Gordon Research Conferences

Alexander M. Cruickshank

The Gordon Research Conferences for the summer of 1980 will be held in New Hampshire and California.

Purpose. The Conferences were established to stimulate research in universities, research foundations, and industrial laboratories. This purpose is achieved by an informal type of meeting consisting of scheduled speakers and discussion groups. This type of meeting is a valuable means of disseminating information and ideas to an extent that could not be achieved through the usual channels of publication and presentation at scientific meetings. Sufficient time is available to stimulate informal discussion among members of each conference. In addition, scientists in related fields become acquainted and valuable associations are formed that often result in collaboration and cooperative efforts among laboratories. Meetings are held in the morning and in the evening, Monday through Friday, with the exception of Friday evening. The afternoons are available for recreation, reading, or participation in discussion groups, as the individual desires.

It is hoped that each conference will extend the frontiers of science by fostering a free and informal exchange of ideas among persons actively interested in the subject under discussion. The purpose of the program is to bring experts up to date on the latest developments, to analyze the significance of these developments, and to provoke suggestions concerning the underlying theories and profitable methods of approach for scientific research. The review of known information is not desired.

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

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

Applications must be submitted in duplicate on the standard application form which may be obtained from the office of the Director. This procedure is important because certain specific information is required in order that a fair and equitable decision may be made on the application. Attendance at each conference is limited to approximately 100 conferees.

The Director will submit the applications of those requesting permission to attend a conference to the committee for that conference. This committee will review the applications and select applicants so as to distribute the attendance as widely as possible among the various institutions and laboratories represented by the applications.

A registration card will be mailed to those selected. Advance registration by mail is required for each conference and is completed on receipt of the card and the deposit of $30. The advance deposit is not required of scientists arriving in the United States from foreign countries. Checks are to be made payable to the Gordon Research Conferences. The deposit will be credited against the fixed fee for the Conference.

Card must be returned 3 weeks prior to the conference with the $30 deposit or the approved application will be canceled. The fixed fee may be paid in advance if the conferee so desires. A registration card not accompanied by the deposit will not be accepted.

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

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

The Board of Trustees of the Conferences has established a fixed fee for all resident participants (speakers, discussion leaders, 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 a conference—that is, for the periods of from 1 to $4\frac{1}{2}$ days.

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

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

Guests. Accommodations are available for guests. (Children must be at least 12 years of age.) All such requests should be made at the time the attendance application is submitted because these accommodations, limited in number, will be assigned in the order that specific requests are received.

Guests are not permitted to attend the conference lectures and discussion groups.

A deposit of $30 is required for each guest reservation. This deposit will be refunded if cancellation is received 2 weeks prior to the conference.

Pets are prohibited at the conference sites.

Program. The complete program for

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the 1980 Gordon Research Conferences will be published in *Science*, 14 March 1980. Reprints are available on request.

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

Mail for the office of the Director from 9 June to 22 August 1980 should be addressed to: Dr. Alexander M. Cruickshank, Director, Gordon Research Conferences, Colby-Sawyer College, New London, New Hampshire 03257. Telephone: 603-526-2870.

Fixed Conference Fees—1980

New Hampshire

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

*Nonresident fee: $165 includes $50 registration fee and meals.

Guest: $150 for room and meals.

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

California

*Resident Fee: $215 includes $50 registration fee, room and meals.

Guest: $165 for room and meals.

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

The program to be presented follows.

Adhesion, Science of

New Hampton School

Leighton H. Peebles, Jr., chairman; Michael L. Hair, vice chairman.

18 August. (L. T. Drzal, discussion leader): W. G. Miller, "Spin-labeled studies of polymer motion at or near an interface"; T. Hashimoto, "Interphase in block copolymers." (C. Kumins, discussion leader): Yu. S. Lipatov, "Structure and properties of interphase between incompatible polymers and adhesion between them"; J. L. Crowley and A. D. Jonath, "Relationships between interfacial phenomena and adhesive bond strength."

19 August. (Frank Kelly, discussion leader): W. G. Knauss, "Debonding of viscoelastic materials"; N. W. Tschoegl, "Role of viscoelasticity in adhesion." (J. A. Marceau, discussion leader): Surface oxide characterization: J. D. Venables, "Aluminum"; B. Ditchek, "Titanium"; D. J. Zalucha, "Iron."

20 August. (W. D. Bascom, discussion leader): S. Mostovoy, "Fatigue crack propagation in adhesive joints"; E. H. Andrews, "Fracture of epoxies bonded to titanium." (D. Jablonski, discussion leader): A. N. Garroway, "NMR of solid polymers."

21 August. (J. L. Gardon, discussion leader): J. J. Taber, "Surface chemistry and enhanced oil recovery"; G. E. Gillberg, "Surface characterization of polyester fibers." (C. Chitouras, discussion leader): J. F. Burke, "Optimal characteristics of adhesion in the design of artificial biomaterials as modeled by synthetic skin."

22 August. (M. L. Hair, discussion leader): G. Czornyj and H. R. Anderson, Jr., "Adhesion of plasma polymerized coatings"; F. J. Campbell, "Electron beam curable adhesives."

Aerobiology

Kimball Union Academy

William S. Benninghoff, chairman; Robert L. Edmonds, vice chairman.

11 August. Biological sources and sinks of trace chemicals in the atmosphere (J. N. Hales, chairman). Spatial properties of biological aerosols (G. Raynor, chairman).

12 August. Meteorological factors in aerobiology (W. E. Marlatt, chairman). Viability of airborne organisms (E. W. Larsen, chairman).

13 August. Animal communication through airborne chemical pathways (R. T. Cardé, chairman). Aerobiology of the respiratory system (M. T. Hatch, chairman).

14 August. Aerobiology of managed ecosystems—agriculture and forestry (C. D. Upper, chairman). Aerobiology of aquatic ecosystems—wastewater (J. Leadbetter, chairman).

15 August. Aerobiology of industrial and residential areas (I. L. Bernstein, chairman).

Aging, Biology of

Proctor Academy

James R. Florini, chairman; Caleb E. Finch, vice chairman.

4 August. Effect of aging on binding and action of hormones (George Roth, narrator): Highlights: Robert Bolla, "Physicochemical properties of hepatic glucocorticoid receptors during aging"; Louis Greenberg, "Regulation of brain β-adrenergic receptors during aging"; A. S. Lippa and R. Bartus, "Changes in cholinergic receptors and responsiveness during aging"; Nicola Fabris, "Thymic regulation of endocrine function during aging"; Hideki Ito, "Adrenergic and cholinergic action in parotid gland during aging." (James Florini, chairman): Vincent J. Cristofalo, "Effect of glucocorticoids on cellular senescence in human diploid fibroblasts"; Jamshed R. Tata, "Hormonal control of vitallogenin biosynthesis."

5 August. Effect of aging on the secretion of hormones (Richard C. Adelman, narrator): Highlights: Ralph De Fronzo, "Regulation of metabolism by insulin"; Thomas L. Klug, "Heterogeneity of immunoreactive insulin"; James R. Florini, "Effects of age on somatomedin secretion"; Pat Prinz, "Changes with age in pulsatile growth hormone secretion"; Peter J. Hornsby, "Age effects on mitochondrial lipid peroxidation and steroid secretion." (Dorothy Krieger, chairman): Reuben Andres, "Effects of age on glucose utilization"; Donald F. Steiner, "Mechanisms of insulin biosynthesis and secretion."

6 August. Caloric restriction and integrated physiological responses in aging (Edward J. Masoro, narrator): Highlights: Roy L. Walford, "Effects of food restriction on the immune system"; Arthur G. Schwartz, "DHEA as an analog of food restriction in aging"; David E. Harrison, "Physiological effects of food restriction"; Roger A. McCarter, "Effects of food restriction on age-related changes in muscle"; E. J. Yunis, "Food restriction and immunology." (Leah Lowenstein, chairman): Vernon R. Young, "Impact of aging on nutrient metabolism and requirements"; Myron Winick, "Role of nutrition in early development."

7 August. Gene expression and aging (David Gershon, chairman): Ronald W. Hart, "Age-related changes in DNA superhelicity and gene expression"; Jim Gaubatz, "Effects of aging on chromatin structure and function"; Arlan G. Richardson, "RNA and protein synthesis in hepatocytes as a function of donor age"; Morton Rothstein, "Post-translational modification of proteins." (David Danon, chairman): Robert T. Schimke, "Perspectives on the biology of aging."

8 August. Recent developments in neurogerontology (Caleb E. Finch, chairman): James Severson, "Regulation of dopaminergic receptors—influence of age and genotype"; Jay Roberts, "Age changes in autonomic influence at the cardiovascular neuroeffector junc-

*Fixed fees cannot be prorated or reduced for anyone.

tion''; Roland Ciarenello, ''Glucocorticoid regulation of catecholamine enzyme degradation''; Suzanne Corkin, ''Nutrient enhancement of central cholinergic tone in the elderly.''

Analytical Chemistry

New Hampton School

Milos Novotny, chairman; Frederick Brech, vice chairman.

11 August. (J. W. Robinson, session chairman): R. G. Cooks, ''Trace organic analysis by mass spectrometry: New instruments and new techniques''; R. Murray, ''Chemical and electrochemical reactions and surface analysis at modified electrodes''; R. D. Macfarlane, ''^{252}Cf-plasma desorption mass spectrometry of large molecules.''

12 August. (Mary Wirth, session chairperson): G. M. Hieftje, ''Taking advantage of noise in analytical measurements''; J. G. Grasselli, ''New developments in vibrational spectroscopy''; L. Friedmann, ''High-molecular weight mass spectrometry.''

13 August. (Milton L. Lee, session chairman): J. Frazer, ''Self-adaptive experimentation as applied to the characterization of complex systems''; C. Horvath, ''Physico-chemical measurements by high-performance liquid chromatography''; R. M. Wightman, ''The determinations of trace amounts of neurotransmitters''; Y. Talmi, ''Spectrometric applications of multichannel image detectors.''

14 August. (E. C. Dunlop, session chairman): M. Guerin, ''Bioassay chemistry, analytical chemistry in biological testing''; S. P. Cram, ''Theoretical and experimental approaches to high resolution chromatography''; E. Jellum, ''Computerized gas chromatography-mass spectrometry and high resolution two-dimensional electrophoresis in studies on human diseases''; E. Wehry, ''Matrix-isolation spectroscopy.''

15 August. (Milos Novotny, esession chairman): L. R. Faulkner, ''Chemistry in molecular thin-film assemblies''; F. Brech, ''Discussion of 1981 Gordon Research Conference on Analytical Chemistry.''

Animals Cells and Viruses

Tilton School

Ronald H. Reeder and Peter Lengyel, co-chairmen.

30 June. Introduction of DNA into eucaryotic cells; amplification of DNA (R. Axel, chairperson): P. Brown, P. Berg, R. Weinberg. Eucaryotic genes: regulatory signals and site directed mutagenesis (C. Weissmann, chairperson): M. Birnsteil, S. Weissman, M. Lerner, T. Maniatis.

1 July. Rearrangements of the genome, immunoglobulin genes (L. E. Hood, chairperson): J. Hicks, N. Kleckner, E. Max. Active chromatin: in vitro transcription (H. Weintraub, chairperson): R. Roeder, R. Reeder.

2 July. Viral transformation of cells, characteristics of transformed cells (D. Baltimore, chairperson): M. J. Bishop, R. Erikson, P. Duesberg, G. Todaro. The cytoskeleton (E. Lazarides, chairperson): V. Bennett, J. Heuser, M. Kirschner, A. Means.

3 July. Synthesis and transport of eucaryotic proteins (H. Lodish, chairperson): A. Shatkin, W. S. Sly. Hormones, growth factors, receptors, membranes (I. Pastan, chairperson): D. Cunningham, G. Todaro, J. Brown, D. Branton.

4 July. Control mechanisms in eucaryotic protein metabolism (chairperson to be announced): S. Penman, I. Kerr, M. Revel.

Atomic and Molecular Interactions

Brewster Academy

William C. Stwalley, chairman; Russell T. Pack, vice chairman.

21-25 July. Inelastic molecular collisions: K. Bergmann, ''State-to-state differential cross sections in Na_2-rare gas collisions''; J. P. Toennies, ''Mode selective collisional excitation of polyatomic molecules by ions''; R. J. Cross, ''Semiclassical theories of vibrationally and rotationally inelastic scattering''; H. Rabitz, ''Sensitivity analysis in inelastic molecular collisions.'' Reactive collisions: R. Sparks, ''Progress in reactive scattering: the observation of resonances''; D. J. Kouri, ''Progress in sudden approximations for reactive scattering''; D. R. Herschbach, ''Angular momentum correlation in reactive scattering''; K. Morokuma, ''The role of potential energy characteristics in chemical reactions.'' Weakly bound systems I. Nuclear motion: J. Jortner, ''Van der Waals complexes of large aromatic molecules''; R. W. Field, ''Spectroscopic determination of the long-range behavior of the o^+_g and 1_g states of I_2''; I. F. Silvera, ''The stabilization of a gas of atomic hydrogen.'' Weakly bound systems II. Electronic motion: A. P. Hickman, ''Theory of angular momentum changing collisions of Rydberg atoms''; K. Jordan, ''Studies of weakly bound and short-lived molecular anions''; F. Rostas, ''Alkali-rare gas excimers.'' Accurate interactions and properties: W. Wadt, ''Relativistic effects in heavy atom chemistry''; C. R. Vidal, ''Potential energy curves from spectroscopic data using variational methods''; S. Langhoff, ''Theoretical properties of the first row hydrodes; predissociation and radiative decay''; J. C. Lehmann, ''Highly excited vibrational states of I_2: an attempt at ab initio calculations.'' Interactions in or on condensed phases: B. Gerber, ''Decoupling approximations in the theory of molecule surface scattering''; K. Wilson, ''Molecular dynamics in solution and transient vibrational spectra''; V. Bondybey, ''Dynamics of molecular relaxation in gas and condensed phases.'' Laser chemistry and spectroscopy: S. Riley, ''Spectroscopy of alkali halide dissociative excited states''; R. B. Bernstein, ''Multiphoton ionization mass spectrometry of molecular beams''; M. Goodman (subject to be announced). Electromagnetic field effects: A. Bandrauk, ''Laser-induced predissociation''; T. Miller, ''Magnetic anticrossing spectroscopy: A method for studying weak interactions''; P. R. Brooks, ''Laser excitation of reaction complexes.'' Applications: T. Dunning, ''Theoretical studies of combustion related reactions''; E. Schumacher, ''Interaction of metal clusters with photons, electrons and particles''; J. Tellinghuisen, ''Spectroscopic studies of excimer laser transitions''; R. Olson, ''Collision mechanisms for generation of intense beams of H^-.''

Bioelectrochemistry

Tilton School

M. Blank, chairman; D. F. Wilson, vice chairman.

4 August. Electrical interactions in the stabilization of biological structures (V. A. Parsegian, discussion leader): S. McLaughlin, ''Electrical double layer theory in biological systems''; M. Blank, ''Protein structure in solution from the point of view of surface electrochemistry: Hemoglobin reactions''; V. A. Parsegian, ''Electrical interactions in membrane and protein assembly reactions''; S. Chien and K. M. Jan, ''Aggregation of red blood cells.''

5 August. Ion transport across natural membranes (S. McLaughlin, discussion leader): S. W. Feldberg, ''Proton and electron transport across bilayers''; G. Sachs, ''Proton transport in cells and or-

ganelles''; H. Lecar, ''Ion specific channels in nerve''; W. R. Loewenstein and B. Rose, ''The cell-to-cell channel.''

6 August. Biological redox processes and energy transduction (D. F. Wilson, discussion leader): W. Parson, ''Primary photochemical events and the control of electron transfer reactions''; P. L. Dutton, ''Electron and proton translocation in photosynthetic bacteria''; R. H. Kaback, ''Bacterial ion transport and energy coupling mechanisms''; D. F. Wilson, ''Energy transduction in oxidative phosphorylation: Coupling of respiration to ion transport and ATP synthesis.''

7 August. Electrochemical aspects of cell differentiation and control (A. A. Pilla, discussion leader): A. A. Pilla, ''The modulation of cell and tissue function via electrochemical information transfer''; G. Rodan, ''Electrochemical modulation of cell proliferation''; S. A. Smith, ''Electrochemistry and vertebrate regeneration''; W. Gensler, ''Electrochemical phenomena in plant growth and repair.''

8 August. Effects of electric fields on membrane structure (U. Zimmerman, discussion leader): I. R. Miller, ''The properties of membrane components at electrode surfaces''; U. Zimmerman, ''Electrical breakdown of plant and animal cell membranes.''

Bioengineering and Orthopaedic Science

Kimball Union Academy

Van C. Mow, chairman; E. Y. Chao and Henry J. Mankin, co-vice chairmen.

18 August. Normal biochemical building of bone, tendon, ligaments and cartilage: the state of the art (Henry J. Mankin, chairman): Melvin J. Glimcher, ''The structural and chemical features of collagen''; Alan J. Barrett, ''Enzymes and turnover in articular cartilage''; Lawrence C. Rosenberg, ''Role of proteoglycans in endochondral ossifications.'' Biomechanics and biophysics of normal bone, tendon, ligaments and cartilage (Van C. Mow, chairman): Alice Maroudas, ''Biophysical and physicochemical properties of articular cartilage''; J. Lawrence Katz, ''Ultrastructure and biophysical properties of compact bone''; Edward S. Grood, ''Ultrastructure and biomechanical characteristics of normal tendons and ligaments.''

19 August. Pathobiology of connective tissue disease (Roby C. Thompson, chairman): David Brown, ''Bone cell function''; Helen Muir, ''Proteoglycans in connective tissue breakdown''; David Howell, ''Biochemistry and physiology of normal and abnormal growth plate''; Mechanical analysis of normal and prosthetic joint function (Edmund Y. S. Chao, chairman): Edmund Y. S. Chao, ''Motion and forces in skeletal joint function''; Rik Huiskes, ''Stress analysis: a tool for optimal design of orthopaedic implants''; Albert H. Burstein, ''Experimental bench test to predict mechanical behavior of implant system and material.''

20 August. Pathomechanics of connective tissues and structures (Wilson C. Hayes, chairman): Dennis R. Carter, ''The influence of composition and structure on bone mechanics''; Albert B. Schultz, ''Biomechanical aspects of intervertebral disc pathology''; Wilson C. Hayes, ''Correlation between biochemistry and biomechanics in normal and pathologic articular cartilage.'' Implant materials and biocompatibility (Jorge Galante, chairman): Robert Rose, ''Wear in ultrahigh molecular weight polyethylene''; Joseph Miller, ''Methyl methacrylate''; Frank Cooke, ''Porous materials and their application to fixation of internal prostheses''; H. G. Willert, ''Biocompatibility of implant materials.''

21 August. Mechanics of normal and pathological gait (Sheldon R. Simon, chairman): Roy D. Crowninshield, ''Clinical applications of kinetic/kinematic models of gait''; Thomas Andriacchi, Clinical applications of kinetic and kinematic measurements of gait''; Lewis Nasher, ''Neurological control of locomotion''; Richard A. Brand, ''Clinical application of gait analysis: present and future—adult problems''; Sheldon R. Simon, ''Clinical application of gait analysis: present and future—children's problems.'' Training programs in bioengineering and orthopaedics (Albert H. Burstein and Patrick Kelly, co-chairmen): Kingsbury G. Heiple, Robert L. Fuson, Frederick G. Lippert, III, Stephen L. Gordon, Van C. Mow, Patrick Kelly and Albert H. Burstein, ''The problems of basic science education in orthopaedics, bioengineering graduate training, medical school orthopaedic residency and continuing education.''

22 August. Pathomechanics of fracture healing (Joseph M. Lane, chairman): Joseph M. Lane, ''The biological consideration of fracture healing''; A. Haridara Reddi, ''The biochemical changes in organic matrix of endochondral ossification''; Foster Betts, ''The characteristics of the mineral component in fracture healing''; Patrick Kelly, ''Physiology and fracture circulation and fracture fluid compartments''; Savio L-Y. Woo, ''Effect of internal fixation on the biology of fracture healing process.''

Biological Regulatory Mechanisms

Holderness School

Lucy Shapiro and Ira Herskowitz, co-chairpersons.

23-27 June. Regulatory signals and the control of transcription (C. Yanofsky, chairman); Regulatory proteins and their interactions with DNA (M. Ptashne, chairman); Nuclear RNA and RNA processing (J. Steitz, chairman); Global control mechanisms (B. Jones, chairman): Genetic rearrangements (B. McClintock, chairman); Eukaryotic regulation (I. Herskowitz, chairman); Microbial development (D. Kaiser, chairman); Membranes and organelle biogenesis (R. Scheckman, chairman); Developmental regulation of embryonic induction and pattern formation (R. Horvitz, chairman).

Biomaterials, Science and Technology of

Tilton School

Donald F. Gibbons, chairman; J. Lemons, vice chairman.

14 July. Environment responses I (D. Gibbons, session chairman): C. R. McMillin and J. L. Kardos, ''Dynamic responses of polymers in cardiovascular applications''; R. M. Rose, ''Polymers in orthopaedic prostheses''; A. Weinstein and J. Klawitter, ''Effect of environment on ceramic mechanical properties.'' Systemic responses and percutaneous applications (J. M. Anderson, session chairman): J. Lian, ''Xenograft valve calcification mechanisms''; P. K. Bajpai, ''Immune responses to xenografts''; G. J. Picha, M. Syzcher, A. F. Von Recum, D. T. Daly, ''Percutaneous connectors-panel.''

15 July. Tissue responses (G. Winter, session chairman): W. L. Epstein, ''Foreign body granuloma''; P. J. Parks and D. Gibbons, ''Soft tissue responses to implants''; L. L. Hench, ''Hard tissue responses to implants.'' Tissue mechanics and prostheses (J. Black, session chairman): J. C. Barbenel, ''Soft tissue mechanics''; W. M. Swanson and R. Clarke, ''Natural valve mechanics and design of prosthetic leaflet valve''; J. L. Katz, ''Hard tissue mechanics and prostheses''; J. R. Parsons, ''Ligament mechanics.''

16 July. Ligaments and tendons—properties and attachments (J. Lemons, session chairman): E. Groot and D. Butler, ''Properties ligaments and tendons''; R. Pawluk, ''Polymeric prosthetic systems''; H. Alexander, ''Biodegradable and scaffold materials.'' Environmental

responses II (J. Dumbleton, session chairman): I. Clarke, "In vivo radiographic wear measurement"; J. Dowling, "Analysis of wear—retrieved Charnley prostheses"; J. Dumbleton, "Comparison in vivo–in vitro wear measurements."

17 July. Protein and cellular responses to vascular implants (R. G. Mason, session chairman): M. Velasco, "Direct immunoassay of adsorbed proteins"; S. Cooper, T. Barber, "Protein adsorbtion on vascular grafts"; R. G. Mason, "Radiolabeled antibody detection of proteins"; C. S. Smith, "Structure, technology and art"; (D. Gibbons, session chairman).

18 July. Cell adhesion to surfaces (W. Zingg, session chairman): A. W. Neumann. "Thermodynamics of cell adhesion to surfaces"; L. A. Culp, "Fibroblast adhesion to an extracellular matrix"; K. E. Magnusson, "Surface affinity methods to probe cell adhesion."

Biopolymers, Physics and Physical Chemistry of

Holderness School

Sunney Chan and Thomas Record, cochairmen.

30 June. Conformations of nucleic acids (R. Baldwin, chairman): A Rich, J. Wang, R. Wells, D. Crothers, J. Schellman. Polyelectrolyte properties of DNA: interactions with ions (G. Manning, chairman): M. Fixman, M. LeBret, C. Anderson, D. Pörschke.

1 July. Interactions of molecules with bilayers (J. Sturtevant, chairman): M. Conrad, A. Waggoner, G. Feigenson, E. Oldfield, D. Marsh. Proteins in membranes (S. Chan, chairman): R. Capaldi, W. Hubbell, M. Sheetz, V. Bennett.

2 July. DNA stiffness: origins and implications (V. Bloomfield, chairman): P. Hagerman, G. Manning, W. Olson, C. Benham, R. Baldwin. Nucleic acids and their interactions (J. Wang, chairman): W. Englander, V. Bloomfield, D. Patel, P. Dervan, R. Karpel.

3 July. Receptors (E. Elson, Chairman): M. Raftery, J. Schlessinger, H. Metzger, J. Edelman, H. McConnell. Mechanisms of protein-nucleic acids interactions (P. von Hippel, chairman).

4 July. Genome regulatory proteins and their interactions with DNA (T. Record, chairman): K. Mathews, W. McClure.

All conference participants wishing to present a poster on their research should include a title and brief abstract with their conference application.

Bones and Teeth, Chemistry, Physiology and Structure of

Kimball Union Academy

Lawrence G. Raisz, chairman; H. Clarke Anderson, vice chairman; Dame Honor B. Fell, honorary chairman.

14 July. Role of cyclic nucleotides in bone metabolism (William A. Peck, session chairman): M. P. M. Hermann-Erlee, T. J. Martin, Glenda Wong, Theresa L. Chen, David Feldman. Poster session to be selected from abstracts submitted by 1 May 1980 to H. Clarke Anderson, Department of Pathology, University of Kansas Medical Center, Rainbow Boulevard at 39th, Kansas City, Kansas 66103. Submit three copies.

15 July. Determinants of cartilage differentiation (George R. Martin, session chairman): Albert Dorfman, Peter K. Mueller, A. T. Hewitt. Noncollagenous proteins in bone and dentin (Arthur Veis, session chairman): James T. Triffitt, William T. Butler.

16 July. Effects of vitamin D and its metabolites on skeletal tissue (Paula H. Stern, session chairman): Murray J. Favus, Theodore J. Hahn, Marijke E. Holtrop, Barbara E. Kream, Yoko Tanaka.

