G. B. Fisher, "The mechanisms of the CO oxidation and NO reduction reactions on single crystal and supported rhodium at low and high pressures"; R. I. Masel, "Experimental evidence that conservation of symmetry can be used to predict mechanisms active sites in heterogeneous catalysis." (Speaker and subject to be announced).

27 June. J. A. Sofranko, "The oxidative conversion of methane to higher hydrocarbons"; W. C. Conner, "Catalyst void morphology: Analyses and implications."

Solid State Studies in Ceramics

Kimball Union Academy

B. R. Lawn, chairman; D. Johnson, vice chairman.

11 August. (R. Thomson, discussion leader): T. Michalske, "Chemistry of glass fracture"; D. Clarke, "Crack-tip structures." (G. Onada, discussion leader): J. Israelachvili, "Measurement of surface forces."

12 August. (T. Shaw, discussion leader): R. Horn, "Surface forces in deformable contact"; D. Roach, "Surface forces in fracture." (D. Green, discussion leader); D. Maugis, "Crack velocities and viscoelastic processes"; A. Heuer, "Interphase interfaces in ceramics."

13 August. (F. Rose, discussion leader): R. Steinbrech, "R-curves in alumina and zirconia ceramics"; D. Marshall, "Phase transformations in zirconia ceramics." (J. Porter, discussion leader): R. Cook, "Microstructure and toughness of ceramics"; K. Faber, "Crack-tip/microstructure interactions."

14 August. (E. Fuller, discussion leader): R. Ritchie, "Crack-tip shielding: A metallurgist's perspective." Student poster session. Speaker and subject to be announced.

15 August. (F. Lange, discussion leader): A. Evans, "Metal-ceramic composites"; S. Wiederhorn, "Crack resistance mechanisms at elevated temperatures."

Chemotherapy of Experimental and Clinical Cancer

Colby-Sawyer College (S)

Victor Ling, chairman; Susan Horwitz, vice chairman.

21 July. Cellular targets for anticancer drugs (Emil Frei III, discussion leader): Lance Liotta, "Properties of metastatic cells"; Ron Buick, "Malignant stem cells"; James Goldie, "Clinical implications of tumor heterogeneity." Gene amplification (Joseph Bertino, discussion leader): Igor Roninson, "Gene amplification and tumor progression"; Geoff Wahl, "Induction of gene amplification."

22 July. Pleiotropic drug resistance (Adrian Harris, discussion leader): Piet Borst, "Amplified genes and multidrug resistance"; Victor Ling and James Gerlach, "Overexpression of membrane P-glycoprotein"; Francis Sirotnak, "Interaction of lipophilic drugs with tumor cells." Novel concepts of alkylating agent pharmacology (Kenneth D. Tew, discussion leader): J. William Lown, "Molecular recognition in the design of DNA interactive groups including alkylators." Neil W. Gibson, "Monoadducts, cross-links, and their repair."

23 July. Multimodality approaches to brain tumor therapy (Paul L. Kornblith, discussion leader): Timothy Kinsella, "Radiosensitizers in the therapy of brain malignancies"; Edward R. Laws, "Photochemotherapy"; Kurt Kohn, "Drug-induced DNA damage in human brain tumor cells." New approaches to cancer chemotherapy I (Susan Horwitz, discussion leader): Anthony Cerami, "Biological properties of cachectin/TNF"; Michael A. Palladino, "Interaction of peptides and cancer chemotherapeutic agents."

24 July. Modulation of chemosensitivity (Thomas Tritton, discussion leader): Rudy Juliano, "Membrane:membrane transfer of lipophilic drugs"; Robert F. Ozols, "Reversal of drug resistance with buthionine sulfoximine"; R. Jerrold Fulton, "Immunotoxins." New approaches to chemotherapy II (Victor Ling, discussion leader): Steven Rosenberg and Michael Lotze, "Immunotherapy with lymphokine activated killer cells and recombinant interleukin-2"; Isaiah J. Fidler, "Biological therapy of metastases."

25 July. Drug interactions in signal tranduction (Daniel L. Dexter, discussion leader): Catherine O'Brian, "Regulation of protein kinase C"; Paul Wender, "Drug modeling and protein kinase C."

Conferees are invited to contribute to the two poster sessions scheduled for 21 and 22 July and 23 and 24 July.

Physics and Chemistry of Coatings and Films

Plymouth State College (S)

Irvin M. Krieger, chairman; Jerome A. Seiner, vice chairman.

11 August. (John Petty, discussion leader): Peter R. Sperry, "Theories of flocculation by water-soluble polymers"; J. Edward Glass, "Structural features promoting association in thickened latex/TiO_2 slurries." (James C. Berry, discussion leader): Vincent McGinniss, "Correlation of chemical structure and properties of materials of interest to the coatings industry." Introduction of poster papers.

12 August. (Scott Rickert, discussion leader): Robert Mullen, "Mathematical models of coatings and films"; L. E. Scriven, "Physics of the flow of coatings." (F. Louis Floyd, discussion leader): Paul van Rheenen, "Film formation from latex polymers." Introduction of poster papers.

13 August. (Theo van de Ven, discussion leader): James Goodwin, "Rheology of concentrated dispersions"; Richard Buscall, "Effect of particle interactions on low-shear rheology of model coatings systems." (Clifford Schoff, discussion leader): James Ferguson, "Elongational viscosity"; Richard Eley, "Surface elasticity and foam stability of water-borne polymers and coatings."

14 August. (Alexander Ross, discussion leader): David Bauer, "Photodegradation, photostabilization and accelerated tests"; Siegfried Storp, "Early detection of photodegradation processes by physical methods." (Dan Bloch, discussion leader): Wim van Ooij, "Use of SIMS techniques for surface and interface studies of polymers and polymeric coatings."

15 August. (Carl Knauss, discussion leader): G. Dubbeldam, "Characterization of metallic orientation"; Abdelsamie Moet, "Adhesive strength of coatings."

Computational Chemistry

Colby-Sawyer College (N)

Donald B. Boyd and Kenneth B. Lipkowitz, co-chairmen.

18 August. (William N. Lipscomb, discussion leader): Kendall N. Houk, "Ab initio transition structures and force field models for organic reactions"; William L. Jorgensen, "Theoretical investigations of organic reactions in solution"; William A. Goddard, III, "Use of theory to extract mechanisms of catalytic reactions." Poster session of contributed papers.

19 August. (J. Andrew McCammon, discussion leader): Peter Kollman, "Combined use of computer graphics, molecular mechanics, molecular dynamics, and quantum mechanics in studies of complex molecules"; Leland C. Allen, "Transition states in NADH hydride transfer"; W. Clark Still, "Molecular modeling in organic synthesis." (Eiji Osawa, discussion leader): Norman Louis Allinger, "Recent work in molecular mechanics"; Massimo Simonetta, "Computational chemistry in two and three dimensions"; (speaker and subject to be announced).

20 August. (Discussion leader to be announced): James J. P. Stewart, "Molecular orbital calculations of polymers"; Daniel A. Kleier, "Computer-assisted design of agricultural chemicals"; John M. McKelvey, "Studies of excited state valence electronic structures of dyes." Poster session for contributed papers.

21 August. (Tommy Liljefors, discussion leader): Robert Langridge, "Molecular graphics: Computer-assisted insight and reasoning in three dimensions"; Michael Connolly, "Molecular graphics, volume and shape"; Jay W. Ponder, "Computational approaches to protein tertiary structure." (Sidney W. Topiol, discussion leader): Clifford E. Dykstra, "Hydrogen bonding interactions. Computational studies from the most detailed level up"; A. Peter Johnson, "Expert systems and smart databases as aids to organic synthesis planning"; (speaker and subject to be announced).

22 August. (Erich Wimmer, discussion leader): Neil S. Ostlund, "Parallel architectures and algorithms for computational chemistry"; Bernard K. Brooks, "GEMM (generate, emulate, and manipulate macromolecules) on the star technology ST-100: Interactive energy determination and molecular stimulations—methods and applications."

For information about the poster sessions, contact Dr. Kenneth Lipkowitz, Department of Chemistry, IUPUI, P.O. Box 647, Indianapolis, IN 46223.

Condensed Matter Physics—Disordered Systems

Brewster Academy

Daniel S. Fisher and Robert J. Birgeneau, co-chairmen.

16 June. D. A. Stone, "Universal conductance fluctuations in metals"; R. A. Webb, "Aharonov-Bohm effect in normal metals"; M. A. Kastner, "Conduction in one-dimensional field effect transitors." H. L. Stormer, " Quantized Hall effect: Experiments"; R. B. Laughlin, "Quantized Hall effect: Theory."

17 June. D. A. Huse, "Short-range spin glasses"; H. Bouchiat, "Recent experiments on spin glasses"; D. J. Thouless, "Spin glasses on a Bethe lattice"; H. Sompolinsky, "Statistical mechanics of neural networks." A. Loidl, "Glassy relaxation in $KBr_{1-x}(CN)_x$"; D. R. Nelson, "Order and frustration in metallic glasses."

18 June. J. Villain, "Dynamics of random field magnets"; Y. Shapira, "Experiments on random field magnets"; B. Barbara, "Random axis magnets"; J. Chayes, "Rigorous results in statistical mechanics of disordered systems." J. V. Maher, "Phase separation in gels"; P. Z. Wong, "Porous media"; L. Chayes, "Invasion percolation."

19 June. N. P. Ong, "Sliding charge density waves: Experiments"; S. N. Coppersmith, "Sliding charge density waves: Theory"; M. R. Beasley, "Flux-flow in disordered superconductors"; W. W. Webb, "1/*f* noise." P. W. Anderson, "What do statistical mechanics have to tell computer scientists?" L. P. Kadanoff, "Models of aggregation."

20 June. D. Shechtman, "Icosohedral order in rapidly cooled metallic alloys"; V. Elser, "The structure of quasi-crystals"; P. A. Heiney, "Diffraction studies of the icosohedral phase."

Corrosion

Colby-Sawyer College (N)

Bryan E. Wilde, chairman; Gerald H. Meier, vice chairman.

21 July. Mechanisms of stress-corrosion cracking of stainless steels: Three points of view (J. C. Scully, discussion leader): J. Galvele, "Anodic dissolution as the rate determining step"; D. Tromans, "Hydrogen embrittlement." (E. N. Pugh, discussion leader): R. Newman, "The cleavage viewpoint." Special lecture (D. Duquette, discussion leader): M. Pourbaix and N. Hackerman, "H. H. Uhlig: The man and his contributions to corrosion science."

22 July. Corrosion aspects in advanced portable power systems (R. M. Latanision, discussion leader): W. Ceislak, "Corrosion and passivation in lithium/thionyl chloride batteries"; D. D. Macdonald, "Corrosion problems in aluminum/air batteries." Mechanisms of alloy corrosion (H. W. Pickering, discussion leader): K. Sieradski, "Modeling studies on selective active component dissolution (dealloying)"; M. Stratmann, "Atmospheric corrosion of iron and iron-copper binary alloy."

23 July. Inhibitors: Relationships between structure and effectiveness (S. Smialowska, discussion leader): S. Hettiarachchi, "Some corrosion inhibitors of recent fundamental interest"; S. Kapusta, "Effect of molecular structure on inhibition." Corrosion mechanisms and control with newer technological materials (R. P. Frankenthal, discussion leader): D. Sinclair, "Corrosion of electronics: The role of ionic substances"; R. Deigle, "Corrosion control with metallic glasses."

24 July. Hydrogen induced degradation of materials (R. A. Oriani, discussion leader): G. Wright, "The kinetics of hydrogen ingress into iron-based materials"; M. Baskes, "Application of embedded atom model to hydrogen embrittlement." Special lecture: The problem and solutions to the corrosion of the Statue of Liberty (H. Leidheiser, discussion leader): R. Baboian, "Corrosion mechanisms"; T. Graedel, "Atmospheric factors."

25 July. New analytical techniques for corrosion research (J. Kruger, discussion leader): G. Long, "The use of EXAFS in passivation studies"; J. Waber, "Position annihilation procedures for hydrogen mapping."

The Cybernetics of Cognition

Brewster Academy

H. von Foerster, chairman; E. von Glasersfeld, vice chairman.

9 June. (E. von Glasersfeld, discussion leader): Barbel Inhelder, "Procedural and structural approaches to cognition: Contradiction or complementarity?" Hermine Sinclair, "Is cognition a process, and what adapts to what?" John Mason, "Reflection—the feedback mechanism for both teacher and learner." (William Powers, discussion leader): Francisco Varela, "Adaptation as an invariant and the origin of meaning"; Edgar Zurif, "Language representation in the brain."

10 June. (Edith Neimark, discussion leader): Anrea DiSessa, "Systematicity, and the lack of it, in cognitive processing"; Edith Ackermann-Valadao, "The role of local knowledge in the construction of an invariant"; Patricia Clough, "The construction/deconstruction of social reality." (George Klir, discussion leader): Jere Confrey, "Anticipation and feedback in students' guided cognitive construction"; John Richards, "Expert systems: Keeping students in control"; Judah Schwartz (subject to be announced).

11 June. (Mark Bickhard, discussion leader): William Mason, "Biological dispositions, constraints and consensual domains"; Michael Tomasello, "Joint attention and interaction in language development"; Barry Barnes, "Semantics, consensus, and program complexity." (Alton Becker, discussion leader): Humberto Maturana, "The ontology of observing"; Siegfried Schmidt, "Understanding in a constructivist model."

12 June. (Paul Pangaro, discussion leader): Bradford Keeney, "The construction of systemic therapeutic realities"; Moni Elkaim, "From maps to maps": Umberta Telfener, "Second order cybernetics and systems therapy." (Milan Zeleny, discussion leader): Jean-Pierre Dupuis. "Complexity and alienation"; Stein Braten, "Consent and dissent: Crossing boundaries during social interaction."

13 June. (H. von Foerster, discussion leader): Hazel Henderson, "Competition and collaboration in the development of planetary awareness"; Jacques Voneche, "Cybernetics and the theory of cognitive development"; Klaus Krippendorff, "Hindsight and foresight."

Dielectric Phenomena

Holderness School

James Anderson, chairman; John Pochan, vice chairman.

28 July. (William Steele, discussion leader): L. Monnerie, "Carlo simulation of the glass-to-liquid transition"; L. Dissado, "Physical origin of Weibull statistics in breakdown"; R. Fulton, "Nonlinear dielectric effects." (John Pochan, discussion leader): Poster session.

29 July. (Frank Karasz, discussion leader): R. H. Boyd, "Polarizabilities of polymer chains and crystals"; S. Matsuoka, "Comparison of relaxation data on equilibrium and nonequilibrium glasses"; W. J. MacKnight, "Dielectric studies of polymer blends." (J. G. Powles, discussion leader): L. Pietronero, "Fractal dimension of dielectric breakdown patterns"; J. Bendler, "Fractal time-analysis of glassy relaxation."

30 July. (Robert H. Cole, discussion leader): B. Gestbloom, "Time-domain dielectric spectroscopy"; R. Hayakawa, "New experimental methods for dielectric spectroscopy"; D. Kranbuehl, "Dynamic dielectric analysis of reacting systems." (E. O. Forster, discussion leader): M. T. Shaw, "Approach to mechanisms of water treeing"; J. Densley, "Recent experiments on water treeing in dielectrics."

31 July. (G. Williams, discussion leader): R. G. Palmer, "Hierarchies and constraints in glassy relaxation"; R. W. Rendell, "A coupling model for Kohlrauch relaxation in dielectrics"; D. Kivelson, "Dielectric friction: Theory and applications." (J. G. Hoffman, discussion leader): K. R. Foster, "Dielectric properties of water in biological and other suspensions."

1 August. (D. W. McCall, discussion leader): H. Sillescu, "Holographic measurements of diffusion in bulk polymers"; C. A. Angell, "Mechanical versus dielectric relaxation in ionic and molecular liquids"; B. Crist, "Small angle neutron scattering measurements of diffusion in bulk polymers."

Drug Carriers in Biology and Medicine

Plymouth State College (S)

George Poste, chairman; R. Langer, vice chairman.

7 July. Anatomical, physiological and pharmacokinetic considerations in drug delivery (R. Juliano, chairman): G. Poste, "Introduction to the conference"; J. Robinson, "Regional delivery of therapeutic agents in the gastrointestinal tract"; D. N. Granger, "The permeability of the microcirculation"; W. M. Pardridge, "Strategies for drug and peptide delivery through the blood-brain barrier"; E. Tomilson, "The fate and disposition of systematically administered particulate drug carriers." (W. Higuchi, chairman): V. Lee, "Enzymatic barriers to the delivery of peptides"; H. I. Maibach, "The dermal barrier to local and systemic drug delivery"; V. Stella, "Pharmacokinetic model evaluation of targeted drug delivery systems via prodrugs."

8 July. Factors affecting the uptake and subcellular localization of exogenous molecules (C. Nicolau, chairman): R. Duncan, "Selective endocytosis and the design of novel drug delivery systems"; V. Raso, "Uptake and intracellular localization of immunotoxins"; L. Greenfield, "Engineering of bacterial toxins for immunoconjugates"; (Speaker and subject to be announced). Engineering improved cell recognition ligands for targeted drug delivery (L. Leserman, chairman): S. L. Morrison, "Genetic strategies for the production of novel antibodies"; T. J. McKearn, "Engineering antibody-drug conjugates for site-specific drug delivery.

9 July. Targeting to circulating blood cells and the bone marrow (P. Thorpe, chairman): P. Thorpe, "Experimental and clinical studies on T-cell elimination"; D. A. Vallera, "Immunotoxins in bone marrow transplantation"; C. B. Carpenter, "Manipulation of T-cell populations in transplantation"; S. Ackerman, "Regulatory aspects of the production and use of antibodies in man." Immunotoxins (E. Vitetta, chairman): E. Vitetta, "Immunotoxin-mediated cytotoxicity: an overview"; F. Jansen, "Immunotoxins for 'ex vivo' bone marrow purging and 'in vivo' leukemia treatment"; L. L. Houston, "Preclinical testing of immunotoxins for human use."

10 July. Monoclonal antibodies in cancer imaging and therapy (N. Warner, chairman): J. Schlom, "Factors affecting the use of monoclonal antibodies in the localization and treatment of human carcinomas"; A. R. Bradwell, "Factors limiting the imaging and killing of tumors using labeled antibodies"; D. O. Dillman, "Monoclonal antibodies and the therapy of solid tumors"; J. Weinstein, "Antibody-mediated drug delivery to lymph node metastases." Infusion systems and implants (J. Urquhart, chairman): M. V. Sefton, "Advances in implantable infusion pump technology"; C. R. Lowe, "Advances in biosensor technology"; A. Taunton-Rigby, "Cell microencapsulating and drug delivery in vivo."

11 July. Gene therapy: A new horizon in the therapeutic delivery of macromolecules (R. Langer, chairman): T. Friedman, "Experimental models of gene therapy and prospects for human somatic cell gene therapy"; W. F. Anderson, "Human somatic cell gene therapy"; G. Poste, "Closing remarks."

Drug Metabolism

Holderness School

Neal Castagnoli, Jr., chairman; Anthony Y. H. Lu, vice chairman.

21 July. Biochemical pharmacology of xenobiotic carboxylic acids (John Caldwell, discussion leader): Gary Quistad, "Novel metabolic pathways of carboxylic acids"; John Caldwell, "Stereochemical aspects of the disposition, action and toxicity of 2-arylpropionic acid derivatives"; J. K. Reddy, "Peroxisomal proliferation induced by carboxylic acids—mechanism and relation to carcinogenicity." Metabolism mediated toxicity: The lyase pathway (Donald Reed, discussion leader): James Stevens, "Cell models and the role of cysteine conjugate of β-lyases in xenobiotic toxicity"; Donald Reed. "Alkylating glutathione and cysteine conjugates and nephrotoxicity."

22 July. Acyl glucuronides as reactive metabolites (Hans W. Ruelius, discussion leader): Catherine Fenselau, "Chemical reactivities in acyl glucuronides"; L. A. Benet, "Zomepirac glucuronide: in vivo and in vitro reactions"; Frank W. Janssen, "Reactivity of acyl glucuronides as a factor in the metabolic disposition of acidic drugs." Metabolism and membrane mediated alterations of the immune system (Jack Dean, discussion leader): Jack Dean, "Mechanisms of xenobiotic-induced immune alterations"; Lance Pohl, "Possible role of the immune system in the halothane-induced hepatotoxicity."

23 July. Applications of modern mass spectrometric techniques to drug metabolism studies (Thomas Baillie, discussion leader): Thomas Baillie, "Stable isotope tracer techniques in studies of metabolic interrelationships"; Daniel Liberato, "LCMS in studies of drug metabolism"; Ken Straub, "Metabolic mapping: Rapid identification of polar metabolites using MS/MS." Metabolic studies on pesticides (F. D. Hess, discussion leader): E. Hodgson, "Microsomal metabolism of insecticides"; J. Bakke, "The mercapturic acid pathway in pesticide metabolism."

24 July. Mechanism-based inhibitors of oxidative enzymes (F. Peter Guengerich, discussion leader): Richard Silverman, "Mechanism based inactivation of monoamine oxidase"; James R. Halpert, "Protein modification as a mechanism of suicide inactivation of cytochrome P-450"; Timothy MacDonald, "Mechanism-based inactivation of cytochrome P-450." Keynote address: Paul Ortiz de Montellano, "The hemoprotein mosaic."

25 July. Drug metabolism in extrahepatic tissues (Anthony Y. H. Lu, discussion leader): Richard Philpot, "Cytochrome P-450 isozyme specificity in the metabolism of aromatic amines in the rabbit lung, liver and bladder"; James Bond, "Respiratory tract tissue metabolism of xenobiotics."

Elastomers

Colby-Sawyer College (N)

J. E. Mark, chairman; E. N. Kresge, vice chairman.

14 July. (D. N. Schulz, discussion leader): L. H. Tung, "Diene triblock polymers with styrene-α-methylstyrene copolymer end blocks"; J. C. Saam, "Hydrosilylation cure in elastomers." (J. T. Books, discussion leader): G. L. Hagnauer, M. Sennett, R. A. Singler, "Polyphosphazene elastomers"; J. Lal, "Thermoplastic elastomers by selective modifications of diene block copolymers."

15 July. (A. Crowson, discussion leader): P. Teyssie, "Living anionic polymerization of acrylates and resulting new products"; G. Huynh-Ba, "Pyridine-assisted anionic polymerization and copolymerization of polar monomers"; J. M. Vergnaud, "Determination of the state of cure of vulcanizates from the heat evolved during reaction." (R. W. Brotzman, discussion leader): J. L. Koenig, "Recent advances in sulfur vulcanization of elastomers using high-resolution solid ^{13}C NMR"; T. Nishi, "Pulsed NMR studies of elastomer systems."

16 July. (B. E. Eichinger, discussion leader): T. Tanaka, "Kinetics of phase transitions of gels"; B. Erman, "Critical phenomena and transitions in swollen polymer networks"; L. Monnerie, "Investigation of chain orientation in stretched elastomer networks by fluorescence polarization." (S. Krause, discussion leader): D. L. Handlin, Jr., "Structure-property relationships of triblock and star-diblock copolymers"; B. Epstein, D. D. Huang, J. G. Williams, "Measurement of toughness of toughened polymers."

17 July. (R. E. Cohen, discussion leader): D. J. Meier, "Synthesis and properties of siloxane block copolymers"; G. Li, "Studies on the interaction of silica and polyorganosiloxanes." (J. E. Mark, discussion leader): J. Gosline, "The elastomeric properties of some spider's silks."
18 July. (E. N. Kresge, discussion leader): G. R. Hamed, "Autohesin and cohesion of uncross-linked elastomers"; D. I. Livingston, "Tire-wear model."

Electron Distribution and Chemical Bonding

Plymouth State College (N)

M. D. Newton and E. D. Stevens, cochairmen.
30 June. (J. D. Dunitz, discussion leader): M. B. Hall, "Theoretical studies of the relationship between electron density distributions and chemical bonding"; C. Kruger, "Recent investigations (X-X) of organometallic catalysts, catalyst precursors and potential ligands"; G. DeTitta, "The x-ray experiment: Overview and review." (F. L. Hirshfeld, discussion leader): R. F. W. Bader, "Properties of atoms in molecules"; K. Schwarz, "Electron densities in solids as a tool for bands and bonds."
1 July. (P. J. Brown, discussion leader): D. E. Ellis, "Molecular cluster models for chemisorption, impurity and defect structures"; J. B. Forsyth, "How well can we determine magnetic densities?" M. Blume, "Magnetic scattering of x-rays." (H. Fuess, discussion leader): P. Coppens, "Bonding in transition metal complexes"; B. N. Figgis, "Chemical information on transition-metal-ligand bonding from charge and spin density measurements."
2 July. (R. Parr, discussion leader): W. Kohn (tentative), "Electronic structure of matter from a density functional viewpoint"; P. Becker, "Local density methods in molecular physics"; W. Weyrich, "Density matrix description of the electronic structure of an ionic crystal"; L. Massa, "X-ray orthonormal orbital model of crystallography." (J. R. Schneider, discussion leader): M. Coplan, "Orbital momentum densities from electron scattering experiments"; M. Cooper, "Compton scattering and electron momentum densities in transition metal complexes"; E. R. Davidson, "Comparison of experimental and theoretical determination of electron density."
3 July. (G. A. Jeffrey, discussion leader): B. M. Craven, "Charge densities and electrostatic potentials in organic crystals"; H. B. Burgi, "The crystallographer's contribution to the study of molecular deformation and transformation"; L. Leiserowitz, "Molecular packing, crystal growth, and intermolecular forces." (R. F. Stewart, discussion leader): P. Politzer, "Electrostatic potentials and other properties of some strained systems"; H. Weinstein, "Charge redistributions in recognition and activation processes at biological receptors"; C. Klein, "Experimental electron density studies of carcinogens and CNS-type drugs."
4 July. (D. Feil, discussion leader): S. Berko, "Positron and positronium interactions with surfaces"; J. C. Walker, "Experimental determination of surface magnetism and electronic structure at iron surfaces and interfaces"; J. Gland, "Chemical binding and structures of adsorbates on metal surfaces." Contributed posters: Supply names of authors and brief abstract to either cochairman (M. D. Newton, Department of Chemistry, Building 555, Brookhaven National Laboratory, Upton, New York 11973, or E. D. Stevens, Department of Chemistry, University of New Orleans, New Orleans, Louisiana 70148).

