Gordon Research Conferences

Alexander M. Cruickshank

The Gordon Research Conferences for the summer of 1978 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. Sufficient time is available to stimulate informal discussion among the members of each conference. Meetings are held in the morning and in the evening, Monday through Friday, with the exception of Friday evening. The afternoons are available for recreation, reading, or participation in discussion groups, as the individual desires. This type of meeting is a valuable means of disseminating information and ideas to an extent that could not be achieved through the usual channels of publication and presentation at scientific meetings. In addition, scientists in related fields become acquainted and valuable associations are formed that often result in collaboration and cooperative efforts among laboratories.

It is hoped that each conference will extend the frontiers of science by fostering a free and informal exchange of ideas among persons actively interested in the subject under discussion. The purpose of the program is to bring experts up to date on the latest developments, to analyze the significance of these developments, and to provoke suggestions concerning the underlying theories and profitable methods of approach for 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 over-subscribed and for which it is often necessary to establish a waiting list.

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

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 for each Conference is required 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. *A registration card not accompanied by the deposit will not be accepted.*

A deposit is considered an indication of serious intent to participate in a conference. As you know, most conferences are over-subscribed; therefore, I am sure you can appreciate our problems with other scientists who are qualified to attend but who have been placed on waiting lists. It is only fair to caution you that failure to return the registration card and deposit immediately may jeopardize your attendance. 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 the conference for the purpose of increasing the participation of research scientists who could not otherwise attend and participate because of financial limitations. Its use is not limited to scientists who have been invited by the chairman as a speaker or discussion leader. The money is to be used as an assistance fund only and may be used to contribute toward conferees' travel expenses, registration fee and/or subsistence expenses at the conference, or both. Total travel and subsistence expenses usually will not be provided.

The Board of Trustees of the Conferences has established a fixed fee for all resident participants (speakers, discussion leaders, and conferees) at each conference. This fee was established to encourage attendance for the entire conference and to provide the special fund which is available to each conference chairman. *The fixed fee will be charged regardless of the time a participant (speakers, discussion leaders, and conferees) attends the conference—that is, for the periods of from 1 to 4 ½ 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.

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 sessions.

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 site.

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 transferrable to another conference or conferee.*

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

Program. The complete program for the 1978 Gordon Research Conferences is published in *Science*, 10 March 1978. Reprints are available upon 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.

Mail for the office of the Director from 12 June to 25 August 1978 should be addressed to: Dr. Alexander M. Cruickshank, Director, Gordon Research Conferences, Colby-Sawyer College, New London, New Hampshire 03257. Telephone: 603-526-2870.

Conference fees—1978

	New Hampshire
*Resident fixed fee	$160—includes registration fee
*Non-resident fixed fee	$130—includes registration fee and meals
Guest	$110—for room and meals
Deposit	$30 is required of all participants and guests
	California
*Resident fixed fee	$185—includes registration fee
Guest	$135—for room and meals
Deposit	$30 is required of all participants and guests

*Fixed fees cannot be prorated or reduced for anyone.

The program to be presented is as follows.

Adhesion, Science of

New Hampton School

Herbert R. Anderson, Jr., chairman; Albert C. Zettlemoyer, vice chairman.

21 August. (A. C. Zettlemoyer, discussion leader): F. M. Fowkes, "Acid-base interactions at interfaces"; R. E. Johnson, Jr., "Work of adhesion and the structure of polymeric and monolayer surfaces." (R. J. Good, discussion leader): J. D. Swalen, H. R. Anderson, Jr., C. R. Brundle, I. Pochrand, and R. Santo, "Organic monolayers on various oxidized surfaces studied by XPS and optical techniques"; D. Tabor, "Lubrication and adhesion at the monomolecular level."

22 August. (M. L. Hair, discussion leader): G. Whitesides, "Preparation and molecular characterization of organic layers"; D. L. Allara, "Surface infrared spectroscopy." (H. K. Herglotz, discussion leader): D. T. Clark, "XPS studies of structure and bonding at surfaces and interfaces"; W. A. Lanford, "^{15}N hydrogen profiling: applications in physics and chemistry."

23 August. (G. Kraus, discussion leader): W. J. van Ooij, "Mechanisms of adhesion of metals to sulfur-vulcanizable rubbers"; S. Sterman, "Practical aspects of silane coupled surfaces." (R. L. Patrick, discussion leader): R. L. Kaas, "The surface modification of fillers and reinforcement by radiation polymerization"; R. V. Subramanian, "Interfacial aspects of polymer coating on graphite fibers by electropolymerization."

24 August. (A. N. Gent, discussion leader): W. L. Baun, "Microscopic and spectroscopic surface methods to characterize apparent 'adhesive' failure in an adhesive bond"; D. R. Mulville, "Failure of adhesive bonds under multimode loading." (J. D. Andrade, discussion leader): E. Nyilas, T.-H. Chiu, R. D. Cummings, M. E. Hatten, W. A. Morton, R. L. Sidman, and E. Trenkner, "Mitigated cell adhesion and effec tive molecular structure"; E. P. Goldberg, J. W. Sheets, J. Katz, and H. E. Kaufman, "Hydrophilic polymer surface coatings and the elimination of unsuspected contact adhesion tissue damage in surgery."