17 July. Calcium regulation in fish and lower vertebrates (Louis V. Avioli, session chairman): D. Harold Copp, Peter K. Pang, Michael S. Holick. Special lecture on sails and whales: George Nichols, Jr.

18 July. Electrical effects of skeletal growth and repair (Gideon A. Rodan, session chairman): C. Andrew L. Bassett, Sylvia Fitton Jackson, Zachary B. Friedenberg, Richard B. Borgens, Arthur Pilla.

Cancer

Colby-Sawyer College

Frederick F. Becker, chairperson; Leila Diamond, vice chairperson.

Recent Advances in Molecular and Cell Biology

18 August. DNA—structure, function, manipulation: Shirley Tilgham, "DNA structure"; Kenneth Marcu, "Recombination"; Dean Hamer, "Control of transcription"; Renato Baserga, "Micro injection and transfection."

19 August. The "Cancer Gene": Alfred Knudson, "Human cancer genetics"; Michael Siciliano, "Melanoma gene(s) in fish"; Susan Astrin, "Participation of viral genes"; Elisabeth Gateff, "*Drosophila* tumor genetics"; Paul T'so, "Neoplastic evolution"; Helene Smith, "Analysis of transformation and selection in culture."

20 August. Cell surfaces and membranes: Gunther Blobel, "Biogenesis"; Graham Carpenter, "Epidermal growth factor"; J. E. Ash, "Transmembrane control"; Erkki Ruoslahti, "Glycoproteins"; Paul Black, "Cell surface shedding."

21 August. Tumor heterogeneity: George Poste, "General concepts"; Gloria Heppner, "Intercellular relationships"; Robert S. Kerbel, "Immunological heterogeneity."

22 August. Growth control: Gordon Sato, "Hormone dependence"; Arthur B. Pardee, "Growth factors"; M. Judah Folkman, "Tumor control."

Catalysis

Colby-Sawyer College

Eric W. Stern, chairman; Jule A. Rabo, vice chairman.

23 June. M. A. Vannice, "Simultaneous kinetic/IR spectroscopic studies of metal CO hydrogenation catalysts"; R. A. Sapienza, "Oxide interpretations of syngas reactions"; A. Brenner, "The catalytic chemistry of supported transition metal carbonyl complexes"; B. C. Gates, "Catalysis by supported bimetallic molecular clusters."

24 June. P. B. Wells, "Aspects of hydrogen and hydrocarbon reactivity during catalytic hydrogenation"; R. G. Donnelly, "Modeling and simulation of alloy catalyst surfaces"; T. S. King (subject to be announced); R. T. K. Baker, "Direct observation of wetting and spreading of metal particles on supports."

25 June. M. J. Kelley, "Instrumental characterization of reforming catalysts"; H. Charcosset, "Physico-chemical approach to the characterization of highly dispersed bimetallic supported catalysts"; T. R. Hughes, "Improved aromatization selectivity of naphtha reforming catalysts by carbonaceous deposits from reactant hydrocarbons."

26 June. W. O. Haag, "Physical and catalytic properties of HZSM-5-type zeolites"; E. G. Derouane, "Conversion of small molecules by ZSM-5 catalysts: relative roles of acidity and shape selectivity"; M. Grätzel, "Catalysis of photoinduced hydrogen and oxygen generation from water."

27 June. P. K. Hansma, "The study of adsorption and chemical reactions on supported metal particles with tunneling spectroscopy"; R. L. Palmer, "Molecular beam studies on non-random phase transitions."

Cellular Materials, Chemistry and Physics of

Plymouth State College

Gregory A. Campbell, chairman; Harold F. Reymore, vice chairman.

4 August. (G. A. Campbell, discussion leader): F. F. Bailey, Jr., "A reaction sequence model for flexible urethane foam"; R. J. G. Dominguez, "The effect of conditioning such as annealing on the thermal properties of RIM urethane elastomers." (M. Kaplan, discussion leader): A. Barnatt and R. Dyke, "Latest developments in low friability, low K-factor phenolic foams"; J. J. Lindsey, "Polyurea-polyether co-polymer polyols, an intermediate for preparation of multiphase polyurethane composites."

5 August. (R. Solovey, discussion leader): L. C. Reubens, "Relationships between foaming behavior and uniaxial stress-strain measurements of molten radiation crosslinked polyethylenes"; G. V. Sharps, Jr., "Critical foaming pressure determination of various blowing agents in polystyrene melt." (A. J. Havlik, discussion leader): P. B. Rand, "Aqueous foams for geothermal drilling fluids."

6 August. (J. G. Uhlmann, discussion leader): G. Rossmy and J. Kolmeier, "Chemical and physical aspects of the foam rise of flexible polyurethane foams"; F. Baskent and C. S. Eschbach, "Important structural features of silicone surfactants." (J. Ick, discussion leader): T. Alfrey, "The role of coordinated strut buckling in compressive behavior of flexible foams."

7 August. (C. C. Mentzer, discussion leader): J L. Throne, "Static and dynamic property-structure relationships in thermoplastic structural foam"; A. L. Fricke, "Thermoplastic foaming as a process involving simultaneous heat and mass transfer-effects of transport properties on foaming rates." (S. Terry, discussion leader): M. N. Maxey, "A bioethical perspective on risk-benefit analysis."

8 August. (E. Maxey, discussion leader): Vytenis Babrauskis, "Predictive flammability measurement on mattress materials"; H. G. Nadeau, "Research results from scaling the ICBO-UL room corner compartment fire tests."

An application blank for attendance at the Gordon Research Conferences may be found on page 1263. A summary of the program is on pages 1246 and 1247.

Ceramics, Solid State Studies in

Kimball Union Academy

F. F. Lange, chairman; L. C. DeJonghe, vice chairman.

Toughening, Microcracking and Deformation Phenomena

4 August. Toughening phenomena (R. Cannon, discussion leader): J. D. Eshelby, "Constrained phase transformations"; A. H. Heuer, "Martenistic transformations and their role in toughening ceramics." (W. W. Gerberich, discussion leader): A. G. Evans, "Toughening mechanism in ceramics"; H. Ruf and N. Claussen, "Energy absorption ahead of a crack tip: a unified model."

5 August. Residual stress fields and microcracking (D. P. H. Hasselman, discussion leader): M. Swain, "The significance of phase transforming inclusions and precipitates to the mechanical properties of glass and stabilized ZrO_2"; A. Cooper, "Residual stresses, strength and abrasion resistance of ion exchanged glasses." (S. M. Wiederhorn, discussion leader): Y. M. Ito, "Numerical modeling of microcracking in two-phase ceramics"; R. Hoagland, "Analysis of toughening mechanisms in polycrystalline ceramics."

6 August. Microstructural aspects of fracture (R. Rice, discussion leader): A. S. Argon, "Fiber reinforcement of cementitious materials"; E. R. Fuller, Jr., "Phase equilibria and fracture of coal gasification refractories." High temperature deformation and fracture (J. Tien, discussion leader): R. Raj, "Creep and time dependent cracking in glass ceramics"; M. H. Lewis, "Microstructure, creep and fracture mechanics of Si-Al-O-N ceramics."

7 August. Short topical presentations of mechanical behavior of ceramics (R. E. Tressler, session leader). C. B. Raleigh, "Earthquakes and global fracture."

8 August. Microstructural changes during deformation (A. A. Solomon, discussion leader): W. D. Nix, "Diffusion controlled cavity growth"; D. R. Clarke, "High temperature deformation of two-phase ceramics: microstructural aspects."

Chemotherapy of Experimental and Clinical Cancer

Plymouth State College

Robert E. Parks, chairman; Emil Frei, vice chairman.

28 July. Drug resistance (R. Brockman, discussion leader): R. Schimke, "Gene amplification mechanisms in drug resistance"; B. Chabner, "Resistance to antipyrimidines"; J. Bertino, "Methods to prevent or overcome clinical drug resistance." Membrane transport of antitumor drugs (C. Cass, discussion leader): A. R. P. Paterson, "Inhibitors of nucleoside transport"; G. Goldenberg, "Membrane transport of alkylating agents."

29 July. Chemotherapy of DNA viruses and cancer (J. Pagano, discussion leader): W. Prusoff, "DNA virus enzymes as drug targets"; P. Furman, "Development and mechanism of action of acyclovir"; J. Pagano, "Prospects of inhibiting the E-B virus." Carcinogenesis by antitumor drugs (M. Fink, discussion leader): B. Weinstein, "Basic mechanisms in carcinogenesis"; R. Adamson, "Animal studies."

30 July. Nitrosoureas (D. Ludlum, discussion leader): D. Ludlum, "Interaction of nitrosoureas with DNA"; M. Colvin, "Pharmacokinetics of the nitrosoureas"; P. Schein, "Clinical aspects of the nitrosoureas." Steroid receptors in chemotherapy (Paul Carbone, discussion leader): W. McGuire, "Hormone receptors and breast cancer"; D. Tormey, "Integration of hormone therapy in breast cancer."

31 July. Anthracyclines and anthracene diones: rational design, molecular biology and clinical evaluation (D. Johns, discussion leader): E. Acton, "Rational design of more effective anthracyclines"; N. Bachur, "Anthracyclenes: molecular and applied pharmacology and toxicology"; D. Von Hoff, "Anthracene diones and anthracyclenes: clinical activity and effects on tumor cell clonogenicity." Tumor microheterogeneity and therapy (E. Frei III, discussion leader): P. Calabresi, "Impact of human tumor heterogeneity on treatment with drugs and irradiation."

1 August. Interferon and thymic hormones (K. Folkers, discussion leader): John Douros, "Chemical aspects of thymic peptides"; P. Chretien, "Clinical aspects of thymic hormones"; S. Pestka, "Interferons."

Coatings and Films, Chemistry and Physics of

Plymouth State College

S. S. Labana, chairman; H. E. Bender, vice chairman.

11 August. (Leon Kutik, session chairman): Rolf Zimmerman, "Topical problems in the field of water soluble resins

and emulsions''; George Bufkin, ''Room temperature crosslinking emulsions.'' (R. M. Fitch, session chairman): Arvid Berge, ''Emulsion polymerization with initiation in monomer droplets''; Jim Woo, ''A unique method of preparing water reducible polymers by grafting.''

12 August. (E. Gonick, session chairman): Charles Kumins, ''Long-range effects of sorption relative to adhesion and corrosion control by organic coatings''; Max Kronstein, ''Reactions of metal oxide pigments in coatings.'' (Percy Pierce, session chairman): Terry Blake, ''Wetting kinetics—a molecular kinetic theory and its comparison with experiment''; H. Spoor, ''Recent results concerning the electrodeposition of cationic resins.''

13 August. (F. Louis Floyd, session chairman): J. Kumanotani, ''Reactions in film formation and properties of the naturally occurring superdurable Japanese lacquer''; Jim Kinstle, ''New synthetic routes to urethane polymers.'' (S. P. Pappas, session chairman): J. A. Antonelli, ''Latent catalysts for melamine-cured high solids coatings''; W. J. Mijs, ''Acid catalyzed curing reactions in coatings.''

14 August. (Ron Eby, session chairman): Tony Tortortello, ''Rheological studies on high solids coatings''; Larry Thompson, ''Reactive organic coatings for electronic devices fabrication.'' (C. H. Howard, session chairman): Jim Berry, ''Government regulations and emerging technologies''; D. Lorke, ''Toxicity testing of coating materials: significance and implication of TSCA.''

15 August. (H. E. Bender, session chairman): S. Gupta, ''Coatings research in developing countries''; William Dark, ''Advances in liquid chromatographic compositional characterization of epoxy coatings and composites''; Eric Clayfield, ''Adsorption of polymers on solids and dispersion stabilization.''

Corrosion

Colby-Sawyer College

R. M. Latanision, chairman; Graham C. Wood, vice chairman.

21 July. Hydrogen permeation in metals (G. C. Wood, discussion leader): L. Nanis, ''Advances in permeation methods''; H. W. Pickering, ''Factors affecting hydrogen absorption in metals.'' Hydrogen embrittlement (I. M. Bernstein, discussion leader): B. J. Berkowitz, ''Embrittlement of iron and nickel alloys in H_2/H_2S environments''; P. J. Ficalora, ''The role of adsorption in hydrogen embrittlement.''

22 July. Stress corrosion cracking (L. A. Heldt, discussion leader): E. N. Pugh, ''Evidence for the discontinuous nature of transgranular stress corrosion cracking in FCC alloys''; R. Wei, ''Fracture mechanics and surface chemistry of environmentally-assisted crack growth.'' Stress corrosion cracking (D. J. Duquette, discussion leader): Z. S. Smialowska, ''Mechanisms of intergranular SCC of austenitic stainless steels''; C. L. Briant, ''Corrosion and SSC of iron-base alloys.''

23 July. Corrosion inhibitors (H. H. Uhlig, discussion leader): G. Trabanelli, ''Some problems in the inhibition of localized corrosion phenomena''; I. L. Rosenfeld, ''Corrosion inhibition of freshly generated surfaces.'' New direction in corrosion rate measurements (A. Pourbaix, discussion leader): D. D. Macdonald, ''Recent advances in electrochemical techniques for corrosion rate measurements''; J. R. Ambrose, ''Disk electrode measurements.''

24 July. Corrosion resistant materials (J. Kruger, discussion leader): K. Hashimoto, ''Corrosion resistance of glassy metals''; J. J. Ritter, ''A qualitative ellipsometric approach to studying film growth under organic coatings.'' Special lecture (B. E. Wilde, discussion leader): J. O'M. Bockris, ''A hydrogen economy.''

25 July. Localized corrosion (M. B. Ives, discussion leader): K. E. Heusler, ''Kinetics and mechanisms of pit initiation on passive iron''; H. H. Strehblow, ''The destruction of passive films by agressive anions.''

There will be a poster session. People interested in poster presentations should contact R. M. Latanision.

Crystal Growth

Holderness School

Glenn Cullen, chairman; Edward A. Giess, vice chairman.

14 July. Epitaxial growth (M. Small, chairman): J. Bloem, ''Growth mechanisms of CVD silicon''; S. Blank, ''Thermodynamics and kinetics of garnet LPE''; G. Olsen, ''Growth of quaternary III-V alloys by LPE and CVD.'' Laser annealing (F. W. Young, Jr., chairman): J. Narayan, ''Studies related to crystal growth utilizing laser melting''; L. D. Hess, ''Laser induced homo and heteroepitaxy of thin films for applications in microelectronics.''

15 July. The influence of grown-in and process-induced defects on device performance (A. Reisman, chairman): G. R. Booker, ''TEM and SEM characterization of III-V materials for device structures''; L. Jastrzebaski, ''The effect of As-grown defects in float-zone silicon on the performance of large area CCD imagers''; T. E. Seidel, ''Defect control in silicon integrated circuit processing.'' Advanced methods of characterization (R. N. Hall, chairman): J. Lagowski, ''An overview of solid-state electronic methods of crystal characterization''; G. E. Possin, ''Electrical characterization of heavy doping effects in silicon.''

16 July. Advances in special materials (C. Sahagian, chairman): W. Bonner, ''Progress in indium phosphide bulk single crystal growth and substrate characterization''; A. Lockwood, ''Single crystal growth of mercury cadmium telluride''; D. J. Larson, Jr., ''Convective influence on eutectic and off-eutectic plane from solidification.'' Growth of large diameter crystals (A. F. Witt, chairman): N. Thomas, ''LEC growth of large diameter GaAs crystals''; W. Lin, ''Some engineering and scientific aspects of large diameter silicon crystal growth.''

17 July. Crystal growth and characterization related to photovoltaic applications (T. Surek, chairman): F. Fan, ''Recent advances in high efficiency, low cost gallium arsenide solar cells''; T. F. Ciszek, ''An edge-supported pulling technique for silicon sheet growth''; D. S. Ginley, ''Passivation of grain boundaries in polycrystalline solar cell materials.'' Guest presentation: E. O. Johnson, ''The Texas Instruments' solar energy system development.'' Poster discussion session.

18 July. Fundamental considerations in crystal growth (K. Jackson, chairman): J. H. Gilmer, ''Kinetic models for segregation and ordering''; D. T. J. Hurle, ''Convection and stability in melt growth processes''; R. F. Sekerka, ''Instabilities during the induction heating of ceramics''; J. M. Robertson, ''Epitaxially grown monocrystalline garnet CRT phosphor screens''; H. Arend, ''Exploratory crystal growth techniques in the materials research of non-metallic solids''; B. Mutaftschiev, ''Nucleation and coalescence of metal particles in the very first stages of condensation of metallic vapor on insulator substrate''; W. E. Langlois, ''Digital simulation of thermocapillary flow in rotating systems''; L. O. Wilson, ''Two dimensional simulation of silicon oxidation''; G. Blum, ''Thin tellurium films''; R. Nitsche, ''Prepara-

tion of crystallization experiments under microgravity in space lab"; E. Bauser, "Growth mechanisms and properties of GaAs LPE layers"; F. Coryell, "Thermal solutal convection"; A. S. Jordan, "Thermal stress induced dislocation generation in poled GaAs, InP, and Si crystals"; E. A. D. White, "Recent developments in semiconductor LPE growth."

Cyclic Nucleotides

Kimball Union Academy

John H. Exton, chairman; Ferid Murad, vice chairman.

9 June. β-Adrenergic receptor/adenylate cyclase (A. Gilman, chairman): R. Lefkowitz, J. Northup, H. Bourne. Adenylate cyclase (A. Gilman, chairman): T. Pfeuffer, M. Vaughan, L. Birnbaumer.

10 June. α-Adrenergic receptor (R. Lefkowitz, chairman): B. Hoffman, D. U'Prichard, P. Blackmore. α-Adrenergic mechanisms (R. Lefkowitz, chairman): K. H. Jakobs, R. Michell, J. Putney.

11 June. Calmodulin (C. Brostrom, chairman): D. Storm, E. Reimann, J. Penniston. Protein phosphorylation (T. Soderling, chairman): D. Graves, D. Gibson, J. Garrison.

12 June. Insulin/protein phosphorylation (M. Czech, chairman): J. Avruch, J. Larner, L. Jarett. Intracellular signaling: Integrated action of cyclic nucleotides and calcium (M. Berridge, speaker).

13 June. Cyclic nucleotide mechanisms (J. Corbin, chairman): J. Krakow, S. Francis, C. Klein.

Dielectric Phenomena

Holderness School

George Chantry, chairman; William J. MacKnight, vice chairman.

28 July–1 August. Basic theory of dielectric relaxation: R. M. Hill, keynote paper; contributions from R. H. Cole, A. K. Jonscher, G. Williams. Fundamentals of dielectric breakdown: J. M. Calderwood, E. O. Forster, J. J. O'Dwyer, A. K. Jonscher. Dielectric studies of polymers: W. J. MacKnight, R. H. Boyd, M. G. Broadhurst. Rotational Brownian motion and dielectric relaxation: J. McConnell, R. L. Fulton, M. Evans, A. Morita. Breakdown and conduction in solids: A. Kelen, Y. Inuishi, P. Rohl, P. A. Robinson, J. E. Thompson, H. Douglass-Short. Dielectric phenomena at cryogenic temperatures: J. le G. Gilchrist, J. Fontanella, I. Lefronitz. Interfacial effects and biological studies: A. Savini, T. J. Lewis, W. Vaughan, L. Genzel, I. Falkehag, B. J. Berne. Breakdown in liquids: G. Ascarelli, W. G. Chadband, J. C. Devins, R. Bartnikas. Interactions, the relation of dielectrics to other physico-chemical techniques: C. B. Duke, J. Yarborough, R. Coelho, S. Matsuoka, M. Zahn.

Drug Carriers in Biology and Medicine

Plymouth State College

Garret M. Ihler, chairman; T. M. S. Chang, vice chairman.

9 June. Opening remarks: Garret Ihler. Interaction of liposomes with cells (Dimitri Papahadjopoulos, session chairman): Dimitri Papahadjopoulos, "New methodologies of liposomes preparation and their interaction with cells"; R. L. Juliano, "Interaction of liposomes with serum factors and with macrophages"; Frank Szoka, "A high efficiency liposome-cell fusion system." Biological properties of liposomes in vivo (Gregory Gregoriadis, session chairman): Gregory Gregoriadis, "Stability of liposomes in vivo and in vitro: implications for therapeutic use"; John Weinstein, "Selective delivery of drugs by temperature-sensitive liposomes"; John Baldeschwieler, "Study of phospholipid vesicle targeting in vivo using the perturbed angular correlation technique"; G. Scherphof, "Interaction of liposomes with plasma proteins at the uptake of liposomial markers by the various cell types of the liver."

10 June. Cellular carriers (Garret Ihler, session chairman): Garret Ihler, "Erythrocytes as carriers for drugs and enzymes"; Robert Schlegle, "Red cell mediated micro-injection-potential application in amniocentesis"; A. Loyter, "Gene transfer in eucaryotic cells: the molecular mechanism of DNA uptake and transport in the mammalian cells"; A. Raziel, "Microembols for therapeutic and chemotherapeutic embolization; some other microcapsular carriers." Immobilized enzymes (T. M. S. Chang, session chairman): T. M. S. Chang, "The present status of immobilized enzymes and absorbents for medical application"; David Terman, "Extra corporeal immunoadsorbents for therapy of neoplastic and autoimmune diseases"; Mark Poznansky, "Soluble enzyme albumin as a carrier system for enzyme replacement"; F. Y. Yang (subject to be announced).

11 June. Systems for sustained release and altered pharmacokinetics (Judah Folkman, session chairman): Judah Folkman, "Controlled release of biological molecules from polymers"; Robert Langer, "Sustained release of macromolecules; kinetics, insulin delivery, and external modulation"; Anthony Cerami, "Glucose-controlled insulin—delivery system." Tissue-targeted delivery systems (Wayne Magee, session chairman): Wayne Magee, "Implications for lymphocyte activation mediated by liposomes"; Irving Weissman, "The use of monoclonal antibodies for the in vitro and in vivo detection and treatment of mouse leukemia"; Tom Oeltmann, "Protein conjugates as potential antitumor agents"; John Collier, "Chimeric toxins containing the A chain of diphtheria toxin linked to lectins or antibodies."

12 June. Enzyme therapy and endocytosis systems (William Sly, session chairman): William Sly, "Phosphomannosyl receptor for uptake and intracellular traffic of lysosomal enzymes"; Paul Schlessinger, "Mannosyl glycoprotein receptors on macrophages and other mammalian cells"; Roscoe Brady, "Carbohydrate recognition and other factors for success in enzyme replacement"; Heinz Baumann and Darryl Doyle, "Transfer of specific receptor proteins between cells." Medical applications of carriers (Carl Alving, session chairman): Carl Alving, "Liposomes in Leishmaniasis and malaria"; Y. E. Rahman, "Liposome applications in metal storage diseases"; Gregory Gregoriadis, "Liposomes and hepatitis B vaccine"; Peter Page-Thomas (subject to be announced).

13 June. Do carriers have a bright future in cancer chemotherapy? (Garret Ihler, session chairman): Eric Mayhew, "Chemotherapeutic drugs and carriers"; Yousef Rustum, "Potential value of liposome-encapsulated drugs in cancer chemotherapy."

Drug Metabolism

Holderness School

Edward Bresnick, chairman; Patrick Murphy, vice chairman.

21 July. Formation of reactive intermediates (John Baer, chairman): Karen Jennette, "The carcinogen chromate: metabolism and interaction with DNA"; Robert Snyder, "Evidence that benzene metabolites mediate benzene-induced bone marrow depression"; Ann Autor, "Oxygen free radicals and enzyme induction"; I. Glen Sipes, "Role of bioactivation in anesthetic induced hepato-

toxicity." Biliary implications in drug metabolism (George Wright, chairman): Walter Levine, "Bio-transformation in the biliary excretion of xenobiotics"; Franz Simon, "Regulation of biliary secretion through drug induced changes in plasma membrane compositions."

22 July. Reactions of secondary metabolism (Hans Ruelius, chairman): William Berndt, "Glutathione conjugation: toxicological considerations"; William Jakoby, "Homogenous enzymes active in the sulfation of phenols, Hydroxysteroids, alcohols and hydroxylamines"; Brian Burchell, "Identification, separation and purification of multiple forms of UDP-glucuronyltransferase." Selenium and α-tocopherol as influences of drug metabolism (Robert Rozman, chairman): Albrecht Wendell, "Drug induced lipid peroxidation in selenium-adequate and deficient mice"; Ray Burk, "The effect of selenium deficiency on drug metabolism and toxicity"; Jordan Holtzman, "Reactive oxygen and drug toxicity."

23 July. Prostaglandin biosyntheses and cooxygenation of drugs (Jim Fouts, chairman): Larry Marnett, "Mechanistic aspects of archidonic acid-dependent cooxygenation"; Thomas Eling, "Xenobiotic oxidation during prostaglandin formation"; Robert Gorman, "Modulation of human platelet physiology by thromboxane synthetase inhibitors." Residues as important determinants in drug metabolism (Sandy Figdor, chairman): Alexander MacDonald, "Chemical and biological evaluation of drug residues in edible animal tissue using surgically modified animal models and bacterial models"; Frank Wolf and Anthony Liu, "Studies on the mechanism of mutagenesis and formation of tissue residues from Ronidozole, a nitroimidazole."

24 July. Newer technology in drug metabolism (Patrick Murphy, chairman): Peter Kissinger, "Electrochemical and liquid chromatographic techniques for determination and study of reactive intermediates in drug metabolism"; Robert Wolen, "Stable isotope applications in clinical pharmacology"; Dominic Desiderio, "Mass spectrometry studies of biologically important peptides." Panel: Future of drug metabolism (Fred DiCarlo, chairman): Jim Fouts, John Baer.

25 July. Alcohol and drug metabolism (Carl Smith, chairman): Ron Thurman, "Redox inhibition of mixed-function oxidation in the hemoglobin-free perfused rat liver by physiological concentrations of ethanol"; C. S. Lieber, "Ethanol: its oxidation by microsomes and interaction with microsomal function."