Electron Donor-Acceptor Interactions

Plymouth State College (N)

John R. Miller, chairman; H. Roth, vice chairman.
11 August. (Heinz Roth, Jan Verhoeven, discussion leaders): Michael Padden-Rowe, "Long distance electronic interactions through rigid sigma frames"; Peter Wolynes, "Quantum simulations of electron transfer pathways"; Gerhard Closs, "Intramolecular electron transfer in radical ions: A study of distance and stereoelectronic effects." (Aaron Bloch, discussion leader): Stephen Mazur, "Electrochemistry of polyamide films: Deposition of continuous metal interlayers"; Jerry Torrance, "An overview of organic charge transfer solids: Insulators, metals and the neural-ionic transition."
12 August. (Gordon Tollin, Stefan Isied, discussion leaders): Harry Gray, "Long-range electron transfer in ruthenium-modified proteins"; George McLendon, "Control of long distance electron transfer rates in proteins and model systems"; Brian Hoffman, "Long-range electron transfer in protein complexes." (H. Staab, discussion leader): Hans Kuhn, "Electron transfer in monolayer assemblies"; John Warman, "Molecular charge separation studied by transient microwave conductivity."
13 August. (Stephen Boxer, Noel Hush, discussion leaders): Jim Norris, "A magnetic view of primary electron transfer in photosynthesis"; M. E. Michel-Beyerle, "Electron transfer in photosynthetic reaction centers and in donor-acceptor molecules with aromatic bridges: Coupling through the bridging medium?" Joshua Jortner, "Structure and environmental control of electron transfer." (Jane Frommer, discussion leader): Jerry Perlstein, "Photoinduced electron transfer and charge generation in polymer films containing donor-acceptor complexes"; Paul Chaiken, "Conductivity mechanisms in solids."
14 August. Ed Kosower, Harvey Scher, discussion leaders): Samir Farid, "Photochemical electron transfer reactions"; N. Mataga, "Dynamics and mechanisms of photoinduced charge separation and charge recombination"; N. Nakashima, "Electron transfer from single crystal substrates to adsorbed molecules." (Heinz Roth, discussion leader): Invited poster session.
15 August. (Nate Lewis, discussion leader): Mark Wrighton, "Molecule-based microelectronic devices: Diodes and transistors"; Chris Chidsey, "Electron transfer through organic monolayers on electrodes."

Electron Spectroscopy

Brewster Academy

J. L. Dehmer, chairman; D. T. Pierce, vice chairman.
14 July. Y. Baer, chairman; Photoemission and inverse photoemission (N. V. Smith, discussion leader): S. D. Kevan, "Angle-dependent photoemission with high resolution"; J. Bokor, "Photoemission from excited surfaces"; P. D. Johnson, "Inverse photoemission from clean and adsorbate covered metal surfaces." J. A. R. Samson, chairman; Soft x-ray-induced ionization, double ionization, and fragmentation of molecules (D. A. Shirley, discussion leader): I. Nenner, "Selective resonant photoionization and double photoionization of molecules"; E. W. Plummer, "Fragmentation and electron emission from core-excited states of free and coordinated molecules."
15 July. S. T. Manson, chairman; Atomic and molecular studies (V. McKoy, discussion leader): R. N. Compton, "Photoionization and autoionization of highly excited states"; Ch. Jungen, "One-photon and multiphoton ionization processes in molecules"; W. C. Lineberger, "Photoelectron spectroscopy of anions and small cluster ions." L. C. Davis, chairman; Autoionization and auger processes in solids (G. A. Sawatzky, discussion leader): S. D. Bader, "Autoionization in solids"; M. Landolt, "Spin-polarized auger and secondary electron spectroscopy."
16 July. D. T. Pierce, chairman; Scanning tunneling microscopy (E. D. Williams, discussion leader): J. E. Demuth, "Scanning tunneling microscopy of semiconductor surfaces"; J. D. Tersoff, "Theory of scanning

tunneling microscopy." Y. Harada, chairman; Penning ionization (J. T. Yates, Jr., discussion leader): H. Morgner, "Reactions of metastable helium atoms with molecules and condensed matter"; H. Metiu, "Metastable quenching ionization spectroscopy."

17 July. A. Herzenberg, chairman: Electron energy loss spectroscopy (J. W. Gadzuk, discussion leader): G. King, "Inner-shell excitation of atoms and molecules by electron impact"; L. Sanche, "Electron spectroscopy of condensed atoms and molecules"; L. Dubois, "Time-resolved electron energy loss spectroscopy: A new approach to surface studies." C. S. Fadley, chairman; Magnetic domain imaging (H. C. Siegmann, discussion leader): J. Unguris, "Investigation of magnetic microstructure using scanning electron microscopy with polarization analysis (SEMPA)."

18 July. P. H. Citrin, chairman; Basic properties and applications of x-ray absorption spectroscopies and Bremsstrahlung isochromat spectroscopy (J. A. Horsley, discussion leader): T. M. Hayes, " 'Hot' electron spectroscopies—is band or EXAFS theory the better approach?" J. Haase, "SEXAFS and NEXAFS of adsorbed molecules."

Chemistry of Electronic Materials

St. Paul's School

Bruce Scott, chairman; Dennis Hess, vice chairman.

18 August. Electronic materials: An overview (Dennis Hess, discussion leader): John Knights, "Semiconductor processing: Chemistry at the leading edge"; Lothar Ley, "Electronic structure and defects in amorphous materials." Mechanisms of thin-film growth (Pauline Ho, discussion leader): Joseph Jasinski, "Reactive intermediates in chemical vapor deposition"; Klaus Jensen, "Reaction and reactor models in CVD"; Eugene Irene, "Chemistry of thin-film insulator growth."

19 August. Chemistry of plasma processes (Richard Gottscho, discussion leader): Yves Catherine, "Radical and ion-molecule reactions in deposition plasmas"; Mark Kushner, "Modeling plasma and surface chemistry in plasmid deposition"; Ian Plumb, "Reactions in etching plasmas." Laser-induced chemistry (Rangaswamy Srinivasan, discussion leader): Barbara Garrison, "Mechanisms of etching of processing materials"; Robert Rosenfeld, "Laser decomposition of organometallic compounds."

20 August. Gas-surface interactions (Sylvia Ceyer, discussion leader): Richard Cavanagh, "Energy transfer to chemical bonds on surfaces"; John Yates, "Hydrocarbon chemistry at the Si (100) surface as related to SiC formation"; Donald Olander, "Molecular beam studies of etching and decomposition reactions." Advances in the chemistry of materials (Christopher Allen, discussion leader): Thomas Kuech, "Chemistry of III–V semiconductor growth"; Nobuo Setaka, "Deposition of diamond from the gas phase."

21 August. Advances in analytical techniques (Steven Bernascek, discussion leader): Nicholas Winograd, "Secondary neutral mass spectrometry"; Jurgen Behm, "Surface chemistry using the scanning tunnelling microscope"; Jeffrey Reimer, "Nuclear magnetic resonance of solid state electronic materials." Materials in emerging technologies (Mark Wrighton, discussion leader): Royce Murray, "Microelectrochemical devices"; Robert Laudise, "Chemistry of materials for optical communication."

22 August. Conference summary and conclusions: Future directions in the chemistry of electronic materials (Kenneth Wynne, discussion leader): D. Hess, P. Ho, R. Gottscho, R. Srinivasan, S. Ceyer, C. Allen, S. Bernascek, and M. Wrighton.

Environmental Sciences: Water

New Hampton School

Francois Morel, chairman; John Wood, vice chairman.

16 June. Trace gases (Peter Liss, discussion leader): Meinrat Andreae, "Biogeochemical production of volatile sulfur compounds"; Wolfgang Seiler, "Production of reduced carbon gases and hydrogen"; Mary Lidstrom, "Microbial production and utilization of methane and other gases." James Lovelock, "Gaia II."

17 June. Acidification (Werner Stumm, discussion leader): Harold Hemond, "The effects of nitrogen transformations and humic acid production on the acid-base balance of watersheds"; Patrick L. Brezonik, "Sulfate reduction and other buffer generating processes in acid sensitive lakes as examples of chemostasis/homeostasis"; J. Gijs Kuenen, "Microbial metabolism of inorganic sulfur and nitrogen compounds." David Schindler, "Lake acidification."

18 June. Microbial degradation in groundwater (Philip Gschwend, discussion leader): Joe Suflita, "Recent findings on the anaerobic decomposition of pollutant chemicals in acquifers"; Edward Bouwer, "Transformations of trace halogenated organic compounds in biofilms"; William C. Ghiorse, "Subsurface microorganisms and their activities." Alexander Zehnder, "Microbial degradation in the laboratory and in the field."

19 June. Bioaccumulation (Brock Neely, discussion leader): Fumio Matsumura, "Role of algae in bioaccumulation of organic pollutants in water"; Robert V. Thomann and John P. Connolly, "Modeling of accumulation of chemicals in aquatic food chains"; Simon Silver, "Toxic heavy metal resistance in bacteria: Hg, Cd, and As detoxification and accumulation." Ronald Hites, "Anthropogenic organic compounds in Great Lakes fishes."

20 June. Extracellular metabolics (discussion leader to be announced): Joann Sanders-Loehr, "Iron limitation and production of siderophores"; L. Jaenicke, "Sex attractants of brown algae: Function, structure, and biogenesis"; Michael Gold, "Lignin peroxidase from white rot fungi."

Enzymes, Coenzymes and Metabolic Pathways

Kimball Union Academy

N. Oppenheimer and G. Reed, co-chairmen; G. Petsko and P. Bartlett, co-vice chairman.

30 June. Probing protein structure and function: I. Kuntz (subject to be announced); A. Kossiakoff, "Altering the physio-chemical properties of subtilisin by site-directed mutagenesis"; (Speaker and subject to be announced). Probing protein structure and function, continued: C. Craik, "Protein design via genetic engineering: Redesigning trypsin"; Ganesh Kisohore, "Genetic engineering of herbicide resistance."

1 July. Dihydrofolate reductase: D. Matthews, "X-ray structures of a novel trimethoprim-resistant DHFR encoded in *Escherichia coli* by plasmid R-67"; E. Villafranca, "Stucture of engineered DHFR's complexed with methotrexate"; E. Howell, "Kinetic analysis of mutant *E. coli* DHFR's." Regulation of protein expression or stability (F. Schuber, chairman): E. Stadtman, "Regulation of enzyme degradation"; (Speaker and subject to be announced).

2 July. Enzyme mechanisms: W. Ray, "Structure and mechanism of phosphoglucomutase"; J. Park, "Interaction of spin-labeled pyridine coenzymes with G3PDH"; E. Miles, "Properties and mechanisms of tryptophan synthetase." Phosphothioates (G. L. Kenyon, chairman): F. Eckstein, "Interactions of nucleases with phosphothioate DNA"; P. Frey, "Newer studies of phosphorothiates and phosphotransferases."

3 July. Membranes and related systems: M. Tsai (subject to be announced): B. Hess, "Protonation studies of bacterial rhodopsin"; P. Dimroth, "Decarboxylation-derived sodium gradient as an energy source for ATP synthesis." Applications of modern

enzymology: E. Cordes, "Inhibition of cholesterol biosynthesis and regulation of LDL receptor activity"; X. Lazarus, "Progress toward cloning a metabolic pathway."

4 July. Oxidative enzymes: R. Silverman, "Mechanism and inactivation of monoamine oxidases"; T. C. Bruice, "Oxidative reactions of hemes as P-450 model systems"; T. Poulos, "P-450 and peroxidase: Crystal structure and catalytic mechanisms."

Estuarine Processes: Chemical and Biological Interactions

Plymouth State College (S)

Harriette L. Phelps, chairman; Austin B. Williams, vice chairman.

9 June. (Scott Nixon, discussion leader): Victor Smatacek, "Nutrient cycling between water and sediments"; Sybil Seitzinger, "The fate of nutrient loading in estuarine systems"; Joe Ramus, "High-frequency variability and phytoplankton dynamics in a well-mixed estuary." (Chris D'Elia, discussion leader): Theodore Smayda, "Community responses to nutrient loading"; Edward Paasche, "Phytoplankton responses to nutrient loading in a high-salinity environment."

10 June. (Howard Seliger, discussion leader): Jon Tuttle, "Microbiological processes leading to anoxia"; Donald Rhoads, Barbara Welch, "The ecology of hypoxia"; Jean Sikora, "Benthic infauna of anoxic estuarine sediments." (Discussion leader to be announced): Robert Howarth, "Sulfur cycling"; Gary King, "Relations between sulfate reduction and carbon metabolism."

11 June. (John Vernberg, discussion leader): Brian Bayne, "Physiological adaptations to pollutants"; A. Sastry, "Reproduction and development of estuarine organisms"; Judith and Peddrick Weis, "Physiological versus genetic adaptation to pollutants," "Metal uptake and depuration in *Fundulus*." (Charles Coutant, discussion leader): Robert Livingston, "Relationship of laboratory results and field responses of estuarine assemblages to toxic agents"; Joel O'Connor, "Estuarine population and community responses: Our ability to measure them."

12 June. (Robert Biggs, discussion leader): Henry Postma (subject to be announced); Kate Kranck, "Relationship between flocculation, particle settling and phytoplankton concentration"; Henry Bokuniewicz, "Energetics of fine-grained sediment transport for comparative estuarine studies." (Donald Malins, discussion leader): Robert Huggett, "In-place pollutants and biological responses"; John Couch, "Evaluation of pollution effects: Promising pathobiological endpoints."

13 June. (Dennis Burton, discussion leader): William Sunda (subject to be announced); Samuel Luoma, "Processes affecting trace element concentrations in the sediments and biota of estuaries"; G. Roesijadi, "Metal-binding proteins in *Mytilus edulis*."

Extrachromosomal Elements

Colby-Sawyer College (S)

Robert H. Rownd, chairman; Nancy C. Martin, vice chairman.

14 July. (Donald Helinski, discussion leader): Barry Polisky, "ColE1 replication control"; Deepak Bastia, "Binding of a replication origin induced by initiator protein"; Ann L. Abeles, "*Cis*- and *trans*-acting elements controlling P1 plasmid replication"; David H. Figurski, "Replication control of promiscuous plasmid RK2 involves kil and kor functions." (Robert H. Rownd, discussion leader): Stanley N. Cohen, "Maintenance of bacterial plasmids in growing cell populations: Structural and functional aspects"; David D. Womble, "Quantitative models for control of plasmid replication in the bacterial cell division cycle"; Stuart J. Austin, "Properties of the *cis*-acting site responsible for partition of P1 plasmid DNA"; Sota Hiraga, "Host mutants defective in the partition of the F plasmid."

15 July. (Rudiger Schmitt, discussion leader): Rudiger Schmitt, "Regulation of Tn1721 transposition"; Nancy Kleckner, "Mechanisms and regulation of IS10 transposition"; Robert Craigie, "The mechanism of transposition of bacteriophage Mu"; S. Steven Potter, "Transposable elements in flies, mice, and men." (Walton L. Fangman, discussion leader): Walton L. Fangman, "Replication activity of very small yeast mitochondrial genomes consisting of only AT base pairs"; Virginia A. Zakian, "A size threshold for yeast chromosomes"; Daniel Bogenhagen, "Transcription and replication of *Xenopus laevis* mitochondrial DNA."

16 July. (Bernard Weisblum, discussion leader): Bernard Weisblum, "Altered specificity of induction associated with a frameshifter erm leader peptide"; Charles L. Hershberger, "Vectors for the analysis of antibiotic biosynthesis in streptomycetes"; Donald J. Tipper, "Expression and replication of the dsRNA virus-like particles in killer yeast"; S. Dusko Ehrlich, "Structural instability of bacterial plasmids." (Neil Willetts, discussion leader): Karin A. Ippen-Ihler, "Identification of genes and gene products involved in the synthesis of F-pili"; Don Clewell, "Conjugation in *Streptococcus faecalis*"; Graham C. Walker, "Genetic analyses of pKM101"; Richard Kolodner, "Genetic recombination of plasmids in *Escherichia coli* and yeast."

17 July. (Nancy C. Martin, discussion leader): Nancy C. Martin, "Yeast mitochondrial transfer RNA biosynthesis"; Philip S. Perlman, "Genetic and molecular studies of a mitochondrial self-splicing class II intron"; Robert Akins, "Mitochondrial plasmids in *Neurospora*"; Larry Simpson, "Kinetoplast maxicircle DNA of *Leishmania*." (Eugene Nester, discussion leader): Heinz Saedler, "Transposable elements in plants and their role in evolution"; Charles S. Levings III, "Interesting plant mitochondrial genes"; Michael Little, "Characterization and expression of chloroplast genes for RNA polymerase subunits."

18 July. (Kenneth N. Timmis, discussion leader): A. M. Chakrabarty, "Plasmid encoding degradation of synthetic halogenated compounds"; K. Brooks Low, "Single-stranded DNA binding protein genes on conjugative plasmids"; Jorge H. Crosa, "Plasmid-mediated iron transport in marine and enteric bacteria"; Werner Goebel, "Plasmid-encoded hemolysin genes: Regulation and functions of their products."

Fiber Science

Colby-Sawyer College (N)

Judd Schwartz, chairman; Ray Fornes, vice chairman.

7 July. (Joseph Zimmerman, discussion leader): W. Jerry Jackson, "Liquid crystal polyester fibers"; James A. Fitzgerald, "Structure/property application relationships in aramids." (Alberto Ciferri, discussion leader): John A. Cuculo, "Cellulose liquid crystals in the ammonia/ammonium thiocyanate solvent."

8 July. (Fred Fortess, discussion leader): Ron Postle, "Mechanical properties of textile structures as related to their end use application"; Keith Slater, "The Pattern of degradation in textile materials." Robert D. Van Veld, discussion leader): Henry Kobsa, "The effect of heating rate during steam setting on the structure of nylon yarns."

9 July. (A. S. Abhiraman, discussion leader): Sheldon Kavesh, "Structure and properties of extended chain polyethylene fiber"; Andrzei Ziabicki, "Development of crystallinity and orientation in high speed spinning of PET." (P. A. Ucci, discussion leader): Henry H. George, "Determination of the 'reological spinning function'."

10 July. (Gunilla Gillberg, discussion leader): Brian Briscoe, "The friction lubrication and wear of monofilaments"; Yash K. Kamath, "Characterization of spin finish distribution in continuous filament yarns." (M. Tom Watson, discussion leader): Max

An application blank for attendance at the Gordon Research Conferences may be found on page 1199. A summary of the program is on pages 1186 and 1187.

Feughelman, "Hair, what does it mean to you?"

11 July. (Wolfgang K. Otto, discussion leader): David Brookstein, "Textile design considerations for composite structures"; Al G. Causa, "Testing fiber reinforced composite for durability."

Foams

Plymouth State College (S)

Marion B. Rhodes, chairman; R. Turner, vice chairman.

4 August. (F. Bailey, discussion leader): L. Glicksman, "Heat transfer and aging of foam insulation"; S. Vidyarthi, J. Cote and H. Henry, "A computer model for predicting closed cell K value with time"; I. Shankland, "Diffusion in foams: A comparison of experiment with theory." (L. C. Rubens, discussion leader): J. Aubert and P. Rand, "Microcellular foams prepared by phase separation of polymer solutions"; F. Shutov, "New data on the morphology of thermosetting foams."

5 August. (D. Holcomb, discussion leader): E. E. Underwood, "Quantitative stereological characterization of porous structures"; S. Ross, "Geometry of various clusters of equal bubbles and of the ideal polyhederschaum"; R. Lemlich, "Some measurements and processes in liquid foams." (A. Havlik, discussion leader): D. Hirt and R. K. Prud'homme, "Bubble size distribution from mechanical generators"; W. E. Warren and A. M. Kraynik, "Spatially periodic models for liquid and solid foams."

6 August. (G. Taylor, discussion leader): R. Turner, "Structure property relationship in flexible urethane foam. Part I: Experimental set-up and mechanical properties"; G. Wilkes and P. Amistead, "Structure property relationship in flexible urethane foam. Part II: Small angle x-ray and swelling"; N. C. Hilyard, "Biodynamic modeling for polyurethane cushioning." (P. B. Rand, discussion leader): D. Hirt, A. Yoshimura and R. K. Prud'homme, "Foam motion through porous media"; R. W. Flumerfelt, "Mechanistic studies of foam displacement in porous media."

7 August. (G. J. Murphy, discussion leader): D. W. Baugh, "Structure property relationship of model urethane polymers"; D. Klempner and K. C. Frisch, "IPN foams"; R. Dominguez, "High-performance polyurea RIM elastomers." (J. Backus, discussion leader): N. C. Hilyard, "New model for air flow behavior."

8 August. (K. C. Frisch, discussion leader): G. A. Campbell, "Reaction kinetics of the TDI-water reaction"; L. C. Rubens and S. Chum, "Preparation of low density thermal collapse–resistant foams from extrudable cross-linked styrene polymers." J. M. Gaul, "A novel foam additive."

A poster session is planned and anyone wishing to contribute should send an abstract in duplicate to Robert Turner, Dow Chemical, Urethanes and Oxide Polymers Research, B-4810, Freeport, TX 77541, before 1 June 1986.

Fractals

Colby-Sawyer College (S)

R. Orbach, chairman; R. F. Voss, vice chairman.

18 August. Introduction to concepts: D. Stauffer, "Percolation and fractals"; J. Vannimenus, "Linear and branched polymers on fractals"; D. W. Schaefer, "Fractal aggregation precursors of ceramic materials." Frequency-dependent conductivity: A.-M. Tremblay, "$1/f$ noise: A new hierarchy of exponents for fractals"; R. Laibowitz, "Transport phenomena in percolating fractal gold clusters."

19 August. The route to chaos: J. Hubbard, "Complex analytic dynamics and C2"; A. Libchaber, "Fractal dimensions of chaotic attractors and measurements of scaling exponents and functions"; R. Westervelt, "Fractal basin boundaries and intermittancy." Fractons I: J. Kantor, "Elastic vibrations and stability of fractal structures"; H. M. Rosenberg, "Fractons—the experimental position."

20 August. Fractons II: Jens Feder, "Protein aggregation"; Ora Entin-Wohlman, "Relaxation and nonradiative decay in disordered systems"; Ronald Elber, "Proteins as disordered materials." Random structures: Etienne Guyon, "Heterogenous flow in porous media"; J. Friedel, "Some elementary fractal questions in aggregation and percolation processes."

21 August. Aggregation: P. Meakin, "The growth of fractal aggregates"; D. Weitz, "Fractal colloid aggregates: Formation and properties"; S. K. Sinha, "Scattering studies of the fractal nature of aggregates and porous materials." Fractals after dinner: B. Mandelbrot, "Fractal geometry of nature."

22 August. Ultrametricity: D. Stein, "Ultrametric dynamics"; B. Derrida, "Spin glass state and ultrametricity"; H. Gutfreund, "Spin glass models of memory and learning."

Fuel Science

New Hampton School

Larry L. Anderson, chairman; Martin Gorbaty, vice chairman.

30 June. Syn-gas chemistry (Irving Wender, discussion leader): S. Lee, "Role of carbon dioxide and water in the synthesis of methanol"; Kamil Klier, "Reactive intermediates and synthesis patterns in C_1–C_4 alcohol syntheses." (Irving Wender, discussion leader): A. Kiennemann, "Application of chemical trapping to the determination of surface species in synthesis gas reactions"; Stuart Hellring, "Mechanism of the conversion of methanol to olefin and aromatics."

1 July. Oil shale, shale oil and kerogen (V. Dean Allred, discussion leader): Claudio Costa Neto, "Chemistry and geochemistry of Brazilian oil shales"; Francis P. Miknis, "The nature of bitumen intermediates in the pyrolysis of Greenriver and Mississippian oil shales"; A. Lamont Tyler, "Thermal solution of selected Greenriver and Eastern U.S. oil shales." Inorganic chemistry of coal (Hal Gluscoter, discussion leader): Blaine Cecil, "Geochemical controls on the content and composition of mineral matter in coals"; Richard Bryers, "Fate of mineral matter during combustion of coal for steam generation."

2 July. Characterization of heavy oils (Mieczyslaw Boduszynski, discussion leader): M. Boduszynski, "Composition of heavy crudes as a function of volatility and solubility"; Malvina Farcasiu, "Structure of carbon skeleton in petroleum heavy ends"; Dieter Severin, "Composition of petroleum residues"; Application of new analytical techniques to analysis of fuels (Curt White, discussion leader): Hans Schulz, "New gas chromatography procedures in kinetic investigations of fuel conversions"; Tom Aczel, "High resolution field ionization mass spectrometry in fuel analysis."

3 July. Application of new analytical techniques to analysis of fuels (Curt White, discussion leader): Art D'Silva, "Laser-excited Shpol'skii spectrometry (LESS) fluorescence and laser ionization mass spectrometry applied to fuel analysis"; Milton Lee, "The use of capillary supercritical fluid chromatography for characterization of fuels"; Kurt Zilm, "New nuclear magnetic resonance techniques applied to fossil fuel characterization." (L. L. Anderson, discussion leader): Eugene Guccione, "Con men and fossil fuel prices."