25 August. (L. H. Sharpe, discussion leader): J. S. Dovick, "Properties of adhesive joints prepared using electrostatically applied powdered adhesives"; J. R. Griffith, D. L. Hunston, and J. P. Reardon, "Heavily fluorinated epoxy resins: chemistry, surface chemistry and special adhesive qualities."

Analytical Chemistry

New Hampton School

Merle A. Evenson, chairman; Jack W. Frazer, vice chairman.

The three topical areas of the 1978 Analytical Chemistry Gordon Research Conference are spectroscopy, analytical separations, and physical-chemical characterization of biological macromolecules and cells.

14 August. John P. Walters, "Synergic approach to research in spectroscopy and spectrochemical analysis"; Frederick S. Richardson, "Circularly polarized luminescence"; Gary Horlick, "Measurement of spectrochemical information." The poster session will be initiated during the evening session.

15 August. Henry M. Fales, "Status of mass spectrometry in biological macromolecular studies"; Philip S. Callahan, "Nonlinear infrared radiation in life"; Chris M. Dobson, "Application of NMR to the study of proteins"; Edward H. Piepmeier, "Laser atomization and excitation for fluorescence and absorption spectroscopy."

16 August. Harold Van Wart, "Laser-raman characterization of proteins"; Nicholas Catsimpoolas, "Electrophoresis in characterization of macromolecules and cells"; Irwin C. Gunsalus, "Low temperature physical-biochemistry"; Eli Grushka, "Selected binded phases in liquid chromatography for peptides."

17 August. Frank J. Grunthaner, "Characterization of active sites of metalloenzymes using ESCA"; Milos Novotny, "High resolution chromatographic techniques in biochemical investigations"; John C. Wright, "Laser excitation of probe ions in condensed phases—application to analytical measurements"; M. Bonner Denton, "Advanced photochemical and spectrochemical techniques."

18 August. Jack Johansen, "Perturbed angular correlation of γ-rays in protein structural studies"; Jack W. Frazer, "Synergic interactions between analytical chemistry and experimentation processes."

The poster sessions initiated on Monday evening will have the materials left on display until Friday. Participants who choose to present a poster of their research should contact the conference chairman at 608-262-4934 to reserve space.

Animal Cells and Viruses

Tilton School

Larry H. Kedes, chairperson; J. Michael Bishop and Sondra Schlesinger, co-vice chairpersons.

26 June. Mobile genetic elements (D. Botstein, chairperson): S. Tonegawa. Viral genomes (P. Sharp, chairperson): R. Kamen.

27 June. Single copy genes (P. Chambon, chairperson): P. Leder, R. Flavell. Repetitive genes (R. Firtell, chairperson): K. Kafatos, R. Cohn, N. Federoff, and J. Abelson.

28 June. Primary transcripts (R. Roeder, chairperson): E. DeRobertis, R. Reeder, and H. Aviv. Chromatin structure (R. Kornberg, chairperson): D. Brutlag and P. Chambon.

29 June. Supranucleosome chromosome structure (A. Worcel, chairperson): W. Kellar, H. G. Callan, and H.

Weintraub. Eukaryotic chromosome movement (L. Wilson, chairperson): B. R. Brinkley, J. R. McIntosh, and R. Margolis.

30 June. mRNA Structure and function (H. Robertson, chairperson): R. Perry, T. Hunt, and J. Rose.

Atomic and Molecular Interactions

Brewster Academy

William A. Lester, chairman; William C. Stwalley, vice chairman.

24 July. Collisions in a radiation field (F. Gianturco, discussion leader): J. Carlsten, "Collisional effects in near-resonant scattering"; T. George, "Molecular rate processes in intense laser radiation." Atomic and molecular interactions and laser development (M. Krauss, discussion leader): D. Setser, "Excitation transfer reactions with excited rare gas atoms"; C. Bender, "Lasers for laser fusion: theoretical inputs."

25 July. New developments in the theory of electronic structure (W. Meyer, discussion leader): A. D. McLean, "Large-scale configuration interaction: the method of interacting correlated fragments"; F. Levin, "The channel coupling array approach to molecular structure." Excited states (W. Stwalley, discussion leader): P. Siska, "Collisions of metastable noble gas atoms at thermal energies"; B. Liu, "*Ab Initio* study of molecular excited states."

26 July. Molecular beam scattering (J. Kinsey, discussion leader): W. R. Gentry, "Pulsed molecular beam experiments on molecular energy transfer"; R. Solarz, "Reactive collisions of laser excited atoms." Theory of inelastic collisions (J. O. Hirschfelder, discussion leader): S. Green, "Relation between different rotational energy transfer processes"; J. Schaefer, "Recent theoretical studies of the scattering of H_2 by H_2 and HD."

27 July. Multiphoton processes (W. Jackson, discussion leader): W. Guillory, "Primary infrared photochemistry"; E. Yablonovitch, "Multiphoton induced chemical reactions using ultrashort infrared laser pulses." Atom-surface interactions (G. Wolken, discussion leader): D. Miller, "Experimental and theoretical objectives and methods in nonreactive gas-surface scattering."

28 July. Recent developments in scattering theory (W. H. Miller, discussion leader): E. Heller, "Time-dependent methods in collisions, photo-dissociation, and spectroscopy"; R. Walker, "R-matrix theory of chemical reactions."

Biological Regulatory Mechanisms

Holderness School

Dale Kaiser and Walter Gilbert, co-chairmen.