Elastomers

Colby-Sawyer College

L. J. Fetters, chairman; P. C. Juliano, vice chairman.

14 July. S. Bywater, "Spectroscopic studies on the active centers in anionic diene polymerization and their connection to polymerization mechanism"; (R. P. Quirk, discussion leader). H. R. Allcock, "Molecular structure and elasticity in polyphosphazines and related inorganic chains"; (N. Calderon, discussion leader). G. Quack, "Chemical modifications and applications of low molecular weight polybutadienes"; (M. J. Delvaux, discussion leader). R. N. Young, "Chain transfer reactions in the anionic polymerization of dienes"; (D. J. Worsfold, discussion leader).

15 July. C. Bucknall, "Kinetics of crazing and shear yielding in rubber modified plastics"; (P. C. Juliano, discussion leader). A. Thomas, "Fracture of vulcanized and unvulcanized rubber"; (K. W. Scott, discussion leader). W. Knauss, "Measurements of deformation of elastomeric bonds"; (F. N. Kelley, discussion leader). D. Schulz, "Acyclic azoester modification of 1,4 and 1,2 polybutadienes: Structure property relationships"; (J. Prud-Homme, discussion leader).

16 July. E. L. Thomas, "Electron microscopic studies of amorphous and phase separated polymers"; (J. E. McGrath, discussion leader). J. Schrag, "Application of dilute solution oscillatory flow birefringence and viscoelasticity for branching analysis"; (J. E. L. Roovers, discussion leader). G. Ouano, "Characterization of the molecular weight distribution of linear and randomly branched polymers by GPC and on-line low angle laser light scattering photometry/viscometry techniques"; (M. R. Ambler, discussion leader). D. Soong, "Viscoelastic properties of star-shaped and comb-shaped homopolymers"; (D. Hansen, discussion leader).

17 July. M. Doi, "Molecular dynamics and rheological properties of uncrosslinked systems"; (D. J. Plazek, discussion leader). D. Pearson, "The elastic properties of entangled systems: Networks and melts"; (G. Ver Strate, discussion leader). M. Morton, "Retrospect on synthetic rubber during and after World War II"; (J. Lal, discussion leader).

18 July. D. J. Plazek, "The effect of long chain branching on viscoelastic behavior"; (D. Pearson, discussion leader). R. Jordan, "Characterization of branching in elastomers via GPC and low angle laser light scattering"; (N. Hadjichristidis, discussion leader). H. L. Stephens, "Characterization of guayule resins"; (M. Morton, discussion leader).

Electron Distribution and Chemical Bonding

Plymouth State College

R. A. Bonham and L. C. Allen, cochairmen.

30 June. (A. Vos, discussion chairman): D. Feil, "Recent advances in charge density analysis by x-ray methods"; F. Hirshfeld, "Charge density maps and their application"; M. Lehmann, "How accurate are charge density maps?" (M. Newton, discussion chairman): R. F. Stewart, "Recent developments in x-ray theory"; J. Schneider, "Recent developments in x-ray experiments"; T. Koetzel, "Deformation density maps from the X-N approach."

1 July. H. Ibach, "Experimental determination of chemical bonding on surfaces"; W. Goddard, "Theory of surface charge densities"; G. Gibbs, "The role of charge densities in mineralogy"; W. Plummer, "Surface structure"; C. Cook, "Cluster methods for ionic crystals."

2 July. (S. Berko, discussion chairman): M. Fink, "High precision experimental measurements of bonding densities in small molecules"; E. Weigold, "Direct determination of orbital momentum densities by the (e,2e) reaction"; P. Pattison, "The measurement of momentum dentities by use of Compton scattering." (M. Cooper, discussion chairman): P. Eisenberger, "The use of synchrotron sources to determine surface bonding"; M. Loupias, "Compton experiments with synchrotron radiation"; H. F. Wellenstein, "Electron Compton scattering."

3 July. R. N. West, "The measurement of momentum density using positrons"; G. Mahan, "Theory of ionic crystals." (P. Ros, discussion chairman): K. Schwarz, "Metals and alloys—a chemical approach"; W. Weyrich, "Momentum distributions—chemical interpretations."

4 July. (P. Becker, discussion chairman): T. Maslen, "Transition metal complexes—experiment"; K. Morokuma, "Transition metal complexes—theory"; I. Olovsson, "Molecules of biological interest—H bonds and biological systems."

Electron-Donor Acceptor Interactions

Brewster Academy

Harvey Scher, chairman; William C. Herndon, vice chairman.

11–15 August. N. Mataga, "Picosecond time-resolved laser spectroscopy of excited state charge transfer and related phenomena"; Adam Heller, "Chemistry of carrier transport across surfaces, interfaces, and grain boundaries in semiconductor-liquid junction solar cells"; D. Haarer, "Charge-transfer in quasi-one-dimensional systems and in photoreactive systems"; G. Shuster, "Electron transfer initiated reactions of organic peroxides: chemiluminescence and bioluminescence"; L. Dutton, "Electrochemical reactions in photosynthetic membranes"; C. B. Duke, "Relaxation of polymers and molecular solids: photoemission"; J. J. Ritsko, "Charge transfer in intercalated graphite by inelastic electron scattering spectroscopy"; N. Bartlett, "Graphite salts and other synthetic metals—their constitution and properties"; G. Closs, "Spin 1/2 donor-acceptor complexes of cyclic conjugated π-systems generated by pulse radiolysis"; J. Miller, "Electron transfer in low temperature matrices"; W. Klemperer, "Structural studies of weakly bound molecular complexes by molecular beam techniques"; M. Gratzel, "Light induced charge transfer in micelle solutions"; F. K. Fong, "Cyclic pathway of electron donor-acceptor interactions in the chlorophyll water-splitting reaction"; G. Wilse Robinson, "Diffusion modulated donor-acceptor trapping in disordered media."

Electron Spectroscopy

Brewster Academy

T. D. Thomas, chairman; C. J. Powell, vice chairman.

14–18 July. E. Weigold, "(e, 2e) spectroscopy"; B. A. Sexton, "Low-energy-electron energy-loss spectroscopy on surfaces"; R. L. Park, "Extended-fine-structure studies of surfaces using appearance-potential spectroscopy"; J. Silox, "Microspectroscopy with 100-keV electrons"; F. Wuilleumier, "Energy dependence of shakeup and shakeoff"; P. H. Citrin, "XPS of clean metal surface atoms"; W. R. Salaneck, "Photoelectron spectroscopy of non-ideal-geometry systems: organic molecular and polymeric solids"; S. Y. Tong, "Surface structure determination by photoemission and electron scattering spectroscopies"; D. Dill and J. L. Dehmer, "Shape-resonance enhancement of vibrational excitation in photoionization and electron scattering"; F. J. Himpsel, "Resonance satellites"; R. J. Celotta, "Electron polarization phenomena in electron scattering"; W. H. Weinberg, "Inelastic electron tunneling spectroscopy"; Y. Baer, "Bremstrahlung Isochromat Spectroscopy (BIS): an old method applied to the study of unoccupied states in solids"; G. A. Sawatzky, "Auger-photoelectron coincidence spectroscopy"; K. Schönhammer, "Dynamical screening in the theory of Auger spectra"; J. C. Fuggle, "Comparison of theory and experiment in Auger spectroscopy"; J. E. Houston, "Applications of deconvolution procedures in electron spectroscopy: performance, promise, and pitfalls." There will be a limited opportunity for presentation of contributed work at a poster session.

Environmental Sciences: Water

New Hampton School

Robert L. Moolenaar, chairman; George L. Baughman, vice chairman.

The Quantitative Basis for Predicting Concentrations of Pollutants in Natural Waters

16 June. (Donald Mackay, discussion leader): Sam Yalkowsky, "The estimation of aqueous solubility of organic nonelectrolytes"; Peter Liss, "The chemistry of surface films on natural waters and their role in the transfer of matter across environmental air-water interfaces." (James Davidson, discussion leader): Sam Karickhoff, "Sorption and desorption of organics on sediments."

17 June. (John Robertson, discussion leader): Rene Schwarzenbach, "The behavior of organic pollutants in a natural river-groundwater infiltration system: laboratory studies and field measurements"; Paul Roberts, "The transport and fate of trace organics in groundwater." (Kenneth Macek, discussion leader): Per-Erik E. Bergner, "Some basic principles of bioaccumulation and biomagnification."

18 June. (Bernard Patton, discussion leader): Donald O'Connor and John St. John, "The fate of organic chemicals in lakes"; Larry Games, "Prediction and verification of environmental concentrations of detergent chemicals." (Jerald Schnoor, discussion leader): Ray Lassiter, "Validation of models for describing the fate of chemicals in natural waters."

19 June. (W. Brock Neeley, discussion leader): (Speaker to be announced), "How good do predictions of pollutant concentrations need to be?"; Donald Mount, "Validity of aquatic effect estimates derived from laboratory toxicity data"; Bill Cooper, "Ecological effects derived from field experimentation." (Phil Gilbert, discussion leader): David Gibson, "Microbial degradation of aromatic hydrocarbons."

20 June. (David Ollis, discussion leader): Don Button, "The concentration dependency of microbial hydrocarbon metabolism in aquatic systems"; Bill Mabey, "The kinetics of photolysis and hydrolysis in the aquatic environment."

Enzymes, Coenzymes and Metabolic Pathways

Kimball Union Academy

W. Wallace Cleland and G. A. Hamilton, co-chairmen; George Kenyon and Joseph Villafranca, co-vice chairmen.

7–11 July. E. R. Stadtman, "Interconvertible enzyme cascades in cellular regulation"; H. B. Brewer, "Regulation of activity of HMG-CoA reductase"; J. Moss, "Mechanism of action of choleragen regulation of adenylate cyclase by ADP-ribosylation"; B. Samuelsson, "Prostaglandin biochemistry"; O. Hayaishi, "Mechanism of prostaglandin cyclooxygenase and hydroperoxidase"; J. E. Ayling, "Mechanism of oxygen activation by tetrahydropterin dependent hydroxylases"; S. J. Benkovic, "Mechanistic aspects of tetrahydropterin requiring oxygenases"; J. J. Villafranca, "Inhibition of dopamine-beta-hydroxylase by suicide inhibitors"; M. Nozaki, "Structure and function of non-heme iron containing dioxygenases"; D. J. T. Porter, "Inhibition of enzymes by nitro analogs of carbanion intermediates"; W. H. Orme-Johnson, "Mechanism of nitrogenase"; N. R. Orme-Johnson, "Mechanism of adrenocortical mitochondrial cholesterol side chain cleavage"; G. L. Kenyon, "^{13}C-NMR of mandelate metabolism in whole bacterial cells and in isolated, cross-linked multienzyme complexes"; M. H. O'Leary, "Isotope effects on decarboxylases"; P. F. Cook, "Evidence from secondary isotope effects that dehydrogenase mechanisms involve geometric distortion"; J. F. Morrison, "Characterization of slow binding and slow tight binding inhibitors"; G. H. Reed, "New spectroscopic probes of the structure of metal-nucleotide complexes on enzymes"; M. D. Tsai, "^{31}P(^{17}O) NMR studies of metal-nucleotide interactions"; G. Lorimer, "Mechanism of ribulose-bis-phosphate carboxylase"; A. S. Mildvan, "Kinetic and magnetic resonance studies of the mechanism of action

and regulation of protein kinase"; R. H. Abeles, "Kinetics of the reaction of cyclopropanone with yeast aldehyde dehydrogenase—a model for enzyme substrate interaction"; I. Scott, "Application of C-13 MNR in vivo and in vitro"; J. Stubbe, "Mechanism of ribonucleotide reductase."

Eucaryotic Cells, Introduction of Macromolecules into

Holderness School

Martin Rechsteiner, chairman; Harvey L. Ozer, vice chairman.

16 June. S. Dales, D. Neville, Jr., R. Steinman, "Endocytosis and receptor-mediated uptake"; W. McBride, L. Klobutcher, and J. Gray, "Chromosome-mediated gene transfer."

17 June. S. Silverstein, F. Ruddle, M. Wigler, "DNA-mediated gene transfer I"; D. Doyle, R. Fraley, M. Ostro, "Liposomes and membrane vesicles."

18 June. A. Loyter, D. Livingston, R. Schlegel, T. Uchida, "RBC-mediated microinjection"; M. Martin, L. Siminovitch, R. Weinberg, "DNA-mediated gene transfer II."

19 June. A. Graessmann, M. Capecchi, J. Feramisco, D. Stacey, "Microneedle injection."

20 June. H. Ozer, J. Lucas, and K. Fournier, "Cell reconstruction."

Extrachromosomal Elements

Plymouth State College

Julian Davies, chairman; Nicholas W. Gillham, vice chairman.

16 June. Structure replication (S. Falkow, chairman): R. Rownd, D. Helinski, K. Nordstrom, S. Cohen. Interactions I (incompatibility), (R. Rownd, chairman): B. Kline, K. Timmis, R. Novick.

17 June. Interactions II (gene transfer), (J. Shapiro, chairman): M. Achtmann, N. Willetts, D. Clewell, B. Marrs. Eukaryotes I (H. Mahler, chairman): A. Lambowitz, M. Rabinowitz, A. Tzagaloff, G. Attardi.

18 June. Eukaryotes II (N. Gillham, chairman): J. Boynton, L. Bogorad, N.-H. Chua, J. D. Rochaix. Eukaryotes III (D. Botstein, chairman): R. Wickner, J. Donelson, S. Levings.

19 June. Pathogenicity (M. Achtmann, chairman): S. Falkow, M. So, W. Maas, M. Chilton. Drug resistance mechanisms (J. Davies, chairman): S. Levy, A. Summers, L. Bryan.

20 June. Transposition-(round-table discussion), (S. Cohen, chairman): J. Shapiro, D. Botstein, F. Heffron.

Fiber Science

Colby-Sawyer College

Colin L. Browne, chairman; Norman R. H. Hollies, vice chairman.

30 June. (Session leader to be announced): J. L. Koenig, "Spectroscopic studies of the amorphous phase in semicrystalline polymers"; D. L. VanderHart, "High resolution solid state ^{13}C NMR of semicrystalline polymers"; H. R. Thomas, "Depth profiling of polymer surfaces with ESCA."

1 July. (R. McGregor, session leader): T. Iijima, "Bonding of dyes with polymers: acid dyeing of polyamides"; H. Zollinger, "Dyeing of porous acrylic fibers with cationic dyes"; R. H. Peters, "Some correlations between dyeing properties and the structure of copolyesters."

2 July. (R. S. Porter, session leader): J. F. Fellers, "Polymer liquid crystal solutions: structural considerations, fiber and film wet spinning"; G. C. Berry, "Solution processing of rod-like polymers"; R. V. Subramanian, "Basalt fibers."

3 July. (J. Skelton, session leader): P. R. Lord, "False twist in open end spinning and its consequences"; S. Backer, "Transient components in fiber processing"; J. L. Lundberg, "History of synthetic fibers in the United States."

4 July. (Session leader to be announced): H. D. Weigmann, "Polyester filaments with radially differentiated structure"; H. George, "High speed spinning of polyethylene terephthalate."

Fluids in Permeable Media: Mathematics of Modeling and Simulation

Proctor Academy

Donald W. Peaceman, chairman; Aziz S. Odeh, Martin H. Schultz, and James W. Mercer, co-vice chairmen.

28 July. Groundwater systems (James Mercer, chairman): C. S. Simmons, "Some consequences of the non-Fickian dispersive transport of chain-decayed radio-contaminants in a groundwater system"; D. H. Edward Tang, "Calculation of hydrodynamic dispersivity from heterogeneities"; T. N. Narasimhan, "Numerical simulation of hydraulic fracturing." Stochastic modeling (James Mercer, chairman): Shlomo P. Neuman, "Statistical analysis and stochastic modeling of aquifer behavior"; James Glimm, "Computation of unstable fingers."

29 July. Adaptive solution methods (Martin Schultz, chairman): Joseph Oliger, "Adaptive difference methods for fluid dynamics"; Keith Miller, "Finite element methods with moveable nodes"; Jim Douglas, Jr., "Simulation of miscible displacement by adaptive finite element method." Special topics and poster session (James Mercer, chairman): Michael E. Rose, "Error analysis of Galerkin method for the Buckley-Leverett problem"; A. Ted Watson, "Estimation of two-phase petroleum reservoir properties."

30 July. Finite-difference methods (James Mercer, chairman): William J. Silliman, "The relation between numerical dispersion and the grid orientation effect"; Steven H. Leventhal, "An operator compact implicit method of exponential type"; Ronald G. Larson, "Improved finite-difference reservoir simulation using variably timed flux updating—extension to two dimensions." Comparison of solutions by various organizations to a common reservoir problem (Aziz Odeh, chairman). Representatives of eight companies will briefly describe their programs. Results will be collated and presented on a common basis by the chairman.

31 July. Iterative methods for solving sparse equations (Martin Schultz, chairman): Randolph E. Bank, "Multilevel iterative methods—some recent results"; J. A. Meijerink, "Application of the multiple grid method to the solution of reservoir simulation equations"; Stanley Eisenstat, "Iterative methods for nonsymmetric systems"; Kaz Vinsome, "The combinative iterative method for solving the strongly non-diagonally dominant equations arising in thermal reservoir simulation." Simulation of flow through naturally fractured permeable media (Aziz Odeh, chairman): Hossein Kazemi, "A review of the simulation of naturally fractured reservoirs"; Kaz Vinsome, "Simulation of static fractures."

1 August. Simulation of chemical recovery methods (Aziz Odeh, chairman): Gary Pope, "Chemical and surfactant flooding"; Larry Lake, "Numerical simulation of uranium leaching."

Food and Nutrition

Colby-Sawyer College

Norman N. Potter, chairman; Irving I. Rusoff, vice chairman.

28 July. Nutrition and ageing (Edward J. Masoro, session chairman): Richard C. Adelman, "Overview of the biology of ageing and its experimental exploration"; Vincent J. Cristofalo, "Cellular models of senescence." (Richard C. Adelman, session chairman): Edward J.

Masoro, "Nutritional probe of the ageing process"; Edmond J. Yunis, "Modulating effect of nutrition on age-related changes in the immune system."

29 July. Nutrient requirements and ageing (Vernon R. Young, session chairman): Robert M. Neer, "Calcium, vitamin D and osteoporosis"; Hamish N. Munro, "Protein and energy needs of the elderly"; Vernon R. Young, "Micronutrients and ageing." Taste, food preference and ageing, (Hamish N. Munro, session chairman): Morley R. Kare, "Effects of ageing on taste and flavor"; Barbara F. Harland, "FDA regulatory concerns involving nutrition of the elderly."

30 July. Advances in methodology for studies of drug-nutrient interactions (Daphne A. Roe, session chairman): Peter G. Welling, "Effects of food components on drug bioavailability"; Barbara F. Harland, "Bioavailability of minerals from beers"; Paul M. Newberne, "Effects of selected carbohydrates on mineral status in experimental animals"; Irwin H. Rosenberg, "Effects of drugs on vitamin absorption and enterohepatic circulation"; Richard F. Branda, "Drug effects on cellular uptake of folate using the human erythrocyte as a model system"; Daphne A. Roe, "Human research methodology in studies of drug-nutrient interactions."

31 July. Strenuous exercise and diet, (Roy E. Morse, session chairman): Oliver Owen, "Energy flux during the resting state"; E. A. Newsholme, "Metabolic limitations in the performance of strenuous exercise"; Paul Milvy, "Computer analysis of the significance of carbohydrate depletion and loading in marathon running." Biological, psychological and cultural bases of human food selection (Paul Rozin, session chairman).

1 August. Heavy metals in the food supply. (Donald J. Lisk, session chairman): Donald J. Lisk, "Environmental source of toxic metals"; Kathryn R. Mahaffey, "Changing levels of heavy metals—implications for regulation."

Friction, Lubrication and Wear

Colby-Sawyer College

Ward O. Winer, chairman; William A. Glaeser, vice chairman.

9 June. (D. Godfrey, discussion leader): C. N. Rowe, "Reduction of engine friction losses via lubricant chemistry and physical properties"; B. A. Baldwin, "Additive chemistry in boundary lubrication—some effects of temperature and molecular structure." (L. R. Mahoney, discussion leader): S. M. Hsu, "Effect of base stock chemical composition on friction and wear."

10 June. (H. Avery, discussion leader): W. Ruff, "Solid particle erosive wear of metals and ceramics"; F. Borik, "Response of ferrous materials to abrasive wear." (B. W. Kelley, discussion leader): L. B. Sibley, "Silicon nitride rolling bearings"; W. E. Littmann, "Competitive modes of damage in contact fatigue."

11 June. (M. Gardos, discussion leader): S. Ramalingam, "Thin film coatings for tribological control"; D. Buckley, "On the use of surface analysis in developing improved coatings for tribology." (M. C. Shaw, discussion leader): J. D. Ayers, "Hardening of metal surfaces for wear applications by laser processing."

12 June. (J. B. P. Williamson, discussion leader): J. Molgaard, "The mechanical characterization of friction and wear test equipment"; J. A. Greenwood, "Do we need to characterize surface roughness?" (W. O. Winer, discussion leader): F. T. Barwell, "On the relation between research and application in tribology."

13 June. (D. G. Flom, discussion leader): W. A. Glaeser, "Observation of the wear process in the SEM"; R. Komanduri, "Visual studies of titanium machining." Participants are invited to submit one paragraph abstracts for 10-minute presentations. Poster sessions will be held Monday through Thursday in the late afternoon. Persons wishing to present material should contact the conference chairman or vice chairman.

Fuel Science

New Hampton School

Wendell H. Wiser, chairman; C. Tom Ratcliffe, vice chairman.

30 June. Coal structure and conversion without an external catalyst (Garth Tingey, chairman): Ronald J. Pugmire, "Structural characterization of coal macerals using ^{13}C CP/MAS techniques"; Leon Stock, "Chemical structure implications from reductive alkylation of coal"; Boleslaw Ignasiak, "Aspects of the chemistry of non-reductive alkylation of coals"; Harry Marsh and Steve Ragan, "Aspects of the chemistry within the fluid phase of coal carbonization."

1 July. Fundamental chemistry in synthesis gas conversion (Irving Wender, chairman): Paul Biloen, "Hydrocarbon synthesis from synthesis gas: mechanistic implications"; Edwin L. Kugler, "Synthesis of light olefins from carbon monoxide and hydrogen"; Clarence D. Chang, "Hydrocarbons from methanol: catalysts, mechanisms and kinetics"; V. U. S. Rao, "Conversion of synthesis gas over bifunctional medium pore zeolite catalysts."

2 July. Catalysis in coal conversion and product upgrading (Harold Beuther, chairman): Tom Hughes, "Platinum-rhenium reforming catalysts"; Mordecai Shelef, "The role of catalysis in coal gasification"; Joseph Shabtai, "Recent fundamental studies in catalytic reactions of coal liquids and related model compounds"; Olaf A. Larson, "The mechanism of coke formation on catalysts when processing coal and other heavy bituminous materials."

3 July and 4 July. Mineral matter effects in coal conversion (Ronald H. Fischer, chairman): Barry Granoff, "The chemistry of pyrite and related minerals in coal liquefaction"; Pedro A. Montano, "Characterization of iron sulfides in liquefaction residues and its correlation with liquid yields"; Dwayne Whitehurst, "Mineral matter catalysis of recycle solvent reactions"; Martin Gorbaty, "Mineral matter chemistry to improve coal liquefaction."

Fungal Metabolism

Brewster Academy

Paul A. Lemke and Stuart W. Tanenbaum, co-chairmen; Claude H. Nash and James S. Lovett, co-vice chairmen.

28 July. Toxic peptides from fungi (K. F. Lampe, discussion leader): A. H. Bussey, "Yeast killer toxin: mode of action"; Y. Koltin, "Ustilago killer toxin: a nonspecific nuclease related to viral exclusion"; D. M. Simons, "Structure-toxicity correlations for amatoxins and phallotoxins"; K. F. Lampe, "Cytolytic peptides of the basidiomycetes."

29 July. New fungal pharmacodynamic agents (C. R. Hutchinson, discussion leader): R. D. Durbin, "Chemistry and mechanism of action of tentoxin"; C. T. Gorst-Allen, "Chemistry and structure elucidation of mycotoxins"; B. G. Christensen, "Isolation and modification of new β-lactam antibiotics."

30 July. Use of protoplasts in experimental mycology (C. H. Nash, discussion leader): J. F. Peberdy, "Fungal protoplasts: isolation, reversion, and fusion"; J. Anné, "Gene expression in interspecies hybrids obtained after protoplast fusion"; C. Ball, "Industrial application of protoplasts"; S. Queener, "Protoplast fusion with *Penicillium*

chrysogenum and *Cephalosporium acremonium*"; J. B. Hicks, "Protoplast transformation."

31 July. Experimental probes for secondary metabolism (I. M. Campbell, discussion leader): R. Bentley, "Historical background: why new techniques are needed"; G. McInnes, "Nuclear magnetic resonance, stable isotopes and biosynthesis"; D. J. Aberhart, "Stereochemical studies on the metabolism of amino acids"; R. C. Righelato, "Continuous culture and growth rate measurements"; I. M. Campbell, "Radiogas chromatographic techniques."

1 August. Chemical signals among fungi (R. P. Sutter, discussion leader): C. D. Town, "Differentiation-inducing factors in *Dictyostelium*"; T. C. McMorris, "Sex hormones in *Achlya*"; R. P. Sutter, "Pheromones and sex in *Phycomyces*"; D. B. Finkelstein, "Mating-type factors and protein phosphorylation in *Saccharomyces*."