4 July. (Martin Gorbaty, discussion leader): selected poster presentations.

Poster sessions will be held on Tuesday and Wednesday, 5:00 to 6:30 p.m.

Fungal Metabolism

Plymouth State College (N)

Paul J. Szaniszlo and William Timberlake, co-chairmen.

14 July. Fungal cell walls: Structure, synthesis, and regulation (Enrico Cabib, discussion leader): Enrico Cabib, "A proteinaceous component that interacts with guanosine nucleotides regulates $\beta(1 \rightarrow 3)$ glucan synthetase"; Phillips W. Robbins, "Chitin synthesis in *Saccharomyces cerevisiae*"; J. G. H. Wessels, "Wall assembly in apical growth of *Schizophyllum*"; Angel Duran, "Effect of calcofluor on fungal cell morphogenesis." Fungal developmental biology (Alan Jaworski, discussion leader): David N. Sonneborn, "Zoospore maintenance factor and a method for temporally ordering blocks"; David Soll, R. Finney, "Differentiation and dedifferentiation in *Dictyostelium discoidium*"; Amar Klar, "Developmental switches of fission yeast mating types."

15 July. Fungal biotransformations of organic compounds (Jack Rosazza, discussion leader): Carl Cerniglia, "Fungal transformations and detoxification of polycyclic aromatic hydrocarbons and various antihistamines"; Ronald Crawford, "Fungal transformations of lignins"; Patrick J. Davis, "Fungal transformations for stereoselective catalysis in natural products chemistry"; Herbert L. Holland, "Fungal transformations of steroids." Fungal siderophores: Structure and function (J. B. Neilands, discussion leader): G. Winkelman, "Features of siderophore receptors and transport systems studied by use of synthetic and natural siderophore derivatives"; Sally A. Leong, "Molecular genetics of fungal siderophores"; Pat Reid, "Fungal siderophores as iron sources for plants."

16 July. Gene manipulations in agriculturally important fungi (Barbara Valent, Forrest Chumley, discussion leaders): Barbara Valent, "Development of a system for genetic analysis of the fungal plant pathogen, *Pyricularia oryzae*"; Larry Dunkle, "Pathotoxins and pathogens"; Shauna Sommerville, "Genetic characterizations of barley–*Erysiple graminis* f. sp. *hardei* interactions"; Hans Van Etten, "Cloning the genes for phytoalexin detoxifying enzymes from the plant pathogen *Nectria haematococcus*"; Olen Yoder, "Gene manipulations in the maize pathogen *Cochliobolus heterostrophus*"; Geoffrey Banks, "Cloning and transformation studies with *Ustilago maydis*." Gene manipulations in industrially important fungi (W. Dirk Sikema, discussion leader): Michael Innis (subject to be announced): David Finkelstein, "Transformation of *Aspergillus niger* to give enhanced protein secretion"; Paul Skatrud, "Gene manipulations in the beta-lactam antibiotic-producing fungi"; Alan Upshall, "Heterologous protein expression in filamentous fungi."

17 July. Antifungal antibiotics (G. S. Kobayashi, discussion leader): Gerald Medoff, "Mechanism of action of polyenes"; Konrad E. Bloch, "Sterol structure and membrane function"; Hugo van den Bossche, "Cytochrome P-450 isozymes—targets for antifungal azole derivatives"; Geoffrey Barnes, "Agricultural fungicides with an emphasis on imidazoles, 1,2,4 triazoles and morpholines." Gene regulation (Norman Giles, discussion leader): Michael Hynes, "Multiple regulation of the *amdS* gene of *Aspergillus*"; David Gwynne, "Studies of the ethanol utilization genes of *Aspergillus nidulans*"; E. Arndt (subject to be announced); Robert Metzenberg, "How *Neurospora* gets its phosphorus."

18 July. Fungal cell biology (N. Ronald Morris, discussion leader): David Botstein (subject to be announced); Berl Oakley, "Molecular genetic analysis of genes essential to microtubule function in *Aspergillus nidulans*"; Richard Howard, "Melanin biosynthesis and appressorium function."

Hemostasis

Proctor Academy

Thomas F. Deuel, chairman; Jack J. Hawiger, vice chairman.

16 June. Lipid mediators of cellular activation and receptor response coupling (Philip W. Majerus, discussion leader): Stephen M. Prescott, "Production of platelet-activating factor by endothelial cells"; Philip W. Majerus, "Inositol phosphate messengers in platelets"; Timothy J. Rink, "Cytosolic calcium in platelet activation"; Edwin W. Salzman, "Changes in ionized calcium in response to platelet agonists." Tissue plasminogen activator (Burton E. Sobel, discussion leader): Burton E. Sobel, "Clinical pharmacology of tissue plasminogen activator"; Desiree Collen, "Clot-specific thrombolytic therapy"; Anton Jan Van Zooneveld, "Autonomous function of structural domains of tissue type plasminogen activator."

17 June. Activation of proteins involved in coagulation and its regulation (Jules A. Shafer, discussion leader): Jules A. Shafer, "Fibrin-promoted activation of factor XIII"; Ronald Bach, "Phospholipid surfaces and tissue factor–initiated coagulation"; George J. Broze, Jr., "Control of tissue factor–induced coagulation"; Douglas M. Tollefsen, "Activation of heparin cofactor II by dermatan sulfate." Platelet-derived regulation of cell growth (Michael B. Sporn, discussion leader): Thomas F. Deuel, "Platelet-derived growth factor: Roles in normal and transformed cell growth"; Michael B. Sporn, "Role of transforming growth factors in tissue repair"; Andrew Golden, "Expression of the cellular *src* proto-oncogene products in platelets."

18 June. Growth regulation of the blood vessel wall (Robert D. Rosenberg, discussion leader): Thomas Maciag, "The family of endothelial cell polypeptide mitogens"; Michael A. Gimbrone, Jr., "Endothelial-leukocyte interactions: Mediators and mechanisms"; Robert D. Rosenberg, "Heparin-like molecules regulate EGF receptor levels in smooth muscle cells." New horizons in hemostasis (submitted abstracts) (Kenneth G. Mann, discussion leader).

19 June. Structure and function of von Willebrand factor (Theodore Zimmerman, discussion leader): Evan Sadler, "Molecular biology of von Willebrand factor"; Robert Handin, "Use of cloned complementary DNA to study von Willebrand factor assembly and function"; Theodore Zimmerman, "Structure/function relationships of von Willebrand factor." Keynote address: Earl W. Davie, "Lessons of molecular biology in understanding the coagulation cascade."

20 June. Adhesive glycoproteins (Ralph L. Nachman, discussion leader): David R. Phillips, "Molecular studies of the glycoprotein IIb-IIIa complex in platelets and cells of the blood vessel wall"; Carolyn Dansky, "The search for integral membrane proteins in cell adhesion"; Jack J. Hawiger, "Adhesive interactions of platelets and the vessel wall"; William A. Frazier, "Structure and function of thrombospondin."

Chemistry of Heterocyclic Compounds

New Hampton School

Ronald B. Gammill, chairman; Victor Sneickus, vice chairman.

7 July. Edward C. Taylor, "Novel cycloaddition routes to condensed heterocycles"; Norton Peet, "Benzotriazepines and other nitrogen heterocycles from anthranilates and related building blocks." Larry Overman, "New strategies for stereocontrolled synthesis of heterocyclic natural products"; Jacob Szmuszkovicz, "An unusual enamine reaction."

8 July. John Toner, "The design and synthesis of Na^+ specific ionophores"; Edwin Vedejs, "Nitrogen and sulfur heterocycles in synthesis." Jack Baldwin, "Enzymatic

and chemical synthesis of antibiotics"; Ralph Volante, "Enantioselective methodology for the synthesis of novel α_2-antagonists."

9 July. Samuel Danishefsky, "Recent explorations in the field of alkaloid chemistry"; Louis N. Jungheim, "A new class of antimicrobial agents based on the β-lactam model"; Lutz-F. Tietze, "Induced and noninduced diastereo-selective hetero-Diels-Alder reactions"; Lawrence S. Melvin, "Heterocycles from cannabinoid research."

10 July. Alessandro Dondoni, "Metalated azoles as precursors to building blocks and chiral synthons"; Robert Williams, "Electrophilic glycinates: Versatile templates for amino acid synthesis." Arthur G. Schultz, "The use of heterocycles in the enantioselective construction of carbon-carbon bonds."

11 July. Robert Kelly, "The synthesis and antitumor activity of CC-1065 analogs"; David Grierson, "The preparation and reactivity of synthon equivalents of dihydropyridines"; Robert Doehner, "Imidazolinone herbicides: Synthesis of pyridine precursors."

All participants are invited to submit an abstract for a poster session during the conference. Abstracts should be sent to the chairman prior to 1 June 1986.

Research at High Pressures

Kimball Union Academy

Neil Ashcroft, chairman; Arthur Ruoff, vice chairman.

23 June. High pressure: State of the science (J. M. Besson, discussion, leader): W. Nellis, "Recent developments in dynamic high-pressure science"; A. Jayaraman, "An overview of advances in static high-pressure research." Deformation at high pressure (E. Skelton, discussion leader): W. Moss, "Finite element analysis of the diamond cell"; J. Asay, "The influence of deformation processes on the macroscopic properties of shock compressed materials." Element 6, etc. (F. Bundy, discussion leader): K. Syassen, "Phonons and interband absorption in diamond and graphite under pressure"; J. M. Brown, "Melting at high pressure: A positive slope for diamond"; M. L. Cohen, "Predicting high-pressure structures and superconductivity of solids."

24 June. Confluence of high temperature and high pressure (J. Schirber, discussion leader): J. Bass, "Hugoniot temperature: Measurements on an opaque material"; R. Jeanloz, "High-temperature experiments with a diamond cell"; J. Moriarty, "Simple and transition metals under extreme conditions." Poster review forum (A. Ruoff, chairman). Invited, contributed and post-deadline posters (H. D. Hochheimer, chairman).

25 June. Structural instabilities and phase transitions at high pressure (D. B. McWhan, discussion leader): Y. Vohra, "Alkali halides at high pressure"; J. Martineau, "Melting in shock release"; R. Etters, "Recent developments in calculating structural phase transitions and other dynamical properties of simple molecular solids and fluids at high pressure." Electronic instabilities and transitions at high pressure (G. Samara, discussion leader): H. Radousky, "Dynamic electron emission spectroscopy"; N. E. Christensen, "Theoretical calculations of electronic structures, bonding, and transitions in crystalline solids under pressure"; A. Onodera, "Electronic transitions at high pressure."

26 June. Extremes of pressure and the hydrogen problem (T. Kitchens, discussion leader): R. Hemley, "Static compression at megabar pressures"; L. Barker, "Progress in measuring the isentropes of H using hypervelocity impact techniques"; J. P. Romain, "Laser driven shocks." Panel and discussion (I. Silvera, moderator): Future trends in dynamic and static high-pressure science (J. Shaner, M. Ross, W. Holzapfel, and P. Bell).

27 June. Phenomena and techniques at high pressure (F. Hensel, discussion leader): D. Schiferl, "High temperature–high pressure x-ray diffraction and Raman spectroscopy in diamond cells"; J. Schilling, "Organic metals: Spin susceptibility as a function of pressure"; S. Qadri, "High-pressure studies of selected II–VI ternary compounds using synchrotron radiation"; B. Baranowski, "Differential scanning calorimetry at high-pressure phase transitions."

High Temperature Chemistry

Brewster Academy

D. L. Hildenbrand, chairman; P. C. Nordine, vice chairman.

21 July. (I. R. Beattie, discussion leader): E. Parks, "High-temperature processes involving metal clusters"; A. J. Merer, "Optical spectroscopy of some transition metal oxides"; J. M. Dyke, "Recent photoelectron studies of high-temperature molecules." (R. Hauge, discussion leader): R. W. Field, "A ligand field model for the electronic structure of ionic diatomic molecules." K. Balasubramanian, "Electronic structure of molecules containing heavy atoms."

22 July. (J. Hastie, discussion leader): D. Hardesty, "Behavior of mineral matter in coal combustion"; K. Casleton, "Mechanisms of coal ash vaporization and reaction"; A. Hartford, "Optical diagnostics for online monitoring of coal gasification processes." (J. B. Wagner, discussion leader): H. F. Franzen, "Electronic structures of some refractory transition metal sulfides"; W. Tremel, "Transitions between NiAs- and MnP-type phases: Electronically driven structural deformations."

23 July. (D. Cubicciotti, discussion leader): M. Berman, "Vapor explosions—physics and philosophy"; G. A. Greene, "Quiescent world of molten core-concrete interaction"; R. W. Ohse, "A new laser autoclave technique for thermophysical property measurements above 3000 K." (E. Murad, discussion leader): B. D. Green, "Chemical interactions in low earth orbit"; W. W. Duley, "High-temperature molecules in the interstellar medium."

24 July. (G. M. Rosenblatt, discussion leader): E. D. Cater, "Structural studies during thermal decomposition by high-resolution electron microscopy"; A. Pines, "High-temperature NMR of molten silicates." (L. Brewer, discussion leader): P. W. Gilles, "The glories of high-temperature chemistry."

25 July. (K. E. Spear, discussion leader): W. G. Breiland, "Laser spectroscopy and gas-phase chemistry in CVD"; M. A. Frisch, "Molecular beam epitaxy in semiconductor processing."

Hormone Action

Kimball Union Academy

Darryl K. Granner and Stanley G. Korenman, co-chairmen.

3 August. Tom Maniatis, plenary guest lecturer.

4 August. Steroid hormone receptors: Structure/function (G. Green, discussion leader): Keith Yamamoto, "Glucocorticoid receptor structure and activity"; Stephen Green, "Estrogen receptor structure and function"; Ranjan Sen, "Immunoglobulin gene *trans*-acting factor." Insulin action (T. Gelehrter, discussion leader): Harvey Lodish, "Molecular biology of the glucose transporter"; Ron Kahn, "Tyrosine kinase and insulin action"; Ora Rosen, "Insulin receptor-structure function."

5 August. Hormones and gene expression (B. O'Malley, discussion leader): Robert Roeder, "Eucaryotic transcription factors"; Geoff Rosenfeld, "Transcriptional regulation of neuroendocrine gene expression"; Daryl Granner, "Insulin and gene expression"; Herb Samuels, "Thyroid hormone regulation of the GH gene." Calcium (G. Mueller, discussion leader): Roger Tsein, "Calcium heterogeneities and oscillations"; Tony Means, "Molecular actions of

calmodulin"; Henry Kronenberg, "PTH gene expression."

6 August. Intracellular mediators (R. Evans, discussion leader): M. Wigler, "*Ras* oncogene function"; S. McKnight, "Cyclic AMP–dependent protein kinase genes"; W. Quinn, "Second messenger defects in *Drosophila* learning mutants"; L. Birnhaumer, "Components of adenylate cyclase." Reproduction (S. Korenman, discussion leader): P. Donahoe, "Mullerian inhibiting factor"; W. Bardin, "POMC in testis"; J. Thorner, "Yeast mating factors."

7 August. Pituitary and hypothalmus (P. Dannies, discussion leader): W. Vale, "Corticotropin-releasing hormone"; W. Chin, "Regulation of glycoprotein hormone gene expression"; P. Seeburg, "New hormones in reproduction"; J. Roberts, "Regulation of POMC gene expression." Special applications (D. Granner, discussion leader): D. Hanahan, "Oncogenesis in transgenic mice"; M. Brownstein, "In situ hybridization of messenger RNA."

8 August. Hormones and cell replication (J. Clark, discussion leader): J. Pouyssegur, "Ion transport mutants and cell growth"; P. Davies, "Retinoids"; J. Battey, "Gastrin-releasing peptide gene expression"; M. Lippman, "Estrogen-regulation growth factors in human breast cancer."

Immobilized Systems in Biotechnology

Holderness School

Garfield Royer, chairman; Joseph Bonaventura, vice chairman.

11 August. Solid phase immunoassay (David J. Litman, chairman): David J. Litman, "Visual immunochromatography"; J. William Freytag, "Solid phase immunometric assays"; Gunnars E. Valkirs, "Kinetics of solid phase immunoassay"; John F. Burd, "Chemiluminescent immunoassay on cellulose filaments." DNA-hybridization on solid supports (D. Gillespie, chairman): George Church, "Genomic sequencing"; Manual Diaz, "In situ hybridization"; Tom Gingeris "Molecular hybridization on various solid supports."

12 August. Nonradioactive DNA probes (D. Ward, chairman): David Brigati, "Automated instrumentation for immunocytochemistry and in situ hybridization"; Henry Ehrlich, "Diagnosis of genetic and infectious diseases using selective genomic DNA amplification"; (speakers and subjects to be announced). Solid-phase reagents (W. H. Scouten, Paul Smith, chairmen): M. J. Frechet, "Polymer assisted assaymetric synthesis"; Marvin Carothers (subject to be announced); Avraham Patchornik, "Polymeric transfer reagents in various types of chemical transformations."

13 August. Synthetic analogs of enzymes and other biologically active compounds I and II (Joe Bonaventura, Ron Breslow, chairmen): Joe Bonaventura, Celia Bonaventura, "Synthetic analog of oxygen/hydrogen carrying proteins: Their application in large-scale oxygen extraction and delivery systems"; Jane Richardson, "Beta bellin: An engineered protein (I)"; Bruce Erickson, "Beta bellin: An engineered protein (II)"; Ronald Breslow, "Synthetic analogs of enzymes"; Joseph Schnur, "Biologically derived microstructures in chemistry and biology."

14 August. Affinity chromatography (J. Porath, K. Mosbach, chairmen): Eugene Sulkowski, "Immobilized metal affinity chromatography"; Irwin Chaiken, "Analytical affinity chromatography in biology and biotechnology"; Robert Scopes, "Strategy in enzyme isolation using affinity adsorbents." I. M. Klotz, "The clouded crystal ball."

15 August. Polymer-bound drugs/immunotoxins (M. Wilchek, chairman): Robert Langer, "Controlled release of drugs"; Richard Youle, "Immunotoxins/use in cancer therapy"; Esther Hurwitz, "Specific and nonspecific macromolecular-drug conjugates for cancer chemotherapy."

Immunochemistry and Immunobiology

Holderness School

Ronald H. Schwartz, chairman; Ursula Storb, vice chairman.

30 June. (Ellen Rothberg, discussion leader): Ellen Rothberg, "Growth control genes in T-cell development"; Fred Alt, "Regulation of the expression of the V_H gene repertoire"; Ron Palacios, "Lymphocyte stem cells." (Ronald Germain, discussion leader): Ronald Germain, "Molecular analysis of Ia expression, structure, and function"; Emil Unanue, "Biochemistry of antigen presentation."

1 July. (Lee Hood, discussion leader): Lee Hood, "T-cell receptors and the immunoglobulin gene super family"; Mark Davis, "T-cell receptors: Structural and functional studies"; Susumu Tonegawa, "Structure and expression of T-cell receptor genes." (Ursula Storb, discussion leader): Ursula Storb, "Expression of immunoglobulin heavy and light chain genes in transgenic mice"; Jean-Claude Weill, "Immunoglobulin gene diversity in chickens."

2 July. (Ethan Shevach, discussion leader): Ethan Shevach, "The role of Thy1 in lymphocyte activation"; Tim Springer, "Lymphocyte function–associated molecules"; Eugene Butcher, "Leucocyte-endothelial cell recognition mechanisms." (Arthur Weiss, discussion leader): Cox Terhorst, "Structure of the T-cell receptor/T3 complex"; Gerald Crabtree, "Mechanisms of IL-2 gene activation."

3 July. (Kim Bottomly, discussion leader): Kim Bottomly, "Activation of B cells by helper T cells: Critical parameters controlling their interaction"; Abraham Kupfer, "Specific cellular interactions between T helper cells and B antigen-presenting cells"; William E. Paul, "Early events in B cell activation." (Ron Schwartz, discussion leader): Richard Axel, "Genes mediating complex behavior in simple organisms"; Daniel Alkon, "Biochemical control of membrane excitability during learning."

4 July. (William E. Seaman, discussion leader): William E. Seaman, "Reversal of autoimmunity in mice by monoclonal antibody to L374"; Eric G. Neilson, "The protective and regulatory effects of suppressor T-cell networks on the expression of experimental interstitial nephritis."

Inorganic Chemistry

Brewster Academy

Norman Sutin, chairman; F. Albert Cotton, vice chairman.

Mechanistic Aspects of Inorganic Reactions

4 August. Gas phase—solution comparisons and volumes of activation (John F. Endicott, discussion leader): David E. Richardson, "Studies of electron transfer and other reactions at metal center in the gas phase"; Amy E. Stevens Miller, "The determination of bond energies in transition metal complexes"; Scot Wherland, "Solvent dependences of rate constants and activation parameters for outer-sphere electron transfer." Tom Swaddle, "The pressure variable in inorganic solution kinetics"; Rudi van Eldik, "Mechanistic information from the effects of pressure on thermal and photosubstitution reactions in solution."

5 August. Coordination chemistry and homogeneous catalysis (F. Albert Cotton, discussion leader): Jack Halpern, "Mechanistic aspects of reductive elimination and migratory insertion reactions"; John T. Groves, "Oxygen activation with metalloporphyrins"; Christoph Elschenbroich, "Bis-(arene) transition metal complexes with a purpose." Brice Bosnich, "Mechanisms of metal-catalysed Claisen rearrangements"; Geoffrey Sykes, "Some reactions of molybdenum aquo ions."

6 August. Electron and atom transfer reactions (Norman Sutin, discussion lead-

er): Albert Haim, "Assessment of adibaticity of intramolecular and bimolecular electron transfer reactions"; David M. Stanbury, "Kinetics of redox reactions of oxy-species and other small molecules"; James H. Espenson, "Free radicals and other intermediates in electron transfer reactions." Jack Norton, "Proton transfer in organometallic chemistry"; Carol Creutz, "Intrinsic barriers to proton transfer."

7 August. Energetics and reactivity of excited states (Ted L. Brown, discussion leader): Vincenzo Balzani, "Mechanisms of light generation in inorganic reactions"; Peter C. Ford, "Reaction dynamics of reactive intermediates"; Clifford P. Kubiak, "Light-induced organometallic reactions." Harry B. Gray, "Electron transfer in weakly coupled donor-acceptor complexes."

8 August. Transport processes coupled to chemical reactions (Guido Pez, discussion leader): Richard D. Noble, "Mathematical modeling of facilitated transport in liquid membranes"; Reed M. Izatt, "Carrier-mediated cation transport in liquid membrane systems."

Chemistry at Interfaces

Kimball Union Academy

Adrian Parsegian, chairman; Lloyd Abrams, vice chairman.

21 July. Probes of surface structure (A. Lewis, chairman): P. Pershan, "Specular reflection of x-rays from liquids and thin-film surfaces"; K. W. Wickramasinghe, "Accoustic microscopy"; E. Betzig, "NSOM: Near-field scanning optical microscopy"; C. Mannella, "Electron microscopy/image reconstruction"; C. Umbach, "Tunneling microscopy."

22 July. Mesomorphic phases (R. Mackay, chairman): S. Friberg, "Modification of microemulsion phase equilibria"; D. Roux, "Microemulsion structure"; S. Gruner, "Packing of inverted phases." Plenary poster session (L. Abrams, chairman): 20 to 25 posters. Oral summaries, followed by poster viewing. Session organized by L. Abrams; telephone: 302-772-3032.

23 July. Electrochemistry, bioelectrochemistry (R. Good, chairman): P. Ross, "Structure/property relations in electrochemistry"; K. Sharp, "Surface potential determination in biological systems"; H. White, "Electrochemical properties and physical interactions of platinized mica surfaces." Action of high salt concentrations on surfaces (I. Heilweil, chairman): R. Lundberg, "The properties of ampholytic ionomers"; P. Mukerjee, "Specific counterion influences on salting in and salting out phenomena."

24 July. Wetting and contact angles (T. Davis, chairman): R. Kayer, "Wetting layers on ionizable substrates"; C. Franks, "Experimental studies of the wetting of binary liquids on glasses"; J. F. Joanny, "Dynamics of wetting"; M. Schick, "Theory of wetting transitons."

25 July. Mechanical properties of thin films (J. Mann, discussion leader): R. Hoffman, "Nanotensilometry of ultrathin films." E. Evans, "Bilayer and cell membrane mechanics."

Ion Channels in Muscle and Other Excitable Membranes

New Hampton School

Irwin B. Levitan, chairman; Richard Horn, vice chairman.

4 August. Conduction and gating mechanisms in ion channels (R. Horn, discussion leader); J. Patlak, "Sodium channel gating"; O. Andersen, "Conduction through sodium channels"; P. Hess, "Conduction through calcium channels"; F. Sigworth, "Open channel noise." Channel development, distribution and domains (R. Zucker, discussion leader): W. Almers, "Mobility and distribution of voltage-dependent ion channels in muscle"; J. Chad, "Domains around calcium channels"; R. Zucker, "Synaptic implications of calcium domains"; R. Weiss, "Sodium channels in developing muscle."

5 August. Channel modulation I (L. Kaczmarek, discussion leader): R. Huganir, "Regulation of the nicotinic acetylcholine receptor by protein phosphorylation"; F. Bezanilla, "Modulation of squid axon–delayed rectifier"; R. Tsien, "Modulation of cardiac and neuronal calcium channels"; J. Strong, "Regulation of neuronal calcium channels by protein kinases." Genetic approaches to channel regulation (W. Catterall, discussion leader): R. Aldrich, "Potassium channel mutants in *Drosophila*"; C. Kung, "Ion channels in lower organisms." Cell-to-cell channels (R. Horn, discussion leader): J. Hall, "Reconstitution of lens-junction channels"; W. Loewenstein, "Regulation of cell-to-cell channels by cellular phosphorylation."