10 July. Transcription initiation and its control (R. Schlief, chairman); Transcription termination: terminators, attenuators, anti-terminators, sites (C. Yanofsky, chairman).

11 July. Messenger RNA, intervening sequences, and message processing (J. Darnell and P. Berg, chairmen).

12 July. DNA transpositions, insertion proteins, insertion sequences, function of transposition (H. Nash and I. Herskowitz, chairmen).

13 July. Eukaryotic gene expression, eukaryotic promoters and structural genes in prokaryotes, eukaryotic regulatory proteins (D. Botstein, chairman); Globin genes and globin gene expression (P. Leder, chairman).

14 July. Regulation of immune globulin synthesis (V. Sato, chairwoman).

Biomaterials, Science and Technology of

Proctor Academy

Leonard R. Rubin, chairman; Lawrence Hench, vice chairman.

17 July. Short papers (Lawrence Hench, session chairman): (titles to be announced). Silicone bag breast implants (Stephen D. Bruck, session chairman): Leonard R. Rubin, "Silicone breast implants—uses and abuses"; Ross Rudolph, "Silicone identification in prosthesis associated fibrous capsules. Tissue reaction to silicone implants"; Richard A. Compton, "Chemistry and manufacture of breast prosthesis—chemical and physical characteristics."

18 July. The histopathology of implanted dental materials (Duane E. Cutright, session chairman): Duane E. Cutright, "Development of oral implants"; Craig Hassler, "Soft and hard tissue interaction of alumin oxide ceramic dental implants"; Jack E. Lenons, "Carbon and metal dental implants. The phase boundary interactions". Tissue reactions to electro-magnetic fields (Robert O. Becker, session chairman): Robert O. Becker, "The use of implanted electrically injected silver ions as an antibacterial agent"; Joseph Spadaro, "Electrode reactions in biological solutions"; Gerhard Henning, "Human tissue reaction to implanted magnets."

19 July. Soft and hard lens in ophthalmology (Charles Titus, session chairman): David Shock, "Overview of tissue reactions of intra and extra capsules lens"; Eugene P. Goldberg, "Contact adhesion tissue damage. An unsuspected problem in intraocular acrylic lens insertions"; Miguel F. Refojo, "Polymers in ophthalmology." Cardiac valves (Silvan Pitzele, session chairman): Silvan Pitzele, "Relations between flow patterns and designs of prosthetic heart"; Richard C. Clark, "In vitro analysis of prosthetic valves"; Thomas A. Fogerty, "Considerations in the development of bioprosthestic materials."

20 July. The implanted partial artificial heart in animals and humans (John C. Norman, session chairman): John C. Norman, "Physiological indications and anatomic considerations in partial artificial heart development"; C. Wayne Hibbs, "Current pump designs, energy sources and materials employed in partial artificial heart construction"; Stephen R. Igo, "In vivo hemodynamic characterization of partial artificial hearts"; Ruben Trono, "Ex vivo analysis of blood contacting surfaces in partial artificial hearts." Life and death in interfaces (Leo Vroman, session chairman): (speaker and subject to be announced).

21 July. Pathological degradation of biomaterials (K. Gerhard Brand, session chairman): David F. Williams, "Interaction between cellular enzymes and implanted polymers"; Gale K. Smith, "Transport, distribution and related effect of implants SS3162 corrosion products"; James Anderson, "Implant pathology—retrieval and evaluation of prosthetic devices."

Biopolymers, Physics and Physical Chemistry of

Plymouth State College

Elliot Elson and John Brandts, co-chairmen.

26–30 June. Nucleic acids: M. T. Record, P. von Hippel, V. Bloomfield, I. Isenberg. Proteins: R. Baldwin, A. Fink, G. Petsko, G. Ramachandron, and K. Hodgson. Membranes: B. Hudson, G. Hess, J. Schlessinger, H. McConnell, and H. Metzger. Contractile systems: E. Lazarides, M. Morales, and S. Edelstein.

Bones and Teeth, Chemistry, Physiology and Structure of

Kimball Union Academy

Klaus E. Kuettner, chairman; Harald Schraer, vice-chairman.

10 July. Submitted short papers "Frontiers in the field" (Harald Schraer,

session chairman; Send three copies of a 500-word abstract by 1 May 1978 to Harald Schraer, Department of Biochemistry and Biophysics, Pennsylvania State University, University Park, Pennsylvania 16802). The role of protein protein-carbohydrate-complexes in cell matrix interactions (George W. Jourdian, session chairman): Gilbert Ashwell, "The role of cell surface glycoprotein in recognition phenomena (mammalian lectins)."

11 July. The role of protein protein-carbohydrate-complexes in cell matrix interactions (continued) (George W. Jourdian, session chairman): Robert J. Klebe, "Cell biology of cell attachment to collagen"; Waltraud Dessau, "The role of fibronectin and collagens in the attachment, interaction and matrix accumulation of chondrocytes"; Vincent Hascall, "Specificity of proteoglycans interactions in the formation of the cartilage matrix"; Dennis A. Lowther, "Regulatory effect of extracellular molecules on proteoglycan synthesis." Concepts of epitatic matrix related biological mineralization (Arthur Veis, session chairman): Benedetto de Bernard, Donald I. Hay, Paul A. Price, Aaron S. Posner, John D. Termine, Steve Weiner, and Stephen White, discussants.