Gametogenesis

Plymouth State College

A. L. Kierszenbaum, chairman.

30 June. (Robert Erickson, discussion leader): Ulrich Drews, "Expression of the *Tfm* and *Sxr* mutation in the genital tract and in spermatogenesis of the mouse"; Nathalie Josso, "Antimullerian hormone: new data"; Eva Eicher, "XY female mice"; Georgiana Jagiello, "Aspects of sexual dimorphism in pachytene maps of mammalian germinal cells." Poster session.

1 July. (Terence G. Baker, discussion leader): Paul M. Wassarman, "Specific gene expression during oogenesis in the mouse"; John J. Eppig, "Response of the oocyte-cumulus cell complex to gonadotropins in vivo and in vitro." (Anthony R. Bellvé, discussion leader): Norman B. Hecht, "A transillumination approach to DNA replication and DNA repair synthesis in the testis"; Herbert Stern, "Molecular processes associated with activities of chromosomes at pachytene."

2 July. (John D. Biggers, discussion leader): Cornelia P. Channing, "Control of granulosa cell secretion of oocyte maturation inhibitor and inhibin F"; Alex Tsafriri, "Follicular factors in the control of oocyte maturation." (Frank S. French, discussion leader): Everett Anderson, "Cytoskeletal differentiation of the ovarian granulosa cell"; W. Austin Spruill, "The cell biology of sertoli cells in culture." Poster session.

3 July. (A. L. Kierszenbaum, discussion leader): Peter B. Moens, "Regulation of meiosis in yeast"; Søren Rasmussen and Preben Holm, "Interlocking and non-homologous chromosome pairing: a regular feature of meiosis."

4 July. (Allen W. Schuetz, discussion leader): Pierre Guerrier, "Intracellular calcium surge during meiosis reinitiation."

Hemostasis

Proctor Academy

Michael Mosesson, chairman; Virginia Donaldson, vice chairman.

16 June. Interaction of thrombin with cells (T. Detwiler, discussion leader): W. Owen, "Role of endothelium in the inactivation of circulating thrombin"; M. A. Shuman, "The nature of thrombin binding to platelets and role of binding in thrombin-induced platelet secretion"; D. Cunningham, "Mechanisms of thrombin-stimulated cell division." Lipid metabolism in stimulated platelets (M. J. Broekman, discussion leader): M. J. Broekman, "Endogenous phospholipid metabolism in stimulated platelets"; R. L. Bell, "Arachidonic acid release in human platelets"; S. Rittenhouse-Simmons, "Arachidonic acid mobilization in platelets"; E. Lapetina, "Possible role for phosphatidic acid in the process of arachidonate mobilization in platelets and neutrophils."

17 June. Cofactor proteins in hemostasis (L. W. Hoyer, discussion leader): M. E. Nesheim, "Factor V, factor Va, and the assembly of the prothombinase complex"; G. Vehar, "Purification of bovine factor VIII procoagulant protein"; L. W. Hoyer, "Thrombin activation of human factor VIII procoagulant"; M. Hultin, "The role of factor VIII in factor X activation." Interactions of plasma proteins, platelets, and the vessel wall in primary hemostasis (T. Zimmerman, discussion leader): Z. Ruggeri, "Multimeric structure of normal and abnormal factor VIII/von Willebrand factor and its interaction with platelets"; J. Sixma, "The role of von Willebrand factor in platelet adherence to the human vessel wall"; R. Wall, "Endothelial cell binding and release of von Willebrand factor"; G. Marguerie, "Fibrinogen receptors on platelets."

18 June. Fibrinogen structure and the fibrin assembly process (N. U. Bang, discussion leader): R. Haschemeyer, "Electron microscopy of fibrinogen"; K. Lederer, "The shape of the fibrinogen molecule"; J. Weisel, "X-ray crystallography of fibrinogen"; J. Shainoff, "Fibrinopeptides and the intermediary stages of the fibrinogen-fibrin transition." Fibrinogen metabolism (G. Fuller, discussion leader): G. Grieninger, "Hormonal regulation of fibrinogen synthesis in cultured hepatocytes"; C. Redman, "Biosynthesis and secretion of dog fibrinogen"; G. Muller-Berghaus, "Fibrinogen-fibrin turnover"; L. Sherman, "Fibronectin turnover."

19 June. Fibrin and inflammation (F. R. Rickles, discussion leader): T. Edgington, "Cellular participants in the induction of lymphoid procoagulant activity." F. R. Rickles, "Monocyte tissue factor generation: role in inflammation and neoplasia"; H. Dvorak, "Fibrin: role in cellular immunity and neoplasia." Hemostasis and the inflammatory response (R. Colvin, discussion leader): C. Bianco, "Plasma proteins and macrophage function"; E. Podack, "Dual function of S-protein and antithrombin III as control proteins in complement and coagulation"; J. L. Wautier, "The attachment of the first component of complement and its possible role in platelet-vessel wall interactions"; J. Hawiger, "Interactions between immune complexes and human platelets."

20 June. Biology of heparin-like compounds (R. Rosenberg, discussion leader): G. Oosta, "Mechanism of heparin action"; M. Griffith, "Interaction of heparin with thrombin"; H. I. Saba, "Heparin, PGI_2 and platelets"; L. Culp, "Heparan sulfate proteoglycan-fibronectin binding in fibroblast adhesion."

Heterocyclic Compounds, Chemistry of

New Hampton School

Engelbert Ciganek, chairman; Kevin T. Potts, vice chairman.

7–11 July. A. D. Batcho, "New synthetic routes to tryptophans"; J. J. D'Amico, "The synthesis of heterocyclic compounds containing sulfur and nitrogen"; F. D. Greene, "Diazenes and diazene dioxides—formation and mechanisms of decomposition"; S. M. Hecht, "Bleomycin: studies on the total synthesis of an antitumor antibiotic"; I. T. Kay, "Chloro(ethoxycarbonyl)methyl eneiminium salts—versatile intermediates for heterocyclic synthesis"; G. R. Lenz, "The chemistry and photochemistry of enamides"; P. S. Mariano, "Cycloadditions of 1,2-dihydropyridines in natural products synthesis"; R. Noyori, "Synthesis of C-nucleosides"; W. N. Speckamp, "Synthetic studies on stereo-selective α-acyliminium cyclizations"; C. Szántay, "Studies in the

field of indoloquinolizidines"; B. M. Trost, "Selectivity in synthetic approaches to heterocycles"; E. Vedejs, "Sulfur heterocycles as precursors of lactones and carbocycles"; F. Vögtle, "Heterocyclic ligand systems for ions and molecules—electronic effects upon complexation"; S. M. Weinreb, Heterocycle synthesis by the imino Diels-Alder reaction"; D. R. White, "The synthesis of spectinomycin and analogs."

High Pressure, Physics and Chemistry at

Kimball Union Academy

A. Jayaraman and John Shaner, co-chairmen.

30 June. Diamond cell techniques (E. N. Yakovlev, chairman): P. Bell (subject to be announced); G. Piermarini (subject to be announced); S. Minomura, "Pressure induced structural changes in I_2, Te, Sc"; J. M. Besson, "HE under pressure." Electronic properties (G. A. Samara, chairman): J. Schirber, "ReO_3"; D. McWhan, "Charge density wave transitions"; J. Jorgenson, "Structural and Lifshitz transitions in InBi"; E. H. Ponyatovski, "Metal hydrides."

1 July. Magnetic and electronic properties: M. Croft (subject to be announced); R. N. Shelton, "Magnetic order and superconductivity under pressure"; J. Schilling, "Pressure effects in dilute magnetic alloys: isolated local moments to spin glasses." B. Matthias, after dinner speaker, subject to be announced. New techniques and results: M. Brown, "Gruneisen parameter and sound velocity in shock compressed iron"; C. Lyzenga, "Pyrometry of shock compressed SiO_2"; R. Mills and D. Liebenberg, "Gas loading techniques and Xe data"; J. Jamieson and J. Fritz, "The gold standard"; V. A. Sukhoparov, "Neutron scattering from compressed H_2"; T. G. Ramesh (subject to be announced); K. P. Gopinathan (subject to be announced).

2 July. Dynamic high pressures (J. R. Asay, chairman): W. Nellis and M. Ross, "Shock compression of small molecular systems"; G. Straub and B. Holian, "Molecular dynamics of shock waves"; R. Fowles, "Thermal explosions"; V. E. Fortov, "Dense plasma produced by shock waves."

3 July. Geophysical problems (R. N. Keeler, chairman): T. Shankland, "Pressure effects on transport in minerals"; D. Anderson (subject to be announced); R. O'Connell (subject to be announced); J. Jorgenson, "Compression mechanisms of framework structures: SiO_2 and GeO_2." High pressure optics/phase transitions: I. Silvera, "Quantum mechanics of condensed simple molecular systems"; D. Schifer, "N_2-structure and Raman scattering"; B. Batlogg, "CuCl-optical properties under pressure"; B. Vodar, "Raman scattering in CH_4."

4 July. High pressure chemistry/phase transitions: R. D. Bardo, "Pressure effects on molecular spectra"; E. Toton, "Pressure effects on relaxation between normal modes"; S. Stishov, "Melting of alkali metals"; O. Kashireninov, "Reaction kinetics at high pressure"; Ch. Loriers, "High pressure synthesis of rare earth compounds."

High Temperature Chemistry

Plymouth State College

John W. Hastie, chairman; Wayne Worrell, vice chairman.

4 August. Chemical vapor transport and deposition (K. Spear, E. Zubler and M. Rand, discussion leaders): (speaker to be announced), "Kinetic CVD mechanisms for semiconductor materials." K. Spear, "CVD modeling for high temperature materials." Poster session of recent advances in high temperature chemistry (D. Cubicciotti, coordinator).

5 August. Structural, thermodynamic and transport properties of oxides at high temperature (B. Wagner and W. Worrell, discussion leaders): N. Peterson, "Correlation effects and diffusion mechanisms in metal oxides"; A. Navrotsky, "Structural and thermodynamic systematics of spinels, silicates, and other oxides." High temperature chemistry of molten silicates (B. Alcock and D. Cater, discussion leaders): D. Gaskell, "Liquid structure theory"; J. Elliott, "Emf cell determination of slag activities."

6 August. Molecular structure of high temperature species (L. Gurvich, J. Gole and I. Beattie, discussion leaders): V. Spiridonov, "Recent developments in electron diffraction including geometries, vibrational frequencies and anharmonicities"; P. Montano, "XAFS and Mössbauer studies of metal clusters in matrices"; Metal cluster species (W. Weltner and R. Hauge, discussion leaders): J. Gole, "Laser spectroscopic, mass spectrometric and ab-initio studies of metal cluster species"; (speaker and subject to be announced).

7 August. High temperature species in combustion (H. Palmer and W. Miller, discussion leaders): D. Jensen, "Experimental and modeling studies of metal additives in flames and rocket exhausts"; A. Hayhurst, "Inorganic ions in combustion." The National Academy of Science study of research opportunities in high temperature science (Joan Berkowitz, discussion leader): G. Rosenblatt, "Highlights of the NAS study"; L. Brewer, Implementation of NAS study and future directions in high temperature science and technology."

8 August. High temperature mass spectrometry (F. Green, D. Hildenbrand and J. Berkowitz, discussion leaders): F. Kohl, "High pressure mass spectrometric sampling of high temperature molecules, applications to hot corrosion"; L. Sidorov, "Mass spectrometric knudsen effusion studies of ionic equilibria"; J. Drowart, "Status of classical approach and new methods, including photoelectron and photoionization mass spectrometry."

Holography and Optical Information Processing

Miramar Hotel

Harrison H. Barrett, chairman; Nicholas George, vice chairman.

16–20 June. Lloyd Huff, "Multiplex holography and film processing techniques for holography interferometry"; William Graver, "Physical modelling of photo-sensitive materials and holographic imaging concepts"; Emmett Leith, "White-light processing" (to be followed by a poster session on the same subject); Victor Perez-Mendez, "Three-dimensional radiographic imaging"; Christopher Dainty, "Recent progress in stellar speckle interferometry"; William Rhodes, "Time-integration optical processing" (to be followed by a poster session on the same subject); A. A. Sawchuck, "Variable grating mode liquid crystal light values"; Sing Lee (subject to be announced); A. Lohmann (subject to be announced); Norman Berg, "Acousto-optic signal processing"; Frederic Hopf, "Phase conjugation"; Donald Sweeny and Neal Gallagher, "Generation and fabrication of infrared holographic elements."

Hormone Action

Plymouth State College

Anthony R. Means and E. Brad Thompson, co-chairmen; John Baxter, vice chairman.

20 July. Plenary Lecture: Gunter Blobel, "Transport of proteins across membranes."

21 July. Gene structure, function and

transfer (Suzanne Bourgeois, chairperson): Bert W. O'Malley, "Structure, function and transfer"; Robert Roeder, "In vitro gene transcription"; Dean Hamer, "Gene transfer and expression." Hormone regulation of gene expression (Wayne Bardin, chairperson); John Baxter, "Thyroid hormone"; Kenneth Paigen, "Androgens"; J. R. Tata, "Estrogens."

22 July. Regulation of secretion and cell communication (Stan Korenman, chairperson): Kevin Catt, "Angiotensin regulation of corticosteroid secretion"; P. Michael Conn, "Regulation of LH secretion by GnRH"; Bill Beers, "Roles of cell-cell communication in hormone action." Regulatory mechanisms in immunology and neoplasia (Marc Lippman, chairperson); Allan Munck, "Glucocorticoid and prostaglandin modulation of Fc receptors"; Sally Zigmond, "Chemotaxis in neutrophils"; William L. McGuire, "Hormones and cancer."

23 July. Synthesis, secretion and mechanism of action of prolactin (Jack Gorski, chairperson): E. Brad Thompson, "Prolactin and growth hormone expression in somatic cell hybrids"; Pricilla Dannies, "Cell surface receptor and regulation of prolactin synthesis and secretion"; Jeffrey M. Rosen, "Prolactin regulation of gene expression"; Joe Martial, "Structure of the prolactin gene." Peptide hormone receptors (Lutz Birnbaumer, chairperson): Michael Raftery, "Purification and properties of the acetylcholine receptor"; Gerald Aurbach, "Receptor-adenylyl cyclase coupling"; Michael Brown, "Receptor regulation and internalization."

24 July. Steroid hormone receptors (Henri Rochefort, chairperson); Gerald Litwack, "Structure and regulation of gluco-corticoid receptors"; G. L. Green, "Monoclonal antibodies to estrogen receptor and their use to probe hormone action"; Merry Sherman, "Steroid hormone receptor cleavage and plasminogen activation by enzymes in steroid responsive tissues." DNA-protein interactions (W. T. Schrader, chairperson): Mark Ptashne, "Mechanism of action of the lambda repressor"; Harold Weintraub, Chromatin structure and function."

25 July. Hormones and the cytoskeleton (Peter Hall, chairperson): John Condeelis, "Actin and ligand-induced receptor redistribution"; D. R. Brinkley, "Cyto skeletal regulation of cell function"; John R. Dedman, "Regulation of microtubules by calcium and cyclic AMP."

Immobilized Species

Holderness School

Kenneth O'Driscoll, chairman; A. H. Nishikawa, vice chairman.

11 August. W. Ford, "Polymer supported phase transfer catalysts"; C. Horvath, "Immobilization on microparticulates"; M. Wilchek, "Uses of immobilized antibodies and avidin"; S. Gestrelius, "Industrial approach to application of cofactor dependent enzyme systems."

12 August. (D. Neckers, discussion leader): G. Manecke, "Some new reactive polymers"; H. Allcock, "Poly (phosphazene) immobilized species"; J. Stille, "Asymmetric synthesis with polymer bound transition metal catalysts"; P. Hodge, "Alkyl halide synthesis with polymer supported systems."

13 August. (H. Weetall, discussion leader): M. Siebert, "Photobiological energy production"; D. O'Brien, "Photochemical reactions in membranes"; A. Klibanov, "Stabilization of enzymes for solar energy bioconversion"; J. Guillet, "In search of the molecular chloroplast."

14 August. (M. Goodman, discussion leader): N. Weinshenker, "Polymer bound food colorants"; H. Ringsdorf, "Polymer bound drugs and cell interaction"; M. Verlander, "Polymer drug conjugates"; J. Bonaventura, "Insolubilized oxygen carriers as a means of underwater life support."

15 August. (V. Kasche, discussion leader): J. Klein, "Whole cell immobilization—new systems and improved characterization"; K. Mosbach, "Immobilization of plant cells for the production of drugs." Conferees are invited upon arrival to submit one paragraph abstracts for 10-minute presentations.

Inorganic Chemistry

New Hampton School

Jack M. Williams, chairman; D. F. Shriver, vice chairman.

Advances in Synthesis, Structure, Energy Conversion and Catalysis

4 August. Metal vapor synthesis and chemistry (A. P. Ginsberg, chairman): M. L. H. Green, "Electron-gun metal atom reactions and their use in synthesis"; A. P. Ginsberg, "Metal vapor chemistry with the platinum metals"; S. D. Ittel, "Metal vapor synthesis as a route to new organometallic compounds." Introduction to poster presenters. New developments in metalloborane chemistry (R. W. Parry, chairman): M. F. Hawthorne, "Metallocarboranes as homogeneous catalysts for organic reactions"; S. G. Shore, "Metallo derivatives of the smaller boron hydrides: some analogues of organometallic systems"; R. N. Grimes, "The role of metalloboron clusters in cage fusion, cage coupling, and catalysis"; D. F. Gaines, "Borane ligands containing three and five boron atoms."

5 August. Modified electrode chemistry (H. Tennent, chairman): R. W. Murray, "Chemical and electrochemical reactions of coordination compounds attached to conducting surfaces"; F. Anson, "Polymeric ligands as anchoring groups for the attachment of transition metal complexes to electrode surfaces"; T. Kuwana, "Electrocatalysis using chemically modified electrodes." Energy conversion and photocatalysis (L. F. Dahl, chairman): M. Wrighton, "Chemically derivatized semiconductor photoelectrodes"; B. Miller, "Surface modification and preparation of thin film photoelectrodes"; A. J. Bard, "Heterogeneous photocatalysis and photosynthesis at semiconductors."

6 August. Advances in technetium chemistry (J. M. Williams, chairman): A. Davison, "Chemistry of technetium in oxidation states +3, +4, and +5"; E. A. Deutsch, "The inorganic chemistry of technetium as applied to the practice of nuclear medicine"; M. D. Loberg, "The chemistry of ^{99}Tc radiopharmaceuticals." Small molecules coordination compounds (D. Meek, chairman): C. Floriani, "Some aspects of carbon monoxide and carbon dioxide activation by model compounds"; D. Meek, "A new series of sulfur dioxide complexes. Structural characterization and reactivity of rhodium-SO_2 complexes"; G. Kubas, "New aspects of the coordination chemistry and bonding of SO_2, an exceptionally versatile small molecule."

7 August. The chemistry and structure of metal-metal bonded systems (G. D. Stucky, chairman): M. H. Chisholm, "Anything one can do two can do too—and it's more interesting"; R. A. Walton, "Modifying and destroying metal-metal triple and quadruple bonds"; R. E. McCarley, "Chemistry of some new molybdenum and tungsten clusters having four to six metal atoms." Polynuclear and mixed metal complexes (H. D. Kaesz, chairman): R. R. Gagné, "Intramolecular electron transfer in polynuclear transition metal complexes"; F. G. A. Stone, "Di- and poly-nuclear mixed-metal-complexes."

8 August. Metal clusters and catalysis

(D. F. Shriver, chairman): R. R. Burch, "Coordinately unsaturated polyhydride rhodium clusters" with E. L. Muetterties, A. J. Sivak, J. M. Williams, A. J. Schultz, R. K. Brown, V. W. Day, M. F. Fredrich and G. S. Reddy; D. M. Washecheck, "New Ni and Pt carbonyl clusters and their catalytic implications" with R. Montag, L. F. Dahl, A. Ceriotti, G. Longoni and P. Chini.

Interfaces, Chemistry at

Kimball Union Academy

I. J. Heilweil, chairman; J. A. Mann, vice chairman.

21 July. Carbon-gas interfaces—implications to coal gasification (P. L. Walker, Jr., chairman): D. W. McKee, "Catalytic gasification of carbon"; T. Baker, "Electron microscopy studies of graphite-gas interactions"; P. L. Walker, Jr., "The interaction of coal with gases and vapors"; H. Juntgen, "Gas interaction with carbon molecular sieves—its use in separation processes." Quickies: I. M. Ismail, "Heats of chemisorption of oxygen on carbon"; E. L. Fuller, Jr., "Structure and chemistry of coals—modification by pyrolysis."

22 July. Carbon-liquid interfaces—implications to coal liquefaction and coal/oil fluids (M. L. Gorbaty, chairman): B. Gerstein, "Adsorption and diffusion of selected solvent molecules in coals"; S. C. Mraw and B. G. Silbernagel, "NMR and thermal studies of adsorbed molecular species in coal—probes of coal structure and coal/fluid interface"; R. L. Rowell, "Structure and stability of coal-oil-water colloidal dispersions—theory and measurements"; R. B. Long, "Colloidal properties of heavy oils." Quickies: R. S. Farinato, "Properties of coal/oil fluids"; S. R. Vasconcellos, "Electrophoresis studies of coal/oil mixtures."

23 July. Polymer-surfactant interactions in oil recovery (W. M. Sawyer, chairman): E. D. Goddard, "Fundamentals of polymer-surfactant interaction"; L. M. Landoll, "Polymer-surfactant interaction—thermodynamic model"; D. O. Shah, "Some colloidal phenomena in surfactant-polymer systems." (G. A. Pope, chairman): S. P. Gupta, "Surfactant-polymer interactions in oil recovery by micellar flooding"; R. K. Prud'homme, "Elastic effects in polymer-surfactant interaction"; G. B. Thurston, "Viscoelasticity in micellar-polymer systems." Quickies: A. M. Jamieson and J. Blackwell, "Hydrodynamic studies of the effects of surfactants on Xanthan polymer solutions"; W. M. Sawyer, "Some examples of polymer-surfactant interactions in aqueous and non-aqueous systems"; S. Ashaw, W. A. Wade and R. S. Schechter, "Polymeric surfactants for ultra-low tension." Poster session: L. M. Landoll, "Polymer-surfactant interactions—some elaboration."

24 July. Laser chemistry and energy transfer at catalytic surfaces (P. L. Houston, chairman): P. L. Houston, "Introduction to applications of lasers to surface chemistry—vibrational energy transfer at surfaces"; M. C. Lin, "Application of lasers to catalytic reactions at solid surfaces"; J. I. Steinfeld, "Laser-induced processes at semiconductor surfaces"; R. P. VanDuyne, "Surface-enhanced Raman spectroscopy—current status and future implications."

25 July. Oscillatory reactions and related phenomena in gas-solid systems (R. A. Schmitz, chairman): R. A. Schmitz, "Oscillatory phenomena in heterogeneous surface reactions—experimental observations and mathematical models"; R. E. Hetrick, "Observations of chemical oscillations with oxygen sensitive devices"; C. G. Vayenas, "Limit cycle phenomena during the oxidation of ethylene and ammonia on platinum catalyst surfaces." Quickie: I. R. Epstein, "Photochemically induced oscillations in homogeneous systems."

Lasers in Medicine and Biology

Kimball Union Academy

F. Hillenkamp and M. L. Wolbarsht, co-chairmen.

23-27 June. New laser-techniques and instrumentation for biomedical applications (W. T. Silvast and D. H. Sliney, co-chairmen); Laser spectroscopy of biological systems (R. Rigler, chairman): Photochemistry and photobiology with lasers (M. W. Windsor and Thomas Dougherty, co-chairmen); Laser applications in photodermatology (J. A. Parrish and Ian Magnus, co-chairmen); Coherent laser applications in biomedical research and clinical diagnosis (B. R. Ware and R. Steiner, co-chairmen); Laser applications to cells and subcellular structures (M. W. Berns and K. Jacobson, co-chairmen); Thermal and nonlinear laser interaction with biological systems (A.-J. Welch and R. Birngruber, co-chairmen); Clinical laser applications in surgery and related fields (R. C. Verschueren and J. A. Dixon, co-chairmen); Clinical laser applications in ophthalmology and laser safety (M. L. Wolbarsht, chairman).

Lipid Metabolism

Kimball Union Academy

Robert W. Mahley, chairman; Robert M. Bell, vice chairman.

16 June. Phospholipid structure and metabolism, (D. Small, chairman): H. Hauser, "Phospholipid structure and motion in bilayer membranes"; G. H. de Hass, "Structure and mechanism of phospholipase A_2"." Lipoprotein lipase, (W. V. Brown, chairman): T. Olivercrona, "What are the rate limiting factors for lipoprotein lipase action?"; A. Bensadoun, "In vitro and in vivo lipoprotein lipase secretion."

17 June. Cellular metabolism of lipoproteins, (T. L. Innerarity, chairman): J. L. Goldstein, "Scavenger cell pathways for lipoprotein degradation"; J. A. K. Harmony, "Mitogen-challenged lymphocytes: Suppression of prereplication events by membranebound plasma lipoproteins"; P. Kovanen, "LDL receptors in adrenal cells: in vitro and in vivo counterparts." Abnormalities of HDL metabolism, (J. Glomset, chairman): G. Assmann, "Tangier disease"; C. Sirtori and K. Weisgraber, "Italian family with hypoalphlipoproteinamia and cysteine-containing apo-A-I"; L. Carlson, "Fish eye disease"; G. Schonfeld, "Dysalphalipoproteinemia."

18 June. Intracellular assembly and translocation of proteins and lipids, (D. Zilversmit, chairman): G. Blobel, "Translocation systems: an overview"; D. Zilversmit, "Transmembrane transport of lipids"; L. Chan, "Regulation of eukaryotic lipoprotein gene expression." Hepatic recognition and metabolism of lipoproteins, (J. M. Dietschy, chairman): B. C. Sherrill, "Role of apo-E in hepatic metabolism of cholesterol-rich lipoproteins"; S. H. Quarfordt, "Role of apo-E in the transfer of triglyceride-rich lipoproteins to the liver"; R. J. Havel, "Determinants and mechanisms of lipoprotein catabolism."