6 August. Channels and secretion (D. Cook, discussion leader): D. Cook, "Potassium channels in pancreas"; J. Lemos, "Channels in neurosecretory terminals"; E. Neher, "Mast cell degranulation"; O. Petersen, "Messenger-mediated control of K^+ channels in gland cells." Molecular biology of ion channels (C. King, discussion leader): M. White, "Molecular biological approaches to AChR structure and assembly"; W. Catterall, "Molecular analysis of sodium channel function"; H. Betz, "The glycine receptor/channel"; E. Barnard, "The GABA receptor/channel."

7 August. Channels and transduction mechanisms (J. Lisman, discussion leader): J. Brown, "Phosphoinositides in photoreceptors"; K.-W. Yau, "Role of cyclic GMP in visual transduction in vertebrate photoreceptors"; J. Lisman, "Light-dependent channels in invertebrates"; B. Suarez-Isla, "Sarcoplasmic reticulum calcium channels"; R. Coronado, "Calcium-release channel of sarcoplasmic reticulum." Plenary lecture (I. Levitan, discussion leader): P. Adams, "Chic and vulgarity in biophysics: Ion channels and vertebrate neurons."

8 August. Channel modulation II (I. Levitan, discussion leader): H. Reuter, "Modulation of calcium channel gating"; R. Eckert, "Enzymatic mechanism of calcium channel inactivation"; P. Kostyuk, "Calcium current modulation"; K. Dunlap, "Regulation of neuronal calcium channels."

Poster sessions will be scheduled from 4:30 to 6:00 p.m., Monday through Thursday afternoons. Applicants are requested to indicate whether they intend to present a poster.

Lasers in Biology and Medicine

Kimball Union Academy

John A. Parrish, chairman; Reginald Birngruber, vice chairman.

7 July. (David Sliney, discussion leader): Michael Feld, "New concepts and opportunities in lasers, delivery systems, and optics"; Franz Hillenkamp, "Laser spectroscopy applied to biology and medicine." (Angelo Lamola, discussion leader): Irene E. Kochevar, "Targeting photochemistry"; David Kessel, "Photoradiation therapy: Mechanisms of action."

8 July. (Martin van Gemert, discussion leader): Stephen C. Bown, "Propagation of energy through tissue"; A. J. Welch, "Solutions available and future perspectives." (Carmen Puliafito, discussion leader): Stephen Trokel, "New directions in excimer laser ablation in ophthalmology"; Roger Steinert, "Biological mechanisms in ocular photosensitization."

9 July. (John Marshall, discussion leader): Sri Srinivasan, "Mechanisms of ultraviolet laser ablation of biologic tissue"; Thomas F. Deutsch, "Comparison of UV and IR ablation." (Warren S. Grundfest, discussion leader): R. Rox Anderson, "Selective non-ablative effects"; James Fujimoto, "Nonlinear effects."

10 July. (Jeffrey Isner, discussion leader): George Abella, "Laser angioplasty: Mechanisms and technology"; Richard Spears, "Non-ablative laser angioplasty."

(John Dixon, discussion leader): Richard C. Straight, "Photobiology in surgery and medicine"; Stephen C. Bown, "Clinical experience and consideration in light-tissue interaction."

11 July. (Reginald Birngruber, discussion leader): (Speakers and subjects to be announced).

Lipid Metabolism

Kimball Union Academy

Verne N. Schumaker, chairman; Judith Harmony, vice chairman.

16 June. (A. J. Lusis, discussion leader): James Scott, "Structure of human apolipoprotein B"; Andrew A. Protter, "Human apolipoprotein B complementary DNA clones of intestinal and liver origin"; John Elovson, "Relationships between the three apolipoprotein B peptides in the rat." (Joseph Witztum, discussion leader): David Shames and Richard Havel, "Apolipoprotein E related heterogeneity of the metabolism of lipoproteins containing apolipoprotein B"; Allen Cooper, "Triglyceride-rich lipoprotein metabolism by hepatosomes."

17 June. (Jeffrey Gordon, discussion leader): G. Schmitz, "HDL uptake and recycling by normal and Tangier macrophage"; J. F. Oram, "Receptor-mediated transport of cholesterol from cells to high density lipoproteins"; Robert L. Hamilton, Jr., "Intracellular trafficking of lipoproteins: Lessons learned from very low density lipoproteins." (Steve Humphries, discussion leader): Steve Humphries, "Family studies—a useful contribution in the analysis of polygenic hyperlipidaemia"; Gerd Utermann, "The role of the apo E locus in influencing serum cholesterol levels in the population."

18 June. (Jan Breslow, discussion leader): John Taylor, "Transcriptional control of apolipoprotein E gene expression"; David Williams, "Expression of apolipoprotein genes in the liver and peripheral tissues"; Lawrence Chan, "Evolution of the apolipoprotein multigene family." (Thomas Innerarity, discussion leader): Monty Krieger, "Characterization of the four genes required for expression of LDL receptor activity"; Geoffrey Davis, "Site-specific mutagenesis of the LDL receptor: Insights into structure function relationships."

19 June. (Andre Bensadoun, discussion leader): Michael Schotz, "Structure of lipoprotein lipase"; W. Virgil Brown, "Cloning of human hepatic lipase gene"; Christopher Fielding, "Structure of human LCAT." Russell Ross, "Linkage between atherosclerosis, growth factor, and excess consumption of food and beverages."

20 June. (Peter Edwards, discussion leader): Timothy F. Osborne, "Cholesterol-regulated promoters in eukaryotic cells"; Peter A. Edwards, "Coordinate regulation of cholesterogenic enzymes"; John Dietschy, "Interrelationship between hepatic low density lipoprotein transport and cholesterol synthesis."

Lysosomes

Plymouth State College (S)

Ari Helenius, chairman; William S. Sly, vice chairman.

23 June. (Michael Brown, discussion leader): Joseph Goldstein, "Mutations affecting the structure of the LDL receptor"; Axel Ullrich, "Structure function studies on cell surface receptors"; Erkki Ruoslahti, "Cell adhesion receptors." (Samuel Silverstein, discussion leader): Michael Scheetz, "Molecular basis for organelle movement"; Larry Gerace, "Regulation of nuclear envelope disassembly and reformation during mitosis"; James Rothman, "Protein transport in Golgi."

24 June. (Kurt V. Figura, discussion leader): Stuart Kornfeld, "Studies on a second mannose-6-phosphate receptor"; Tom Stevens, "Transport and sorting of yeast lysosomes"; Gareth Griffiths, "The transgolgi network." (Ann Hubbard, discussion leader): Howard Riezman, "Yeast mutants defective in accumulation of endocytic content"; Ira Mellman, "Membrane glycoproteins of endosomes and lysosomes"; Jess Thoene, "Carrier-mediated transport of amino acids from lysosomes."

25 June. (William S. Sly, chairman): Konrad Sandhoff, "Enzymology of glycolipid hydrolysis"; Roy Gravel, "Molecular genetics of human hexoseaminidase"; Robert Desnick, "Molecular genetics of alpha-galactosidase A deficiency." (Ari Helenius, discussion leader): James Hogle, "The high resolution structure of polio virus"; David MacKay, "Structure and mechanism of *Pseudomonas* toxin"; Bernhard Fields, "Early steps in Reo-virus entry."

26 June. (Qais Al-Awqati, discussion leader): Heven Sze, "H^+-pumping ATPase of plant vacuolar membranes"; G. Schmitz, "The interaction of HDL with macrophages and its abnormalities in Tangiers disease"; Gerald Hart, "Oligosaccaride microheterogeneity: chaos or order?" Elizabeth Neufeld, "The many mutants of lysosomal enzymes."

27 June. (Per Peterson, discussion leader): Randy Sheckman, "Role of clathrin in protein transport"; Peter Walter, "Mechanism of protein translocation"; Kai Simons, "The budding of enveloped viruses: A paradigm for membrane sorting."

Conferees are invited to present posters which will be displayed for 2 days. Abstracts, in duplicate, should be submitted to Dr. William S. Sly, St. Louis Childrens' Hospital, Post Office Box 14871, St. Louis, MO 63178.

Magnetic Resonance in Biology and Medicine

Tilton School

P. D. Ellis, chairman; D. Chasteen, vice chairman.

4 August. (P. D. Ellis, discussion leader): R. Griffen, D. Toncha, R. L. Vold, R. R. Vold. (J. Schaefer, discussion leader): R. Bryant, A. Sazbo.

5 August. (N. Szeverenyi, discussion leader): J. Ackerman, T. Schleich, I. C. P. Smith. (D. Chasteen, discussion leader): T. Kuntz, D. Hare, B. Reid.

6 August. (M. Klein, discussion leader): B. Hoffman, S. Chan, D. Chasteen. (P. C. Lauterbur, discussion leader): J. Hyde, B. Orme-Johnson.

7 August. (T. Dixon, discussion leader): J. Schaefer, M. Klein, H. Vogel.

8 August. (J. Hyde, discussion leader): P. Lauterbur, T. Dixon, N. Szeverenyi.

Mammalian Gametogenesis and Embryogenesis

Proctor Academy

Roger A. Pedersen, chairman; Norman B. Hecht, vice chairman.

18 August. Embryonic gene regulation (Verne Chapman, discussion leader): Gil Schultz, "Preimplantation embryo gene expression"; Shirley Tilghman, "Alpha fetoprotein gene regulation in transgenic mice"; Salome Waelsch, "Regulation of cell type–specific gene expression during differentiation." Genetics of the Y chromosome (Mary Ann Handel, discussion leader): Eva Eicher, "Evolution of the Y chromosome"; Peter Goodfellow, "Molecular genetics of the human Y chromosome."

19 August. Regulation of meiotic maturation (Georgianna Jagiello, discussion leader): Catherine Racowsky, "Regulation of meiotic maturation in hamster oocytes"; Richard Schultz, "Regulation of maturation in mouse oocytes"; Manfred Lohka, "Mechanisms of oocyte maturation." Cytoskeletal–cell surface interactions during gametogenesis and embryogenesis (Tony Bellve, discussion leader): Gerry Schatten, "Centrosomal inheritance and cytoskeletal organization during mouse fertilization"; Sabina Sobel, "Contact regulation of cytoskeletal organization in the preimplantation mouse embryo."

20 August. Molecular biology of spermatogenesis (Norman Hecht, discussion leader): Debra Wolgemuth, "Expression of cellular oncogenes and homeo box–containing genes during mouse spermatogenesis"; Mitch Eddy, "Stage and region-specific expression of sperm antigens"; Michael Griswold, "Hormone and vitamin A regulation of sertoli cell secretion products." Cell-cell interaction during gametogenesis (John Biggers, discussion leader): Bonnie Dunbar, "Synthesis and composition of the zona pellucida"; William Larsen, "Modulation of rat oocyte-follicle cell interactions."

21 August. Post implantation cell lineages (Janet Rossant, discussion leader): Richard Gardner, "Extraembryonic endoderm lineages"; Kirstie Lawson, "Cell fate and morphogenetic movements in embryonic endoderm and ectoderm"; Charles Kimmel, "Analysis of cell lineage in fish embryos." Sex differentiation during embryogenesis (Robert Erickson, discussion leader): Anne McLaren, "Sex determination in mice"; Tom Cline, "Sex determination in *Drosophila*."

22 August. Modification of the genome during gametogenesis (Davor Solter, discussion leader): Tony Searle, "Genetics of chromosome imprinting"; Janet Sanford, "DNA methylation during gametogenesis and embryogenesis"; Bruce Cattanach, "Differential activity of maternally and paternally derived chromosome regions."

There will be a poster session. Applicants wishing to present a poster should attach a 150- to 200-word poster abstract to their application.

Mammalian Genital Tract

Plymouth State College (N)

John A. McLachlan, chairman; R. Michael Roberts, vice chairman.

6 July. Keynote address: Henning Beier, "Mammalian uterine secretions: Retrospect and prospect."

7 July. Genetic approaches to the study of genital tract development (Clement L. Markert, discussion leader): Paul Burgoyne, "Genetics of sex differentiation"; Philip M. Innacone, "Models of organogenesis based on histologic patterns of mosaicism in rat chimers." Steroid hormones and sex differentiation (John A. McLachlan, discussion leader): Jean D. Wilson, "Testicular and ovarian hormones in genital tract development"; Julianne Imperato-McGinley, "Abnormalities of male sexual differentiation: Role of five reductase deficiencies."

8 July. Male genital tract growth regulation (Gerald R. Cunha, discussion leader): Donald S. Coffey, "Role of stem cells, extracellular matrix and nuclear matrix in regulation of prostatic epithelial proliferation"; Roy G. Smith, "Genes for androgen control of cell proliferation." Hormonal control of male genital tract secretion (Frank S. French, discussion leader): Gary E. Olson, "Hormonal regulation of epididymal secretory proteins"; Stephen E. Harris, "Genes that code for rat seminal vesical secretions."

9 July. Hormonal induction of uterine responses (Kenneth S. Korach, discussion leader): George M. Stancel, "Role of estrogens and receptors for peptide growth factors in uterine growth"; S. K. Dey, "Differing cellular responses with different estrogens in the genital tract"; Herbert W. Dickerman, "Estrogen regulation of creatinine kinase in the immature rat uterus." Hormonal control of uterine protein synthesis or secretion (James H. Clark, discussion leader): Eugene R. DeSombre, "Uterine protein synthetic patterns associated with steroid hormones"; Christina T. Teng, "Genes for estrogen-dependent uterine secretory proteins in the mouse"; Olli A. Janne, "Estrogen-progestin interaction in the regulation of endometrial functions."

10 July. Conceptus-genital tract interactions (R. Brian Heap, discussion leader): Geula Gibori, "Decidual tissue as an endocrine organ"; Fuller W. Bazer, "Maternal recognition of pregnancy"; Allen C. Enders, "In vivo implantation"; Stanley R. Glasser, "In vitro implantation." Special lecture: Alfred Jost, "Initial stages of testicular differentiation."

11 July. Genetic manipulation in reproductive research (R. Michael Roberts, discussion leader): Carl A. Pinkert, "Transfer and expression of genes into animals"; David W. Bullock, "Uteroglobin gene expression and insertional mutation in transgenic mice."

Prospective conferees wanting to present a poster are encouraged to submit a one-page abstract with their conference application.

Mechanisms of Toxicity

Kimball Union Academy

Marshall Steinberg, chairman; Steven D. Aust, vice chairman.

28 July. (Philip Guzelian, discussion leader): Wayne Levin, "Structure, nomenclature, interspecies comparison of the cytochromes P-450"; Oliver Hankinson, "Regulation of the methylcholanthrene inducible cytochromes P-450"; Steve Wrighton, "Structure, function, and regulation of the human liver cytochromes P-450." (Philip Guzelian, discussion leader): Don Jerina, "Relationship between metabolic activation and carcinogenesis of the polycyclic aromatic hydrocarbons"; Dick Philpot, "Role of pulmonary cytochromes P-450 in metabolic activation of cytotoxic and carcinogenic chemicals."

29 July. (Barry W. Wilson, discussion leader): Stephen M. Ross, "Investigation of neurotoxic mechanisms in organotypic tissue culture"; John M. Frazier, "In vitro approaches to hepatotoxicity." (Discussion leader to be announced): Barry W. Wilson, "Mechanisms of action of organophosphates in differentiated cell cultures"; (speaker and subject to be announced).

30 July. (Tibor Balazs, discussion leader): Tibor Balazs, "Cardiotoxicities of β-agonists and vasodilating antihypertensives"; Victor Ferrans, "Mechanism of antineoplastic anthracyclines"; I. S. Jammal, "Cardiotoxicity of cadmium." (Discussion leader to be announced): P. Boor, "Mechanisms of cardiovascular injuries by allylamine"; R. Levi, "Cardiac anaphyaxis."

31 July. (John A. Thomas, discussion leader): Wayne C. Bardin, "Overview of reproductive physiology"; Howard D. Colby, "Xenobiotics"; Michael Waalkes, "Heavy metals." (Speaker and subject to be announced).

1 August. (Chung Lee, discussion leader): Martin Dym, "Sertoli cell system"; Irvin B. Fritz, "Cell-to-cell communication (sertoli cells and peritubular myoid cells)"; Larry L. Ewing, "Testicular steroidogenesis and Leydig cell function."

Medicinal Chemistry

Colby-Sawyer College

Hans Hess, chairman; Barrie Hesp, vice chairman.

28 July. Immunomodulators/biological response modifiers (Wendell Wierenga, chairman): Edgar Lederer, "Structure and biological activities of muramyl peptides and trehalose diesters"; Terry G. Payne, "Structural requirements for immunosuppressive activity of cyclosporine analogs"; Steven Gillis, "Cloning, expression, and evaluation of interleukins and colony-stimulating factors." Phosphoinositides and drug action (James W. Putney, Jr., chairman): James W. Putney, Jr., "Relationship of polyphosphoinositide turnover to receptor mechanisms"; C. Peter Downes, "Pharmacological exploitation of control points in polyphosphoinositide metabolism."

29 July. Recent progress in the development of hypocholesterolemic agents: The design, synthesis, and therapeutic potential of HMG-CoA reductase inhibitors (Robert L. Smith, chairman): Ta-Jyh Lee, "HMG-CoA reductase inhibitor design and synthe-

sis"; Faizulla G. Kathawala," Efforts toward the development of new HMG-CoA reductase inhibitors"; D. Roger Illingworth, "Clinical and metabolic effects of Mevinolin in familial hypercholesterolemia." Basic mechanisms and approaches to therapy in stroke (Michael A. Moskowitz, chairman): Hermes A. Kontos, "Free radicals in the regulation of the cerebral circulation"; Wise Young, "The role of calcium in neuronal injury"; Frank W. Marcoux, "Animal models for studying cerebral ischemia."

30 July. Therapeutic intervention in emphysema (Ralph E. Giles, chairman): George Weinbaum, "Animal models of emphysema"; Anthony Casolaro, "Studies on alpha-1-proteinase"; D. Amy Trainor, "Synthetic inhibitors of human leukocytic elastase." Poster session: Special topics in Medicinal Chemistry (Charles A. Harbert, chairman). The biological significance of 5HT-receptor subtypes (John R. Fozzard, chairman): Derek N. Middlemiss, "Central 5HT-receptor subtypes and function"; Pramod R. Saxema, "Peripheral 5HT-receptor subtypes and function."

31 July. Current approaches to protein structure-activity relationships (Richard Bott, chairman): Richard Bott, "The potential of protein structure-activity studies for the rational design of pharmaceuticals"; J. Ernest Villafranca, "Describing drug-receptor interactions by protein engineering"; Brian W. Matthews, "The three-dimensional structures of thermolysin-inhibitor complexes and their implications for rational drug design." General session (Hans Hess, chairman): (speakers and subjects to be announced).

1 August. Special topics in Medicinal Chemistry (Charles A. Harbert, chairman): (speakers and subjects to be announced).

Persons wishing to present posters should write to Dr. Charles A. Harbert, Pfizer, Inc., Groton, CT 06340.

Metal Insulator Semiconductor Systems

Tilton School

Edward H. Nicollian, chairman; Edward H. Poindexter, vice chairman.

14 July. The thermal oxidation of silicon (Joseph Maserjian, discussion leader): Eugene Irene, "Low-temperature thin-film oxidation"; J. P. Krusins, "Rapid thermal oxidation"; W. A. Tiller, "Photoenhanced oxidation." (J. Wortman, discussion leader): David Baglee, "Growth and characterization of thin SiO_2"; A. Reisman, "The oxidation kinetics of silicon."

15 July. Paramagnetic defects in MOS systems (Edward H. Poindexter, discussion leader): Arthur H. Edwards, "Molecular orbital studies of paramagnetic defects near the Si/SiO_2 interface"; William E. Carlos, "Structure of point defects in SiO_2 films"; Patrick M. Lenahan, "Hot electrons, ionizing radiation, and paramagnetic electron and hole traps in MOS oxides." (Marvin White, discussion leader): Noble M. Johnson, "Optical spectroscopy of the Si dangling-bond defect at the Si/SiO_2 interface"; Keon M. Lee, "Optically detected magnetic resonance of dangling bonds in silicon (including Pb centers)."

16 July. Defects in MIS system (Donald Young, discussion leader): C. T. Sah, "Experiments and model on deactivation of boron and other group III acceptors at the Si/SiO_2 interface"; Karl Hofmann, "Annealing effects in thermal SiO_2 films correlated with the interface reaction of Si and SiO_2"; Dennis R. Brown, "Kinetics and growth of interface states in MOS devices." (Frank Feigl, discussion leader): Pieter Balk, "The defect structure of implanted and diffusion doped SiO_2; Marvin H. White, "Amphoteric defects in single and doubled dielectric devices."

17 July. Hot carriers and radiation effects (Richard Barker, discussion leader): T. P. Ma, "The role of stress in interfacial ionizing radiation damage"; Yoav Nisson/Cohen, "Carrier injection and high-field effects in thermal SiO_2"; F. J. Grunthauer, "The chemical and physical structure of the Si/SiO_2 interface and its impact on radiation hardening." (T. P. Ma, discussion leader): contributed papers.

18 July. Anomalous current oscillations in tunneling and confined structures (Bruce McComb, discussion leader): J. P. LeBurton, "Theory of sequential phonon emission in semiconductors"; T. Hickmott, "Magnetic tunneling in GaAs-AlGaAr heterostructures"; D. Tsui, "Current oscillations in semiconductor microfilaments."

Microbial Toxins and Pathogenesis

Plymouth State College (N)

Randall K. Holmes, chairman; P. Frederick Sparling, vice chairman.

4 August. Structure and function of bacterial protein toxins (John Collier, discussion leader): John Collier, "Active sites of ADP-ribosylating toxins"; Rino Rappuoli, "The genes coding for pertussis toxin: Structure and expression"; Neil Fairweather, "Structure of tetanus toxin." Genetics and regulation of bacterial protein toxins (Barbara Iglewski, discussion leader): John Mekalanos, "Structural and functional analysis of the *tox*R regulatory protein of *Vibrio cholerae*"; Allison O'Brien, "Genetics of Shiga-like toxin of *E. coli*."

5 August. Toxin receptors and internalization (Sjur Olsnes, discussion leader): Sjur Olsnes, "Binding and internalization of diptheria toxin"; Gary Schoolnik, "Identification of *E. coli* ST receptor with synthetic toxin analogues"; J. Edward Brown, "Carbohydrate receptor for Shiga and Shiga-like toxin." Bacterial pili and attachment (Staffan Normark, discussion leader): Paul Orndorff, "Organization and expression of genes specifying type 1 piliation in *E. coli*"; William Paranchych, "Genetic and functional analysis of *Pseudomonas* pili."

6 August. Endotoxin (Christian Raetz, discussion leader): Christian Raetz, "Biosynthesis and pharmacological properties of lipid A"; David Morrison, "The role of selective subunit structure in LPS biological activity"; Robert Munford, "Processing of LPS by animal cells." Antigenic variation of bacterial surface proteins (Magdalene So, discussion leader): Alan Barbour, "Molecular basis of antigenic variation in relapsing fever borrelia"; Janne Cannon, "Protein 2 of *Neisseria gonorrhoeae*."

7 August. Microbial invasion and intracellular survival (Philippe Sansonetti, discussion leader): Philippe Sansonetti, "Aspects of the intracellular life style of *Shigella flexneri* and other invasive enteric bacteria"; Susan Straley, "Calcium and virulence in *Yersinia pestis*"; Barry Bloom, "Mycobacteria, macrophages and modes of survival." Jonathan Uhr, "Immunotoxins: Harnessing nature's poisons."

8 August. Molecular analysis of selected microbial surface antigens (June Scott, discussion leader): June Scott, "The M protein of group A streptococcus"; Barry Eisenstein, "Cloning the antigens of *Legionella pneumophila*"; Michael Lovett, "Immunobiology of *Treponema pallidum*."

Microbiological Safety of Food

Plymouth State College (S)

Frank F. Busta, chairman; Carl Vanderzant, vice chairman.

14 July. Resistance to temperature extremes (A. Douglas King, Jr., discussion leader): Neil Walker, "Mechanisms of adaption to extreme temperatures—thermophiles"; John Hanlin, "Effect of environmental stress on growth of thermophiles"; John A. Baross, "Microbial activity at environmental extremes—low temperature." Lactic acid bacteria genetics (Mary Ellen Sanders, discussion leader): Gerry Fitzgerald, "Genetics of lactic streptococci with emphasis on transposon studies and proteinase activity"; Annick Mercenier, "Develop-

ment of gene transfer systems in *Streptococcus thermophilus*."

15 July. Sporulation and resistance (Ronald G. Labbe, discussion leader): James A. Lindsay, "Toxins as a result of sporulation"; Philipp Gerhardt, "Mechanisms of heat resistance in bacterial spores"; Alisa Hocking, "Physiological responses of fungi at reduced water activity." Spore germination (Peggy M. Foegeding, discussion leader): Peter Setlow, "Biochemical mechanisms of spore germination and UV light resistance"; Harlan O. Halvorson, "Role of trypsin-like enzymes in germination of spores of *Bacillus cereus*."

16 July. Food-borne microbial hazards (Richard Raybourne, discussion leader): George J. Jackson, "Food-borne parasites of increasing concern"; David Yu, "Enteric pathogens and rheumatoid disease"; Lloyd Osborne, "Naturally occurring tumor promoters from molds." Atypical or chronic food borne infections (R. P. Read, discussion leader): Joseph Eiden, "Atypical rotavirus infections of man and animals"; Martin J. Blaser, "Chronic intestinal sequelae to acute gastrointestinal infection."