12 July. Connective tissue resorption: (a) immunological studies (Edward D. Harris, Jr., session chairman): Steven E. Mergenhagen, "Cellular immunity and chronic periodentitis"; John E. Horton, "Regulation of bone loss by cell mediated immunity"; Ann L. Sandberg, "Complement in connective tissue metabolism"; A. Robin Poole, "Immunological studies on proteoglycans and their degradation in cartilage and bone"; Lawrence G. Raisz, directed discussion. Connective tissue resorption: (b) enzymatic and cellular interactions (Edward D. Harris, Jr., session chairman): Zena Werb, "The role of proteases in amplification systems in connective tissue resorption"; Jean-Dominique Vassalli, "Control of secretion of plasminogen activator by inflammatory cells"; Edward D. Harris, Jr., "Morphology and function: correlation with collagenolytes in rheumatoid arthritis."

13 July. Factors influencing skeletal and dental tissue differentiation (A. Hari Reddi, session chairman): D. Gospodarowicz, "Control of mammalian cell proliferation by epidermal and fibroblast growth factors"; W. H. Daughaday, "Recent studies on somatomedins." Special lecture: Robert K. Schenk, "Form and art in nature."

14 July. Renal osteodystrophy (Steven L. Teitelbaum, session chairman): Allen Alfrey, "Biochemistry of uremic skeleton"; Shaul G. Massry, "Skeletal resistance in uremia"; Eduardo Slatopolsky, "Phosphate metabolism and renal osteodystrophy in uremia."

An application blank for attendance at the Gordon Research Conferences may be found on page 1125.

Cancer

Colby-Sawyer College

Isaiah J. Fidler, chairman; I. Bernard Weinstein, vice chairman.

Biological Principles for Cancer Therapy

21 August. Sequential alterations in carcinogenesis (F. F. Becker, chairperson): M. F. Rajewsky, "Chemical carcinogenesis in the developing nervous system: molecular and cellular mechanisms"; W. H. Clark, "The developmental biology of neoplastic lesions." Fundamental genetics mechanisms (T. J. King, chairperson): F. Fialkow, "Clonal and stem cell origin of neoplasms"; L. Loeb, "Infidelity of DNA synthesis and malignancy."

22 August. Development of drug-resistant tumor variants (F. M. Schabel, chairperson): G. H. Heppner, "Heterogeneity of mouse mammary neoplasms"; G. B. Pierce, "Tumor heterogeneity and implications for therapy." Tumor progression (I. B. Weinstein, chairperson): M. L. Kripke, "Host immunity and tumor development"; C. J. Nabors, Jr., "The effects of steroids on malignant progression."

23 August. Tumor invasion and metastasis (L. Weiss, chairperson): C. W. Boone, "Markers for malignancy *in vitro* and *in vivo*"; E. V. Sugarbaker, "The clinical reality of cancer metastasis." Host immunity and therapy (R. T. Prehn, chairperson): O. Stutman, "Experimental basis for immunotherapy"; E. M. Hersh, "Immunotherapy, the clinical reality."

24 August. Rational approaches for chemotherapy (E. Mihich, chairperson): Y. C. Cheng, "Some biochemical determinants of drug action in target cells"; J. Laszlo, "Chemotherapy, the clinical reality." The rationale for combined modalities of therapy (J. D. Minna, chairperson): J. A. Belli, "The rationale for radiotherapy"; G. Poste, "Liposomes as carriers for antineoplastic agents."

25 August. Tumor biology and therapy (E. Frei, III, chairperson): J. Folkman, "Control of cell growth by cell shape"; I. J. Fidler, "Tumor heterogeneity for invasion and metastasis."

Catalysis

Colby-Sawyer College

Gerard V. Smith, chairman; John B. Butt, vice chairman.

26 June. Wim J. M. Pieters and W. Curtis Conner, "Oxyhydrochlorination"; Farhad Behbahany, Z. Shiekhrezai, M. Djalali, and S. Salajegheh, "Exchange and desulfurization of thiophene over synthetic and commercial Co/Mo catalyst systems"; W. Keith Hall, "Reactions over reduced molybdena alumina catalysts"; V. B. Kazansky, "Molecular models of broensted acid sites in zeolites."

27 June. Wolfgang Sachtler, "Heterogeneous asymmetric catalysis"; Yoshiharu Izumi, "Stereodifferentiating reactions on heterogeneous catalysts"; E. I. Klabunovskii, "Recent advances in enantioselective hydrogenation on metallic catalysts modified with chiral ligands"; Iwao Yasumori, "The template effect of adsorbed species in heterogeneous catalysis."

28 June. Geoffrey Ozin, "Metal atom cryochemistry: the metal cluster-metal surface analogy in catalysis and chemisorption processes"; Robert L. Burwell, Jr., "Metal carbonyls on alumina"; Alfred B. Anderson, "Theoretical aspects of structures and reactions on transition metal surfaces."

29 June. F. W. Lytle, G. H. Via, and J. H. Sinfelt, "EXAFS investigation of heterogeneous catalysts: atomic structure and chemisorption"; David F. Ollis, "Photocatalysis in heterogeneous systems"; Stanford R. Ovshinsky, "Chemical bonds, catalysis and amorphous materials."

30 June. J. P. Guillory and R. S. Becker, "Singlet oxygen from heterogeneous catalysts"; J. A. Schwarz and R. S. Polizzotti, "Catalytic hydrogenation of CO on nickel foils and powders."