19 June. Heterogeneity of LDL and Apo-B, (D. Steinberg, chairman): R. Krauss, "Size and density heterogeneity of LDL"; G. Getz, "Intestinal contribution of Apo-B": L. L. Rudel, "Comparison of Apo-B and LDL heterogeneity." Fat soluble vitamins, (D. Goodman, chairman): D. Goodman, "Vitamin A metabolism"; R. E. Olson, "Vitamin K metabolism."

20 June. Apolipoprotein B structure; G. Camejo and R. Jackson.

A summary of the programs appears on pages 1246 and 1247.

Lysosomes

Proctor Academy

Dorothy Bainton, chairperson; Samuel Silverstein, vice chairperson.

The Role of Lysosomes in the Uptake, Transport, Storage and Recycling of Membranes and Membrane-bound Molecules

30 June. Receptors that act at the cell surface (Samuel Silverstein, chairperson): Jay Unkeless, Josef Michl and Henry Metzger, "Fc receptors"; Douglas Fambrough, "Acetylcholine receptors"; Len Harrison, "Receptor antibodies as probes for the structure and function of the insulin receptor"; Michael Czech, "The subunit structure of the insulin receptor." Receptors that promote the penetration of macromolecules into the cytoplasm: Joseph Goldstein, "Receptor-mediated uptake of lipoproteins: contrasts between parenchymal cells and macrophages"; Michael Gill, "Cholera toxin and membranes"; John Collier, "Chimeric toxins containing the A chain of diphtheria toxin or ricin"; Ralph Bradshaw, "Properties of membrane and nuclear receptors for nerve growth factors"; Paul Seligman and Robert Allen, "Transferrin receptor"; J.-P. Hugues Ryser, "Polylysines as carriers in the membrane transport of enzymes and drugs."

1 July. Fate of the membrane (Zanvil Cohn, chairperson): Marilyn Farquhar and Volker Herzog, "Traffic of products and membranes throughout the Golgi complex"; Ralph Steinman, "Membrane recycling: recycling of phagolysosome membranes in cultured macrophages"; Richard Rodewald, "Transport and segregation of endocytozed proteins"; Ira Mellman, "Studies of plasma membrane polypeptides—insertion and removal." Coated vesicles—structure and function: Werner Franke, "Presence of coats and clathrin on secretory vesicles"; Jim Rothman, "Coated vesicles in the intracellular transport of membrane proteins"; John Heuser, "Structure of pinocytic coated vesicles"; Fred Maxfield, "Delivery of hormones and proteins to endocytic vesicles"; Tom Roth, "Calmodulin and lipoprotein sequestration."

2 July. Fusion of membranes: Purnell Choppin, "Role of viral proteins in membrane fusion"; Demetrios Papahadjopoulos, "Studies of fusion using artificial membranes"; John Heuser, "Fusion of synaptic vesicles." Receptors for oligosaccharides (Gil Ashwell, chairperson): Bill Sly, "Phosphomannosyl receptors in intracellular transport of acid hydrolases"; George Jourdian, "Phosphomannosyl receptors in bovine liver hepatocytes."

3 July. Transmembrane signals mediating modification within cells: James Jamieson, "Cyclic GMP dependent protein kinase: mediation of plasmalemmal phosphorylation in vascular smooth muscle cells and possible relationship to agonist response"; Stanley Cohen, "Interactions of EGF with isolated membranes: binding and membrane phosphorylation"; Jeff Stock, "Methylation and transmembrane signalling"; Eliott Schiffmann, "Post-receptor events in leukocyte chemotaxis." Christian de Duve, special lecture.

4 July. Biosynthesis of lysosomal enzymes: Elizabeth Neufeld, "Biosynthesis and transport of hydrolytic enzymes in fibroblasts"; David Sabatini, "Biosynthesis and distribution of membrane and organelle proteins"; Richard Swank, "Biosynthesis of lysosomal enzymes in macrophages"; Günter Blobel, "Cell free synthesis and segregation of lysosomal enzymes"; April Robbins, "Biosynthesis of lysosomal enzymes in normal and mutant CHO cells." Poster session: A summary of proposed presentation should be submitted to Dorothy Bainton, Department of Pathology, HSW 595, University of California, School of Medicine, San Francisco, California 94143.

Magnesium in Biochemical Processes and Medicine

Plymouth State College

Robert Whang, chairman; Francis J. Haddy, vice chairman.

28 July. Magnesium in renal disease (S. Massry, chairman): Nachman Brautbar, "Mg homeostasis in renal failure"; H. Spencer, "K and Mg balance in chronic renal insufficiency"; S. Massry, "Interrelationship PO_4 and Mg in renal disease." Magnesium methodology (Mike Ryan, chairman): R. Gupta, "Nuclear magnetic resonance in Mg determination"; B. Silver and M. Seelig, "Scanning electron microscopic analysis of energy dispersive x-ray of Mg in peripheral lymphocytes."

29 July. Magnesium in cardiovascular diseases (M. Seelig, chairman): R. Lazzara, "The role of Mg in cardiac arrhythmias"; L. Iseri, "Mg and other cations in digitalis toxicity"; (speaker and subject to be announced). Magnesium in hematologic diseases (R. Elin, chairman): Morris D. Schneider, "Platelet function in hypomagnesemic heminants"; Ron Elin, "The role of magnesium in complement"

30 July. Magnesium in nutritional diseases (E. Flink, chairman): Harold Sandstead, "Normal dietary Mg intake—minimum daily requirements"; E. Flink, "Mg in alcoholism"; (speaker and subject to be announced). Work-in-progress (B. Nichols, chairman).

31 July. Magnesium in geochemistry (J. K. Aikawa, chairman): J. K. Aikawa, "Biological evolution of magnesium"; R. Ebens, "Magnesium in geological evolution"; J. Marier, "Importance of magnesium in the modern day food-beverage chain in the human diet." The history of magnesium (Warren E. C. Wacker, chairman).

1 August. Magnesium in transport (F. Haddy, chairman): J. Lusk, "Magnesium transport in *E. coli*"; K. Shine, "Magnesium transport in myocardium"; G. Ford, "Potential of intracellular magnesium to modulate smooth muscle contractility."

Magnetic Resonance in Medicine and Biology

Tilton School

James R. Bolton, chairman; Ian C. P. Smith, vice chairman.

11 August. C. Anderson Evans, Ronald P. Mason, Margaret Merritt and John D. Zimbrick, "Panel discussion on spin trapping in biological systems"; Jake F. Schaeffer and Robert Griffin, "NMR of solid state biological systems."

12 August. James Norris, "New EPR techniques I spin-echo"; Richard H. Clarke, "ODMR"; Tom James and Ian Campbell, "NMR of proteins and other biologically important molecules."

13 August. Ian C. P. Smith, "Biomembranes"; David Hoult and Larry Crooks, "NMR imaging"; A. F. Esser and Allan Butterfield, "Medical applications of EPR."

14 August. W. Froncisz, "New EPR techniques II s-band"; Derek Marsh, "Saturation transfer." Poster presentations.

15 August. Robert G. Shulman and David Gadian, "NMR of whole organisms."

Mammalian Genital Tract

Colby-Sawyer College

D. W. Bullock, chairman; A. L. Menge, vice chairman.

7 July. Cells and secretions (R. B. Heap, moderator): R. M. Brenner and B.

Program Summary, Gordon Research Conferences

	Colby-Sawyer College (N) New London, N.H.	Colby-Sawyer College (S) New London, N.H.	New Hampton School New Hampton, N.H.	Kimball Union Academy Meriden, N.H.	Tilton School Tilton, N.H.
9–13 June	Friction, Lubrication and Wear		Nucleic Acids	Cyclic Nucleotides	Theoretical Biology and Biomathematics
16–20 June	Nuclear Chemistry	Synthetic Membranes	Environmental Sciences: Water	Lipid Metabolism	Nuclear Proteins, Chromatin Structure and Gene Regulation
23–27 June	Catalysis	Microstructure Fabrication, Diffraction Methods in	Polymer Physics	Lasers in Medicine and Biology	Visual Transduction Processes, Physico-Chemical Aspects of
30 June–4 July	Fiber Science	Renewable Resources, Chemicals and Materials from	Fuel Science	High Pressure, Research at	Animal Cells and Viruses
7–11 July	Polymers	Mammalian Genital Tract	Heterocyclic Compounds, Chemistry of	Enzymes, Coenzymes and Metabolic Pathways	Nuclear Structure Physics
14–18 July	Elastomers		Organic Reactions and Processes	Bones and Teeth, Chemistry, Physiology and Structure of	Biomaterials, Science and Technology of
21–25 July	Corrosion		Natural Products	Interfaces, Chemistry at	Metal-Insulator Semiconductor Systems
28 July–1 August	Food and Nutrition		Statistics in Chemistry and Chemical Engineering	Toxicology and Safety Evaluations	Muscle, Modifiers of Contractual Activation in Striated
4–8 August	Medicinal Chemistry		Inorganic Chemistry	Ceramics, Solid State Studies in	*Bioelectrochemistry
11–15 August	Separation and Purification		Analytical Chemistry	*Aerobiology	Magnetic Resonance in Medicine and Biology
18–22 August	Cancer		Adhesion, Science of	*Bioengineering and Orthopedic Science	Photonuclear Reactions

*New conferences in 1980.

1980 Schedule—New Hampshire and California

Proctor Academy Andover, N.H.	Holderness School Plymouth, N.H.	Brewster Academy Wolfeboro, N.H.	Plymouth State College (N) Plymouth, N.H.	Plymouth State College (S) Plymouth, N.H.	Miramar Hotel Santa Barbara, Calif.
*Plant Molecular Biology	Photoconduction and Related Phenomena	Physical Organic Chemistry	Drug Carriers in Medicine and Biology	Water and Solute Exchange in the Microvasculature	
Hemostasis	*Eukaryotic Cells, Introduction of Macromolecules into	Radical Ions	Microbiological Safety of Food	*Extrachromosomal Elements	Plasma Physics, Holography and Optical Information Processing
Molecular Biology, Diffraction Methods in	Biological Regulatory Mechanisms	Radiation Chemistry	*Proteolytic Enzymes and Their Inhibitors	Mode of Action of Opiates	
Lysosomes	Biopolymers, Physics and Physical Chemistry of	*Solid State Chemistry	Electron Distribution and Chemical Bonding	Gametogenesis	
Physical Metallurgy	Plant Senescence	Microbial Toxins	(Not available)	(Not available)	
Mutagenesis, Biological and Chemical Mechanisms of	Crystal Growth	Electron Spectroscopy	Quantum Solids and Fluids	Scientific Information Problems in Research	
Particle-Solid Interaction	Drug Metabolism	Atomic and Molecular Interaction	Stereochemistry	Hormone Action	
Fluids in Permeable Media	Dielectric Phenomena	Fungal Metabolism	Magnesium in Biochemical Processes and Medicine	Chemotherapy of Experimental and Clinical Cancer	
Aging, Biology of	Water and Aqueous Solutions, Chemistry and Physics of	Pyrrole Compounds, Chemistry and Biology of	High Temperature Chemistry	Cellular Materials, Chemistry and Physics of	
Organometallic Chemistry	Immobilized Species and Other Active Molecules	Electron-Donor Acceptor Interaction	Coatings and Films, Chemistry and Physics of	Non-Ventilatory Lung Functions	
Plasma Chemistry	Organic Geochemistry	Vibrational Spectroscopy	(Not available)	(Not available)	

*New conferences in 1980.

Sandow, "Hormonal regulation of primate oviductal glycoproteins"; R. M. Roberts, J. Godkin, G. Lewis and F. W. Bazer, "Secretory activity of the trophoblast and endometrium in the sheep and the pig"; H. G. Verhage, M. L. Bareither, R. A. Boomsma M. Akbar and R. C. Jaffe, "Steroid control of cell structure and secretion in cat endometrium"; M. D. Griswold and M. Skinner, "Secreted proteins of Sertoli cells." Prostaglandins and cyclic nucleotides (M. J. K. Harper, moderator): N. H. Dubin, D. A. Blake, R. B. Ghodgaonkar and P. Egner, "Role of prostaglandins, thromboxane and prostacyclin in uterine contractility"; T. G. Kennedy, "Prostaglandins, cyclic nucleotides and increased endometrial vascular permeability"; R. W. Atherton, P. S. Schoff, I. T. Forrester and B. E. Haley, "Cyclic nucleotide binding proteins in sperm and in male reproductive tract secretions"; J. F. Krall and S. G. Korenman, "Regulation of uterine smooth muscle adenylyl cyclase by prostaglandins and catecholamines."

8 July. Immunology and secretions (A. L. Menge, moderator): E. M. Eddy and J. C. Herr, "Sperm surface antigens"; E. Goldberg and T. E. Wheat, "Antigenic determinants of testis specific lactate dehydrogenase"; C. R. Wira, "Regulation by sex hormones of the secretory immune system in the female genital tract"; L. J. D. Zaneveld, and J. Reddy, "Purification and characterization of human seminal antifertility factor." Development and differentiation (J. D. Biggers, moderator): R. A. Pedersen, "Differentiation and determination of cells in the early mouse embryo"; G. M. Kidder and R. A. Pedersen, "Post-transcriptional aspects of gene expression"; P. B. Braude, "Translation of early embryonic messenger RNA"; J. J. Eppig, "Development of parthenogenetic embryos and formation of ovarian teratomas in strain LT/Sv mice."

9 July. Binding proteins and steroid antagonists (J. W. Wilks, moderator): D. J. Tindall, C. H. Chang and A. R. Means, "Androgen binding proteins in the male reproductive tract"; G. J. Mizejewski, "Estrogen binding properties and purification of alpha fetoprotein"; J. H. Clark, S. A. McCormack, S. Upchurch and B. Markaverich, "Differential cell stimulation and the mechanism of action of non-steroidal estrogen agonist/antagonist"; C. H. Spilman and J. W. Wilks, "Discriminative bioassay of progestins and anti-progestins." Cells in culture (L. E. Gerschenson, moderator): A. Chapdelaine and S. Beauregard, "Characteristics of canine prostatic cells in culture"; S. R. Glasser and S. A. McCormack, "Culture of epithelial and stromal cells from rat endometrium"; H. Fleming and E. Gurpide, "Concentration of estrogen receptor during the cell cycle of endometrial cells"; C. Sonnenschein and A. M. Soto, "Estrogen action on cell multiplication."

10 July. Enzymes and protein structure (A. B. Dudkiewicz, moderator): E. Gurpide, "Endometrial estradiol-17β oxido-reductase"; E. Yurewicz and K. S. Moghissi, "Characterization of oligosaccharides from human cervical mucin"; T. S. Acott and D. D. Hoskins, "Studies on epididymal sperm forward motility factor"; K. L. Polakoski, W. P. Kennedy and R. F. Parrish, "Structural aspects of acrosin." Hormonal regulation (M. Beato, moderator): E. Milgrom, "Mechanism of induction of uteroglobin"; J. Knowler, "Role of hnRNA and mRNA in estrogen-induced hypertrophy of the rat uterus"; A. M. Kaye, N. Reiss and M. Walker, "Estrogen-induced uterine proteins"; M. G. Parker, "Androgenic control of prostatic gene expression."

11 July. Blastocyst and embryonic development (H. M. Beier, moderator): F. W. Bazer, R. M. Roberts, W. C. Buhi and C. A. Ducsay, "Iron transport from endometrium to the developing porcine conceptus"; J. Martal, "Production and function of trophoblastin from ovine blastocyst"; L. M. Wiley, "Interactions between cell surface and cytoskeleton in blastocyst formation"; U. Petzoldt, P. C. Hoppe and K. Illmensee, "Maternal message and gene activation in early mouse development."

Medicinal Chemistry

Colby-Sawyer College

Nathan Sperber, chairman; Josef Fried, vice chairman.

4 August. β-Lactam antibiotics (B. G. Christensen, chairman): B. G. Christensen, "Recent progress on thienamycin"; W. Nagata, "Chemistry and antibacterial properties of *l*-oxacephem derivatives"; A. Brown (subject to be announced). Active site directed irreversible enzyme (suicide) inhibitors (Ch. Walsh, chairman): B. W. Metcalf, "Use of product analogs in enzyme activated irreversible enzyme inhibition"; M. J. Jung, "Fluorinated amines and amino acids and amines as irreversible enzyme inhibitors"; Ch. Walsh (subject to be announced); D. V. Santi, "Inhibition of thymidylate synthetase"; R. H. Abeles (subject to be announced).

5 August. Current topics in neuropharmacology (R. J. Miller, chairman): B. Morgan, "Enkephalins"; C. Chaukin, "Dynorphin"; R. J. Miller, "Opiate receptors"; J. McDermed, "Dopaminergic agents"; J. Creese, "Dopamine receptors"; P. Anderson and B. Clineschmidt, "New anxiolytic agents"; E. Costa, "Benzodiazepine receptors."

6 August. Newer developments in cancer chemotherapy (M. Gordon, chairman): B. Rosenberg, "The discovery of cisplatin"; M. Clear, "Synthesis of cisplatin analogs"; A. Prestayko, "Structure activity and side effect profile of cisplatin analogs"; S. J. Lippard, "Mechanism of action of cisplatin"; A. Kende, "Synthetic work in the podophyllotoxins"; B. Issel, "Structure activity relationships and clinical applications." Use of recombinant DNA technology in drug synthesis (K. Agarwal, chairman): M. Ptashne, "Expression of cloned genes"; R. Wu, "Chemical synthesis and cloning of genes for proteins of therapeutic interest"; H. Goodman (subject to be announced): K. Agarwal, "A general procedure for studying genes of peptide hormones"; W. Gilbert (subject to be announced).

7 August. Recent developments in arachidonate metabolism (J. Fried, chairman): R. Lewis and F. Austen, "Biological effects of slow reacting substances"; B. Samuelsson, "Leucotrienes and SRS"; D. Clark and E. J. Corey, "Chemical synthesis and identification of SRS's: isomers and analogs"; G. Goto and E. J. Corey, "Efficient stereospecific route to natural SRS's." Special lecture (J. J. Greenblatt, chairman): M. M. Baden, "Developing uses of modern science in forensic medicine as it applies to the investigation of the death of President John F. Kennedy."

8 August. Special topics (H. J. Hess, chairman): S. D. Levine, "The Mexican plant zoapatle—past, present and future"; other topics to be announced.

Metal-Insulator-Semiconductor Systems

Tilton School

Frank J. Feigl, chairman; Donald R. Young, vice chairman.

21 July. Charge injection and trapping in SiO_2 films I (J. T. Clemens, discussion leader): D. J. DiMaria, D. W. Dong and K. DeMeyer, "High current injection into SiO_2 using Si-rich SiO_2 films and experimental applications"; J. Aitken, "Process related aspects of radiation induced trapping in MOS devices." Silicon inversion layer phenomena I (D. C. Tsui, discussion leader): M. J. Pepper and M. J. Uren, "Conduction in-

stabilities in MOS devices"; K. M. Cham and R. Wheeler, "Temperature dependent resistivities of MOSFETS at low temperatures."

22 July. Charge injection and trapping in SiO_2 films II (Z. A. Weinberg, discussion leader): F. J. Feigl and D. R. Young, "Impurities and charges in thermal SiO_2 films"; E. H. Nicollian and C. C. Chen, "Water related electron traps in SiO_2"; R. DeKeersmaecker, "Hole trapping in e-beam irradiated MOS samples." Silicon inversion layer phenomena II (A. B. Fowler, discussion leader): J. Allen, "Submillimeter wave conductivity of inversion layers in silicon MOSFETS"; B. McCombe and T. Cole, "Many body effects in sub-band spectroscopy of silicon space charge layers."

23 July. Insulator and interface chemistry I (S. R. Butler, discussion leader): J. R. Ligenza, "Plasma oxidation of silicon by oxygen and water"; T. Eckstedt and J. L. Moll, "Characterization of thin thermally grown silicon oxynitride films." Insulator and interface chemistry II (E. Kooi, discussion leader): J. Minkowski, M. Minkowski, R. Tressler and J. Stach, "Thermochemistry of chlorinated SiO_2 on Si"; C. R. Helms, "Impurity segregation at the Si-SiO_2 interface."

24 July. The Si-SiO_2 interface I (E. Arnold, discussion leader): R. C. Barker, "Studies of the Si-SiO_2 interface by inelastic tunneling spectroscopy"; W. Dahlke and D. W. Greve, "Optical studies of MOS interface states." The Si-SiO_2 interface II (F. J. Feigl, discussion leader): R. Laughlin, "Theory of the Si-SiO_2 interface."

25 July. The Si-SiO_2 interface III (H. C. Card, discussion leader): E. H. Poindexter and P. J. Caplan, "Paramagnetic defect centers and interface states in oxidized Si wafers"; M. Schulz, "Experimental evidence for the interpretation of interface states."

Short contributed papers will be selected at the conference by the chairman, vice chairman and appropriate discussion leaders. Donald Young will be the session chairman/discussion leader for contributed papers.

Microbial Toxins and Pathogenesis

Brewster Academy

Samuel B. Formal, chairman; R. John Collier, vice chairman.

7 July. Escherichia coli enterotoxins (S. Falkow, chairman): R. A. Finkelstein, "Heat-labile enterotoxins"; R. Holmes, "Preparation of heat-labile enterotoxins"; D. C. Robertson, "Studies on *E. coli* enterotoxins"; S. Falkow, "Genetic control of *E. coli* enterotoxins." Cholera enterotoxins (J. Murphy, chairman): J. Mekalanos, "Genetics of toxigenesis in *Vibrio cholerae*"; J. Nichols, "Synthesis, assembly and secretion of cholera toxin"; P. C. Tai, "Mechanisms of protein secretion on prokaryotes."

8 July. Pathogenesis of *Pseudomonas aeruginosa* (B. Iglewski, chairman): J. W. Costerton, "Adherence factors of *P. aeruginosa*"; A. Cross, "Immune response in *P. aeruginosa* infections"; B. Wretlind, "Role of *Pseudomonas* proteases in disease"; M. Thompson, "*Pseudomonas* toxins A and S"; C. Saelinger, "Toxin-cell interaction." Phagocytosis (J. Spitznagel, chairman): G. Mandell, "Interaction of toxigenic bacteria and polymorphonuclear leukocytes"; D. Morrison, "Effects of endotoxin on macrophages."

9 July. Mechanisms of toxin entry (M. Simon, chairman): D. Chim, "Diphtheria toxin uptake"; T. Moehring, "Diphtheria toxin-resistant cells"; J. Middlebrook, "Mechanism of toxin uptake"; R. Proia, "Diphtheria toxin receptor." New toxins (H. Smith, chairman): N. Harvie, "*Clostridium difficile* toxin"; K. Hedlund, "Toxin from *Legionella pneumophilia*."

10 July. Endotoxins (A. Lindberg, chairman): J. Shands, "Clinical significance of endotoxemia;" M. J. Osborn, "Function of LPS in the bacterial cell"; E. Rietschel, "Chemistry and biology of lipid A"; A. Lindberg, "Immunology of LPS." L. Hertzenberg, "Monoclonal antibodies."

11 July. Chimeric toxins (J. Collier, chairman): T. N. Oeltmann, "Antibody-toxin hybrids as potential anti-tumor agents"; D. G. Gilliland, "Targeting of the active fragment of diphtheria toxin into specific cell types"; T. Uchida, "Lectin-toxin conjugates"; L. Wofsky, "Antibody conjugates containing fragment A from diphtheria toxin"; J. Arbuthnott, "Synopsis." Poster session 4 to 6 p.m. Participants invited to submit proposed titles to S. B. Formal, Department of Bacterial Diseases, Walter Reed Army Institute of Research, Washington, D.C. 20012.

Microbiological Safety of Food

Plymouth State College

John Iandolo, chairman; Durwood Rowley, vice chairman.

16 June. Significance of plasmids in food related bacteria: John Iandolo, "Plasmid genetics of the staphylococcal enterotoxins"; Donald Zink, "Plasmid mediated virulents in *Yersinia enterocolitica*"; Larry McKay, "Recent findings on plasmid N group streptococci." Carcinogen testing and mutagens in foods: William G. Thilly, "Mutagenicity testing in single cell systems."

17 June. Food spoilage by thermal tolerant and zero tolerant fungi: H. M. C. Putt, "Thermal tolerant fungi and their role in food spoilage"; John Pitt, "Zero tolerant fungi and their role in food spoilage." Fungal methodology: P. B. Mislivec, "Modern approaches to the enumeration and identification of food spoilage fungi."

18 June. Microbial metabolites as indicators of food spoilage: Gerry Silverman, "Volatiles produced by microbial metabolites which are associated with spoilage of beef and poultry"; Frank Kosikowsky, "Microbial metabolites associated with spoilage of dairy products"; Anthony Sharp, "Methods for using specific metabolites as indicators of food quality." Mycoplasmas and their significance in foods: Donald Jasper, "Mycoplasmas and their significance in foods"; James Jay, "Methods for culturing mycoplasmas in meats."

19 June. Detection and enumeration of microorganisms: Damian Gabis, "The effect of medium composition and temperature on detection and enumeration"; Francis Busta and John Soffos, "Enumeration of anaerobic spore formers—with and without stress"; R. B. Read, Jr., "New pathogens." Open discussion on the efficacy of chemical food preservatives.

20 June. Report of the Food Safety Committee: C. Jelliff Carr, "Proposed system for food safety assessment." Conference summarizer: Marvin Speck.

Microstructure Fabrication, Chemistry and Physics of

Colby-Sawyer College

Henry I. Smith, chairman; Kenneth E. Bean, vice chairman.