17 July. Antibiotic resistance (David L. Collins-Thompson, discussion leader): Jack Trevors, "R-plasmid transfer in the environment"; Fred Tenover, "Role of antibiotic resistance in *Campylobacter* epidemiology." Food-borne salmonellosis (Gerald Silverman, discussion leader): Damien A. Gabis, "Microbiological perspective of 1985 Illinois milk-borne salmonellosis outbreaks."

18 July. Virulence determinants (Norman J. Stern, discussion leader): Neal Guentzel, "Virulence determinants of *Vibrio cholerae*"; L. Joe Berry, "Virulence of *Campylobacter jejuni* in experimental animals."

Chemistry and Physics of Microstructure Fabrication

Brewster Academy

Evelyn L. Hu, chairman; Michael Geiss, vice chairman.

7 July. (M. Geiss, discussion leader): M. Isaacson, "Limits of nanolithography"; K. Gamo, "Maskless microfabrication process by focussed ion beam." (R. F. W. Pease, discussion leader): R. Osgood, "Fabrication of high aspect ratio features using light-guided etching"; D. Ehrlich, "Direct processing: Excimer laser projections and other beam techniques."

8 July. (G. Taylor, discussion leader): G. Willson, "Mechanistic studies in organic photoimaging systems: Application to resist design"; P. West, "A chemist's approach toward aerial image modification in photolithography." (K. Bean, discussion leader): H. Sakaki, "Novel superlattice devices"; G. Osbourn, "Strained layer epitaxy."

9 July. (R. E. Howard, discussion leader): D. Antoniadis, "Quantum mechanical effects in Si MOSFET's with sub-100-nm structures"; W. J. Skocpol, "Quantum transport in small Si MOSFET's." (S. Beaumont, discussion leader): R. Buhrman, "Study of individual electron trap states in telegraph noise spectroscopy in submicron diodes."

10 July. (H. Smith, discussion leader): J. Lettvin/C. Searle, "Structure and phenomenology of neurons: Electrical models"; L. D. Jackel, "Neural networks: A new approach to analog." (D. Edell, discussion leader): R. Elsenbaumer, "Recent advances in conductive polymers"; C. Wilkinson, "Behavior of cells on patterned substrates."

11 July. (S. Pand, discussion leader): R. S. Muller, "Physics and technologies for microsensor microfabrication"; R. Lemons, "Thermionic integrated circuits for high temperature and high radiation environments"; T. Emoto, "Multilayer integrated circuits."

An application blank for attendance at the Gordon Research Conferences may be found on page 1199. A summary of the program is on pages 1186 and 1187.

Modeling of Flow in Permeable Media

Proctor Academy

Herbert G. Weinstein, chairman; William A. Jury, John B. Bell, vice chairmen.

28 July. (Herbert G. Weinstein, discussion leader): Robert Ehrlich, "Measurement and prediction of three-phase relative permeability"; Abdi Shirazi, "Unstable tertiary miscible core flood—CAT scan experiment and simulation": Gary Pope, "Physics of micellar/polymer floods." (Herbert G. Weinstein, discussion leader): Frank Tiller, "Generalized approach to the solution of problems in thickening, filtration, centrifugation, and expression"; Robert Schiffman, "The permeability of soft consolidating clays and sedimenting dispersions."

29 July. (John B. Bell, discussion leader): Stanley Osher, "High-order accurate nonoscillatory approximations to flow in permeable media"; Jerome Jaffre, "Upstream-weighted numerical schemes for conservation laws arising in multiphase flow"; Joseph Pasciak, "Domain-decomposition preconditioners for the solution of elliptic boundary value problems." (John B. Bell, discussion leader): Brent Lindquist, "Discontinuity resolution via tracking schemes"; Michael Shearer, "Nonstrictly hyberbolic conservation laws."

30 July. (William A. Jury, discussion leader): Paul Roberts, "The roles of experimentation and modeling in improving understanding of organic solute transport: Is the model the message?" R. J. Wagenet, "Modeling water flow and solute transport in unsaturated soil"; Peter Germann, "Current knowledge about water flow and related transport of solutes and microbes in macroporous soils." (William A. Jury, discussion leader): Stephen Simmons, "Using concepts of stochastic-convective flow to model solute transport"; Jack Parker, "Analysis of the inverse problem for flow in porous media with multiple fluid phases."

31 July. (John E. Killough, discussion leader): Hsueh-Chia Chang, "Inertial effects of porous media flow"; J. M. Vergnaud, "Modeling and application of mass transfer between an additive in a polymer matrix and various liquids"; William N. Herkelrath, "Flow of steam-gas mixtures in porous media." (John E. Killough, discussion leader): David Russo, "Uncertainty about estimates of the correlation scale in stationary and nonstationary fields"; Helge H. Haldorsen, "Probabilistic modeling of vertical permeability barriers—a challenge to engineers and geoscientists." Donald W. Peaceman, "Personal retrospection of reservoir simulation."

1 August. (Herbert G. Weinstein, discussion leader): John E. Killough, "A fully implicit electrothermic reservoir simulator: Modeling a novel EOR process"; Chun Huh, "Consideration of reservoir stratification in surfactant flood simulation"; John Trangenstein, "The mathematical structure within compositional reservoir simulation."

Diffraction Methods in Molecular Biology

Proctor Academy

F. L. Suddath, chairman; P. M. D. Fitzgerald, vice chairman.

30 June. (Alwin Jones, discussion leader): M. Rossman, "Human Rhino virus"; R. Burnett, "Adenovirus capsid"; C. Stauffacher, "Cow Pea Mosaic virus"; J. Hogle, "Polio virus." (M. Rossmann, discussion leader): J. Becker, "Cautions in molecular replacement"; T. Bhat, "Ab initio phasing methods"; W. Hendrickson, "Multiple wavelengths phasing"; G. R. Reed, "Minimizing model bias and electron density maps."

1 July. (Ray Salemme, discussion lead-

er): R. Burlingame, "Histone octomer complex"; G. Bunick, E. Uberbacher, "Nucleosome structure." (Paul Sigler, discussion leader): C. Schutt, "Actin structure"; W. Kabsch, "DNAse I–actin complex."

2 July. (Bob Fletterick, discussion leader): J. Deisenhofer, "Photosynthetic reaction center"; H. Wyckoff, "Muconolactone isomerase"; G. Schneider, "Ribulose 1,5 bisphosphate carboxylase oxygenase." (Hal Wyckoff, discussion leader): K. Moffat, "Time resolved crystallography"; J. Helliwell, "Protein crystallography using synchrotron x-ray sources"; L. Johnson, "Time resolved catalysis in phosphorylase B."

3 July. (K. Moffat, discussion leader): J. Anderson, "Repressor-operator complex of phage 434"; D. Suck, "DNAse-nucleotide complexes." (C. Schutt, discussion leader): B. Ray, "Polyetheleneglycol–high salt crystallization systems"; C. Bugg, "Protein crystal growth in microgravity"; A. Jones, "Graphics and structural data bases."

4 July. (C. Bugg, discussion leader): J. Smith, "Disorder in high resolution structure"; E. Westhof, "Anisotropic refinement of transfer RNA"; J. Kuryion, "Molecular dynamics and crystallographic refinement."

Poster abstracts should be sent to Dr. Jack Sack, Department of Biochemistry, Rice University, Houston, TX 77005.

Molecular Genetics

Proctor Academy

Mario R. Capecchi, chairman; Shirley M. Tilghman, vice chairman.

23 June. The use of retroviruses and retroviral vectors for probing mouse development (Richard Mulligan, chairman): Inder Verma, Erwin Wagner, Neal Copeland and Nancy Jenkins. Function of protooncogenes (Mike Bishop, chairman): Charles Sher, Owen Witte, Hidesaburo Hanfusa.

24 June. Genetic recombination in eucaryotic organisms (Mario Capecchi, chairman): Jack Szostak, Oliver Smithies, Mike Liskay, Raju Kucherlapati. Organization and expression of homeo-box genes (Frank Ruddle, chairman): Tom Kornberg, Tom Kaufmann, Gail Martin.

25 June. Gene expression in mammalian cells (Shirley Tilghman, chairman): Tom Maniatis, Walter Schaffner, Steve McKnight, Ron Evans. Analysis of developmental gene expression in transgenic mice (Richard Palmiter, chairman): Phil Leder, Ursula Storb, Frank Constantini.

26 June. Gene expression and development in *C. elegans* and *Drosophila* (Bill Wood, chairman); Tony Mahowald, Bob Horvitz, Carl Parker. Gene transfer as a means to study plant development (Rob Fraley, chairman): Roger Beachy, Tony Cashmore, Thomas Hohn, Michael Fromm.

27 June. The cellular biology of the immune response (Lee Hood, chairman): Susumu Tonegawa, Fred Alt, Jerry Adams.

Molecular and Genetic Basis of Cell Proliferation

Colby-Sawyer College (S)

Potu N. Rao, chairman; Arthur B. Pardee, vice chairman.

30 June. Regulation of proliferation during pre-DNA synthetic period (Arthur B. Pardee, discussion leader): Charles D. Scher, "The platelet-derived growth factor and the regulation of the cell cycle"; Enrique Rozengurt, "Early signals in mitogenesis"; Donald M. Coen, "How viruses prepare cells for DNA synthesis." DNA replication (Gary Stein, discussion leader): Lee Johnson, "Expression of genes for S phase enzymes during the cell cycle"; Roger Chalkley, "Developmentally regulated control of chromatin assembly"; Thomas J. Kelly, "Viral models for eukaryotic DNA replication."

1 July. Chromatin and chromosome structure (Walter N. Hittelman, discussion leader): Ulrich Laemmli, "Organization of high order chromosome loops"; William C. Earnshaw, "Regulation of topoisomerase II during differentiation"; David Jackson; "Globin gene structure as a function of cellular differentiation." Regulation of mitosis and meiosis (Potu N. Rao, discussion leader): Ramesh C. Adlakha, "Purification and characterization of mitotic factors"; Martha S. Cyert, "Recent studies on M-phase promoting factor in *Xenopus laevis* eggs"; Frances M. Davis, "Antibodies to mitosis-specific phosphoproteins."

2 July. Genetic control of cell proliferation (Paul Nurse, discussion leader): Claudio Basilico (subject to be announced); Takeharu Nishimoto, "Molecular cloning and analysis of a human gene that regulates chromosome condensation in a ts mutant cell line"; Steve Reed, "A genetic and molecular analysis of division control in yeast." Protein kinases and growth regulation (Raymond L. Erikson, discussion leader): Michael Czech, "Regulation of receptor of protein kinase"; J. F. Kuo, "Protein kinase C"; Michael Wigler, "Cyclic AMP–dependent protein kinases in yeast."

3 July. Oncogenes and growth regulation (Renato Baserga, discussion leader): Hidesaburo Hanafusa, "Functional domains of pp60^{src} required for growth stimulation and/or transformation"; Daniel Nathans, "Identification of a set of genes expressed during G_0/G_1 transition of cultured mouse cells"; Stuart Aaronson, "Mechanisms involved in the activation of the *sis*/PDGF-2 gene as an oncogene." Growth factors and receptors of growth factors (W. J. Pledger, discussion leader): Harvey R. Herschman, "Mitogen nonresponsive variants in the study of cellular proliferation"; Walker Wharton, "Processing of EGF-EGF receptor complexes: relationship to mitogenesis"; Harold L. Moses, "Transforming growth factor β."

4 July. Limited replicative life span of somatic cells and differentiation (George M. Martin, discussion leader): Gretchen H. Stein, "Inhibition of DNA synthesis in senescent and quiescent human diploid fibroblasts"; Vincent J. Cristafalo, "Growth factor modulation of cell proliferation"; Sydney Shall, "Molecular biology of limited replicative life span." Posters on research in relevant areas are strongly encouraged.

Motile and Contractile Systems

Tilton School

Edward D. Korn, chairman; David J. Hartshorne, vice chairman.

21 July. Actin polymerization and actin binding proteins: Joseph Bryan, Marie-France Carlier, Uno Lindberg, Thomas D. Pollard, Helen L. Yin (speakers and discussants). Regulation of actomyosin ATPase: David J. Hartshorne, David R. Hathaway, John Kenrick-Jones, Edward D. Korn (speakers and discussants).

22 July. Sequence and active sites: Marshall Elzinga, John A. Hammer III, Anthony R. Means, Kazuo Sutoh, James A. Spudich (speakers and discussants). Cytoskeleton structure, assembly and function: Vann Bennett, Joan Fox, Elias Lazarides, Michael P. Walsh (speakers and discussants).

23 July. Gene expression: Donald W. Cleveland, Jonathan Karn, Charles Ordahl, Robert G. Whalen (speakers and discussants). Developmental biology and cell transformation: Dennis Bray, Margaret Buckingham, Eric Fyrberg, Robert H. Waterston (speakers and discussants).

24 July. Microtubules, dynein and kinesin: Scott T. Brady, Kenneth A. Johnson, Marc Kirschner, Michael P. Sheetz (speakers and discussants). Poster discussion session: Robert S. Adelstein, leader. Selected posters that will be displayed in conjunction with each topic will be discussed. Applicants who wish to present a poster should submit a short descriptive abstract together with their conference applications.

25 July. Second messengers in motility and contractility: Fred Fry, Hiroyoshi Hidaka, Julio Vergaro, Sally Zigmond (speakers and discussants).

Multiphoton Processes

Colby-Sawyer College (S)

Patricia M. Dehmer, chairman; Philip M. Johnson, vice chairman.

9 June. (Patricia M. Dehmer, discussion leader): Steven D. Colson, "Multiphoton ionization-photoelectron spectroscopic studies of molecular excited states—structure and dynamics"; Philip M. Johnson, "Multiphoton ionization spectroscopy of radicals and metastables"; Robert N. Compton, "Multiphoton ionization, stimulated electronic Raman scattering, and harmonic generation in dense alkali vapors." Poster session.

10 June. (Mostafa El-Sayed, discussion leader): Ahmed H. Zewail, "Picosecond and femtosecond multiphoton mass spectrometry"; Curt Wittig, "Controlling initial geometries in reactive and inelastic scattering"; Richard Bersohn, "Competition between photodissociation and photoionization in CH_3I." (Stephen J. Smith, discussion leader): Gerard Mainfray, "Electron energy spectra in multiphoton ionization of atoms"; P. Lambropoulos, "Collectivization versus laissez faire photon absorption: The atom's dilemma under a pulsed strong laser."

11 June. (William A. Chupka, discussion leader): Stephen T. Pratt, "Multiphoton ionization of diatomic molecules"; Michael N. R. Ashfold, "Rydberg states and spectroscopy of NH_3"; Jeffrey W. Hudgens, "Resonantly enhanced multiphoton ionization spectroscopy of reactive intermediates." (Katsumi Kimura, discussion leader): Marnix van der Wiel, "Resonantly enhanced multiphoton ionization of highly excited and continuum states in atoms and molecules"; John E. M. Goldsmith, "Multiphoton excitation techniques for combustion diagnostics."

12 June. (Edward Schlag, discussion leader): Stephen C. Wallace, "Multiphoton ionization spectroscopy of jet-cooled molecules and van der Waals clusters"; A. Welford Castleman, Jr., "Shedding some light on clusters: an exciting process"; Paul L. Houston, "Multiphoton ionization detection of the fragments of photodissociation." (Thomas Gallagher, discussion leader): Karl Welge, "Multiphoton ionization of atoms"; R. Stephen Berry, "Exploring electron correlations in excited states by resonant multiphoton ionization—energy and angular distributions."

13 June. (Philip M. Johnson, discussion leader): Yohji Achiba, "Multiphoton ionization-photoelectron spectroscopic studies on dynamics of excited molecules"; Hans J. Neusser, "Doppler-free two-photon excitation and intramolecular dynamics"; James P. Reilly, "Intensity dependence of laser mass and photoelectron spectra."

Mechanisms of Mutagenesis

Plymouth State College (S)

Lawrence A. Loeb, chairman; Franklin Hutchinson, vice chairman.

30 June. Spontaneous mutagenesis (B. Demple, session chairman): M. Meuth, "Spontaneous deletions in CHO cells"; J. Cairns, discussant. In vitro mutagenesis (J. Essigmann, session chairman): R. Fuchs, "Site-directed mutagenesis by AAF adducts"; M. Goodman, "Kinetics of nucleotide insertions opposite apurinic sites"; B. Singer, discussant.

1 July. Shuttle vectors (F. Hutchinson, session chairman): M. Calos, "Mutagenesis in human cells"; M. Seidman, "UV-mutagenesis." Mutations in chromosomal genes (B. Glickman, session chairman): T. Caskey, "Molecular basis of Lesch-Nyham (HGPRT) mutations."

2 July. DNA repair and mutagenesis (G. Walker, session chairman): T. Lindahl, "Mechanism(s) of induction of resistance to alkylating agents"; P. Cooper, "Mechanisms of SOS-induced resistance"; L. Grossman, "Molecular mechanism of *uvr* ABC excision." Mismatch repair (J. Miller, session chairman): P. Modrich, "Biochemistry of mismatch repair"; M. Radman, "Genetics of mismatch repair."

3 July. DNA polymerization (D. Korn, session chairman): T. Wang, "Polymerase-alpha: Gene localization and conservation"; S. Wilson, "Cloning of mammlian DNA polymerase-B"; T. Kunkel, "Fidelity of eucaryotic DNA polymerases." Genomic evolution (R. Haynes, session chairman): W. F. Doolittle, "Origin and evolution of introns."

4 July. Late breaking events (P. Hanawalt and B. Strauss, session co-chairmen): Poster presentations are encouraged. Send abstracts to Lawrence A. Loeb, Joseph Gottstein Memorial Cancer Research Laboratory, Department of Pathology SM-30, University of Washington, Seattle, WA 98195.

Natural Products

New Hampton School

Frederick Ziegler, chairman; Ross Johnson, vice chairman.

21–25 July. Joel Barrish, "New approaches to the synthesis of the pseudomonic acids"; Mark Bock, "Total synthesis of novel cholecystokinin antagonists from *Aspergillus alliaceus*"; Steven Burke, "Synthetic studies toward ionophore and macrolide antibiotics"; Jon Clardy, "Structural studies on biologically active natural products"; Samuel Danishefsky, "Recent developments in the synthesis of polyoxygenated natural products"; David Evans, "Recent advances in asymmetric synthesis"; Bert Fraser-Reid," Simple carbohydrates to complex carbocycles"; Philip Fuchs, "Robotic optimization of organic reactions"; David Hart, "Free radical reactions in natural products synthesis"; James Hauske, "Synthetic modification of macrolide antibacterials"; Richard Hutchinson, "A gene cluster cloned from *Streptomyces glauncescens* and encoding information for the biosynthesis of an anthracycline antitumor antibiotic"; Lew Mander, "Recent studies on the synthesis of novel, biologically active diterpenoids"; Takeshi Nakai, "[2,3]-Wittig sigmatropic rearrangements in natural product synthesis"; Garry Procter, "Approaches to the synthesis of naturally occurring antibiotics"; Charles Sih, "Chiral synthesis with enzymes"; James Staunton, "Studies related to ionophore biosynthesis."

Opportunities for the presentation of short talks and posters will be available.

Nondestructive Evaluation

Kimball Union Academy

Robert E. Green, chairman; R. Bruce Thompson, vice chairman.

18 August. (G. Birnbaum, discussion leader): E. Henneke, "Vibrothermographic characterization of materials"; P. Cielo, "Thermal techniques for NDE." (L. Inglehart, discussion leader): C. Bocarra, "Thermal waves: generation and detection"; J. Murphy, "Thermal-wave imaging."

19 August. (L. Hargrove, discussion leader): R. Dandliker, "Heterodyne and quasi-heterodyne holographic interferometry"; J. Wagner, "Applications of high speed heterodyne holographic interferometry." (R. Dewhurst, discussion leader): W. Arnold, "The generation of ultrasound by short laser pulses and applications to NDE"; J. P. Monchalin, "Laser-generated ultrasound for industrial applications."

20 August. (J. Bussiere, discussion leader): B. Tittmann, "Process monitoring and control of semiconductor crystal growth"; T. Poehler, "Electron spin resonance investigation of polymer degradation." (J. Achenbach, discussion leader): W. Lord, "Numerical modeling of electromagnetic NDE methods"; R. Ludwig, "Numerical modeling of ultrasonic NDE methods."

21 August. (H. Berger, discussion leader): L. Morgan, "Computerized tomographic analysis"; B. Tanner, "X-ray topography of crystals." (R. Green, discussion leader): Roy Sharpe, "Stop researching awhile."

22 August. (D. Thompson, discussion

Program Summary, Gordon Research Conferences,

	Colby-Sawyer College (N), New London	Colby-Sawyer College (S), New London	New Hampton School, New Hampton	Kimball Union Academy, Meriden	Tilton School, Tilton
9–13 June	Tribology	Multiphoton Processes	Nucleic Acids	*Calcium Oxalates	Theoretical Biology and Biomathematics
16–20 June	Nuclear Chemistry	Thermosetting Polymers	Environmental Sciences: Water	Lipid Metabolism	Animal Cells and Viruses
23–27 June	Catalysis	Synthetic Membranes	Basement Membranes	High Pressure, Research at	Second Messengers and Protein Phosphorylation
30 June–4 July	Polymers	*Molecular and Genetic Basis for Cell Proliferation	Fuel Science	Enzymes, Coenzymes and Metabolic Pathways	Nuclear Proteins, Chromatin Structure and Gene Regulation
7–11 July	Fiber Science	Liquid Crystal Polymers	Heterocyclic Compounds	Lasers in Medicine and Biology	Nuclear Structure Physics
14–18 July	Elastomers	Extrachromosomal Elements	Organic Reactions and Processes	Bones and Teeth	Metal Insulator Semiconductor Systems
21–25 July	Corrosion	Chemotherapy of Clinical and Experimental Cancer	Natural Products	Interfaces, Chemistry at	*Motile and Contractile Systems
28 July–1 August	Medicinal Chemistry	Pulmonary Biology	Statistics in Chemistry and Chemical Engineering	Mechanisms of Toxicity	Renewable Resources, Chemicals and Materials from
4–8 August	Cancer	Water and Aqueous Solutions, Chemistry and Physics of	Ion Channels in Muscle and Other Excitable Membranes	Hormone Action	Magnetic Resonance in Medicine and Biology
11–15 August	Separation and Purification	*Physical Electrochemistry	Analytical Chemistry	Ceramics, Solid State Studies in	Plasma Chemistry
18–22 August	*Computational Chemistry	Fractals	Adhesion, Science of	Nondestructive Evaluation	Orientational Disorder in Crystals

*New conferences

1986 Schedule—New Hampshire

Proctor Academy, Andover	Holderness School, Plymouth	Brewster Academy, Wolfeboro	Plymouth State College (N), Plymouth	Plymouth State College (S), Plymouth	St. Paul's School, Concord
Plant Molecular Biology	Cardiac Inotropic Agents	Cybernetics	Bioelectrochemistry	*Estuarine Processes: Chemical and Biological Interactions	
Hemostasis	Biological Regulatory Mechanisms	Condensed Matter Physics	Radical Ions	Proteolytic Enzymes and Their Inhibitors	
Molecular Genetics	Biopolymers, Physics and Physical Chemistry of	Radiation Chemistry	Stereochemistry	Lysosomes	
Molecular Biology, Diffraction Methods in	Immuno-chemistry and Immunobiology	*Solid State Ionics	Electron Distribution and Chemical Bonding	Mutagenesis	
Proteoglycans	Postharvest Physiology	Microstructure Fabrication, Chemistry and Physics of	Mammalian Genital Tract	Drug Carriers in Biology and Medicine	
Polymer Physics	Particle-Solid Interaction	Electron Spectroscopy	Fungal Metabolism	Microbiological Safety of Food	
Physical Metallurgy	Drug Metabolism	High Temperature Chemistry	Purines, Pyrimidines and Related Compounds	Aging, Biology of	
Flow in Permeable Media	Dielectric Phenomena	Pyrrole Compounds	Solid State Chemistry	Atomic and Molecular Interaction	
Bioengineering and Orthopedic Science	Photonuclear Reactions	Inorganic Chemistry	Microbial Toxins	Foams	
Organometallic Chemistry	Immobilized Systems in Biotechnology	Vibrational Spectroscopy	Electron Donor Acceptor Interactions	Coatings and Films	Peptide Growth Factors
Mammalian Gametogenesis and Embryogenesis	Organic Geochemistry				Electronic Materials

Applications

Scientists are invited to submit applications for attendance at the Gordon Research Conferences. An application blank is on page 1199 and may be submitted to Dr. Alexander M. Cruickshank, Director, Gordon Research Conferences, University of Rhode Island, Kingston, Rhode Island 02881-0801.

leader): C. Teague, "Applications of scanning tunneling microscope"; G. Sigel, "Fiber optic sensors for materials evaluation."

Nuclear Chemistry

Colby-Sawyer College (N)

V. E. Viola, chairman; D. B. Fossan, vice chairman.

16 June. (M. Blann, discussion leader): G. F. Bertsch, "The Vlasov-Uehling-Uhlenbeck theory of intermediate-energy collisions"; G. R. Young, "High energy gamma ray emission"; H. Nifenecker, "High energy gamma ray production and heavy-ion reactions." (H. Stocker, discussion leader): C. Gregoire, "Self-consistent disposition of intermediate-energy heavy-ion collisions"; C. K. Gelbke, "Emission temperatures in intermediate energy nucleus-nucleus collisions."