Cellular Materials, Chemistry and Physics of

Plymouth State College

David L. Skinner, chairman; Gregory A. Campbell, vice chairman.

19 June. (D. L. Skinner, discussion leader): R. D. Shoup, "Controlled pore silica bodies"; David Rostoker, "Specialty cellular glasses and their applications." (G. A. Campbell, discussion leader): Peter Rand, "One container,

sticky foams''; A. M. Kraynik, ''Flow properties of one container, sticky foams.''

20 June. (J. G. Uhlmann, discussion leader): B. Kanner, G. J. Murphy, S. Eschbach, and B. Prokai, ''Role of silicone surfactants in polyurethane foams''; I. Bechara and R. Mascioli, ''Mechanisms of the reactions of isocyanate catalyzed by hydroxy alkyl quaternary ammonium compounds.'' (E. M. Maxey, discussion leader): J. E. Kresta and K. Frisch, ''Some new views on the catalysis of isocyanate reactions.''

21 June. (G. T. Castino, discussion leader): H. G. Nadeau, ''Results from large-scale evaluation of release rate model for predicting fire hazard development in compartments containing cellular plastics''; F. Clark, ''The specifics of cellular plastics burning behavior and their implications for hazard prediction.'' (J. K. Backus, discussion leader): Y. Alarie and R. C. Anderson, ''A system approach to evaluate the toxicological hazards of cellular materials under thermal stress.''

22 June. (L. C. Rubens, discussion leader): M. A. Mendelsohn, G. B. Rosenblatt, J. F. Meier, and G. E. Rudd, ''Effects of formulation and processing variables on the cell structure, permeability and compression-deflection characteristics of a series of phenolic foams''; E. K. Moss, ''Resin design for low friability phenolic foams.'' (A. F. Reilly, discussion leader): H. E. Reymore, ''Chemistry and properties of low density carbodiimide foams.''

23 June. (E. Meinecke, discussion leader): R. F. T. Stepto, ''Preparation and properties of polyurethane and polyester networks''; J. P. Bosscher, ''Some relations between cell geometry and stress-strain behavior in cellular materials.''

Ceramics, Solid State Studies in

Tilton School

A. G. Evans, chairman; Ben A. Wilcox, vice chairman.

Mechanical Property, Microstructure Relations

7 August. Fundamental fracture processes in brittle materials (N. H. McMillan, discussion leader); J. J. Gilman, ''Some fundamental considerations of brittle crack propagation''; R. M. Thomson and E. R. Fuller, ''Models of fully brittle crack propagation''; R. M. Thomson and E. R. Fuller, ''Models of fully brittle crack propagation.'' (S. M. Wiederhorn, discussion leader): G. J. Williams, ''Viscoelastic crack propagation processes''; B. R. Lawn, ''Crack tip and indentation process zones in brittle solids.''

8 August. Interrelations between fracture and microstructure (R. W. Rice, discussion leader): N. Claussen, ''Toughening concepts in ceramics''; R. A. Schmidt, ''Crack propagation and fracture in rocks.'' (R. C. Bradt, discussion leader): F. F. Lange and D. R. Clarke, ''The role of first order phase transformations in brittle fracture''; L. E. Cross, ''Twin mechanisms in ferroic crystals: effects on mechanical properties.''

9 August. High temperature processes (J. K. Tien, discussion leader): M. F. Ashby, ''Some fundamental aspects of high temperature mechanical behavior''; J. R. Rice, ''Diffusion controlled crack growth.'' (R. M. Cannon, discussion leader): B. Wilshire, ''High temperature creep and fracture phenomena in ceramics and refractories''; R. J. Brook, ''Microstructure development at elevated temperature.''

10 August. Informal topical presentations on mechanical behavior of ceramics (D. P. H. Hasselman, discussion leader): K. Nassau, ''Gems: science, synthesis, beauty and deception.''

11 August. Failure prediction in structural ceramics (J. S. Nadeau, discussion leader): G. S. Kino and B. T. Khuri-Yakub, ''Non-destructive failure prediction schemes for ceramics''; J. Ritter, ''Failure prediction using statistics and proof testing.''

Chemical Oceanography

New Hampton School

David R. Schink, chairman; Thomas M. Church, vice chairman.

31 July. Global budgets of trace gases (W. S. Broecker, chairman): W. S. Broecker and Hans Oeschger, ''A model for fossil fuel uptake by the sea''; M. B. McElroy, ''Nitrous oxide in rivers, estuaries, and the sea.'' Oceanic particulate matter (P. E. Biscaye, chairman): S. Honjo, ''Material fluxes in the open ocean measured in the PARFLUX experiment''; J. K. B. Bishop, ''Chemistry and vertical flux of oceanic particulate matter—results from large volume *in situ* filtration experiments.''

1 August. Modelling diagenesis (R. A. Berner, chairman): R. C. Aller, ''Influence of macrobenthos on chemical diagenesis in the sea''; N. L. Guinasso, Jr., ''Abyssal processes.'' Estuarine processes (T. M. Church, chairman): E. Boyle, ''Criteria for the identification and quantification of non-conservative processes''; C. S. Martens, ''Carbon and ammonia regeneration and exchange processes in sediments.''