23 June. R. L. Seliger, "Ion beam lithography"; C. Joseph Mogab, "Plasma assisted etching"; J. W. Mayer, "The problem of interconnects at submicrometer dimensions."

24 June. A. N. Broers, "Research at the limits of microstructure fabrication"; D. C. Flanders, "Research at the limits of microstructure fabrication"; R. Dingle, "Molecular beam epitaxy of III-V compounds"; W. L. Brown, "Laser and electron beam processing."

25 June. G. Schmahl, "Fabrication of fresnel zone plates and their use in x-ray imaging"; H. Poppa, "In situ TEM stud-

ies of thin film nucleation and growth"; T. Van Duzer, "Josephson junction devices"; M. W. Geis, "Graphoepitaxy of silicon"; D. C. Shaver, "Fabrication of diffractive components for x-ray and far UV."

26 June. M. J. Bowden, "Forefront of research on resists"; Earl D. Winters, "Selective electrodeposition for microelectronics applications"; Michael Isaacson, "STEM and analytical techniques?" A. Wagner, Non-linear response of polymer resists to ion beam exposure"; A. C. Ouano, "Dynamics of resist dissolution."

27 June. P. K. Chatterjee, "Scaling MOS and bipolar devices—materials fabrication problems"; T. J. Shaffner, "Failure analysis using a high resolution scanning auger microprobe."

Mode of Action of Opiates

Plymouth State College

Eric J. Simon, chairman; Huda Akil, vice chairman.

23 June. Structure and function of opioid alkaloids and peptides (Sydney Archer, chairman). Biosynthesis and anatomy of endorphins: the 31K system (Stanley Watson, chairman).

24 June. Enkephalins and putative precursors (John Hughes, chairman). Electrophysiological studies of opioids and related substances (Floyd Bloom, chairman).

25 June. Physiology of endorphins (Albert Herz, chairman). Opiate receptors (Hans Kosterlitz, chairman).

26 June. Novel opioid substances (dynorphin, α-neo-endorphin and others) (Avram Goldstein, chairman). (Speaker to be announced).

27 June. Behavioral and clinical studies of endorphins and related substances (Lars Terenius, chairman). Poster presentations by participants who so desire will be accepted.

Molecular Biology, Diffraction Methods in

Proctor Academy

Richard Dickerson and David Eisenberg, co-chairmen.

23 June. Learning the most from low resolution analyses (D. L. D. Caspar, chairman): Ivan Rayment, "Structure determination of polyoma virus using model building and real space refinement"; John Finch, "Low resolution neutron diffraction studies of nucleosome crystals"; Paul Sigler, "Direct methods to improve or to determine phases at low to medium resolution"; Jane Richardson, "Use of general structural principles in the interpretation of lower resolution x-ray data." New development in nucleic acid structure (S. Arnott, chairman): S. Arnott, "DNA: new structure and new thoughts about old structures"; Stephen Neidle, "How intercalators really intrude themselves into DNA"; R. Chandrasekaran, "Modeling high energy DNA structures"; A. Wang, "The Z-helix and variants"; Horace Drew, "CGCG and left-handed helix geometry"; Tony Wright, "The unstructure of tRNA."

24 June. Motion in proteins (David Phillips, chairman): David Phillips, "X-ray studies of motion in proteins"; Gregory Petsko, "Protein fluctuation monitored by x-ray diffraction at multiple temperatures"; Martin Karplus, "Dynamics of proteins"; Chris Dobson, "NMR studies of motion in proteins"; Peter Artymuik (subject to be announced); Michael Sternberg, "Crystallographic studies of the dynamic properties of lysosomes." Nucleic acid organizing proteins (Michael Rossman, chairman): C. Abad-Zapatero, "The structure of southern bean mosaic virus"; Patrick Argos, "Properties of small plant viruses"; Leon Hirth, "Protein-nucleic acid interactions in viruses"; Morton Bradbury, "Cell divisions and chromatin structure"; Aaron Klug, "Histone organization in chromatin."

25 June. Membranes and membrane proteins (Don Wiley, chairman): Don Wiley, "The structure of the haemagglutinin glycoprotein of influenza virus"; Richard Henderson, "The path of the polypeptide in bacteriohodopsin"; Donald Engelman, "Neutron scattering and the structure of bacteriohodopsin"; Steve Fuller, "The structure of cytochrome oxidase"; Nigel Unwin, "The structure of gap junction." Innovative methods in structure determination (Wayne Hendrickson, chairman): T. Kossiakoff, "The neutron structure of trypsin"; Wayne Hendrickson, "Cranbin: structure analysis without heavy atom derivatives"; A. Steven or M. Navia, "Combined x-ray crystallography and electron microscopy in structural analysis of human IgG DOB crystals"; L. Makowski, "Extracting structural information from diffraction patterns of non-crystallographic macromolecular assemblies."

26 June. Solution scattering of x-rays and neutrons (Donald Engelman, chairman): Donald Engelman, "Introduction"; T. Steitz, "Organization of DNA binding domains of *lac* repressor"; G. Zaccai, "Synthetase-tRNA interaction studied by solution scattering of neutron"; Bernard Jacrot, "Protein domains in tomato bushy stunt virus." New structures (Martha Ludwig, chairman).

27 June. Area sensitive detectors (N.-X. Xuong, chairman): N.-X. Xuong, "The San Diego multiwire proportional counter"; U. Arndt, "A television area detector for protein crystallography"; J. Milch, "A slow scan TV type detector"; Craig Bolon, "Characteristics of spherical proportional detectors for x-ray crystallography"; Stanley Sobattka, "The University of Virginia area diffractometer system."

Muscle, Contraction Controls in Striated

Tilton School

Paul Horowicz, chairman; Albert Gordon, vice chairman.

28 July. Function of internal membranes in excitation-contraction coupling (L. D. Peachey, session chairman): Clara Franzini-Armstrong, Avril V. Somylo, Brenda Eisenberg, J. R. Sommer. Role of membrane charge movement in contractile activation (R. H. Adrian, session chairman): P. Horowicz, A. Peres, C. Huang.

29 July. Measurements of intracellular ionized calcium in skeletal muscle (W. Knox Chandler, session chairman): M. W. Marshall, M. F. Schneider, J. Vergara, J. R. Blinks. Mechanism of activation of skinned muscle fibers (L. E. Ford, session chairman): P. M. Best, E. W. Stephenson, M. Endo, S. R. Taylor, J. Reuben, S. K. B. Donaldson.

30 July. Calcium transport in sarcoplasmic reticulum (A. N. Martonosi, session chairman): D. H. MacLennan, W. P. Jencks, A. M. Katz, G. Meissner, T. J. Beeler, Y. Hong Lau, A. H. Caswell. Calcium control of myofilaments (A. G. Szent-Györgi, session chairman): A. G. Szent-Györgi, D. Hartshorne, J. D. Potter.

31 July. Intracellular calcium and con-

Applications

Scientists are invited to submit applications for attendance at the Gordon Research Conferences. An application blank is on page 1263 and may be submitted to Dr. Alexander M. Cruickshank, Director, Gordon Research Conferences, University of Rhode Island, Kingston, Rhode Island 02881.

traction (H. A. Fozzard, session chairman): W. G. Weir, A. Fabiato, R. Tsien, S. Page. Mechanism of digitalis action (S. Page, session chairwoman): T. Smith, C. O. Lee, E. Marban, J. Lederer, C. Cohen.

1 August. Force maintenance at low myoplasmic calcium levels (A. M. Gordon, session chairman): A. M. Gordon, C. C. Ashley, E. B. Ridgeway, D. G. Allen.

Mutagenesis, Biological and Chemical Mechanisms of

Proctor Academy

Bernard Strauss, chairman; Bea Singer, vice chairperson.

14–18 July. Mutagenesis: biological analysis (John Drake, chairman): Jim Crow, Larry Chasin, Barry Glickman. Chromosomes (Sheldon Wolff, chairman): Grant Brewen, A. V. Carrano. Mutagenesis: chemical analysis (Dezider Grunberger, chairman): Bea Singer, Alan M. Jeffrey, Gerald Wogan. Site directed mutagenesis (Bea Singer, chairperson): Michael Smith, Charles Weissman, Robert Chambers. Mutagenesis: biochemical analysis (Lawrence Loeb, chairman): Myron Goodman, John Hopfield. Cell transformation (Charles Heidelberger, chairman): J. Carl Barrett, A. R. Peterson, Paul Ts'o. Specific repair enzymes (Errol Friedberg and Stuart Linn, chairmen): Larry Grossman, Ehrling Seeberg, Betsy Sutherland. Induction and protease effects (Walter Troll, chairman): John Little, Evelyn Witkin, Graham Walker. Inducible repair (Bernard Strauss, chairman): Paul Schendel, Anthony Pegg, Peter Moore. Poster sessions, Monday, Tuesday, Wednesday, and Thursday at 4:30.

Natural Products

New Hampton School

Bert Fraser-Reid, chairman; Robin Cooper, vice chairman.

21–25 July. Mohammed Akhtar (subject to be announced); S. Frederick Arcamone, "Development of new anti-tumor anthracyclines"; Gordon Bundy, "Recent advances in prostaglandin related chemistry"; David Cane, "Stereochemical studies of natural products biosynthesis"; Orville Kaplan, "Stereochemical models for achiral feronome perception"; Michael Marx, "Aspects of steroid chemistry"; T. Matsumoto, "Biogenetic-like cyclization of hurmulene"; D. Uourisson, "Molecular paleontology and sterol phylogenesis"; E. Piers, "β-Haloenes: normal reactivity and reactivity unpoling"; C. Csih, "The use of microbial systems for the preparation of chiral synthons"; Robert Smith (subject to be announced); Clark Still, "Stereocontrol in natural products synthesis"; C. Tamm, "Recent studies on trichothecene micotoxins."

Nuclear Chemistry

Colby-Sawyer College

H. C. Britt, chairman; A. Faessler, vice chairman.

This conference will concentrate on the nuclear reactions involving heavy ions and pions. Related aspects of the fission process will also be discussed. Emphasis will be on the deduction of fundamental nuclear properties from reactions studied with a variety of nuclear probes.

16 June. (J. R. Nix, discussion leader): R. Stock, "Investigation of central collision in relativistic heavy ion reactions"; M. Gyulassy, "Theory of relativistic nuclear collisions." (R. Siemssen, discussion leader): J. Wilczynski, "Incomplete fusion reactions"; J. M. Alexander, "Light particle emission in heavy ion reactions."

17 June. (Z. Fraenkel, discussion leader): J. P. Schiffer, "Pion interactions with nuclei"; D. Ashery, "Pion absorption." (J. Natowitz, discussion leader): K. VanBibber, "Peripheral interactions in medium energy heavy ion collisions"; S. Koonin, "Coulomb distortion of pion spectra in heavy ion reactions"; R. M. Devries, "Nucleus-nucleus total reaction cross sections—surprises and implications."

18 June. (L. Moretto, discussion leader): C. Ngô, "Dissipation, statistical fluctuations and quantum aspects in deep inelastic reactions: Experimental and theoretical approaches"; K. E. Rehm, "Dissipation phenomena in deep inelastic collisions close to the barrier"; N. Frascaria, "Resonances in $^{40}Ca + {}^{40}Ca$ reactions." (P. Kienle, discussion leader): T. J. Ketel, "Hyperons in nuclei"; D. F. Geesaman, "Macroscopic features of pion inelastic and charge exchange reactions"; C. L. Morris, "High resolution pion reactions."

19 June. (D. Hoffman, discussion leader): P. Armbruster, "Production of heavy isotopes by fusion reactions"; Yu. Ts. Oganessian, "Equilibrium and non-equilibrium emission of alpha particles in heavy ion reactions." (A. Faessler, discussion leader): R. N. Clayton, "Isotopic variation in meteorites and the origin of the solar system."

20 June. (Yu. Tsipenyuk, discussion leader): C. E. Bemis, "Optical isomer shift for spontaneous fission isomer ^{240m}Am"; D. Habbs, "Coulomb and transfer fission."

Nuclear Proteins, Chromatin Structure and Gene Regulation

Tilton School

Ruchih C. Huang, chairman; Kensal Van Holde, vice chairman.

16 June. DNA organization in the eukaryotic genome—repeated gene family and genes coding for chromosomal proteins (C. Thomas, chairman): T. Mahowald, M. Cole, M. Smith, G. Dixon, S. Arnott. Chromosomal proteins—histones and nonhistone proteins (U. Allfrey, chairman): E. N. Moudrinakis, R. Chalkley, H. Busch, L. Cohen, P. Candido, M. Bustin.

17 June. Nucleosomes (G. Felsenfeld, chairman): K. Van Holde, M. Bradbury, D. Crothers, L. Lutter, J. Gottesfeld. Chromatin structure and transcription (P. Chambon, chairman): H. Weintraub, R. Simpson, S. Elgin, M. Noll, D. Brutlag, J. Thomas.

18 June. Nuclear matrix and chromosome structure (D. Coffey, chairman): R. Kornberg, L. Gerace, A. Pogo, J. Sedat, B. Hamkalo, W. Wray. DNA replication (R. Baserga, chairman): M. Jazwinski, R. Benbow, M. Challberg.

19 June. Transcription of specific genes (B. McCarthy, chairman): S. Weissman, R. Reeder, O. Westergaard, M. Gefter, R. C. Huang. Primary RNA transcripts and processing (H. Robertson, chairman): J. Steitz, S. Altman, J. Ross, C. Coleclough.

20 June. New approaches in studying gene controls (R. C. Huang, chairman): A. Efstratiadis, Michael Swith, D. Ward, D. Hamer.

Nuclear Structure

Tilton School

G. E. Brown, chairman; Peter Axel, vice chairman.

7–11 July. Nuclear structure studied with electrons; John Negele, "What electron scattering tells us about nuclei"; Ingo Sick, "Single particle states from electron scattering"; Bill Donnelly, "Structure of light nuclei." Participants, William Bertozzi, Jim McCarthy, Jerry Peterson. Nuclear structure studied with pions: Ed Siciliano, "What do pions tell us about nuclei?" Michael Thies, "Shell model description of pion scattering"; Harry Lee, Structure of light nuclei."

Participants, Mikkel Johnson, Tony Thomas, Hugh McManus. Deep inelastic scattering: Hans Weidenmuller, "Transport in deep inelastic scattering"; W. Norenberg, "Transport theory of dissipative heavy ion reactions"; Aage Winther, "Role of collective excitations in deep inelastic scattering"; Hans Krappe, "Comparison of dissipation theories." Participants, Sid Kahana, David Scott. Fusion in heavy ion reactions: V. V. Volkov, "Experimental survey of deep inelastic scattering and fusion"; Ulrich Mosel, "Heavy ion induced fusion"; J. R. Huizenga, "Classical trajectory models in heavy-ion fusion." Participants, Bob Stokstad, Steve Koonin, Herman Feshbach. Quarks, bags and nuclei: Robert Jaffe, "The MIT bag model"; Mannque Rho, "The little bag." Participants, Ernie Moniz, Malcolm Harvey, Carl Carlson. Culture: Eric Adelberger, "Weak interactions in particle and nuclear physics"; R. Vinh Mau, "The nucleon-nucleon interaction out and in of nuclei." Participants, Ernie Henley, Jan Dabrowski, Manfred Gari. Dense matter: A. B. Migdal, "Theory of dense matter"; W. Weise, "Pion condensation in dense matter and structure of pion-like excitations in nuclei." Participants, Ebbe Nyman, David Campbell. Nuclear physics in astrophysics: Hans-Peter Trautvetter, "Nuclear reactions in solar burning"; James Applegate, "Supernovae and pulsar formation." Participants, Willy Fowler, Gordon Baym, Stan Woosley. Highly spinning nuclei, fission and fission isomers: Frank Stephens, "Survey of high spins"; Ben Mottelson, "How dizzy can the nucleus become?" D. Habs, "Fission isomers"; V. Soloviev, "Highly spinning nuclei." Participants, Hans Specht, Zdyslaw Symanski, Volker Metag.

Nucleic Acids

New Hampton School

Ronald Davis, chairman; Philip Sharp, vice chairman.

9 June. Nematodes, plants and special systems (Sydney Brenner, chairman). Nucleic acid enzymology (Bruce Alberts, chairman).

10 June. Gene structure and expression (Joseph Gall, chairman). Eukaryotic RNA polymerase and transcription (Robert G. Rolder, chairman).

11 June. Synthesis, sequencing and mutagenesis (Clyde Hutchinson, chairman). Interfacing nucleic acid chemistry and genetics (David Botstein, chairman).

12 June. *E. coli* recA, recombination and transposons (Jeff Roberts, chairman). Viral nucleic acids (Nancy Hopkins, chairman).

13 June. Chromosome structure (Bik-Kwoon Tye, chairman).

Organic Geochemistry

Holderness School

Earl W. Baker, chairman; Wolfgang Seifert, vice chairman.

18–22 August. Unconventional sources of gases (R. D. McIver, chairman); Petroleum geochemistry (G. Claypool, chairman): Structures and origins of organic compounds in coal (H. Gluskoter, chairman); Geochemistry of recent sediments and environmental geochemistry (chairman to be announced); Biomarkers (J. Whelan and B. Simoneit, co-chairmen); Isotopes (W. Sackett, chairman); General papers—emphasis on new compounds or new series of compounds of geochemical interest (W. K. Seifert, chairman).

Organic Reactions and Processes

New Hampton School

Amos B. Smith, III, chairman; Seemon H. Pines, vice chairman.

14 July. Dietmar Seebach, "First glance at novel methods and old methods revisited"; Paul A. Wender, "New methods for medium and fused ring synthesis: the isabelin and reserpine projects"; Michael P. Cava, "A search for organotellurium reagents"; Dennis Liotta, "New organoselenium methodology."

15 July. Donald H. Aue, "Additions to strain sigma and pi bonds"; Richard R. Schrock, "Early transition metal alkylidene complexes"; William H. Rastetter, "Sulfur in organic reaction processes." Contributed talks.

16 July. Philip Eaton (subject to be announced); Wolfgang Oppolzer, "Recent application of intramolecular cyclo-additions and ene-reactions in organic synthesis"; Seemon Pines, "A practicable synthesis of thienamycin." Contributed talks.

17 July. Ronald Breslow, "Organic reactions catalyzed by enzyme mimics"; Christopher T. Walsh, "Suicide substrates: mechanism based enzyme inactivators"; Robert M. Silverstein, "Chemical communication in insects."

18 July. Philip D. Magnus, "The silicone syndrome"; Tak-Hang Chan, "New strategies in carbocyclic synthesis."

Organometallic Compounds in Energy-Related Areas

Proctor Academy

H. D. Kaesz, chairman; I. L. Mador, vice chairman.

11 August. Photoelectron spectroscopic and theoretical studies of organometallic complexes, (M. B. Hall, chairman): D. M. P. Mingos, D. Lichtenberger, W. L. Jolly, W. C. Trogler. Organometallic complexes of the early metals, (J. Bercaw, chairman): S. S. Wreford, W. Herrmann, C. Floriani.

12 August. Syntheses and mechanistic studies relevant to syngas conversion, (J. Faller, chairman): C. P. Casey, J. A. Gladysz, T. L. Brown, P. C. Ford. Catalysis by organometallic complexes in syngas conversion, (R. Eisenberg, chairman): R. Pettit, J. S. Bradley, L. Kaplan.

13 August. New developments in organo-silicon and germanium chemistry, (R. Corriu, chairman); M. E. Jung, A. G. Brook. J. Satge, M. Kumanda. Organometallic complexes in fossil fuel desulfurization and in coal liquefaction, (H. Alper, chairman): S. P. Gubin, M. Rakowski DuBrois, J. J. Eisch.

14 August. Organometallic complexes in hydrocarbon oxidations, (J. E. Lyons, chairman): B. Sharpless, R. Sheldon, H. Mimoun, F. Mares. Organometallic complexes in energy conversion, (J. C. Smart, chairman): J. P. Collman, M. L. H. Green, M. Wrighton.

15 August. Organometallic reactions in polynuclear systems, (F. G. A. Stone): R. Bergman, J. Keister, M. D. Curtis, S. A. R. Knox.

Particle Solid Interactions

Proctor Academy

B. R. Appleton, chairman; Wei-Kan Chu, vice chairman.

21 July. Coherent radiation from channeled leptons (J. Lindhard, discussion leader): J. U. Andersen, "Radiation from channeled electrons"; R. H. Pantell, "Radiation characteristics of channeled leptons." Interactions of energetic ions and molecules with solids (D. S. Gemmell, discussion leader): Z. Vager, "The electronic polarization induced in solids by the passage of ions"; Nelson Cue, "The transmission and dissociation of molecular ions in thin foils."

22 July. Mechanisms associated with sputtering and desorption (F. W. Saris, discussion leader): W. L. Brown, "Ion beam erosion of ice films and questions of energy transfer"; M. L. Knotek, "Electron and photon stimulated de-

sorption." Interface analysis using channeling (L. C. Feldman, discussion leader): W. K. Chu, "GaSb-InAs epitaxial structures"; R. K. Chiu, "$NiSi_2$ on Si epitaxial structures"; R. Culbertson, "The Ni-Si (111) interface"; T. Narusawa, "The Au-Si (001) interface"; N. Cheung, "The Ni-Si interface via transmission channeling"; R. S. Williams, "The Al-GaAs epitaxial structures."

23 July. Inelastic collisions processes (D. K. Brice, discussion leader): M. T. Robinson, "Computer simulations in the binary collision approximation"; H. F. Winters and J. W. Coburn, "Chemical sputtering: A discussion of mechanisms." Radiation damage and defect interactions (E. Rimini, discussion leader): S. T. Picraux, "The study of lattice defects by channeling"; M. L. Swanson, "The study of defect interactions by channeling."

24 July. Ion induced materials alterations (J. W. Mayer, discussion leader): A. D. Marwick, "Radiation induced segregation and diffusion in ion bombarded alloys"; R. Hodgson, "Ion beam annealing of semiconductors." (Evening session to be announced).

25 July. Ion scattering effects (P. P. Pronko, discussion leader): J. H. Barrett, "Enhanced backscattering near 180°"; (speaker and subject to be announced).

Photoconductivity and Related Phenomena, Chemistry and Physics of

Holderness School

Elmore Jones, chairman; Charles Brown and Ronald Chance, co-vice chairmen.

9 June. (J. Gaynor, discussion leader): R. A. Street, "Recombination mechanisms in amorphous semiconductors"; J. Noolandi, "Solution of the time-dependent onsager problem applications to α-Si:H and organic materials"; J. Pankove, "Properties of hydrogenated amorphous silicon"; L. Rozenshtein, "Auger transitions and other double quantum photoemission phenomena in organic crystals 9,10-dichloroanthracene." (F. Manasse, discussion leader): D. Lang, "Capacitance spectroscopy studies of traps and recombination centers in crystalline and amorphous semiconductors"; M. Ablowitz, "Changes in photoelectronic behavior of amorphous chalcogenides observed during structural relaxation"; D. S. McClure (subject to be announced).

10 June. (R. Chance, discussion leader): H. Gerischer, "Photoelectrochemical reactions at semiconductors with layer structure"; A. J. Nozik, "Chemical reactions at illuminated semiconductor-electrolyte interfaces"; F. Williams, "Hot electrons and irreversibility in photoelectrolysis." (C. Braun, discussion leader): L. M. Kellogg, "Photoconductivity studies in silver halides"; D. Mobius, "Molecular cooperation in energy and electron transfer processes in monolayer systems"; J. M. Halm, "Catalysis and group IIIA sensitization in organic photoconductors."

11 June. (R. Cozzens, discussion leader): D. S. Bailey, "Dye sensitized photoconductivity—a chemical viewpoint"; R. O. Loutfy, "Photogeneration and transport of carriers in phthalocyanines"; R. Balanson, "Origins of the broad visible/infrared photoresponse of squaric acid based dyes." (A. Ghosh, discussion leader): S. Wagner, "Heterojunctions and device applications"; A. Heeger, "Photoconductivity and related phenomena in polyacetylene"; L. Schacklette, "Highly conducting charge transfer complexes of organic polymers"; M. Schott (subject to be announced).

12 June. (K. Boer, discussion leader): M. Wrighton, "Chemically derivatized photoelectrodes for solar energy conversion"; A. J. Bard, "Heterogeneous photoprocesses at semiconductor powders"; J. Wang, "Electrochemical solar cell based on a chemically sprayed CdSe electrode"; A. B. Ellis, "Photoluminescense and electroluminescense as probes of excited state processes of CdS electrodes." Business meeting (P. Borsenberger, discussion leader): M. Pope, "History of electronic processes in organic crystals."

13 June. (J. Mort, discussion leader): H. Baessler, "Electronic transport in disordered organic solids"; A. Prock, "Space charge effect on extrinsic photoconduction in low conductivity media"; M. Silver, "The case against germinate recombination in α-Si:F:H." Contributed papers for poster presentation: K. Boer, "The shape of current-voltage characteristics of solar cells"; E. Baltazzi, "A new class of pigmented organic photoconductors"; L. Schein, "Electric field independent mobilities in molecular crystals"; R. Cozzens, "The role of energy transfer on photoconductivity"; J. Singh, "Microscopic theory of the exciton-charge carrier interactions in molecular crystals"; A. Twarowski, "Temperature dependence studies of low frequency capacitance measurements in organic photovoltaic cells"; H. Hoffmann, "Photoconductivity and defect level parameters of semiconductors"; P. Reucroft, "Effect of electrodes on the conductivity properties of polyethylene and poly (*N*-vinylcarbazole)"; T. Imura, "Correlation of some photoconductive aspects with preparation conditions and methods of amorphous hydrogenated silicon." Poster sessions: Wednesday and Thursday, 5 to 6 p.m.; Thursday, 9 to 10 p.m.

Photonuclear Reactions

Tilton School

Jochen Heisenberg, chairman; Edward Tomusiak, vice chairman.