17 June. (O. Hansen, discussion leader): D. H. Boal, "Simulations of nuclear fragmentation"; B. V. Jacak, "Multifragmentation studies with the plastic ball/wall"; B. Jakobsson, "The experimental hunt for detailed information about reaction mechanisms in intermediate-energy nucleus-nucleus collisions." (Z. Fraenkel, discussion leader): G. J. Wozniak, "Equilibrium emission of intermediate-mass fragments at 8.5 to 40 MeV/u"; R. Korteling, "Coincidence studies of complex fragment emission in proton-induced reactions."

18 June. (C. Ngo, discussion leader): L. Remsberg, "Nuclear stopping power measurements"; U. Jahnke, "Energy dissipation and linear momentum transfer in heavy-ion reactions from neutron multiplicity experiments"; H. Weidenmuller, "Quantum chaos in statistical nuclear theory." (Discussion leader to be announced): P. Nolan, "Fusion studies with crystal ball techniques"; R. Vandenbosch, "Spin distributions in fusion reactions."

19 June. (Discussion leader to be announced): A. J. Sierk, "Dissipative collective dynamics"; J. Leigh, "Heavy-ion-induced fission: Can we measure angular-momentum-dependent fission barriers?" J. V. Kratz, "Angular distributions in quasi-fission reactions." (D. B. Fossan, discussion leader): D. Habs, "Positron emission in very heavy-ion collisions"; W. H. Zoller, "Sampling Hawaiian volcanos: Mantle-derived vulcanism."

20 June. (A. Gobbi, discussion leader): J. Randrup, "Damped collisions"; H. Breuer, "Excitation energy division in damped collisions."

Nuclear Proteins, Chromatin Structure and Gene Regulation

Tilton School

D. E. Olins, co-chairman; A. L. Olins, co-chairman; W. T. Garrard, vice chairman.

30 June–4 July. P. H. von Hippel, discussion leader: Protein-DNA interactions. B. Alberts, discussion leader: DNA topology and topoisomerases. M. A. Gorovsky, discussion leader: Histone heterogeneity. W. C. Earnshaw, discussion leader: Higher order structure. W. T. Garrard, discussion leader: Active and inactive genes. S. C. Elgin, discussion leader: Active chromatin. B. Sollner-Webb, discussion leader: Transcription. R. T. Simpson, discussion leader: Supranucleosomal organization of chromatin. W. M. Le Stourgeon, discussion leader: Ribonucleoproteins and RNA processing. Speakers and invited discussants include: C. D. Allis, A. L. Beyer, M. Birnstiel, E. M. Bradbury, C. R. Cantor, I. Davidson, H. Drew, G. Dreyfuss, G. Felsenfeld, S. Gasser, L. Gerace, S. Goodbourn, P. J. Grabowski, B. Graves, M. Grunstein, G. Hager, B. A. Hamkalo, J. Langmore, J. Lis, L. F. Liu, T. E. Martin, A. Mirzabekov, E. N. Moundrianakis, T. Pederson, D. E. Pettijohn, T. J. Richmond, K. P. Schafer, U. Scheer, M. B. Schmid, J. Sedat, R. Sternglanz, K. E. van Holde, A. Varshavsky, J. R. E. Wells, J. Widom, A. Worcel, C. Wu.

Poster facilities will be available.

Nuclear Structure

Tilton School

Malcolm Harvey, chairman; Gary Crawley, vice chairman.

7 July. B. A. Brown, "Isovector/isoscalar matrix elements for light nuclei"; R. F. Caston, "The $N_p^{\wedge}$, $N_n^{\wedge}$ scheme: A new unified approach to nuclear structure"; J. C. Hardy, "The first experiments on the Chalk River Tandem/Superconducting Cyclotron Facility." D. Rowe, "Microscopic theory of collective motion"; W. Benenson, "Temperature measurements in nuclear collisions."

8 July. A. Bouyssy, "Dirac phenomenology with vector bosons"; J. Delorme, "Meson exchange currents"; R. Gilman, "Double charge exchange." (J. Negele, chairman): J. K. Wambach, "Damping of giant resonances"; J. Carroll, "Subthreshold K-production in HI reactions."

9 July. W. Broniowski, "Baryon structure in a soliton model"; D. Schwalm, "Positron production in heavy ion collisions"; A. M. Green, "Anti nucleons." M. Zirnbauer, "Lattice gauge in the Hamiltonian formalism"; R. Lindgren, "Electron scattering."

10 July. W. Haxton, "Parity mixing in nuclear states"; R. G. H. Robertson, "Neutrino physics"; (speakers and subjects to be announced).

11 July. J. Mougey, "Magnetic spectrometers at CEBAF"; (speakers and subjects to be announced).

Nucleic Acids

New Hampton School

Elizabeth Blackburn, co-chairman; Christine Guthrie, co-chairman.

9 June. Transposition and site-specific recombination (Howard Nash, discussion leader): Robert Haselkorn, Mel Simon. DNA: Protein assemblies (Harrison Echols, discussion leader): Aaron Klug, Tom Kelly, Allan Spradling.

10 June. Transcription mechanisms (Peter Geiduschek, discussion leader): Don Crothers, Robert Tjian. Regulation of gene expression I (Keith Yamamoto, discussion leader): Alan Hinnebusch, Mark Ptashne, Jim Wang.

11 June. RNA processing mechanisms (Tom Cech, discussion leader): John Abelson, Craig Peebles, Robert Symons. RNA: Protein assemblies (Peter Walter, discussion leader): Gideon Dreyfuss, Olke Uhlenbeck.

12 June. Translation mechanisms (Mike Yarus, discussion leader): Phil Farabaugh, Robert Thompson. Genes in development (Bruce Alberts, discussion leader): Sydney Brenner, Robert Horvitz, Barbara McClintock.

13 June. Regulation of gene expression II (Joan Steitz, discussion leader): Katherine Anderson, Barry Polisky.

Organic Geochemistry

Holderness School

John E. Zumberge, chairman; John M. Hayes, vice chairman.

18 August. Early diagenesis (Cindy Lee, discussion leader): John Hedges, "Comparative diagenesis of major biochemicals near the sediment-water interface of a coastal marine bay"; Susan Henrichs, "Investiga-

tions of the decomposition of organic matter in sediments using radiolabeled organic substances"; Daniel Repeta, "Early diagenesis of carotenoids in recent marine sediments." Microbial influence (Ron Oremland, discussion leader): Michael Klug, "Intermediary metabolism of organic compounds in sediments"; Gary King, "Methane precursors in marine sediments: The role of osmoregulatory amines."

19 August. Biological markers (James Maxwell, discussion leader): Pierre Albrecht, "Molecular studies of sulphur compounds, resins, and asphaltenes"; Robert Alexander, "Thermal history of sediments from biological markers and related compounds"; Simon Brassell, "Lipid biological markers as indicators of climatic change during the quaternary. Oil exploration (Jack Williams, discussion leader): Detlev Leythaeuser, "Relation between generation and expulsion/migration of petroleum in the Brae area, Central North Sea"; Wilson Orr, "Importance of sulfur in Monterey oil."

20 August. Stable isotopes (Zvi Sofer, discussion leader): George Claypool, "Does sedimentary organic carbon record variable marine photosynthetic ^{13}C fractionation during the Phanerzoic?" Steve Macko, "Stable isotope studies on the molecular level"; Martin Schoell, "Hydrogen isotope systematics in petroleum." Organic/ore relationships (Joel Leventhal, discussion leader): Roger Macqueen, "Organic geochemistry of Pine Point Pb/Zn deposits, Northwest Territories, Canada"; Patrick Landais, "Organic geochemistry of epigenetic U deposits."

21 August. Hydrous pyrolysis (Tom Hoering, discussion leader): Michael Lewan, "Kinetics of petroleum generation as determined by hydrous pyrolysis"; Baruch Spiro, "Hydrous pyrolysis experiments on whole rocks and separated kerogens"; Marc Monthioux, "Suitability of some artificial maturation methods as tested with a homogeneous coal series." Amino acid geochemistry (Richard Mitterer, discussion leader): Jeffrey Bada, "Amino acid racemization: Mechanisms and application"; Richard Mitterer, "Hydrocarbon potential of carbonate sediments: Role of amino acids."

22 August. Basin modeling (Dietrich Welte, discussion leader): (Alan Burnham, "Modeling hydrocarbon formation in the Unita Basin"; Dietrich Welte, "Temperature aspects as derived from basin evolution and kinetic modeling."

Organic Reactions and Processes

New Hampton School

Louis S. Hegedus, chairman; Phillip Lau, vice chairman.

14 July. Barry M. Trost, "Cyclization via isomerization"; Dennis P. Curran, "Recent advances in organic synthesis via free radical reactions." John Swenton, "Anodic oxidation chemistry in organic synthesis."

15 July. A. I. Meyers, "Asymmetric C–C bond forming reactions"; Art Schultz, "Enantioselective control in reduction-alkylation of aromatic and heterocyclic ring systems." Dieter Seebach, "What can a synthetic chemist learn from x-ray structures?"

16 July. Lendon N. Pridgen, "Organotransition metals as catalysts in the synthesis of pharmacologically active heterocycles and as mediators in controlling the stereochemistry of a chiral aldol reaction"; Koichi Narasaka, "Asymmetric induction in acyclic systems." Victor Snieckus, "Metalation reactions and process of synthetic utility."

17 July. Paul Reider, "The complex problems of small molecules: Synthesis of the rationally designed antimicrobial fludalanine"; Iwao Ojima, "New asymmetric syntheses with homochiral β-lactams and azetidines." Paul Greico, "Aqueous imminium ion chemistry."

18 July. V. Rautenstrauch, "Carbonylation of alkoxides to give carboxylates"; Scott Denmark, "New synthesis methodology: Preparative, mechanistic and stereochemical aspects."

Organometallic Chemistry

Proctor Academy

Maurice Brookhart, chairman; David Singleton, vice chairman.

11 August. J. A. Gladysz, "New organometallic chemistry of cyclopentadienyl rhenium complexes: Reactions of coordinated aldehydes and ketones"; W. D. Wulff, "Transition metal carbene complexes in organic synthesis"; A. Mayr, "Synthesis and reactivity of transition metal-carbon triple bonds"; R. H. Grubbs, "Titanium intermediates in organic and polymer synthesis"; T. J. Katz, "Metal-mediated transformations of acetylenes and olefins."

12 August. M. Poliakoff, "Infrared spectroscopy of reactive intermediates in organometallic chemistry"; D. M. Cox, "Transition metal clusters: Size-dependent chemical and electronic properties"; J. C. Green, "Electronic structure, bonding and reactivity"; P. P. Power, "Unusual bonding and coordination numbers in main group elements"; R. A. Jones, "Recent developments in the steric effect of bulky phosphido ligands in organometallic chemistry"; P. Fagan, "Carbon-carbon bond forming reactions in complexes of ruthenium(II)."

13 August. J. E. Bercaw, "Some aspects of the chemistry of permethylscandocene and permethyltantalocene"; C. P. Kubiak (subject to be announced); H. Werner, "Links between metal basicity and C-H activation"; D. Seyferth, "Organosilicon preceramic polymers: Birth, death and transfiguration"; H. R. Allcock, "The organometallic chemistry of phosphazenes."

14 August. H. Felkin, "Activation of C-H bonds by soluble transition metal systems"; W. D. Jones, "Recent advances in C-H bond activation and functionalization"; O. Eisenstein, "Theoretical study of agostic alkyl groups: Relation to C-H activation"; J. F. Roth, "Future horizons in catalysis."

15 August. G. Doyle, "New developments in the chemistry of mixed copper/iron clusters"; J. W. Faller, "Selectivity and the reactivity of higher oxidation state organometallics"; J. Schwartz, "New chemistry of oxide-bound organometallic complexes."

Participants desiring to display a poster should send titles to Dr. David Singleton, Shell Development Company, Westhollow Research Center, Houston, TX 77001.

Orientational Disorder in Crystals

Tilton School

J. M. Rowe, chairman; R. O. Simmons, vice chairman.

18 August. (R. M. Pick, discussion leader): V. Heine, "Physical mechanisms leading to incommensurate structures"; J. P. Pouget, "Anion orientational phase transitions in organic conductors and superconductors." (M. Lambert, discussion leader): Y. Yamada, "Kinetics of commensurate-incommensurate phase transitions"; M. Conradi, "Low frequency excitations in incommensurate biphenyls."

19 August. (W. Press, discussion leader): M. Bee, "Molecular motions in orientationally disordered organic crystals"; A. Loidl, "Order-disorder transitions in KCN KBr mixed crystals." (J. A. Morrison, discussion leader): M. Chan, "Thermodynamic studies of orientational ordering transitions in physisorbed monolayers"; H. Zabel, "Dynamics of molecules intercalated in graphite."

20 August. (G. S. Pawley, discussion leader): R. Impey, "Order-disorder phase transitions in ionic molecular crystals"; M. Dove, "Computer simulation of the effects of intermode couplings on dynamics and phase transitions." (H. Chihara, discussion leader): J. N. Sherwood (subject to be announced); H. Strauss, "A new type of order-disorder transition in ammonium compounds studied by vibrational spectroscopy."

21 August. (F. Luty, discussion leader):

E. Courtens, "Freezing and transition dynamics in mixed $(Rb)_x$ $(NH_4)_{1-x}H_2PO_4$ and related crystals"; M. Descamps, "The orientationally glassy state of adamantane derivatives." (C. W. Garland, discussion leader): J. P. Ryckaert, "Computer simulation of the structure and dynamics of long chain alkanes"; D. Schiferl, "Orientational phase changes in simple molecular systems at very high pressure."

22 August. (A. C. Anderson, discussion leader): R. O. Pohl, "Low temperature properties of orientationally disordered systems"; P. Sokol, "Field cooling of a quadrupolar glass."

Particle Solid Interaction

Holderness School

Walter M. Gibson, chairman; John A. Davies, vice chairman.

14–18 July. Ion channeling revisited: Reversibility, Feeding in., Ion surface interactions; sputtering, ion-assisted growth, energy loss and scattering, Secondary electron emission, Inelastic excitations. Applications: New approaches to old problems including very low energy implantation, very high current implantations, new facilities. Speakers will be announced.

Peptide Growth Factors

St. Paul's School

Judson J. Van Wyk and W. Jackson Pledger, co-chairmen; Harold Moses, vice chairman.

11 August. Biogenesis of peptide growth factors (Ralph Bradshaw, discussion leader): Axel Ullrich, Anthony Burgess, Graeme I. Bell. Transmembrane signaling (Michael Czech, discussion leader): Joseph Schlessinger, Steven Jacobs, Michael Waterfield.

12 August. Postreceptor mechanisms of growth factors A: Early events (Raymond Erickson, discussion leader): Gordon Gill, Jacques Pouyssegur, Lutz Birnbaumer. Postreceptor mechanisms of growth factors B: Intracellular mediators and control of the cell cycle (Renato Baserga, discussion leader): Arthur Pardee, Charles Stiles, Daniel Nathans.

13 August. Transforming growth factors and negative controls on cell growth (Harold Moses, discussion leader): Anita Roberts, Joan Massague, Rik Derynck. Oncogenes as related to cell growth (Stuart Aaronson, discussion leader): Robert Weinberg, Michael Wigler, Martin Rosenberg.

14 August. Hormonal control of differentiation and fetal growth (Ora M. Rosen, discussion leader): A. Joseph D'Ercole, Benny Shiloh, Inder Verma. Paracrine and autocrine modes of action (Dan Bowen-Pope, discussion leader): David Clemmons, Carl Heldin, Kendall A. Smith.

15 August. Role of growth factors in normal and pathological conditions (Russell Ross, discussion leader): Frank Cuttitta, Mike Sporn, Stephen Hauschka.

Photonuclear Reactions

Holderness School

Lawrence S. Cardman, chairman; Donald R. Lehman, vice chairman.

4–8 August. S. K. Platchkov, "Electron scattering and few nucleon systems"; V. R. Pandharipande, "Many body theory of light nuclei and nuclear matter"; J. M. Jourdan, "$^1H + {}^2\vec{H}$ radiative capture and the ^3He D-state"; R. Arnold, "The deutron form factor at large q^2"; J. D. Walecka, "Quantum hadrodynamics"; E. Gabathuler, "Theoretical implications of new results from the European muon collaboration"; J. H. Koch, "Electro- and photoproduction of pions from nuclei"; J. Miller, "Coherent photon scattering near the delta"; S. Homma, "(γ, p) Experiments on nuclei in the delta region"; T. Terasawa, "Photoabsorbtion in the quasideuteron region"; N. d'Hose, "Photon absorption of ^3He by one, two and three nucleons"; A. Magnon, "Longitudinal-transverse separation in exclusive electron scattering and medium effects in nuclei"; W. Bertozzi, "Elaborations on the (e,e′) reaction process by (e, e′p) coincidence measurements"; P. deWitt Huberts, "Common and/or complementary features in the (e, e′p) knockout and (d,^{3}He) pickup reaction"; C. N. Papanicolas, "Evidence of partial occupancy of orbits in electron scattering"; J. Speth, "Nuclear structure studies with large momentum transfer"; G. J. Wagner, "Occupation probabilities and absolute spectroscopic factors from a combined analysis of transfer reactions and electron scattering"; S. J. Wallace, "Recent developments in providing a theoretical basis for Dirac phenomenology"; J. Friar, "Relativistic effects of nuclei"; R. Neuhausen, "(e, e′x) experiments in the region of the giant resonances"; D. Bohle, "The study of new elementary excitation modes in nuclei"; M. Cavinato, "RPA nuclear continuum in (e, e′x) reactions at low momentum transfer"; A. van der Woude, "Decays of the giant multipole resonances"; T. Ferbel, "Quark transitions in the coulomb field of a nucleus"; J. S. Greenberg, "What is the message of the narrow positron peaks observed in superheavy collision systems?" S. Popov, "Internal target experiments in electron rings"; B. Mecking, "A large acceptance detector for high energy electromagnetic physics"; H. Grunder, "Future facilities for electromagnetic nuclear physics"; D. Drechsel, "Conference summary/future prospects."

Physical Electrochemistry

Colby-Sawyer College (S)

Norman Hackerman, chairman; J. Ross Macdonald, vice chairman.

11 August. Electrical double layer (J. Ross Macdonald, discussion leader): W. R. Fawcett, Jerry Goodisman, Wilford N. Hansen, Roger Parsons.

12 August. Ionic conduction in solids (J. Ross Macdonald, discussion leader): John Bates, Abraham Clearfield, Mark Ratner, Duward Schriver.

13 August. Organic electrochemistry (Manuel M. Baizer, discussion leader): N. L. Weinberg, "The carbon electrode surface states in organic electrosynthesis"; R. D. Little, "Stereochemical aspects of intramolecular reduction coupling." (R. D. Little, discussion leader): M. Dale Hawley, "The preparation and study of carbene and nitrene anion radicals"; William E. Geiger, Jr., "Structural rearrangement of organometallics in electron-transfer reactions."

14 August. Physical electrochemistry (J. O'M. Bockris, discussion leader): B. E. Conway, "Entropic and enthalpic components of the symmetry factor for H^+ discharge from various proton donors"; E. Yeager, "Advances in the electrocatalysis of oxygen reduction." A. Damjanovic, "Rate-determining steps in oxygen evolution"; M. Weaver, "Molecular models for the pre-exponential factors in electrochemical reactions."

15 August. (Norman Hackerman, discussion leader): Elton J. Cairns, "High-temperature electrochemistry"; Howard Riess, "Fermi-level, redox potentials, absolute hydrogen electrode potential, and other pertinent matters."

Physical Metallurgy

Proctor Academy

Simon C. Moss, chairman; David Pope, vice chairman.

21 July. (D. Turnbull, discussion leader): J. D. Gunton, "Universality in first order transition kinetics"; J. W. Cahn, "On the growth of quasicrystals." (J. Peisl, discussion leader): J. D. Axe, "Influence of surfaces on phase transitions"; J. M. Sanchez, "The effect of planar defects on first order phase transitions."

22 July. (F. Spaeten, discussion leader): D. Shechtman, "Quasicrystallinity: Experi-

mental evidence"; D. Gratias, "Some aspects of crystal structure determination in the quasicrystalline phases"; M. Kuriyama, "Atomic scale model for rapidly cooled Al-Mn alloys with icosahedral symmetry." (K. Urban, discussion leader): D. Nelson, "Order in metallic glasses and quasicrystals"; V. Elser, "Microscopic structure of quasicrystals."

23 July. (B. Gyorffy, discussion leader): M. A. Krivoglaz, "On the origin of heterogeneities in solid solutions above their ordering temperatures"; S. A. Werner, "Short-range order and magnetism in alloys." (J. B. Cohen, discussion leader): J. Harada, "Optical-phonon-like displacements about carbon vacancies in disordered $NbC_{0.72}$"; W. Schweika, "Local order and interatomic interactions in alloys via scattering studies and Monte Carlo methods."

24 July. (H. Sato, discussion leader): G. Van Tendeloo, "Commensurate-incommensurate transitions in long period structures via high resolution electron microscopy"; O. Terasaki, "Study of incommensurate alloy structures by high resolution electron microscopy"; D. deFontaine, "Spinodal ordering beyond the Lifschitz point." (P. Bak, discussion leader): R. Penrose, "Quasicrystals: Is their existence mysterious?"

25 July. (S. M. Shapiro, discussion leader): Y. Yamada, "Microscopic model of bcc-based Martensitic phases: Soft phonons and modulated lattice relaxation"; R. Bruinsma, "Polytypism in Martensitic materials"; R. J. Borg, "Mössbauer study of the fcc-hcp transition in Fe-Co alloys."

There will be a poster session on Tuesday, 22 July, from 4:30 to 6:00 p.m. to present recent experimental results on quasicrystals and modulated phases. Twenty-five poster presentations can be accepted. For this session please apply, with a brief abstract, directly to the chairman at the same time you apply independently to the Gordon Research Conferences Office. S. C. Moss, Department of Physics, University of Houston, University Park, Houston, TX 77004 (posters only).

Plant Molecular Biology

Proctor Academy

C. S. Levings III, chairman; T. C. Hall, vice chairman.

9 June. (J. L. Key, discussion leader): M. A. Schuler, "Plant P-450 monoxgenases"; D. F. Klessig, "Pathogenesis-related proteins of tobacco." (M. Freeling, discussion leader): A. Clarke, "Molecular aspects of self-incompatibility"; R. B. Meagher, "Diverse actin genes and proteins in soybeans and petunia."

10 June. (W. J. Peacock, discussion leader): J. Ellis, "Analysis of anaerobic promoter of plant genes"; N. Federoff, "Maize transposable elements"; W. Taylor, "Nuclear-chloroplast regulatory interactions." (E. M. Tobin, discussion leader): N.-H. Chua, "Cell-specific and light-inducible enhancers"; P. H. Quail, "Phytochrome and nuclear gene expression."

11 June. (B. Larkins, discussion leader): B. Goldberg, "Control of plant gene expression"; T. Guilfoyle, "Transcription regulation of specific genes with auxins and other agents." (T. Hall, discussion leader): L. Dure, "Characteristics of gene sets expressed in cotton embryogenesis"; W. Thompson, "Gene expression in greening seedlings."

12 June. (M.-D. Chilton, discussion leader): V. Walbot, "Expression of genes electroplated into maize"; R. A. Schilperoot (subject to be announced); I. Potrykus, "Direct gene transfer." (R. Fraley, discussion leader): R. N. Beachy, "Expression of cistrons of TMV as chimeric genes in transgenic plants and their role in virus resistance"; J. Scheel (subject to be announced).

13 June. (C. S. Levings III, discussion leader): L. Bogorad, "Maize chloroplast genes—transcription and the organization of their protein products"; W. Gruissem, "Regulation of plastid gene expression."

Plasma Chemistry

Tilton School

Hendrik J. Oskam, chairman; Joachim Heberlein, vice chairman.

11 August. Industrial plasma processing needs (E. Pfender, A. Garscadden, discussion leaders): F. D. Lemkey, "A metallurgist's view of plasma material processing"; (speaker and subject to be announced). Diagnostics (A. W. Dreyfus, P. Fauchais, discussion leaders): M. McIlwain, "Holographic diagnostics of high-pressure plasma jets"; T. Oka, "Diagnostics of weakly ionized plasmas by infrared laser spectroscopy."

12 August. Plasma synthesis and modeling of volume processes (K. Akashi, H. Suhr, discussion leaders): I. Plumb, "Free radical chemistry in the plasma etching process"; P. H. McMurry, "Nucleation and particle growth." Poster session.

13 August. Plasma metallurgy and rapid solification (D. Apelian, N. Barcza, discussion leaders): M. Boulos, "RF plasma spraying"; S. Safai, "Dependence of plasma sprayed coating properties of plasma parameters." Etching (R. A. Gottscho, discussion leader): Y. Horiiki, "Recent progress on the anode coupled magnetron discharge under 10^{-3} torr"; G. W. Hills, "Application of plasma etching to advanced CMOS devices."

14 August. Deposition (S. Morita, M. Wertheimer, discussion leaders): J. F. Evans, "The role of the plasma sheath in low-pressure polymerizations"; E. Kay, "Properties of polymer films containing metal clusters." Thermal plasma generation and applications (T. N. Meyer, D. McRae, discussion leaders): T. Yoshida, "Plasma synthesis of ceramics with the hybrid torch"; D. Neuschutz, "Development of three-phase AC transferred arc plasma system for metallurgical applications."

15 August. Nontraditional etching and deposition (V. M. Donnelly, discussion leader): Tohming Lu, "Cluster deposition of thin films"; W. Holder, J. O. Chu, R. M. Osgood, "Laser assisted plasma etching."

Polymer Liquid Crystals

Colby-Sawyer College (S)

Roger S. Porter, chairman; William R. Krigbaum, vice chairman.