2 August. Marine organic geochemistry (J. W. Farrington, chairman): J. W. Farrington, ''Organic matter in the sea''; E. Sholkovitz, ''Organic matter in estuarine processes''; P. Gschwend, ''Volatile organic matter in the sea.'' Interactions between chemistry and biology (W. Fenical, chairman): J. S. Kittredge, ''Allelochemics—perfumes, spices and poisons in the marine environment''; K. H. Nealson, ''Microbiological transformations of dissolved metals—a model system for deposition.''

3 August. Chemical speciation in sea water (D. R. Kester, chairman): T. M. Florence, ''An analytical scheme for the chemical speciation of Cu, Pb, Cd and Zn in sea water''; M. Shuman, ''Use of rotated disk electrodes in polarographic studies of copper.'' Strange seawaters (D. R. Schink, chairman): B. J. Presley, ''Geochemistry of the Orca Basin brines''; J. B. Corliss, ''Hydrothermal fluids recovered by Alvin from the Galapagos Rift.''

4 August. Geochemical cycles (W. W. Hay, chairman): T. W. Donnelly, ''Changing budgets of chemical sedimentation in the world ocean through the tertiary''; W. W. Hay, ''Post-Paleozoic transfer of materials from continents to the oceans and vice versa.''

Chemotherapy of Experimental and Clinical Cancer

Kimball Union Academy

Karl Folkers, chairman, Paul L. Kornblith, vice chairman.

24 July. Session on network priorities at NCI (Karl Folkers, session chairman): Saul Schepartz, ''The NCI drug development strategy and decision-making processes''; John M. Venditti, ''Animal models for antitumor testing in current use by the National Cancer Institute—a screening experiment''; Franco Muggia, ''Clinical trials: current drugs and methodologies''; Randall Johnson, ''Experimental chemotherapy with PALA.'' (Paul L. Kornblith, session chairman): Judah Folkman, ''Inhibitors of angiogenesis''; H. Umezawa, ''New progress and biochemical action of bleomycin derivatives''; Bruce Cain, ''New progress on acridines with antitumor activity.''

25 July. (Abraham White, session chairman): Allan L. Goldstein, ''Thymosin: chemical and biological properties and clinical applications''; Gideon Goldstein, ''Chemistry and biology of identi-

fied thymopoietins"; Jean-Francois Bach, "Chemistry and biology of the facteur thymique serique"; Nathan Trainin, "A thymic humoral factor." (C. Chester Stock, session chairman): William Shapiro, "Models of experimental brain tumors"; Werner Bollag, "Retinoids in cancer research"; James K. Coward, "Inhibitors of enzymes of methyl transfer."

26 July. (Luigi Lenaz, session chairman): F. Arcamone, "New progress on adriamycin analog"; Mervin Israel, "AD-32: development of a novel adriamycin analog"; A. Posinet, "Daunorubicin analogs"; Edward Acton, "Structural approaches to new antitumor agents." (Mary Fink, session chairman): Li H. Li, "Antitumors activity and biochemical effects of nogalamycin and its analogs in L1210 leukemia"; Patricia Donahoe, "Mullerian inhibiting substance"; Karl Folkers, "Potentiality of coenzyme Q_{10} and its antimetabolites in cancer treatment."

27 July. (Gerald Mueller, session chairman): Paul Kornblith, "Guidance by *in vitro* cultures to new agents"; Frank Schabel, Jr., "Drug cure of advanced solid tumors of mice"; Gerald A. LePage, "Considerations in the design and development of drugs"; Alexander Bloch, "Approaches to design of new antitumor agents." Plenary presentations (Paul Kornblith, session chairman): Gianni Bonadonna and Bernard Fisher, "Integration of experimental animal data and clinical trials"; responses to selected questions.

28 July. (Edward J. Modest, session chairman): B. J. A. Furr, "Biological properties of the antioestrogen, Tamoxifen"; P. V. Maynard, "Activity of synthetic peptides on DMBA-induced tumors"; Donald Wiegand, "Activity of synthetic peptides in tumor systems."

Chronobiology

Plymouth State College

Franz Halberg, chairman; Dora Hayes, vice chairman.

3–7 July. Biochemistry, biophysics and chronobiology in 1978 (E. Bunning, discussion leader): F. Halberg and A. Carendete. Methods for data collection and analysis (discussion leaders to be announced): J. D. de Prins. Histochemistry (H. von Mayersbach, discussion leader): A. G. E. Pearse. Molecular aspects (B. Chance and L. N. Edmunds, discussion leaders): S. Jerebzoff and C. R. Ehret. Rhythms in plants and invertebrates (F. A. Brown, Jr., discussion leader): E. Wagner. Neuro-humoral mechanisms (R. Reiter, discussion leader): I. Assenmacher and E. Haus. Diagnostic and pharmacologic aspects (H. Breuer, discussion leader): M. Cagnoni and L. E. Scheving. Circannual rhythms (A. Reinberg, discussion leader): B. Sundararaj. Schedule shifts: D. K. Hayes. Time and the humanities: (speaker to be announced). Autorhythmometry—demonstrations only: R. Engel, F. C. Bartter, and H. Levine.

Coatings and Films, Physics and Chemistry of

Proctor Academy

Edgar E. Hardy, chairman; Harry L. Frisch, vice chariman.