18–22 August. I. Sick, "Trends in present day electron scattering"; R. Lindgren, "Excitation of high spin states with electrons"; C. W. DeJager, "Single particle states studied with inelastic electron scattering"; I. Hamamoto, "Particle vibration coupling"; R. Hicks, "Magnetic ground state electron scattering"; D. Graf, "Low-multipolarity magnetic transitions studied with (e,e′) at small momentum transfer"; J. Millener, "Shell model calculations"; J. Dubach, "Meson exchange currents and magnetic effects in spherical nuclei"; J. Bergstrom, "Relation between ee′ and π production"; P. Carlos, "Hadronic photonuclear reaction studies in the 30–140 MeV photon energy range"; R. Roberson, "Polarized nucleon capture"; J. S. McCarthy, "Quasi elastic electron scattering"; I. Blomqvist, "Review of (γ, π^{+-})"; L. Roberts, "Present status of (γ, π^{0}) experiments"; C. Papanicolas, "Coincidence experiments at Illinois"; R. Calarco, "Coincidence experiments at Stanford"; F. Petrovich, "Comparison of nuclear probes: ee′, pp′, $\pi\pi'$"; K. Gelbke, "Giant resonances"; H. Euteneuer, "First operational experience and results from the Mainz-microtron project"; W. Bertozzi, "New machines and electromagnetic physics of the future."

Physical Metallurgy

Proctor Academy

N. L. Peterson, chairman; George T. Hahn, vice chairman.

Diffusion in Solids

7 July. Self-diffusion (H. B. Huntington, chairman): C. P. Flynn, "Defect migration—the activated state"; (A. M. Stoneham, discussion leader); G. Jacucci, "Molecular dynamics studies of diffusion"; (M. J. Stott, discussion leader); D. Wolf, "Nuclear methods for the determination of diffusion mechanisms"; (O. Kanert, discussion leader); D. R. de-

Fontaine, "Diffusion mechanisms in the anomalous metals"; (G. Kidson, discussion leader).

8 July. Impurity diffusion (D. Lazarus, chairman): A. D. LeClaire, "Fast impurity diffusion in metals"; (P. T. Carlson, discussion leader); H. Wiedersich, "Solute segregation resulting from defect migration"; (H. Wollenberger, discussion leader); W. D. Wilson, "Light-atom diffusion in metals—Theory—"; (W. Schilling, discussion leader); H. K. Birnbaum, "Light-atom diffusion in metals—Experimental—"; (G. J. Thomas, discussion leader).

9 July. Diffusion in non-metals (A. S. Nowick, chairman); G. E. Murch, "Correlation effects in off-stoichiometric oxides"; (R. A. McKee, discussion leader); H. Schmalzried, "Diffusion phenomena in nonmetallic compounds"; (J. Philibert, discussion leader); Dennis W. Readey, "Impurity effects on atomic transport in oxides"; (A. Franklin, discussion leader); H. Mehrer, "Mechanisms of diffusion in semiconductors"; (D. R. Campbell, discussion leader).

10 July. Transport in super ionic conductors (L. M. Slifkin, chairman): G. C. Farrington, "Conduction mechanisms in super ionic conductors—Experiment—"; (J. B. Bates, discussion leader); H. U. Beyeler, "Conduction mechanisms in super ionic conductors—Theory—"; (H. Sato, discussion leader). (N. L. Peterson, chairman): A. Seeger, "New frontiers in diffusion research."

11 July. Grain-boundary diffusion (Y. Adda, chairman): R. W. Balluffi, "Grain-boundary diffusion-structural effects and mechanisms"; (P. S. Ho, discussion leader); J. W. Cahn, "Diffusion in moving boundaries"; (H. Gleiter, discussion leader).

Physical Organic Chemistry

Brewster Academy

Donald G. Farnum, chairman; Heinz D. Roth, vice chairman.

9 June. Martin Saunders, "Carbocation structures by NMR methods"; Ted Sorenson, "New NMR techniques for studying 'hidden' equilibria and exchange processes"; Robert Botto, "Intramolecular hydrogen bond energies derived from ^{15}N spin-lattice relaxation measurements"; Colin Fyfe, "Applications of high resolution ^{13}C NMR of solids to problems in physical organic chemistry."

10 June. Charles L. Perrin, "NMR studies of proton exchange in amides"; Roger Alder, "Proton exchange in caged diamines"; James S. Chickos, "A stereochemical study of the thermolysis of *trans* and *cis* 1,2-dimethyl-*anti*-*cis*-3,4 dideuteriocyclobutane"; Leo Paquette, "Synthesis and dynamic behavior of chiral cyclooctatetraenes"; Luigi Casaar, "Novel applications in organometallic chemistry."

11 June. Philip E. Eaton, "Recent work with novel polycyclic systems"; Guenther Maier, "News about the unusual properties of tetra-*tert*-butyltetrahedrane and tetra-*tert*-butylcyclobutadiene"; Ron McKinney, "MO calculations on metallocyclic intermediates: chemistry with a familiar ring"; Jack Beauchamp, "New approaches to the study of reactive intermediates in organometallic chemistry"; John T. Groves, "Oxo transition metal complexes and hydrocarbon oxidation mechanisms"; Michael Detty, "The mechanism of ring openings of oxiranes with silyl halides."

12 June. Peter J. Wagner, "Charge transfer in bimolecular photoreactions of ketones"; Mamoru Ohashi, "Photo-induced aromatic substitution via electron-transfer"; William C. Agosta, "Intramolecular photochemical cycloaddition reactions"; Heinz Roth, "The chemistry and beauty of old maps."

13 June. Frederick D. Lewis, "Exciplex and radical ion intermediates in photochemical addition reactions"; Don Arnold, "Photochemistry of charge-transfer complexes."

Plant Molecular Biology

Proctor Academy

L. Bogorad, chairman; J. Key, vice chairman.

9–13 June. Chloroplast genes and genomes, (J. Key, chairman): L. Bogorad, "The maize chloroplast chromosome"; D. Miles, "Nuclear genes affecting chloroplast gene expression"; H. Kossel, "Chloroplast rDNAs." Chloroplast genes and genomes, (L. Bogorad, chairman): J. D. Rochaix, "The *Chlamydomonas* chloroplast chromosome"; N. Gillham and J. Boynton, "Transmission genetic mapping of the *Chlamydomonas* chloroplast chromosome"; R. Sager, "Mechanisms of uniparental inheritance in *Chlamydomonas*." Chloroplast genes and genomes, (J. Weil, chairman): R. Hallick, "The *Euglena* chloroplast chromosome"; R. G. Hermann, "The spinach chloroplast chromosome"; K. K. Tewari, "The pea chloroplast chromosome." Nuclear genes for chloroplast components, (C. A. Price, chairman): N. H. Chua and K. Apel. Mitochondrial genes and genomes, (R. Mans, chairman) D. Pring, "Physical studies of maize mitochondrial DNA"; C. S. Levings, III, "Maize mitochondrial DNA and male sterility"; C. Leaver, "Molecular effects of nuclear genes on mitochondrial gene expression." Nuclear genes and genomes, (L. Dure, chairman): Robert L. Fischer, "The fine structure of soybean seed proteins"; J. Bedbrook and W. Thompson. Nuclear genes and genomes, J. Stout and E. Sheldon, "Construction of gene libraries"; B. A. Larkins, "Zein genes"; T. C. Hall, "Cloning genetic information for the major storage protein of French bean seed." Nuclear genes and genomes, (V. Walbot, chairman): Oliver Nelson, "Controlling elements in maize"; F. M. Ausubel, "Symbiotic genes for nitrogen fixation." Nuclear genes and genomes, (J. E. Varner, chairman) D. P. Verma, "Leghemoglobin genes"; J. Schell, "Ti plasmid genes"; M. D. Chilton, "Ti plasmid genes."

Plant Senescence

Holderness School

James E. Baker, chairman; Larry D. Nooden, vice chairman.

7 July. Significance of plant senescence and its relationships to senescence in other organisms (H. W. Woolhouse, discussion leader): A. C. Leopold, R. C. Greulich, J. E. Thompson. Hormonal regulation (M. Lieberman, discussion leader): P. J. Davies, S. F. Yang, H. Kende.

8 July. Role of nucleic acid synthesis and metabolism (D. J. Osborne, discussion leader): A. Watanabe, G. Chandra, J. H. Cherry, A. Marcus. Protein synthesis and turnover (J. E. Varner, discussion leader): R. C. Huffaker, Ph. Matile, D. W. Newman, J. D. Anderson.

9 July. Photosynthesis and respiration in senescing tissues (G. G. Laties, discussion leader): H. W. Woolhouse, K. V. Thimann, T. Solomos, V. A. Wittenbach, R. A. Kennedy. Changes in membranes and compartmentation (J. E. Thompson, discussion leader): Ph. Matile, W. W. Thomson, E. E. Goldschmidt, T. S. Moore, Jr., W. Van der Wilden.

10 July. Role of free radicals and lipid peroxidation: G. Cohen, P. J. O'Brien, C. Frenkel, Y. L. Leshen. Whole plant senescence (K. V. Thimann, discussion leader): J. Pate, J. G. Streeter, L. D. Nooden, T. Gianfagna.

11 July. Practical applications. (L. G. Nickell, discussion leader): B. W. Poovaiah, C. Y. Wang, D. R. Dilley.

Plasma Chemistry

Proctor Academy

Daniel L. Flamm, chairman.

18–22 August. Cold plasmas—plasma etching I (Riccardo d'Agostino, discussion leader): David B. Fraser, "Facts and mythology about aluminum etching"; Donald L. Smith, "Plasma beam extraction and etchant reactions in ultra high vacuum." Discussion talks. Cold plasmas—plasma etching II (Blake Cherrington, discussion leader): Cornelius I. M. Beenakker, "Product formation in fluorine-containing plasmas etching silicons"; Frank J. Bresnock, "Reactive ion etching and potential measurements." Discussion talks. Plasma deposition of amorphous materials (Takuo Sugano, discussion leader): John Knights, "Plasma deposition: the importance of surface chemistry"; S. Gourrier, "State of the art of plasma oxidation of semiconductors and metals." Discussion talks. Amorphous silicon, plasma annealing, and deposition of exotic inorganic materials (Stanislav Veprek, discussion leader): Benjamin Abeles, "Silane discharge hydrogenated amorphous films: the dependence of optical and electronic properties on discharge conditions." Discussion talks. Plasma chemistry and deposition of organic materials (Shinzo Morita, discussion leader): Eric Kay, "Recent developments in fluorocarbon plasma polymerization. Discussion talks. Thermal plasma—thermal plasma synthesis (Louis E. Toth and Osamu Matsumoto, discussion leaders): Pierre Fauchais, "The effects of heating and quenching rates on gas phase reactions with DC plasma jets"; Kazuo Akashi, "Application of RF plasmas for chemical reactions of inorganic materials." Discussion talks. Plasma metallurgy (George R. Kubanek and H. Wilhelmi, discussion leaders): Donald MacRae, "Plasma effects in the application of thermal plasmas to metallurgy"; G. K. Bhat, "Plasma arc heat sources and their potential metallurgical applications." Discussion talks. Industrial applications (Ward C. Roman and Brian Waldie, discussion leaders): T. N. Meyer, "An arc heater process to produce silicon for solar cells"; Charles Sheer, "Applications of plasma chemistry." Joint diagnostics session (David M. Benenson and Viktor Goldfarb, discussion leaders): W. Lindinger, "Mass spectroscopic diagnostics of plasmas"; Ulrich Kogelschatz, "Selected methods for thermal plasma diagnostics"; Terry A. Miller, "Plasma diagnostics by optical and resonance spectroscopy." Discussion talks. Discussion talks—these papers may treat unsolved problems as well as recently completed research which might benefit from extensive discussion. Since all material at Gordon Research Conferences is "off the record" and will not be recorded or published, unfinished work and preliminary results can be freely presented and discussed. Ten to 15 minutes will be allotted for each talk with a 5- to 20-minute discussion to follow. The discussion talks have intentionally been left open and contributions are now being solicited. If you would like to contribute a discussion paper to the Cold Plasma Sessions, please send a title and abstract to Dr. Daniel L. Flamm, Bell Laboratories, Room 6E216, Murray Hill, New Jersey 07974. Potential contributors to the Thermal Plasma sessions should send a title and abstract to Dr. Emil Pfender, 242 Mechanical Engineering, University of Minnesota, 111 Church Street, SE, Minneapolis, Minnesota 55455. It is requested that abstracts be submitted as early as possible so that the committee can give each paper proper consideration. Manuscripts will be formally accepted in May 1980 and the final program will be available in June 1980.

Plasma Physics

Miramar Hotel

Herbert Berk, chairman; T. K. Chu, vice chairman.

Confinement and Heating in Magnetically Confined Plasmas

16 June. Compact torus research I: R. Linford, "The reversed field theta pinch experiment"; F. Troyon, "MHD stability of spheromak"; G. Goldenbaum, "Formation of spheromak plasma with a theta pinch." Compact torus research II: A. Mohri, "Toroidal plasma formation with electron beams"; S. Jardin, "Simulation of spheromak start-up."

17 June. Pinch experiments: S. Ortolani, "Quiescent operation of a reversed field pinch"; T. Ohkawa, "Reversed field pinch with external pitch reversal"; B. Lennert, "Stable operation of a Z-pinch." Mirror machines: T. Simonen, "The tandem mirror experiment"; G. Logan, "Thermal barrier concepts in the tandem mirror"; N. Herschkowitz, "Thermal insulation in open ended systems."

18 June. Tokamaks: R. Parker, "The alcator C experiment"; R. White, "Beta effects on linear and nonlinear ballooning modes"; D. Robinson, "The effect of shaping on plasma parameters in tosca." J. Hosea, ICRF heating in PLT"; D. Meade, "Divertor experiments in PDX"; D. Swain, "ISX experiment, beta achievements and scaling laws."

19 June. Turbulence limits: S. Prager, "Beta limits in octupole experiment"; B. Carreras, "MHD simulation of tokamak fluctuations." Tokamak scaling laws: K. Molvig, "Drift wave theory for tokamak scaling laws"; E. Mazzucato, "Semi-empirical scaling laws in tokamak"; M. Kaufman, "Planning of zephyr ignition experiment."

20 June. Basic physics topics: M. Bussac, "Application of strange attractor theory in plasma physics"; W. Gekelman, "Magnetic reconnection experiments"; J. Jeaner, "Variational principle calculation for drift waves."

Polymer Physics

New Hampton School

R. S. Stein, chairman; J. D. Ferry, W. D. Stockmayer, vice chairman

23 June. (M. Doi, discussion leader): H. Benoit, "Recent neutron scattering results in polymer solutions and melts and their theoretical implications"; S. Edwards, "Rubber elasticity and viscoelasticity." (J. D. Ferry, discussion leader): G. Berry, Thermodynamic and rheological properties of rod-like polymers in solution"; I. Ward, "The structure and properties of ultra-high modulus polyethylenes."

24 June. (S. Krimm, discussion leader): H. Tadakoro, "Structure and piezoelectric properties of poly (vinylidene flouride)" G. Wignall, "Recent studies of chain conformation in crystalline and amorphous polymers by SANS." (J. Schultz, discussion leader): B. Crist, "X-ray studies of orientation changes during polymer deformation"; G. Zachmann, "Recent studies on the state of the amorphous regions and the crystal morphology in oriented and unoriented polyethylene terephthalate."

25 June. (R. J. Roe, discussion leader): A. Ziabicki, "Effects of molecular deformation and orientation on the nucleation of crystals"; W. L. Wu, "The change in structure and stress of cross linked polymers during crystallization." (R. J. Samuels, discussion leader): J. White, "Quantitative representation of orientation and crystalline morphology development in polymer melts solidifying during flow"; H. Kawai, "Rheo-optical studies of the nature of α and β mechanical dispersions of polyolefins."

26 June. Poster session. (R. Stein, discussion leader): Qian Renyuan, "Polymer physics at the Institute of Chemistry in the People's Republic of China."

27 June. (W. Stockmayer, discussion leader): B. Chu, "Light scattering studies of static and dynamic properties of polymer solutions"; L. Monnerie, "Orientation of polymer chains above Tg as studied by the fluorescence polarization technique."

Polymers

Colby-Sawyer College

James Economy, chairman; Otto Vogl, vice chairman.

7 July. (Herbert Morawetz, discussion leader): Charles G. Overberger, "Hydrophilic polymers of high order in aqueous solution-nucleic acid models"; E. Katzir, "Conformational fluctuations in native oligomers and polymers." (Field H. Winslow, discussion leader): Anthony Ledwith, "Recent studies on photoinitiated cationic polymerization"; Shigeo Tazuke, "Studies on excited state interactions and their application in polymer photochemistry."

8 July. (Walter H. Stockmayer, discussion leader): Francis Rondelez, "Recent experiments on polymer solutions in two and three dimensions"; Jiri Spevacek, "Association of polymers in solution by NMR." (A. Peterlin, discussion leader): Do Y. Yoon, "Molecular morphology in semicrystalline polymers"; David L. Vanderhart, "High resolution solid state C-13 NMR techniques for studying orientation and molecular motion in polymers."

9 July. (Morton Litt, discussion leader): David Allara, "Application of vibrational spectroscopy to thin polymer films and monolayers"; David Dwight, "ESCA and SEM studies of polymer surfaces"; John Manson, "Acid-base interactions and behavior of polymer composites." (George B. Butler, discussion leader): Sylvie Boileau, "Recent progress in the use of cryptates for the anionic polymerization of heterocyclic monomers"; Samuel Smith, "New polymers containing cyclic ether units: synthesis and cation complexing properties."

10 July. (James C. W. Chien, discussion leader): Gerhard Wegner, "New experimental approaches to the structure and properties of poly-conjugated macromolecules in the solid state"; Charles U. Pittman, Jr., "Vinyl polymers: search for new E-beam and x-ray resists." Short presentations on single and multiphase polymer systems (James E. McGrath, discussion leader): Ph. Teyssie, "Interfacial coupling: a new general answer to the problems of synthesizing block copolymers"; Robert Hayes, "Kinetics and mechanism of free radical graft polymerization on diene polymers"; Eli Pearce, "Polymer compatabilization through a hydrogen bonding mechanism"; Nikos Hadjichristides, "Synthesis and characterization of decaocta star polyisoprene"; J. P. Mercier, "The transesterification of bisphenol-A polycarbonate and polybutylene terephthalate: a new route to block copolymers."

11 July. (Gene Magat, discussion leader): Arnold Factor, "The synthesis and properties of a unique family of highly flame resistant polycarbonates"; W. J. Jackson, Jr., "Liquid crystalline aromatic polyesters."

Proteolytic Enzymes and Their Inhibitors

Plymouth State College

James C. Powers and James Travis, co-chairmen.

23 June: Structure and function of proteolytic enzymes I (Hans Neurath, chairman): Hans Neurath, "Overview of proteolytic enzymes, zymogen activation"; Michael James, "X-ray crystallographic studies of proteolytic enzymes"; Theo Hofmann, "Studies on the binding groove of penicillopepsin and pepsin"; Tadashi Inagami, "Renin and prorenin." Structure and function of proteolytic enzymes II (James Powers, chairman): James Powers, "Synthetic substrates and inhibitors of proteolytic enzymes"; Joseph Bieth, "Investigations of the active center of elastase"; Bert Vallee, "Metalloproteases"; Alan Barrett, "Lysosomal cysteine proteinases."

24 June. Coagulation, fibrinolysis and complement (Kenneth Walsh, chairman): Kotoku Kurachi, "Coagulation serine proteases"; Robert Rosenberg, "Biological activation of prothrombin"; Desire Collen, "α_2-Antiplasmin and its role in regulation of fibrinolysis"; David Bing, "Complement serine proteases." Kinin system (Hans Fritz, chairman): Elliott Shaw, "Synthetic inhibitors of trypsin-like enzymes"; Hans Fritz, "Glandular kallikreins—biochemical, structural and biological aspects"; John Pisano, "Kallikrein, other kinogenases, and new natural inhibitors"; Art Patchett, "Angiotensin converting enzyme inhibitors."

25 June. Fertilization and protein turnover (Alan Barrett, chairman): Kenneth Walsh, "Involvement of a sperm protease in sea urchin fertilization"; Kenneth Polakowski, Richard F. Parrish and William P. Kennedy, "Boar sperm proacrosin: Acrosin system"; Harold Segal, "Protein turnover"; Edward D. Harris, Jr., "Natural and synthetic inhibitors of mammalian collegenases." Protein processing (Morris Zimmerman, chairman): Morris Zimmerman, "Membrane proteolytic enzymes"; Gunter Blobel, "Signal peptidase activities of various membranes and organelles"; Robert Jackson, "Signal peptidase"; Glen Hortin and Irving Boime, "Protein processing by membranes"; Bruce Korant, "Viral proteases and processing."

26 June. Structure and function of protease inhibitors, (Michael Laskowski, Jr., chairman): Michael Laskowski, Jr., "Protease inhibitors"; James Travis, "α_1-Protease inhibitior and α_1-antichymotrypsin"; Peter Harpel, "α_2-Macroglobulin"; Kjell Ohlsson (subject to be announced).

27 June. Role of proteases in disease (Aaron Janoff, chairman): Aaron Janoff, "Protease-pathogenesis model of emphysema—new advances"; Ron Crystal, "Proteases and inhibitors in lung diseases"; Dan Rifkin, "Proteases and cellular invasion"; Walter Troll, "Action of protease inhibitors in biological systems."

Poster session. All participants of the conference will be invited to present posters on their recent work.

Pulmonary Biology: Lung Injury

Plymouth State College

Joseph D. Brain, chairperson; Mary C. Williams, vice chairperson.

11 August. Pulmonary cell renewal systems and their response to injury (James D. Crapo, session chairperson): James D. Crapo, "Changes in lung cell population patterns in response to injury"; Drummond Bowden, "Pulmonary cell regeneration and repair: normal and abnormal"; Walter Tyler, "Renewal of distal airway cells in response to air pollutants"; Elizabeth M. McDowell, "Cell renewal and injury in relationship to neoplasia."

12 August. Antigen and particulate transport through normal and injured epithelia (Joseph D. Brain, session chairperson): Marian P. Neutra, "Uptake and transport of particles and macromolecules across the adult intestinal epithelium"; Richard Rodewald, "Routes of antigen transfer across the intestinal epithelium of the neonatal rat"; Eveline E. Schneeberger, "Structural basis for barrier function in pulmonary airways and its modification by injury"; William F. Willoughby, "Consequences of antigen inhalation: the role of polyclonal cell activators in pulmonary inflammation."

13 August. Molecular, electrolyte and water transport in normal and injured epithelia (Mary Williams, session chair-

person): Mary Williams, "Cell biology of the pulmonary epithelia and its relationship to permeability"; Richard Boucher, "Regional differences in airway epithelial solute and water transport"; Brian Davis, "Tight junctions and epithelial permeability in the trachea."

14 August. Injury and repair of elastin (Phil Kimbel, session chairperson): Joel Rosenbloom, "Control of elastin synthesis"; Umberto Kucich, "Detection of elastin products in body fluids"; Ronald Crystal, "Therapies to prevent elastolytic damage"; Robert Mecham, "Extracellular matrix influences on elastin synthesis."

15 August. Acute lung injury and repair (Jerome S. Brody, session chairperson): Thomas K. Hunt, "Cell function in the development of fibrosis"; Peter M. Henson, "Determinants of progression in acute lung injury"; Anne P. Autor, "Antioxidant defenses in developing and aging lungs"; J. S. Brody, "How does age influence lung injury and repair?"

Pyrroles

Brewster Academy

Robert F. Troxler, chairperson; Gerald S. Marks, vice chairperson.

4 August. Introduction, orientation, nominating committee. Plenary lecture: A. R. Battersby, "Biosynthesis of the porphyrin macrocycle." Porphyrin biosynthesis (A. H. Jackson, chairperson): B. F. Burnham, "Studies on L-alanine: v,δ-dioxovaleric acid aminotransferase"; P. M. Jordan, "Enzymic synthesis of uroporphyrinogen III"; J. G. Straka, "Mechanism and kinetics of uroporphyrinogen decarboxylase."

5 August. Regulation of porphyrin biosynthesis (O. T. G. Jones, chairperson): J. R. Bloomer, "Regulation of heme synthesis in the porphyrias"; M. D. Maines, "Role of iron in regulation of heme synthesis"; J. D. Brooker, "Induction of mRNA synthesis in experimental porphyria"; M. A. Correia, "Regulation of hepatic cytochrome P-450 and heme metabolism." Plenary lecture: R. Schmid, "Heme degradation: an overview." Heme degradation (S. B. Brown, chairperson): B. A. Schachter, "Heme and hemoprotein catabolism in tumor-bearing animals"; G. Kikuchi, "Intermediary steps of heme degradation catalyzed by the reconstituted heme oxygenase system."

6 August. Heme degradation (continued) (S. B. Brown, chairperson): F. De Matteis, "Green porphyrins in DDC porphyria"; P. Ortiz de Montellano, "Drug mediated cytochrome P-450 destruction and hepatic pigment formation"; R. B. Frydman, "Specificity of heme oxygenase." Bile pigments (J. D. Ostrow, chairperson): N. Blanckaert, "Microsomal UDP-glucuronyltransferase system for bilirubin mono- and diglucuronide formation"; J. R. Chowdhury, "Dismutation of bilirubin monoglucuronide"; H. Cappatulnic, "Alternate pathways for bilirubin catabolism."

7 August. Porphyrins and bile pigments (I. M. Arias, chairperson): D. P. Tschudy, "Heme therapy in acute intermittent porphria"; R. J. Desnick, "Molecular defects in AIP and speculation on molecular engineering techniques for isolation of genes for enzymes in porphyrin biosynthesis"; B. Burchell, "Assay, isolation, purification and properties of bilirubin UDP-glucuronyl transferase"; R. Brodersen, "Bilirubin XI-α (Z,Z) solubility, aggregation and interaction with other substances." The chlorophylls (K. M. Smith, chairperson): H. Brockmann, "Bacteriochlorophylls from green bacteria"; J. Fajer, "Chlorophyll radicals and primary charge separation in photosynthesis"; S. G. Boxer, "Chloroglobin-synthetic chlorophyll-protein complexes."