7–11 July. R. B. Blumstein, "Flexible main chain liquid crystalline polymers"; E. Samulski, "Orientational order in deformed polymer melts"; C. Noel, "Characterization of thermotropic liquid crystal polyesters"; S. Stupp, "Magnetic and electric orientation of main chain liquid crystalline polymers"; R. W. Lenz, "Two phase behavior and the concept of degree of liquid crystallinity in thermotropic copolyesters"; G. Calundann, "Industrial development of thermotropic polyesters"; S. Nozawa, "A new synthesis and properties of liquid crystal polymers of PET with high content of PHBA"; A. E. Zachariades, "Rheo-optical studies of liquid crystalline polymers"; L. L. Chapoy, "Control of morphology: Effect on photophysics and photoconductivity"; A. Windle, "The lyotropic properties of cellulose nitrate"; J. H. Wendorff, "Structure and properties of rigid main chain liquid crystal polymers"; A. C. Griffin, "Model compounds for liquid crystalline polymers"; H. Finkelmann, "Stress-induced orientation of liquid crystal elastomers"; P. Zugenmaier, "Spherulitic growth in liquid crystal solutions of cellulose tricarbanilate."

Polymer Physics

Proctor Academy

Hyuk Yu, chairman; William W. Graessley, vice chairman.

14 July. (William J. MacKnight, discussion leader): R.-Joon Roe, "Phase transition and separation in polymer blends containing block copolymers"; Dennis J. Massa, "Mis-

cibility and phase separation in polymer blends by probe technique"; Frank Bates, "Critical phenomena in polymer melts." (David L. Allara, discussion leader): C. S. P. Sung, "Polymer surface characterization by FT-IR/ATR and photoacoustic dichroism"; Wilmer G. Miller, "Dynamic and thermodynamic studies on vinyl polymers at oxide interfaces."

15 July. (William W. Graessley, discussion leader): Invited posters. (Benjamin Chu, discussion leader): Kurt Binder, "Dynamics of phase separation in polymer mixtures"; Charles C. Han, "Kinetics of spinodal decomposition in polymer blends"; Takeji Hashimoto, "Scaling analysis on demixing dynamics of binary polymer mixtures."

16 July. (Jacob Klein, discussion leader): Edward J. Kramer, "Tracer diffusion and interdiffusion in polymers"; Hans Sillescu, "Diffusion of nonlinear polystyrene molecules in different matrices"; James E. Martin, "Configurational and translational diffusion of polymers in semidilute solutions." (Karl F. Freed, discussion leader): Yoshitsugu Oono, "Statistical dynamics of polymer solutions"; Jeffrey Skolnick, "Equilibrium and dynamic properties of dense polymer systems: Recent Monte Carlo results."

17 July. (Philip A. Pincus, discussion leader): Isaac C. Sanchez, "Theory of microphase separation in graft and star copolymers"; J. F. Joanny, "Spreading of polymers on a solid surface"; O. F. Olaj, "Concentration dependence of model chain properties as a function of thermodynamic conditions." (John D. Hoffman, discussion leader): Eugene Helfand, "Polymer interfaces"; Richard S. Stein, "Controlled morphology through polymer phase separation."

18 July. (William W. Graessley, discussion leader): Hiroshi Fujita, "Second and third virial coefficients for binary polymer polystyrene mixtures in benzene"; Matthew Tirrell, "Forces between adsorbed layers of block copolymers and polyelectrolytes."

Polymers

Colby-Sawyer College (N)

Bill M. Culbertson, chairman; James E. McGrath, vice chairman.

30 June. (Virgil Percec, discussion leader): Mitsuo Sawamoto, "Living cationic polymerization for the synthesis of new functional polymers". (Anne B. Padias, discussion leader): Joseph P. Kennedy, "Living carbocationic polymerizations." (James E. McGrath, Dana Garcia, discussion leaders): Poster session A. (Mark M. Green, discussion leader): Yoshio Okamoto, "Asymmetric polymerization of methacrylates and optical resolution on the polymers." (John A. Ewen, discussion leader): Walter Kaminsky, "Polymerization of olefins with chiral zirconocene–catalysts and aluminoxane."

1 July. (Subash C. Narang, discussion leader): Robert H. Grubbs, "Polymers synthesis through stable titanium intermediates." (Bernard Gordon, discussion leader): Russell A. Gaudiana, "Soluble low-melting thermotropic polyesters"; Dennis G. H. Ballard, "Control of crystallinity by copolymerization." (Bruce H. Bersted, discussion leader): Jacques E. L. Roovers, "Viscoelastic properties of linear, star and ring polymers." (Jeffrey T. Koberstein, discussion leader): John Blackwell, "X-ray studies of the structure of thermotropic aromatic polyesters."

2 July. (Timothy P. Lodge, discussion leader): Edwin L. Thomas, "Microstructural characterization of multiphased polymer systems by electron microscopy." (Shaw Ling Hsu, discussion leader): John F. Rabolt, "The determination of solid-state phase transition kinetics by IR and Raman techniques." (James E. McGrath, Dana Garcia, discussion leaders): Poster session B. (Nathan D. Field, discussion leader): Garth L. Wilkes, "Ceramers—a hybrid material of polymers and sol gel systems"; Robin L. Garrell, "Characterization and applications of uncharged polymer microspheres"; David A. Simpson, "Mechanism of image formation in a plasma developable photoresist"; Richard T. Ingwall, "Halogram recording with photopolymer systems."

3 July. (Alan D. English, discussion leader): Colin A. Fyfe, "Solid-state NMR investigations of polymer structures and dynamics." (P. Anne Hiltner, discussion leader): Ioannis V. Yannas, "Polymeric templates induce regeneration of skin and nerve." (Robert Zand, discussion leader): Jacqueline K. Barton, "Targeting sites along the DNA with chiral metal complexes."

4 July. (Garth L. Wilkes, discussion leader): Stephen Mazur, "Electrochemistry of polyimide films, deposition of continuous metal interlayers"; Philip E. Garrou, "Stability and reactivity of polymer supported transition metal catalysts."

Postharvest Physiology

Holderness School

Alley E. Watada, chairman; William J. Bramlage, vice chairman.

7 July. Cell wall carbohydrate metabolism during fruit maturation and ripening (D. Nevins, chairman): K. Gross, "Fruit cell wall compositional changes"; R. Pressey, "Regulation of polygalacturonase activities." Hormonal interactions involved in fruit maturation and ripening (J. Anderson, chairman): (speakers and subjects to be announced).

8 July. Molecular biology in postharvest research (A. Matoo, chairman): R. Fischer, "Induction of gene expression by ethylene during tomato fruit ripening." Calcium regulation of fruit softening and senescence (W. Bramlage, chairman): D. Richardson, "Calcium effects on ethylene physiology and fruit softening"; B. W. Pooviah, "Molecular mechanisms of calcium action."

9 July. Physiological and biochemical effects of controlled atmosphere (A. Kader, chairman): D. Blanpied, "Recent developments in technology of atmospheric modification"; T. Solomos, "Low oxygen effects on respiratory metabolism." Regulation of hydrolytic enzymes in soft rot pathegenesis (J. Wells, chairman): (speakers and subjects to be announced).

10 July. Physiological and biochemical effects of temperature and water stress (A. E. Watada, chairman): B. Patterson, "Cold sensitivity and chilling injury, a complex interrelationship." Postharvest physiology of flowers (M. Reid, chairman): A. Halaby, "Hormonal factors regulating flowering"; Van Doorin, "Environmental factors affecting flower life."

11 July. Future trend in postharvest research (G. Hobson, chairman): M. Sherman, "Application of fundamental research."

A poster session will be scheduled on the topic of postharvest physiology and technology. If you wish to present a poster, please supply the title, the names of the authors, and a brief abstract along with the application for attendance.

Proteoglycans

Proctor Academy

Vincent Hascall, chairman; Larry Rosenberg, vice chairman.

7 July. (Roger Mason, discussion leader): Tony Ratcliffe, "Immunochemistry of cartilage proteoglycans"; Nancy Schwartz, "Synthesis and structure of cartilage proteoglycans in hybrid chondrocytes"; Marvin Tanzer, "Complementary DNA and sequence analyses for chick cartilage proteoglycan core protein." (Bruce Caterson, discussion leader): Peter Neame, "Is cartilage link protein a proteoglycan?" Kurt Doege, "Link protein complementary DNA sequence reveals a tandemly repeated protein structure"; Paul Goetinck, "Complementary DNA and genomic DNA for chick cartilage matrix protein."

8 July. (Magnus Hook, discussion leader): Edward Conrad, "Structural analysis of heparan sulfate in hepatocytes"; Lars Ake

Fransson, "Properties of heparan sulfate proteoglycans from skin fibroblasts"; Merton Bernfield, "Cell surface proteoglycan as a matrix receptor for epithelial cells." (John Hassell, discussion leader): Michael Kinsella, "Metabolism of proteoglycans in wounded and confluent aortic endothelial cell cultures"; Jennifer Stow, "Basement membrane heparan sulfate proteoglycans produced by kidney and liver cell lines."

9 July. (Dick Heinegard, discussion leader): Larry Rosenberg, "Properties of dermatan sulfate proteoglycans from mature articular cartilage"; Kathryn Vogel, "Comparison of small proteoglycans from bovine tendon, bone and cartilage": Hans Kresse, "Biosynthesis, secretion and endocytosis of dermatan sulfate proteoglycans by skin fibroblasts." (Linda Sandell, discussion leader): Tom Krusius, "Cloning of proteoglycan core proteins"; Marian Young, "Characterization of a cDNA encoding the small proteoglycan of bone."

10 July. (Timothy Hardingham, discussion leader): Barry Preston, "Movement of proteoglycans, small molecules and cells through glycosaminoglycan matrices"; Ian Nieduszynski, "Applications of light scattering and nuclear magnetic resonance to proteoglycan research"; Alice Maroudas, "Physical chemical properties and functional behavior of cartilage." (Sakaru Suzuki, discussion leader): Bjorn Olsen, "Proteoglycan-light alias type IX collagen."

11 July. (Eugene Thonar, discussion leader): Jeffrey Esko, "Genetic control of proteoglycan synthesis"; Michael Solursh, "Environmental regulation of chondrogenesis"; Saeid Seyedin, "Induction and expression of cartilage macromolecules."

Proteolytic Enzymes and Their Inhibitors

Plymouth State College (S)

Elliott Shaw, chairman; Peter Harpel, vice chairman.

16 June. Proteinase structure and function (I. Rose, discussion leader): M. Makinen, H. Witzel, "Metalloproteinases, carboxypeptidase A mechanism"; P. Bartlett, "Thermolysin, transition-state analog binding"; T. Hofmann, "Aspartyl proteinase mechanism." Cell surface–oriented proteolytic pathways in coagulation (P. Harpel, discussion leader): D. M. Stern, "Endothelial cells and serine proteases"; S. Krishnaswami, "Protein S"; R. Silverstein, "Fibrinolytic system on thrombospondin."

17 June. Proteinase structure and function (A. Erickson, discussion leader): K. Suzuki, S. Pontremoli, "Calcium-activated neutral proteinase, structure and physiological role"; D. Estell, "Protease function altered by genetic engineering, subtilisin"; H. Pannekoek, "Domain function in t-PA." Cell surface proteases and inhibitors: Cellular effects (B. M. Spiegelman, discussion leader): H. Eisen, "Cytotoxic T lymphocyte esterase"; D. Monard, "Glia-derived protease inhibitor with neurite promoting activity"; J. Baker, "Protease nexins."

18 June. Cell migration and connective tissue turnover (E. Reich, discussion leader): J. Quigley, "Tissue remodeling by cancer cells"; F. Woessner, "Proteoglycanases"; J. D. Vassalli, "Cell migration"; E. L. Wilson, "Plasminogen activator in leukemia." Plasma and tissue proteinase inhibitors (J. Travis, discussion leader): V. Turk, "Thiol proteinase inhibitors"; G. Murphy, "Tissue inhibitor of metalloproteinases"; M. Laskowski, Jr., "Semisynthesis of serine protease inhibitors."

19 June. Prohormone processing (D. Smyth, discussion leader): Y. P. Loh, H. Matsuo, "Mammalian processing enzymes"; R. Fuller, "Prohormone-processing endopeptidase from yeast." The roles of cellular and viral-specified proteases in viral infectivity and maturation: H.-D. Klenk, "Influenza viruses"; S. Oroszlan, "Retroviruses."

20 June. Neuropeptide metabolism and protein turnover (E. Shaw, discussion leader): M. Orlowski, S. Snyder, "Endo- and exo-peptidases acting on neuropeptides"; E. Stadtman, I. Rose, "Cytoplasmic protein degradation with substrates targeted by oxidation or ubiquitination."

Posters encouraged.

Pulmonary Biology: Lung Inflammation

Colby-Sawyer College (S)

P. Henson, chairman; B. Smith, vice chairman.

28 and 29 July. Accumulation of inflammatory cells in the lung: Interaction with the endothelium emigration through endothelium and epithelium (P. Henson, discussion leader): J. Hogg, G. S. Worthen, B. Meyrick, M. Tonnesen, E. Cramer, G. Zimmerman, N. Staub.

29 and 30 July. Secretory mechanisms in inflammatory cells, type II epithelial and Clara cells (P. Ward, discussion leader): Z. Werb, E. L. Becker, G. Massaro, M. Williams, A. Dvorak, R. Strunk.

31 July and 1 August. Development, repair and differentiation following pulmonary inflammation: Endothelial, epithelial cells and extracellular matrix interaction (R. Mason, discussion leader): L. Thet, J. Brody, B. Smith, J. L. Pledger, J. McDonald, J. Shannon, R. Boucher.

Purines, Pyrimidines and Related Compounds

Plymouth State College (N)

Leroy B. Townsend, chairman; Robert E. Parks, Jr., vice chairman.

21 July. New developments in the chemistry and biochemistry of purines and closely related compounds (Gertrude E. Elion, discussion leader): Janet Rideout, "3-deazapurines and nucleosides, chemistry and pharmacology"; Peter K. Chiang, "Deaza nucleosides as probes for cellular functions: Predictable and unpredictable responses." Poster session. Posters will be attended from 7:30 to 9:30 p.m. and will then remain on display until the Wednesday evening poster session.

22 July. New developments in the chemistry and biochemistry of pyrimidines and closely related compounds (Wolfgang Pfleiderer, discussion leader): Tohru Ueda, "Synthesis of carbon-bridged pyrimidine cyclonucleosides of biochemical interests"; Meng-Shen Cai, "Synthesis of pyrimidine type nucleosides." Naturally occurring nucleosides and nucleotides and related compounds of unusual structures (Roland K. Robins, discussion leader): Victor Marquez, "Replacement of nucleoside phosphates by their phosphonate isosteres in biologically active metabolites"; Morteza M. Vaghefi, "Synthesis of nucleoside diphosphate sugar analogs as glycosyl transferase inhibitors."

23 July. Nucleoside purine and pyrimidine phosphorylases (Robert E. Parks, Jr., discussion leader): Joanna Stoeckler, "The biochemistry of purine nucleoside phosphorylase"; Steven Ealick, "X-ray crystallography of purine nucleoside phosphorylase"; Richard Tolman, "Chemistry of purine nucleoside phosphorylase inhibitors"; Mahmoud el Kouni, "The biochemistry and preclinical evaluation of inhibitors of uridine phosphorylase and thymidine phosphorylase"; Shih-Hsi Chu, "Chemistry of the uridine phosphorylase inhibitors." Poster session.

24 July. Recent developments in anticancer chemotherapy (John A. Montgomery, discussion leader): Jack A. Secrist III, "Purine nucleosides as potential anticancer agents"; Kyoichi A. Watanabe, "Pyrimidine nucleosides as potential anticancer agents"; Arthur D. Broom, "Multisubstrate inhibitors of thymidylate synthetase." Recent developments in antiparasitic chemotherapy (C. C. Wang, discussion leader): G. R. Revankar, "Purine nucleosides analogs as inhibitors of parasitic infections"; Randy Berens, "Inosine analogs as models for antileishmanial and antitrypanosomal agents."

25 July. Recent developments in antiviral chemotherapy (John C. Drach, discus-

sion leader): Nils G. Johansson: "Acyclic purine nucleoside"; Jean-Louis Imbach, "Xylo- and lyxonucleosides revisited: Synthesis and biological data"; Thomas Spector, "Potentiation of the activity of acyclovir by inhibition of ribonucleoside diphosphate reduction."

Chemistry and Biology of Pyrroles

Brewster Academy

Shigeru Sassa, chairman; Maria Almira Correia, vice chairman.

28 July. Heme: Its transport and interaction with proteins (Ann Smith, discussion leader): Thomas L. Poulos, "Crystal structures and heme-protein interactions"; Richard Galbraith, "Heme receptor." Molecular biology of the enzymes in the heme biosynthetic pathway (James P. Kushner, discussion leader): Gopesh Srivastava, "Regulation of δ-aminolevulinate synthase gene expression in animals": Robert J. Desnick, "Molecular studies of the human heme biosynthetic enzymes"; Harry Dailey, "Molecular biology of the terminal enzymes in the heme biosynthetic pathway."

29 July. Regulation of heme biosynthesis in the liver and in nonhepatic cells (James S. Woods, discussion leader): Premysl Ponka, "Iron transport and regulation of heme synthesis in erythroid cells"; Peter Jordan, "Enzymes of uroporphyrinogen III biosynthesis"; G. Padmanaban, "Interrelationship between heme status and the expression of genes regulating drug metabolism." Heme catabolism (Francesco DeMatteis, discussion leader): S. B. Brown, "The nature of heme oxygenase"; F. Peter Guengerich, "Peroxidative degradation of iron porphyrins and cytochrome P-450 heme".

30 July. Models for hemoprotein systems (David Dolphin, discussion leader): Teddy G. Traylor, "Iron porphyrin catalysts as a model for cytochrome P-450"; Paul Ortiz de Montellano, "Hemoprotein catalysis: Prostheic perimeter"; Yutaka Orii, "Instability of the oxygen compound of cytochrome oxidase." Reduced heme systems (Kevin M. Smith, discussion leader): Jack Peisach, "Ligand binding properties of sulfhemoglobin"; Laura Andersson, "Chlorin and chlorin-containing enzymes"; Russell Timkovich, "Structure of d-type hemes."

31 July. Pyrrole pigments in plants and in bacteria (Samuel I. Beale, discussion leader): Rudolf K. Thauer, "Biosynthesis of coenzyme F_{430}, a nickel porphinoid in methanogenic bacteria"; C. Gamini Kannangara, "δ-ALA-RNA, a cofactor in the biosynthesis of δ-aminolevulinate in greening barley"; J. Kenneth Hoober, "Synthesis of chlorophyllide *b* from protochlorophyllide." Advances in porphyria research (George H. Elder, discussion leader): George Ruth, "The French don't have it all—it just seems like they do"; Hubert de Verneuil, "Characterization of the uroporphyrinogen decarboxylase defect in hepatoerythropoietic porphyria: Relevance to the enzymatic defect present in familial porphyria *Cutanea tarda*."

1 August. New aspects in pyrrole research (Ursula Muller-Eberhard, discussion leader): Louis Ignarro, "Role of porphyrins and metalloporphyrins in the regulation of guanylate cyclase"; Robert F. Pasternack, "Porphyrin interaction with nucleic acids"; Eishun Tsuchida, "Weak coordination of oxygen molecule to porphyrin derivatives embedded in phospholipid liposomes." Poster sessions. In charge: Dr. Almira Maria Correia, Department of Pharmacology and Medicine, University of California, 1210-S, San Francisco, CA 94143. Applicants are encouraged to submit titles/abstracts of their work for poster presentation. In order to maximize discussion as well as to permit as many participants as possible to present their work, the number of posters may have to be limited to one per participant or research team.

Radiation Chemistry

Brewster Academy

M. C. Sauer, Jr., chairman; S. Lipsky, vice chairman.

23 June. (M. Nishikawa, discussion leader): Y. Hatano, "Electron attachment to Van der Waal's molecules"; R. Cooper, "Mechanisms and yields for excited state production in electron irradiated gases." (J. A. LaVerne, discussion leader): D. J. Brenner, M. Zaider, "Track structure—as if it matters to radiation chemistry"; A. Chatterjee, "Radiation damage mechanisms in aqueous DNA solution."

24 June. (B. J. Berne, discussion leader): N. R. Kestner, "Negatively charged clusters of polar molecules and their relevance to electrons in fluids"; C. D. Jonah, "The solvated electron—theoretical and experimental studies of its formation and its structure." (H. A. Schwarz, discussion leader): P. W. Percival, "Muonium chemistry in water and ice"; D. C. Walker, "Muonium, a light isotope of hydrogen."

25 June. (J. K. Baird, discussion leader): G. R. Freeman, "When an electron is crowded by molecules (dense gas) how does it behave?" R. A. Holroyd, "Electron mobility in liquids at high pressure." (P. Neta, discussion leader): D. Meyerstein, "Fast organometallic processes in aqueous solutions. A pulse-radiolytic study"; S. S. Isied, "Directional redox reaction in electron transfer proteins."

26 June. (C. L. Braun, discussion leader): J. M. Warman, "Pulse radiolysis and flash photolysis studies of electronic processes in semiconductor particles"; A. Henglein, "Photo- and radiation chemical studies on small colloidal semiconductor particles: size quantization effects." (S. Lipsky, discussion leader): Poster session.

27 June. (W. A. Bernhard, discussion leader): L. K. Patterson, "Physics and chemistry of excited state processes in monolayers at the air-water interface"; E. J. Land, "Some recent applications of pulsed irradiation techniques to the chemistry of biology and medicine."

Radical Ions

Plymouth State College (N)

Paul J. Krusic, chairman; Marye Anne Fox, vice chairman.

16 June. (Gerhard L. Closs, discussion leader): Heinz D. Roth, "New organic radical cations—homoconjugation, homoaromaticity, and unusual energy surfaces"; Leo Radom, "Distonic radical cations: Structures, stabilities, and unimolecular reactions"; Nathan L. Bauld, "New developments in cation radical cycloadditions." (Paul D. Bartlett, discussion leader): Stephen F. Nelsen, "Tetraalkylolefin, diene, and triene cation radical chain reactions"; Paul G. Gassman, "Cation radicals from photoinduced electron transfer reactions."

17 June. (Lord John M. Tedder, discussion leader): Michael L. Gross, "Reactions of gas-phase aromatic radical cations with olefins, dienes, and alkyl iodides: New routes to alkyl benzenes and indans"; Richard N. McDonald, "The chemistry of coordinatively and electronically unsaturated transition metal complex anion radicals." (David W. Pratt, discussion leader): Eizi Hirota, "Infrared diode laser and microwave spectroscopy of free radicals and molecular ions." (Samir Farid, discussion leader): Arnim Henglein, "Extremely small colloidal semiconductor particles: Electron transfer reactions and size quantization effects"; Donald R. Arnold. "Radical ions in photochemistry."

18 June. (Jeffrey K. S. Wan, discussion leader): Anders Lund, "Radical ions in halogenated matrices: Structure and reactions"; Alexander D. Trifunac, "Transient radical cations in hydrocarbons"; Larry Kevan, "Photoionization in micellar and vesicular frozen solutions." (Kevin Peters, discussion leader): Noboru Mataga, "Dynamic behavior of radical ions produced by photoinduced-electron transfer—picosecond laser

photolysis studies"; Frederick D. Lewis, "Reactions of photogenerated radical ion pairs."

19 June. (William C. Trogler, discussion leader): William E. Geiger, Jr., One- and two-electron processes in organometallic redox reactions"; Christian Amatore, "Mechanisms and reactivity of electrochemically generated radicals from metal carbonyls"; Vernon D. Parker, "Evidence for the participation of unusual reactive intermediates in the reactions of radical ions." (Marye Anne Fox, discussion leaders): Contributed papers.*

20 June. (Philip H. Rieger, discussion leader): Wolfgang Kaim, "New components for photo- and electron-transfer catalysis"; Gerald R. Stevenson, "First and second solution electron affinities and their use for isotope separation"; Donald T. Sawyer, "The reactivity of superoxide ion ($O_2^{\cdot}$) and perhydroxyl radical ($HO_2^{\cdot}$) with organic substrates in aprotic media."

*Conferees wishing to submit papers for short talks and poster sessions should forward the title and abstract of each contribution to: Dr. Marye Anne Fox, Department of Chemistry, University of Texas, Austin, TX 78712-1167.

Chemicals and Materials from Renewable Resources

Tilton School

Robert C. Eckert, chairman; H. I. Bolker, vice chairman.

28 July. (R. H. Atalla, discussion leader): J. S. Gratzl, "Changes in the chromophoric systems of high yield pulps by heat and light-induced processes"; J. D. Green, "Light-induced brightness stabilization of high-yield pulps via photooxidation in alcohols"; C. Heitner, "Aspect of chromophore removal and formation in high lignin content papers." (T. K. Kirk, discussion leader): M. H. Gold, "*Phanerochaete chrysosporium* extracellular peroxidases"; T. Higuchi, "Catabolic pathways and role of ligninases for the degradation of lignin substructure model compounds by white-rot fungi."

29 July. (R. C. Eckert, discussion leader): C. W. Dence, "Myth-conceptions and other vagaries in the chemistry of peroxide decomposition and stabilization"; H. Suss, "Acidic oxygen/peroxide pretreatment prior to the oxygen delignification of kraft pulp"; R. M. Berry, "The significance of the alkaline extraction stage in kraft pulp bleaching." (D. C. Johnson, discussion leader): R. L. Farrell, "Biotechnology applied to lignin degradation and modification"; M. G. Paice, "Interaction of microbes and lignin related chromophores."