31 July. Interaction of substrates, binders, pigments and additives (Raymond R. Myers, discussion leader): Milton Manes, "Wetting of composite surfaces"; R. J. Good, "Chemistry and mechanism of adhesion of the coating to a solid." (Marco Wismer, discussion leader): Robert A. Otteriani, "The effect and interaction of coatings parameters on the corrosion resistance of painted steel."

1 August. Membrane properties of coatings and films (Alan S. Michaels, discussion leader): V. Stannett, "Basis for understanding of membrane structure"; S. Alexander Stern, "Mechanisms of fluid transport in polymer films—new concepts and old problems." (Philip Heiberger, discussion leader): Fred Liu, "Biopolar membrane technology: A new engineering principle."

2 August. Advances in analytical chemistry contributing to scientific progress in coatings and films (Sandy Labana, discussion leader): John T. Vandeburg, D. G. Anderson, D. R. Brezinski, and T. M. Sutliff, "Advanced methods for characterizing polymers in the coatings industry"; Robert L. Sandridge, "Low level analytical determination of monomeric isocyanates in the coatings environment"; A. Kaempf, "Modern methods of analysis of the interaction of vehicle and pigments." (K. L. Hoy, discussion leader): Michael Waters, "In vitro bioassay methods"; Meryl H. Karol, "Immunologic reactions to chemicals used in the coatings industry."

3 August. (C. A. Kumins, discussion leader): R. V. Subramanian, "Polymer coatings by electro initiated polymerisation of monomers on electrodes"; Percy E. Pierce, "Kinetics and mechanism of electrodeposition of organic coatings." (Kurt C. Frisch, discussion leader): K. Hamann, "Coatings and pigments: Developments, trends and future conceptual probabilities."

4 August. (Harry L. Frisch, discussion leader): F. Lewis Floyd, "Polymer filler interaction and latex paint films"; J. N. Rieck and P. H. Markush, "Polyurethane coatings from aqueous dispersions"; K. Hamann (Subject to be announced).

Coherent Optics and Holography

Miramar Hotel

Joseph W. Goodman, chairman; Harrison Barrett, vice chairman.

19–23 June. The following persons have been invited to speak: Robert Marks, Adolf Lohmann, B. P. Hildebrand, Jan Grindberg, Alan Huang, Yoshito Tsunoda, Scott Gordon, and Richard Hudgins.

Corrosion

Colby-Saywer College

Ellis D. Verink, Jr., chairman; F. S. Pettit, vice chairman.

10 July. The role of hydrogen and/or sulfides in cracking (Fred Pettit, discussion leader): Peter Rhodes, "Hydrogen-induced stress cracking of high strength nickel alloys"; Z. A. Foroulis, "On the mechanism of environmentally induced cracking of a nickel alloy"; Brian E. Wilde, "Hydrogen absorption and its role in SCC of steels in sulfide media." Stress corrosion cracking (Roger W. Staehle, discussion leader): Michael A. Streicher, "Stress corrosion cracking of austenitic and ferritic stainless steels"; R. K. Viswanadham and J. A. S. Green, "Environmentally-induced failures in aluminum alloys."

11 July. Corrosion fatigue vs. stress corrosion cracking (Ellis D. Verink, discussion leader): R. N. Parkins, "The interface between corrosion fatigue and SCC"; R. E. Hanneman and F. P. Ford, "Advanced concepts for SCC and corrosion fatigue"; Dale F. Taylor, "Crevice chemistry behavior of stainless steel and inconel"; Thomas M. Devine, "Influence of microstructural and localized corrosion of stainless steels." Grain boundary effects (M. B. Ives, discussion leader): J. B. Lumsden, "Correlation between grain boundary composition and stress corrosion cracking"; Lloyd A. Heldt, "Solute segregation and SCC susceptibility of copper alloys in acidic environments"; Florian Mansfeld, "Acous-

tic emission from corroding metals."

12 July. Mechanisms and control of pitting (Robert T. Foley, discussion leader): Z. Szklarska-Smialowska, "Conditions leading to different types of localized corrosion on stainless steels"; Grieg Wallwork, "Pitting corrosion in steels"; Jose Galvele, "Mechanism of electrochemical depassivation of metals"; H. H. Strehblow, "The destruction of passive films by aggressive anions (especially fluoride)." Control of atmospheric weathering (Henry Leidheiser, discussion leader): Egon Matijevic, "Colloid chemical approach to the problems of corrosion of metals"; Marcel Pourbaix, "Control of atmospheric weathering."

13 July. Control of atmospheric weathering (Marcel Pourbaix, discussion leader): Robert Iezzi, "Surface characteristics controlling paint adhesion on cold rolled steel"; Robert Legault, "Kinetics of atmospheric weathering of steel-base products"; A. G. Smith, "Adhesion-failure mechanisms of primer coatings." Special topics (discussion leader to be announced): W. Thomas Chase, "Fine patina and dreaded bronze disease . . . corrosion of archeological materials."

14 July. Inhibition of corrosion (C. T. Lynch, discussion leader): John C. Scully, "Repassivation aspects of pitting, inhibition and corrosion cracking"; A. K. Agarwal, "Oxidizing anions as inhibitors"; R. P. M. Proctor, "Ion implantation for corrosion control"; Ronald Latanision, "Corrosion behavior of glassy metals."

Cyclic Nucleotides

Kimball Union Academy

Edwin G. Krebs, chairman; Alton Steiner, vice chairman.