8 August. Plant bile pigments (D. Dolphin, chairperson): A. Gossauer, "Total synthesis of bile pigments related to chromophores of phytochrome and phycobilins"; H. Zuber, "Amino acid sequences of phycocyanin and allophycocyanin; bile pigment apoprotein complexes in plants"; H. Scheer, "Chemistry and structure of the bile pigment prosthetic group of phytochrome."

Poster sessions—in charge: Gerald S. Marks, Department of Pharmacology, Queen's University, Kingston, Ontario K7L 3N6, Canada. Monday, 2 to 3 p.m., mounting of posters; Monday–Wednesday, 3 to 5 p.m., Thursday, 5 to 6 p.m., poster sessions; participants are requested to be available for discussion.

Quantum Solids and Fluids, Dynamics of

Plymouth State College

R. C. Dynes and Elihu Abrahams, cochairpersons.

Electron Transitions in Solids

14 July. Introductory talk—theoretical: M. Pepper, G. J. Dolan.

15 July. E. Abrahams, P. A. Lee, D. J. Bishop.

16 July. J. Stein, P. Horn. Afternoon poster session.

17 July. M. B. Maple, Ø. Fischer, J. M. Rowell.

18 July. B. T. Matthias.

Radiation Chemistry

Brewster Academy

Gerhard G. Meisels, chairman; Gordon R. Freeman, vice chairman.

23 June. (Richard A. Holroyd, discussion leader): Tobin J. Marks, "Electron transfer through molecular arrays"; David A. Armstrong, "Rates of gas phase ion recombination reactions." (Michael J. Henchman, discussion leader): Tomas Baer, "Charge transfer cross sections for ions is selected vibrational levels"; Robert N. Compton, "Charge transfer in collisions between neutral beams."

24 June. (John I. Brauman, discussion leader): Dudley R. Herschbach, "Electron attachment of van der Waals clusters: stalking the solvated electron"; Donald H. Levy, "The photochemistry of van der Waals molecules." (J. Kerry Thomas, discussion leader): Albert Weller, "Photoinduced and photoproducing electron transfer reactions"; Daniel Meisel, "Radiolytic redox processes in homogeneous and microheterogeneous systems."

25 June. (Robert H. Schuler, discussion leader): Peter Rentzepis and Thomas L. Netzel, "Electron transfer by picosecond spectroscopy"; Kenneth B. Eisenthal, "Picosecond laser studies in liquids." (Larry K. Patterson, discussion leader): P. Leslie Dutton, "Electrochemical reactions in the photosynthetic center."

26 June. (William H. Hamill, discussion leader): John R. Miller, "Experimental tests of the mechanism of long-range electron transfer: do electrons tunnel in one step or hop randomly?" (Gerhard L. Closs, discussion leader): K. Funabashi, "Thermal and optical electron transfer processes of trapped electrons." Contributed papers (Gordon R. Freeman, discussion leader).

27 June. (Myran C. Sauer, Jr., discussion leader): W. G. Burns, "Oxygen yields from heavy ion tracks"; Aloke Chatterjee, "Physical and chemical effects of heavy particle tracks in dilute aqueous solutions."

Radical Ions

Brewster Academy

Robert D. Allendoerfer, chairman; Stephen F. Nelsen, vice chairman.

16 June. D. Arnold, "Radical ions in photochemistry"; J. Fajer, "Radical ions of porphyrins in photosynthetic and enzymatic reactions, experimental aspects"; L. Hanson, "Radical ions of porphyrins in photosynthetic and enzy-

matic reactions, theoretical aspects"; M. Plato, "A solution ENDOR sensitivity study of various nuclei in organic free radicals"; R. Sealy, "Free radicals in biological redox polymers."

17 June. F. Hawkridge, "Electrochemical surface reactions of viologens"; H. Blount, "Environmental effects on reactions of electrogenerated radical ions"; E. Brown, "Effect of substituents on the stability of neutral radicals generated by the one-electron oxidation of 1-phenyl-3-pyrazolidone"; D. Evans, "Structural and environmental effects on the rates of organic electrode reactions"; L. Miller, "Organic electrodes and redox catalysis."

18 June. L. Andrews, "Spectroscopy of molecular ions in solid argon"; H. Bock, "ESR and PES investigations of novel radical ions"; E. Haselbach, "Physico/chemical properties of some organic radical cations produced in rigid organic systems"; L. Kevan, "Electron spin echo studies on the structure of solvated radical ions"; L. Kispert, "The structure of halogen substituted radical ions in organic crystals: an ESR study."

19 June. V. Balzani, "Electron transfer reactions of excited states of transition metal complexes"; C. Elschenbroich, "Metal atoms, benzene rings and ESR-spectroscopy"; P. Rieger, "Extracting information from ESR spectra of organometallic radicals." Open session: (Stephen F. Nelsen, discussion leader).

20 June. R. Alder, "Three-electron sigma-bonded radical ions"; G. Schuster, "Electron transfer initiated reactions of organic peroxides."

Renewable Resources, Chemicals and Materials from

Colby-Sawyer College

Alf R. deRuvo, chairman; Kent Kirk, vice chairman.

30 June. (Alfred H. Nissan, moderator): Johan J. Lindberg, "The role of hydrogen bonding in biopolymers"; Peter Shuster, "Theoretical aspects on hydrogen bonding"; Raija Atalla, "Conformational aspects on the solubility of carbohydrates"; Tom Lindstrom and Lennart Westman, "Swelling behaviour of gels from wood polymers"; Wynford Brown, "Diffusion of solvents into cellulose gels."

1 July. (Richard E. Mark, moderator): Hyoe Hatakeyama, "The mechanical implication of hydrogen bonding in lignin"; Derek Page, "The mechanical significance of crystalline imperfections in cellulose fibrils"; Sanford S. Sternstein, "Plasticization by water in hydrogen/bonded substances"; Nobuo Shiraishi, "Thermoplasticization of wood by chemical modification."

2 July. (Vivian Stannet, moderator): Don Johnson, "New solvents for cellulose and their application"; Robert Marchessault, "Solubility-accessibility of crystalline polysaccharides"; David N. S. Hon, "Mechano-induced graft polymerization in lignocellulosic fibers"; Bengt Ranby, "New initiators for graft polymerization on oligosaccharides."

3 July. (Henry I. Bolker, moderator): Kyosti V. Sarkanen, "Catalytic effects of hydrolysis on biomass"; Morris Wayman, "Reaction mechanisms in the hydrolysis of wood"; George Tsao, "Chemical feedstock from biomass"; Jerome F. Saeman, "Modeling the rapid high temperature hydrolysis of cellulose."

4 July. (T. Kent Kirk, moderator): Roger H. Kottke, "Polymeric derivatives of furfural and furfuryl alcohol"; Herbert L. Hergert, "The substitution of oil-derived synthetic polymers with cellulosics."

Scientific Information Problems in Research

Plymouth State College

Martha E. Williams, chairman; John Murdock, vice chairman.

The theme of this conference will be information systems of the '80s to support decision-making on critical scientific issues.

14 July. Keynote session: (speaker to be announced), "Biogeochemical problems requiring rapid decisions based on relevant information and data"; (speaker to be announced), "Technological problems of the '80s"; Keynote information session: "—Information/data systems of the '80s."

15 July. F. Sherwood Rowland, "The ozone layer and atmospheric problems—data requirements"; (speaker to be announced), "Information and data problems in determining ozone depletion rate"; (speaker to be announced), "Information and data needs for environmental regulatory decisions in the '80s"; (speaker to be announced), "Information systems for toxicity data."

16 July. (speaker to be announced), "The search for alternative sources of energy"; (speaker to be announced), "Information and data problems and tradeoffs in assessing alternate energy sources"; Paul Packman, "Catastrophic engineering failures—causes and problems"; J. Westbrook, "Responding to industry's need for materials information"; J. M. Nielsen, "Materials data—needs and opportunities."

17 July. (speaker to be announced), "Risk evaluation for potential carcinogens—problems that relate to having minimal data"; David Becker, "Methodology for estimating direct exposure to new chemical substances"; A. Letchler Jones, "Technology and scientific responsibility."

18 July. David Lide, Karl Willenbrock, David Malone: Panel of representatives from industry, academia, and government will participate in a "wrap-up" session summarizing salient findings of both the week's presentations and attendee discussions, relating them to these three segments of society.

Separation and Purification

Colby-Sawyer College

Kang-Jen Liu, chairman; Joseph D. Henry, Jr., vice chairman.

11 August. Novel membrane separations (Edwin N. Lightfoot, session chairman): S. A. Stern, "Membrane cascades"; J. M. S. Henis, "High-rate gas-separation hollow fibers"; W. C. Babcock, "Coupled-transport membranes."

12 August. Advances in solvent extraction (Norman Li, session chairman): C. Judson King, "Solvent extraction of organics from dilute aqueous stream"; R. P. Cahn, "Extraction of copper with liquid membranes"; John T. Davis, "Turbulence eddies at liquid-liquid interfaces."

13 August. (Jerome S. Schultz, session chairman): Y. E. Rahman, "Modification of transport properties of liposomes"; Franco Castino, "Separations of particles from solutions in cross-flow microporous membrane filtration"; Stanley Charm, "Selective separations using immunoadsorbents"; Hung T. Chen, "Protein separations using parametric pumping."

14 August. Enhanced oil recovery (Robert S. Schechter, session chairman): Ronald L. Reed, "Physicochemical aspects of microemulsion flood"; George Hirasaki, "Ion exchange with clays in the presence of surfactant micelles"; Robert S. Schechter, "Adsorption and chromatographic transport of amphiphilic molecules."

15 August. Advances in analytical and biochemical separation methods (Peter T. K. Wu, session chairman): W. W. Yau and J. J. Kirkland, "The field flow fractionation technique and its applications"; N. G. Anderson, "High resolution analysis of protein mixtures."

Solid State Chemistry

Brewster Academy

Smith L. Holt, chairman; J. Ackerman, vice chairman.

31 June. Intercalation compounds: D. W. Murphy, "Topotactic reactions of lithium with framework compounds"; L. Trichet, "NMR study of lithium and sodium intercalates." Metal oxides and catalysis: S. J. Tauster, "Strong interaction at metal oxide interfaces"; Bertrand L. Chamberland, "The preparation and catalytic activity of ternary precious metal oxides in the oxidation process."

1 July. Metal oxides and catalysis: A. Brenner, "The influence of oxide supports on chemistry and catalytic activity of supported metals"; J. Longo, "Low temperature synthesis of new mixed metal oxides"; B. B. Garrett, "Study of solid state reactions by EPR." Poster session.

2 July. Low dimensional solids: G. L. McPherson, "Migration and transfers of electronic excitation energy in one- and two-dimensional salts of divalent manganese"; R. J. Birgeneau, "Structure and melting in two dimensions." Conducting solids: A. G. MacDiarmid, "Organic metals and semiconductors: polyacetylene, CH_x, and its derivatives"; T. Clarke, "Conducting polymers."

3 July. Conducting solids: A. T. Howe, "Recent advances in solid state proton conductors"; J. Mayerle, "Neutral to ionic phase transitions in organic charge-transfer salts." Conducting solids and mixed anions: P. Chevrel, "Stabilization of new superconducting chalcogenides"; J. Ackerman, "An infinitely adaptive oxyhalide series."

4 July. Mixed anions: A. Rabeneau, "Subhalides of tellurium"; S. Geller, "Some solid electrolytes with mixed anions."

Statistics in Chemistry and Chemical Engineering

New Hampton School

William J. Hill, chairman; William G. Hunter, vice chairman.

28 July. Problems of calibration in the analytical lab: J. Stuart Hunter; (Mavis B. Carroll, moderator). Statistical analysis of binary vapor-liquid equilibrium data: William G. Hunter and Andrzej Jaworski; (Park M. Reilly, moderator).

29 July. Time series analysis of unequally spaced data: Donald W. Marquardt; (Henry L. Gray, moderator). Industrial process analysis and automated control: Paul W. Tidwell and John F. MacGregor; (John W. Wilkinson, moderator).

30 July. New Bayes methodology: an interface of science and law: Dennis V. Lindley; (Fred C. Leone, moderator). Estimating interferences in chemical analyses: Bruce R. Kowalski; (Eric R. Ziegel, moderator).

31 July. Red dye No. 40 and time to tumor methodology for animal carcinogenesis: Stephen W. Lagakos and Frederick Mosteller; (James J. Tiede, moderator). Risk/benefit analysis in societal decisions: problems, methods and directions: John C. Bailar; (Harry Smith, Jr., moderator).

1 August. New methods in exploratory data analysis for chemical and environmental applications: Beat Kleiner and Thomas E. Graedel; (David T. Mage, moderator).

Stereochemistry

Plymouth State College

Ernest L. Eliel, chairman; Albert I. Meyers, vice chairman.

21 July. Duilio Arigoni, "A stereochemical approach to some bio-organic problems"; Jeremy R. Knowles, "Chiral (^{16}O, ^{17}O, ^{18}O) phosphoryl groups in chemistry and enzymology"; Wolfgang Oppolzer, "Stereoselective synthesis of ring systems by intramolecular cycloaddition and ene reactions."

22 July. Marian Mikolajczyk, "Stereochemistry of organic sulfur and phosphorus compounds"; Robert J. P. Corriu, "Substitution at silicon—comparison with phosphorus." Poster session.

23 July. John A. Pople, "Electronic effects in stereochemistry"; Delos F. DeTar, "Theoretical calculations of steric effects on reactions rates"; Meir Lahav, "Asymmetric synthesis in organic crystals."

24 July. Sei Otsuka, "Stereochemistry and mechanism of metal-assisted dioxygenation of organic substances"; John W. Faller, "Reaction pathways in asymmetric organometallics"; William H. Pirkle, "Fundamental precepts of chiral recognition—applications thereof to separation of enantiomers and determination of absolute configuration."

25 July. David A. Evans, "Stereochemical aspects of metal enolate reactions with electrophiles"; Milan R. Uskokovic, "Stereoselective methods in the synthesis of natural products." Participants wishing to present posters should notify the chairman (Department of Chemistry 045A, University of North Carolina, Chapel Hill, North Carolina 27514) *not later than* 30 April 1980.

Synthetic Membranes

Colby-Sawyer College

Harry K. Lonsdale, chairman; Bill Faley, vice chairman.

16 June. Transport theory (W. Pusch, discussion leader): E. A. Mason, "Current status of membrane transport theory"; O. Kedem, "Polarization and multicomponent systems"; E. Bresler, "The question of an upper limit for the peclet number" (short communication). Membrane reactors (W. J. Ward III, discussion leader): S. L. Matson and J. A. Quinn, "Reactive membranes and membrane reactors"; J. S. Schultz, "Models for photochemical effects on transport through membranes."

17 June. Coupled transport (H. B. Hopfenberg, discussion leader): R. W. Baker, "Recent developments in coupled transport"; E. L. Cussler, "Coupled transport across membranes." Membrane electrodes (N. Lakshminarayanaiah, discussion leader): S. Suzuki, "Biospecific membrane electrodes and their applications"; R. P. Buck, "New directions for membrane sensors."

18 June. Biomedical applications (R. L. Dedrick, discussion leader): R. E. Sparks, "Sharp cutoff membranes and electroultrafiltration for separating proteins and cells"; C. K. Colton, "Development of a hybrid artificial pancreas." Gas separations (S. A. Stern, discussion leader): S. T. Hwang, "Gas separation by a continuous membrane column"; J. M. S. Henis, "Resistance model composite membranes—a new approach to gas separations."

19 June. Controlled drug delivery (D. R. Paul, discussion leader): F. Theeuwes, "Drug delivery by osmosis"; S. K. Chandrasekaran, "Transdermal delivery of thereapeutic agents." Biomembrane analogues (W. R. Galey, discussion leader): T. Teorell, "Bridges between synthetic and biological membranes"; P. Mueller, "Reconstitution of biological membranes."

20 June. Artificial cells (N. N. Li, discussion leader): H. McConnell, "Synthetic target cells"; T. M. S. Chang, "Synthetic membrane artificial cells."

Theoretical Biology and Biomathematics

Tilton School

Byron Goldstein and Sol Rubinow, cochairmen.

9–13 June. Cell surface control: Joseph Schlessinger, "The significance of receptor motion in the mode of action of polypeptide hormones"; Micah Dembo,

"Receptor redistribution and cell motion"; George Bell, "Mechanisms and models of immunological cytotoxicity"; Jacques Hiernaux, "Network regulatory mechanisms of the immune system"; Charles DeLisi, "A model of complement fixation." Cell kinetics: Paul Nurse, "Cell cycle control"; J. A. Smith, "The two state model"; Jerry Nedelman and Sol Rubinow, "The experimental support for the two-state model of the cell cycle"; John Tyson, "The control of cell division." Morphogenesis: Jim Murray, "How the zebra gets its stripes"; Lee Segel, "Some theoretical considerations of morphogenesis in leaves and fungi"; Stephen Childress and Jerome Percus, "Cellular shape changes during embryological development"; George Oster, "A mechanical model of blastulation." Physiological systems: John L. Stephenson, "A comprehensive model of the kidney"; William Deen, "CO_2 transport in the kidney"; Alan Weinstein, "Epithelial transport of ionic species"; H. Michael Lacker, "The control of ovulation number"; Marjorie McCracken, "The regulation of ventricular flow by valves." Problems in evolution: Andrew Siegel, "Estimating the evolution of shape and form using robust statistical techniques"; S. J. Ayala, "A classical view of evolution"; David M. Raup (subject to be announced); R. Lasek, "Ontogenetic mechanisms in the evolution of the nervous system."

Toxicology and Safety Evaluation

Kimball Union Academy

Herbert Blumenthal, chairman; John G. Keller, vice chairman.

28 July. Effects of cell-chemical interactions on mutagenesis and carcinogenesis, (V. Dunkel, discussion): A. Pegg, "The role of nucleic acid alkylation and repair in carcinogenesis by nitrosamines"; E. Huberman, "Induction of mutation and differentiation by chemicals which initiate or promote tumor formation"; R. Albertini, "Direct mutagenicity testing in man; somatic cell approaches."

29 July. Tissue cultures as tools for toxicological investigation, (P. Spencer, discussion leader): D. Acosta, "Primary cultures of rat hepatocytes as experimental models to study chemical and metabolism-mediated cytotoxicity"; J. Bradlaw, "Use of cultured rat hepatoma cells for the detection and quantitation of polychlorinated organic compounds"; B. Veronesi, "Use of organotypic nerve-muscle tissue cultures for the study of toxic neuropathy."

30 July. Skin permeation and hazard evaluation, (R. Scheuplein, discussion leader): G. Flynn, "Mechanism of percutaneous absorption—mouse versus man"; R. Bronaugh, "Species differences in percutaneous absorption of selected chemicals in vitro and in vivo"; P.Dugard, "Application of permeation data to toxicological hazard evaluation."

31 July. Food additive safety evaluation, a systematic approach, (R. Ronk, discussion leader): A. Rulis, "Food additive safety evaluation, unifying principles"; V. Morgenroth, "Food additive safety evaluation, toxicological criteria"; A. Kligman, "Dermal toxicology."

1 August. Newer aspects of ocular toxicity research, (J. Keller, discussion leader): H. Edelhauser, "Cytotoxicity of topical and intra-ocular drugs and vehicles"; M. Allansmith, "Toxic versus allergic ocular reactions."

Vibrational Spectroscopy

Brewster Academy

Erich P. Ippen, chairman; Richard Van Duyne, vice chairman.

18–22 August. G. C. Pimentel, "Vibrational participation in kinetic processes"; C. K. N. Patel, W. Kaiser, P. Sorokin, S. L. Shapiro, J. Heritage, "New techniques in vibrational spectroscopy"; Y. T. Lee, R. N. Zare, G. Flynn, D. A. Wiersma, "Vibrational dynamics"; B. Pettinger, P. Hansma, H. Metiu, J. Kirtley, "Vibrational spectroscopy of surfaces"; J. P. Taran, A. Eckbreth, R. Chang, "Combustion and flame diagnostics"; P. R. Carey, M. El-Sayed, W. Woodruff, "Transient intermediates and biomolecules."

Suggestions for poster paper presentations are welcomed and should be directed to the conference chairman: E. P. Ippen, 36-357, Massachusetts Institute of Technology, Cambridge 02139.

Visual Transduction Processes, Physico-Chemical Aspects of

Tilton School

Allen Kropf, chairman; Burton Litman, vice chairman.

23 June. Theoretical and model studies (A. Kropf, organizer): Poster session. Intermediates in the visual process (M. Applebury, organizer).

24 June. Invertebrate visual chemistry, (T. Goldsmith, organizer).

25 June. Sequence structure and biosyntheses of visual pigments (P. Hargrave, organizer). Membranes in the visual process (D. F. O'Brien, organizer).

26 June. Transmitters in visual cells: chemistry (B. Litman, organizer). Transmitters in visual cells: electrophysiology, (J. Brown, organizer).

27 June. Vitamin A: metabolism and transport (C. D. B. Bridges, organizer).

Water and Aqueous Solutions

Holderness School

C. Austen Angell, chairman; David Chandler, vice chairman.

4 August. Water in perspective (H. C. Andersen, session chairman): W. Jorgensen, "Monte Carlo results for the structures and properties of hydrogen bonded liquids"; T. O'Donnell, "Anhydrous hydrogen fluoride—a potential model solvent system for solvolysis and solvation studies in water." Water in extremum (E. Whalley, session chairman): W. Nellis, "Density and conductivity of shocked water to 4000°C and 800 kbar"; H. D. Lüdemann, "^1H, ^2H, and ^{17}O. T_1 relaxation studies in water to −86°C and 3 kbar"; R. J. Speedy, "Stretched water to 500 bar negative pressure."

5 August. Structure of water and solutions from state-of-the-art scattering techniques (A. H. Narten, session chairman): J. Stomatoff, "Anomalous x-ray diffraction: application to biological membrane studies"; Round table on scattering techniques: Animator, J. E. Enderby; A. Narten, "X-ray and neutrons"; J. Dore, "Neutrons"; E. Kalman and/or G. Palinkas, "Electrons"; G. Neilson, "Neutrons"; A. Harbenschuss, "X-ray"; J. Stomatoff, "X-ray anomalous scattering, time-resolved and small angle." Novel aspects (W. Krauzmann, session chairman): J. Isralachvilli, "Direct measurement of forces between surfaces containing absorbed monolayers and bilayers of surfactants in the distance range 0 to 100 nm"; H. Eicke, "Water in micelles and microemulsions"; H. E. Stanley, "A percolation model for supercooled H_2O and D_2O."

6 August. Updating the hydrophobic effect (H. L. Friedman, session chairman): E. Tucker and S. Christian, "Vapor pressure studies of the hydrophobic effect"; B. Berne, "Monte Carlo calculations on hydrophobic interactions"; L. Pratt, "Theory for the effects of dispersion forces on hydrophobic correlation." Poster session. Subject areas to be emphasized: with cluster discussions on (a) supercooled water; (b) vibrational spectroscopy of water and solutions; (c) calorimetric studies; and (d) diffusion and mass transport.

7 August. Onsager revisited (Robert Zwanzig, session chairman): Peter Wolynes (subject to be announced); F. H. Stillinger, "Dissociation and proton

transfer"; G. Hertz, "Application of the linear response theory to transport properties of aqueous acid systems: are the onsager reciprocal relations generally valid?" Round table on methods of and prospects for computer simulation solutions of basic water problems. Introductory remarks: D. Chandler; Animator, M. Klein; A. Rahman, B. Berne, J. Valleau, I. McDonald, P. Barnes Film on M.D. simulation of aqueous systems: K. Wilson.

8 August. Water protein interactions (J. L. Finney, session chairman): H. J. C. Berendson, "Molecular dynamics of water and hydrated proteins."

Water and Solute Exchange in the Microvasculature

Plymouth State College

Aubrey E. Taylor, chairman; H. Granger and T. C. Laurent, co-vice chairmen.

Water and solute exchange in the microvasculature will be presented using an organ approach. Individual sessions will be devoted to lung, intestine, kidney, brain, peripheral, heart, microscopic (mesentery, and so forth), liver and thermo dynamics as applied to capillary transport processes. In each session, "capillary" structure, flow, volume movement and molecular exchange will be discussed. In addition, a poster session will be arranged and all interested participants should contact the conference chairman concerning their suggestion for the poster session, which should greatly enhance attendee participation.

9 June. Lung, (N.C. Staub, discussion leader): Invited discussants: J. Hogg, K. Brigham, R. Olver and M. Gee. Intestine, (J. Barrowman, discussion leader): Invited discussants: J. Casley-Smith, P. Shepherd and D. N. Granger.

10 June. Kidney, (G. Navar, discussion leader): Invited discussants: M. Venkatachalam, H. Rennke and B. Brenner. Brain, (S. Rapoport, discussion leader): Invited speakers: N. Brightman, H. Kontos and J. Fenstermacher.

11 June. Peripheral circulation, (F. Haddy, discussion leader): Invited speakers: S. Wissig, H. Sparks, J. Diana and P. Watson. Heart, (R. Berne, discussion leader): Invited speakers: J. Bassingthwaighte, F. Vargas, J. Johnson.

12 June. Microscopic, (H. Granger, discussion leader): Invited speakers: A. Hargens, R. Curry and J. Bhattacharya. Liver, (C. Goresky, discussion leader): Invited speakers: W. Lautt and G. Laine.

13 June. Mathematical approaches to solute and solvent movement, (E. Bressler and C. Patlak, discussion leaders).

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