30 July. (H.-M. Chang, discussion leader): G. Gellerstedt, "Factors influencing lignin dissolution in kraft cooking"; S. Hosoya, "Residual lignin in pulp and its resistance to delignification"; D. D. Lachenal, "Chemistry and applications of the explosion process." (P. C. Trotter, discussion leader): M. Benziman, "The cyclic diguanylic acid regulatory system of bacterial cellulose synthesis"; T. W. Jeffries, "Regulation and kinetics of xylose fermentations in *Pachysolen tannophilus* and *Candida shehatea*."

31 July. (H. H. Nimz, discussion leader): U. Westermark, "Variations in lignin structure and its significance to pulping and bleaching"; J. R. Obst, "Hardwood lignin reactivity in chemical pulping systems"; T. J. Fullerton, "Pulping chemistry—the other quinone methide." (H. I. Bolker, discussion leader): D. A. I. Goring, "Loose ends and mid-summer madness."

1 August. (K. V. Sarkanen, discussion leader): J. Janson, "Some reactions of carbohydrates in alkaline pulping conditions"; L. R. Schroeder, "Studies directed toward understanding random chain cleavage of wood polysaccharides during alkaline pulping"; A. F. Wallis, "Some aspects of soda-AQ pulping."

Second Messengers and Protein Phosphorylation

Tilton School

S. Taylor, chairman; J. Perkins, vice chairman.

23 June. (S. Taylor, discussion leader): C. A. Rubin, "R^{II} isoforms and their binding proteins"; G. S. McKnight, "Isolation and expression of kinase genes"; R. A. Jungmann, "Nuclear action of cyclic AMP–dependent protein kinase subunits." (J. A. Traugh, discussion leader): J. A. Traugh, "Regulation of phosphorylation of components of protein synthesis"; D. A. Walsh, "Kinase inhibitory peptides"; J. Leis, "Regulation of avian retrovirus nucleocapsid protein P12"; E. G. Krebs, "Functional domains of myosin light chain kinase."

24 June. (P. Cohen, discussion leader): P. Cohen, "Protein phosphatases"; P. B. Chock, "Calcium-dependent phosphatases and phosphodiesterases"; J. H. Wang, "Regulation by cascade mechanisms"; R. Davis, "*Drosophila* dunce genes." (E. G. Krebs, discussion leader): B. Sefton, "Cellular and oncogene tyrosine kinases"; E. J. Neer, "Brain tyrosine kinases"; M. A. Simon, "Expression of c-*src* in *Drosophila*."

25 June. (J. Heller-Brown, discussion leader): J. Heller-Brown, "GTP-dependent inositol-P formation"; R. Michell, "Phosphoinositides as regulators of cell function"; P. Majerus, "Phospholipase C and the production of phosphoinositide-derived messengers"; R. Tsien, "Analysis of intracellular calcium." (H. Bourne, discussion leader): H. Bourne, "Structure and function of GTP-binding proteins"; A. Gilman, "Guanine nucleotide binding regulatory proteins and adenylate cyclase": F. Jurnak, "Crystal structure of elongation factor Tu"; G. M. Cooper, "Structure and function of *ras* oncogene proteins."

26 June. (T. Hunter, discussion leader): J. Schlessinger, "Growth factor receptors"; P. Parker, "Protein kinase C"; D. Russell, "LDL receptor: receptor processing, regulation and turnover." (S. Taylor, discussion leader): O. M. Rosen, "Insulin action and protein phosphorylation."

27 June. (J. E. Dumont, discussion leader): M. G. Rosenfeld, "Developmental and hormonal regulation of growth hormone and prolactin gene expression"; R. S. Hanson, "Regulation of PEPCK gene expression by cAMP"; D. K. Granner, "Effect of insulin on gene expression."

Separation and Purification

Colby-Sawyer College (N)

C. Judson King, chairman; Richard D. Noble, vice chairman.

11 August. Chiral separations (Maxine L. Heinitz, discussion leader): William D. Pirkle, "Practical applications of a molecular level understanding of some fundamentals of chiral recognition"; Jorgen Hermansson, "Direct liquid-chromatographic resolutions of racemates on a chiral α-1-acid glycoprotein column." Advances in analytical separations (Maxine L. Heinitz, discussion leader): Daniel W. Armstrong,"Cyclodextrins in chromatography"; Milton L. Lee, "Capillary column supercritical fluid chromatography."

12 August. Gaining selectivity in hydrometallurgical separations (Gale Hubred, discussion leader): Pier Roberto Danesi, "Exploiting differential chemical kinetics and steric hindrance for hydrometallurgical separations by supported liquid membranes"; Jan D. Miller, "Process chemistry considerations for gold recovery from alkaline cyanide solutions." Development in membrane separations (Richard D. Noble, discussion leader): Mary K. Tripodi, "Vapor dehydration of azeotropic ethanol via membranes"; Edgar S. Sanders, "The effects of thermal annealing on gas sorption and transport in glassy polymers."

13 August. Separations of biological substances (Joseph D. Henry, discussion leader): Pier Giorgio Righetti, "Isoelectric focusing in immobilized *p*H gradients: Present status and future trends"; T. Alan Hatton, "Separation of bioproducts by selective

solubilization in reversed micelles." Separative reactors (Joseph D. Henry, Jr., discussion leader): Stephen L. Matson, "Membrane conversions and bioseparations"; Philip E. Barker, "Enzyme reaction and separation in chromatography columns."

14 August. Innovative methods for concentrating dilute aqueous solutions (George E. Keller, II, discussion leader): Scott Lynn, "Concentration of aqueous solutions by solvent extraction"; Edward L. Cussler, "Gels as size-selective extraction solvents." Displacement chromatographic separations (George E. Keller, II, discussion leader): Csaba Horvath, "High-performance displacement chromatography."

15 August. Novel adsorbents (Harold Kaufman, discussion leader): Gary L. Rempel, "Separations from dilute solutions using reactive polymers"; Stephen G. Maroldo, "Recent developments in ambersorb® carbonaceous adsorbents."

There will be a poster session from 5:00 to 6:00 from 9:00 to 10:30 on Thursday evening, 14 August. Persons interested in contributing poster presentations should submit a title and an abstract by 1 May 1986 to C. Judson King, Dean, College of Chemistry, University of California, Berkeley 94720.

Solid State Chemistry

Plymouth State College (N)

D. Murphy and F. Jellinek, co-chairmen; N. Bartlett, vice chairman.

28 July. (A. Sleight, discussion leader): U. Chowdry, "Solid state chemistry in ceramics"; K. Jacks, "Ceramic alloys in the Si-Al-O-N and related systems"; L. Interrante, "Synthesis and conversion of organometallic precursors to nonoxide ceramics." (R. McCarley, discussion leader): M. Mitomo, "Characterization and properties of α-Sialon ceramics"; A. Clearfield, "Hydrothermal and sol gel synthesis of ceramic materials."

29 July. (A. Jacobson, discussion leader): J. Livage, "Transition metal oxide gels"; J. Johnson, "Layered compounds with alternating organic and inorganic layers"; C. Torardi, "Synthesis, structure, and magnetism of new iron compounds containing tetrahedral oxyanions." (N. Bartlett, discussion leader): P. Hagenmuller, "Inorganic solid state high-pressure chemistry"; Short presentations by conference participants.

30 July. (F. Franzen, discussion leader): R. Becker, "Probing electronic structure by scanning tunneling microscopy"; R. Herber, "Variable temperature FTIR studies of phase transitions in solids"; B. Williams, "Electron energy-loss microscopy and the electronic structure of solids." (F. Jellinek, discussion leader): H. Schafer, "Oligomeric and polymeric iso- and heteroanions in intermetallic compounds." Short presentations by conference participants.

31 July. (F. DiSalvo, discussion leader): J. Williams, "Recent developments in organic superconductors"; L. Schneemeyer, "Charge density wave phenomena in oxide bronzes"; M. Whangbo, "Band electronic structures of low dimensional conducting solids." (J. Miller, discussion leader): A. Diaz, "Electroactive films from oxidative polymerizations"; T. Marks, "Structure-enforced metallomacrocyclic assemblies. What can we learn about the molecular metallic state?"

1 August. (M. Greenblatt, discussion leader): D. Schleich, "Synthesis of metal sulfides using organosilyl sulfides"; J. B. Goodenough, "Insertion/extraction reactions as a low-temperature synthetic route to new ceramic materials."

Solid State Ionics

Brewster Academy

Gregory C. Farrington, chairman; John B. Bates, vice chairman.

30 June. (N. Peterson, discussion leader): Stephen Wilson, "Novel framework structures: New directions in molecular sieve chemistry"; John Newsam, "Progress in the structural characterization of zeolites"; Peter Davies, "Effects of cation ordering on the behavior of crystalline fast ionic conductors." (Gerald Mahan, discussion leader): Klaus Funke, "Debye-Huckel relaxation processes in solid ionic conductors"; Wolfgang Dieterich, "Transport in disordered ionic conductors."

1 July. (A. LeMehaute, discussion leader): S. Liu, "Theory of the AC response of fractal interfaces"; Bernhardt Sapoval, "Fractal geometry of diffuse contact and associated noise"; A. Jonscher, discussion. (Walter Roth, discussion leader): A. Janata, "Listening to electrochemistry"; Oscar Staffsud, "Spectroscopy of the lanthanide beta aluminas."

2 July. (Mark Ratner, discussion leader): Alan MacDiarmid, "Polyaniline: A new concept in conducting polymers"; Duward Shriver, "Ionic and electronic conductivity in polymer-salt complexes"; Bruno Scrosati, discussion: Is there a future for conductive polymers in electrochemical technology? (M. Kleitz, discussion leader): G. Stanley (subject to be announced); Mark Madou, "Multifunctional gas sensor based on rare earth fluorides."

3 July. (J. Wang, discussion leader): Royce Murray, "Wet and dry electron transfer chemistry and electroactive films"; Joachim Maier, "Composite solid ionic conductors"; A. West, discussion. M. Kleitz, "Past successes and future challenges in solid state ionics research and technology."

4 July. (Jerry Smith, discussion leader): Charles Martin, "Conducting polymer composite membranes"; P. Nicholson, "Design and development of ceramic proton conductors based on the beta/beta aluminas"; Jerry Smith, "Discussion on future trends in solid state ionics."

Statistics in Chemistry and Chemical Engineering

New Hampton School

Gary E. Blau, chairman; James M. Lucas, vice chairman.

28 July. (Robert G. Easterling, discussion leader): George Box, "Statistics and quality." (Ragu Kackar, discussion leader): Genichi Taguchi, "Experimental design for the chemical industry."

29 July. (Hugo Patino-Leal, discussion leader): Park Reilly, "Regression with error in all the variables." (David Bacon, discussion leader): Dick Klimpel, "Statistical aspects of mineral processing operations."

30 July. (Bill Hunter, discussion leader): Svante Wold, "Chemometrics in practice: Design and multivariate data analysis." (Colin N. Park, discussion leader): Stan Young, "Liver tumors and leukemia in rodents: Descriptions and implications of a negative correlation."

31 July. (John MacGregor, discussion leader): G. V. Reklaitis, "Uncertainty in the design, operation and scheduling of batch processing plants." (Carl A. Bennett, discussion leader): Michael Franklin, "Statistical problems in international safeguards."

1 August. (Stuart Hunter, discussion leader): James M. Lucas and M. S. Saccucci, "Geometric moving average control schemes: Properties and enhancements."

Stereochemistry

Plymouth State College (N)

Clayton H. Heathcock, chairman; Carl R. Johnson, vice chairman.

23 June. (Jeffrey Seeman, discussion leader): Scott E. Denmark, "Studies in stereochemical control"; William R. Roush, "Stereochemical aspects of the reactions of tartrate ester modified allyl- and crotylboronic acids with chiral and achiral aldehydes." (Glen J. McGarvey, discussion leader): Reinhard W. Hoffman, "Allylboronates, defined organometallic reagents for defined stereoselection"; Satoru Masamune (subject to be announced).

24 June. (Ernest Eliel, discussion leader): William C. Ripka, "Molecular modeling approaches to conformational and stereo-

chemical problems"; Peter Kollman, "The combined use of computer graphics and numerical computations in the simulations of chemical structure and reactivity of complex molecular systems." (James A. Marshall, discussion leader): W. Clark Still, "Workshop on applications of computers in molecular modeling. General introduction."

25 June. (Paul Williard, discussion leader): W. Clark Still, "Workshop on applications of computers in molecular modeling. Demonstration." (Marian Mikolajczyk, discussion leader): Jacqueline K. Barton, "Site-specific recognition and reaction of chiral metal complexes with DNA"; Brice Bosnich, "Stereochemistry of metal catalyzed Claisen rearrangements."

26 June. (Jacqueline Seyden-Penne, discussion leader): John W. Scott, "Asymmetric synthesis—an industrial perspective"; William H. Pirkle, "Chiral recognition as judged by chromatography, NMR, and asymmetric synthesis." (Kenji Koga, discussion leader): Gary Posner, "Asymmetric synthesis using sulfoxides and sulfones."

27 June. (Robert M. Coates, discussion leader): Hisashi Yamamoto, "Asymmetric synthesis using organoaluminum reagents"; Dieter Seebach, "Studies on stereoselective reactions occurring with C–C bond formation."

Synthetic Membranes

Colby-Sawyer College (S)

Alan S. Michaels, chairman; Jerome S. Schultz, vice chairman.

23 June. Novel membranes and structures (D. R. Lloyd, discussion leader): F. Onorato, "Preparation and properties of polybenzimidazole membranes"; G. Tanny, "Radiation-cured microporous membranes"; K. Keizer, "Structure and modification of porous alumina membranes for use in gas separation applications." K. Kinzer, "Formation of microporous membranes by thermally induced phase separation"; R. Ray, "Mathematical modeling of the formation mechanisms of asymmetric membranes."

24 June. New process applications for membranes (G. Belfort, discussion leader): C. Wandrey, "Recent advances in enzyme membrane reactors"; M. Hoare, "Protein recovery by precipitation/microfiltration"; K. Mani, "Bipolar membrane technology and its applications." T. Van Gassel, "Membrane distillation"; R. Narayan, "Vapor phase dehydration by membrane permeation."

25 June. Membranes as sorbents and catalysts (S. Matson, discussion leader): K. Hou, "Performance of affinity membranes for endotoxin removal"; G. Schmidt-Kastner, "Immobilized enzyme membrane reactors: Industrial application for biotransformation"; J. Lopez, "Process integration in multiphase and extractive membrane reactors." Brief progress reports on current research (J. Schultz, discussion leader): K. H. Kroner, "Recent studies with dynamic membrane filtration of microbial suspensions and homogenates." Other presentations to be selected from submitted abstracts.

26 June. Monolayer and bilayer membrane structures (S. Regen, discussion leader): D. O'Brien, "Polymerized vesicles"; T. Kunitake, "Molecular multilayer films and their transport properties"; J. Fendler, "Membrane mimetics for separation processes." Plenary lecture: Ora Kedem, "Transport equations for pervaporation in ion exchange membranes."

27 June. Transport in charge-carrying membranes (W. Deen, discussion leader): A. Grodzinsky, "Electric field control of membrane permeability"; G. Westermann-Clark, "Transport mechanisms in charged-wall, rigid microporous membranes."

Theoretical Biology and Biomathematics

Tilton School

John Rinzel, chairman; Douglas Lauffenburger, vice chairman.

9 June. Dynamics of gene expression (Michael Shuler, chairman): Jay Bailey, "Modeling of gene transcription and translation"; Michael Savageau, "Circuit theory of gene regulation"; Bruce Levin, "Dynamics of transposable genetic elements." Molecular evolution (David Lipman, chairman): Walter Fitch, "Construction of evolutionary trees from sequence data"; Masatoshi Nei, "Mathematical theory and empirical data in molecular evolution."

10 June. Population dynamics (Montgomery Slatkin, discussion leader): Robert May, "Evolutionary considerations in epidemiology"; Simon Levin, "Coevolution and host-parasite systems"; Alan Perelson, "Immune cell interactions: Recognition and learning." Cell receptor phenomena (Hans Othmer, chairman): Lee Segel, "Receptor adaptation: theory and experiment."

11 June. Cellular neurobiology (John Miller, chairman): Charles Stevens, "Single channel kinetics and protein structure of ionic channels"; Wilfrid Rall, "Dendritic spines with excitable membrane as possible loci for neuronal plasticity"; Daniel Alkon, "Cellular mechanisms for invertebrate associative learning." Dynamic activity of neuronal networks (Terry Sejnowski, chairman): David Tank, "Neural circuits and collective computation"; Nancy Kopell, "Coupled oscillators and design of locomotor pattern generators."

12 June. Regulation of cellular processing (Joel Keizer, chairman): Ira Mellman, "Molecular sorting on the endocytic pathway"; Byron Goldstein, "Models of receptor-mediated endocytosis"; Gunnar von Heijne, "Signal sequences in protein synthesis." Cell migration and sorting (G. Oster, chairman): S. Newman, "Matrix-driven cell translocation"; J. Anderson, "Diffusiophoresis: Chemotaxis of inert particles."

13 June. Muscle mechanics and locomotion (Richard Chadwick, chairman): Tom McMahon, "Dynamic models of animal gaits"; Norman Heglund, "Strange events in pre-stretched muscle: Energy absorption by muscle during terrestrial locomotion."

Thermosetting Polymers

Colby-Sawyer College (S)

Ivan J. Goldfarb, chairman; Donald Hunston, vice chairman.

16 June. (Clayton A. May, discussion leader): Edmund Woo, "New triazine moisture resistant resins"; George Butler, "Powerful electronic acceptors as crosslink-agents." (Ronald Bauer, discussion leader): Loon Seng Tan, "Benzocyclobutene-based high-temperature thermosetting resin systems"; Daniel Scola, "Some considerations in the reverse Diels-Alder polyimides."

17 June. (James F. Carpenter, discussion leader): Robert Charles Allen, "Water in epoxy resins. Thermodynamics and swelling"; Bruce Prime, "TG/MS of matrix polymers." (Allan R. Shultz, discussion leader): Alan H. Windle, "Interpretation of diffraction from polymer resins"; Donald R. Uhlmann, "Sol-gel processing—a variant on thermoset chemistry?"

18 June. (George Schmitt, discussion leader): Richard Eley, "Chemorheology of thermosetting coatings"; John Kardos, "Composite process model: Coupled void sensitivity and resin flow." (Jean-Marie Liegeois, discussion leader): Thomas C. Sandreczki, "Examination of free volume in epoxies using positronium annihilation spectroscopy and electron paramagnetic resonance"; Frank N. Kelley, "Model toughened thermosets."

19 June. (David Kaelble, discussion leader): Sue Ann Bidstrup, "Structure-property relationships in model epoxy systems"; H. Henning Winter, "Rheological constitutive equations for polymers at the gel point." (Stephen Senturia, discussion leader): Robert Landel, "Selected topics for curiosity to the thermoset community."

20 June. (Donald Hunston, discussion leader): Claudius Feger, "The diffusion control of property changes during network

formation"; Vincent R. Landi, "The glass transition temperature of phenolics—its development as a function of time and temperature of cure."

Tribology

Colby-Sawyer College (N)

Jerrold Kannel, chairman; Stephen Hsu, vice chairman.

9 June. Tribology perspectives (Elmer Klaus, discussion leader): Duncan Dowson, "Fluid film lubrication and Osborne Reynolds"; J. M. Georges, "Tribology research—general observations." Basic mechanisms (W. J. Bartz, discussion leader): A. Cameron, "Mechanical and chemical aspects of tribology"; Bill Goddard, "Simulation of fundamental aspects of tribology."

10 June. Wear (Charles Yust, discussion leader): W. A. Glaeser, "Fundamental mechanisms of wear"; Lou Rozeanu, "Thermal and mechanical effects in tribology." Ceramics (Ward Winer, discussion leader): Keith Dufrane, "Wear of ceramic materials"; Harold Sliney, "Tribology and ceramics."

11 June. Lubricants (Carleton N. Rowe, discussion leader): Stephen Hsu, "Research in lubricant chemistry"; H. A. Spikes, "Additives in lubricants." Performance (Herbert Cheng, discussion leader): Leon M. Keer, "Fracture mechanics and fatigue"; J. Teverwaark, "Contact traction and performance."

12 June. Computer tribology (V. Wedeven, discussion leader): Fred Ling, "Tribology in computers"; Jim Lemke, "Friction polymers in head media." Special (J. W. Kannel, discussion leader): Lawrence Barr, "More than halfway to creation (telescope development)."

13 June. High temperature (Mike Gardos, discussion leader): Paul Fleischauer, "Surface chemical considerations for high temperature lubrication"; James Dill, "High temperature tribology testing."

Vibrational Spectroscopy

Brewster Academy

Richard B. Miles, chairman; William Woodruff, vice chairman.

11 August. Vibrational spectroscopy of solid: James Skinner, "Theory of optical and vibrational dephasing in crystals"; Keith Nelson, "Time resolved spectroscopy of structural phase transitions in crystals"; James Tsang, "Subpicosecond Raman scattering in gallium arsenide." Robert Silby, "Many body effects in tunneling in solids." Poster session A.

12 August. Resonant Raman spectroscopy: Robin Clark, "Raman spectroscopy of metal-metal bonded systems"; Richard Mathies, "Resonance Raman studies of excited state structure and dynamics." Charles V. Shank, "Femtosecond nonequilibrium energy distribution in large molecules"; Warren G. Warren, "Coherent transient generation of large and selective vibrational inversions." Robert Field, "Dynamic information from intrinsically unassignable high resolution spectra." Poster session B.

13 August. Surface spectroscopy: John Tully, "Infrared lineshapes and vibrational lifetimes on adsorbates in surfaces"; Richard Van Duyne, "Surface laser spectroscopy: new substrates, picosecond nonlinear phenomena, SERS microscopy, and UV resonance Raman scattering"; Wilson Ho, "Time-resolved electron energy loss spectroscopy of surface kinetics"; John Stephenson, "Picosecond laser studies of vibrational energy transfer: surfaces, solids and liquids." John Rabolt, "The effect of order-disorder transitions on molecular organization." Poster session C.

14 August. New methods in vibrational spectroscopy: Paul Hansma, "Tunneling microscopy and spectroscopy"; Lewis J. Rothberg, "Structure and dynamics of surface adsorbates using pulsed optoacoustic spectroscopy." Vibrational coupling: Stig Andersson, "Sticking of molecular hydrogen—energy transfer and conversion processes"; Charles B. Harris, "Picosecond studies of vibrational energy relaxation and redistribution in condensed phase chemical reactions." William Harter, "Rotation-vibration coupling in polyatomic molecules." Poster session D.

15 August. Ions and molecular beams: Richard Saykally, "Vibrational spectroscopy of molecular cations, anions, and Van der Waal's bonds"; Rick Smalley, "Molecular beam spectroscopy of clusters."

Conferees are invited to submit posters for the four evening poster sessions. Send abstracts of approximately 200 words to Dr. Richard B. Miles, Princeton University, Mechanical and Aerospace Engineering Department, Room D-414 Engineering Quadrangle, Princeton, NJ 08544.

Water and Aqueous Solutions

Colby-Sawyer College (S)

S. H. Chen, chairman; M. Newton, vice chairman.

4 August. Structure and thermodynamics of ionic solutions (P. Rossky, discussion leader): H. L. Friedman, "Some recent developments in ionic solutions"; G. W. Neilson, "Recent results of x-ray and neutron scattering studies of aqueous electrolyte solutions"; G. N. Patey, "Molecular theory of electrolyte solutions." Panel discussion on structure and dynamics of water (A. H. Narten, discussion leader): P. A. Egelstaff, "Quantum correction to the structure of water"; J. C. Dore, "Partial structure factors of water"; J. Teixeira, "X-ray and neutron studies of the structure of high density amorphous ice"; G. E. Walrafen, "Spontaneous Raman scattering from shocked water"; R. Bansil, "Calculations of vibrational spectra of water—neutron, Raman and IR"; A. Geiger, "Computer simulation study of water under negative pressure"; L. Blum, "Analytical pair correlation functions of water from a model of sticky hard spheres"; P. H. E. Meijer, "Theory of global phase diagram of water."

5 August. Electron solvation in water (B. J. Berne, discussion leader): D. Chandler, "Theory of the excess solvated electrons"; M. L. Klein, "Computer simulation of excess electrons in water and other polar solvents"; W. Robinson, "Experiments on excess solvated electrons in water." High pressure high temperature aqueous solutions (J. Wheeler, discussion leader): J. V. H. Sengers, "Aqueous solutions near the critical point of water"; R. H. Wood, "Thermodynamic properties—experimental measurements and theoretical interpretations."

6 August. Structure and dynamics of water near interfaces (W. Drost-Hansen, discussion leader): B. Halle, "Dynamics of water near interfaces"; B. Egberts, "The structure of water near bilayer interface"; G. Torrie, "Structure of water near charge interface." Large-scale computer simulations in aqueous solutions (L. Pratt, discussion leader): W. L. Jorgensen, "Theoretical studies of reactions in water"; J. A. McCammon, "Ligand bindings in aqueous solutions."

7 August. Water macromolecule interactions (J. L. Finney, discussion leader): M. Teeter, "Water in high resolution structure of crystalline protein crambin"; H. Savage, "Repulsive regularities of water structure in crystal hydrates"; G. L. Quigly, "Solvent environment in Z-DNA and other DNA crystal structures." Hydrophobic effects (F. Franks, discussion leader): D. Eisenberg, "Hydrophobic effects on protein structure"; Poster session, organization chairman: M. Newton.

8 August. Micelles, polyelectrolytes and microemulsions (S. H. Chen, discussion leader): J. Huang, "Properties of water in reverse micelles"; M. Drifford, "Polyelectrolytes in aqueous solutions—charge, mobility and structure"; D. F. Evans, "The use of video enhanced differential interference contrast microscopy in the study of surfactant aggregates in aqueous solutions."