19 June. Adenylate cyclase and its regulation (Alfred G. Gilman, chairman); Guanylate cyclase and its regulation (Ferid Murad, chairman).

20 June. Cyclic AMP-dependent and independent protein kinases and inhibitory proteins: cyclic GMP-dependent protein kinase (Ora M. Rosen, chairman); Phosphoprotein phosphatases and inhibitory proteins (Walter H. Glinsmann, chairman).

21 June. Cyclic nucleotides and protein phosphorylation in the regulation of carbohydrate metabolism (John H. Exton, chairman); Cyclic nucleotides and protein phosphorylation in the regulation of lipid metabolism (Daniel Steinberg, chairman).

22 June. Cyclic nucleotides and protein phosphorylation in the regulation of protein synthesis (Ira G. Wool, chairman).

23 June. Cyclic nucleotides and protein phosphorylation reactions in the regulation of phenylalanine and tyrosine hydroxylases (Norman Weiner, chairman).

Applications

Scientists are invited to submit applications for attendance at the Gordon Research Conferences. An application blank is on page 1125 and may be submitted to Dr. Alexander M. Cruickshank, Director, Gordon Research Conferences, University of Rhode Island, Kingston, Rhode Island 02881.

Dielectric Phenomena

Holderness School

John Deutch and Robert Cole, cochairmen.

24–28 July. Equilibrium theory of polarization: G. Stell, G. N. Patey, and G. S. Rushbrooke. Orientational relaxation and dissipation: J. T. Hynes, C. Brot, and R. W. Zwanzig. Dielectric and related correlation functions: D. M. Kivelson, T. Keyes, and T. Litovitz. Fluctuations and critical phenomena: P. Mazur, B. U. Felderhof, and H. Meyer. Dielectric properties of synthetic polymers and biopolymers: R. H. Boyd, W. D. MacKnight, and M. Mandel. Charge transport in organic solids and semiconductors: T. J. Lewis, M. Abkowitz, and J. Mort. Non-linear effects and breakdown: M. Broadhurst, G. Williams, and A. H. Sharbaugh. Dielectric materialism—what is needed? J. Deutch, W. P. Slichter, and J. D. Hoffman.

Drug Carriers in Biology and Medicine

Plymouth State College

Gregory Gregoriadis, chairman; G. M. Ihler, vice chairman.

The first Gordon Research Conference on Drug Carriers in Biology and Medicine is meant to cover trends in modern pharmacology which are placing emphasis on drug delivery systems. The conference sessions will be dealing with the possibility of controlling the release of active agents (for example, conventional drugs, enzymes, hormones, antigens, informative molecules, and so forth) through the use of suitable biodegradable carriers which would include (a) molecules and cells with homing properties harvested from the biological systems and serving as vehicles for exogenous active agents, (b) natural molecular and cellular carriers (of endogenous active substances) extracted and used as such, and (c) man-made systems tailored to fulfill particular needs.

12 June. Macromolecular drug carriers (B. F. Erlanger, chairman; F. F. Davis, and R. T. Dean, discussion leaders): A. Trouet, "Deoxyribonucleic acids as carriers of drugs"; L. Molteni, "Dextrans"; J. M. Whiteley, "Albumin"; J. M. Varga, "Trophic hormones"; W. T. Shier, "Lectins." (E. P. Goldberg, chairman; B. F. Erlanger and T. Ghose, discussion leaders): R. Arnon, "Antibodies as carriers of anticancer drugs"; D. A. L. Davies and G. F. Rowland, "Antibody-drug complexes for cancer therapy."

13 June. Cellular drug carriers (G. Ihler, chairman; S. H. Polmar and U. Zimmermann, discussion leaders): G. Ihler, "Erythrocytes as drug and enzyme carriers"; U. Zimmermann, "Erythrocytes"; A. W. Segal, "Neutrophils." (J. F. Mowbray and J. A. Barranger, discussion leaders): (speaker to be announced), "Hepatocytes and pancreatic cells in the treatment of enzyme and hormone deficiencies"; I. H. M. Muir, "Fibroblasts in the treatment of enzyme deficiencies"; F. J. Mowbray, "Regulation of enzyme and protein production in transplanted cells."

14 June. Synthetic drug carriers (D. R. Cowsar, chairman; C. Thies, discussion leader); E. P. Goldberg, "Polymers as drug carriers in lesional cancer therapy"; J. F. Sanderson, "Lactic/glycolic acid polymers"; S. J. Updike, "Biodegradable gels." (N. N. Li, chairman; M. J. Poznansky, discussion leader): T. M. S. Chang, "Artificial cells"; J. Fendler, "Membrane mimetic agents as drug carriers." A workshop on methods for carrier preparation/isolation and carrier-drug association will be held in the evening; C. R. Alving, R. Arnon, G. Dale, J. Fendler, M. Finkelstein, G. M. Ihler, F. Szoka, P. Thorpe, and S. J. Updike, coordinators.

15 June. Synthetic drug carriers (W. E. Magee, chairman; C. R. Alving and J. Weinstein, discussion leaders): F. Szoka and D. Papahadjopoulos, "New methods for encapsulation of drugs into liposomes (phospholipid vesicles) and their interaction with cells *in vitro*"; C. R. Alving, "Liposomes as drug carriers in the treatment of parasitic diseases"; C. D. V. Black, "Liposomes as drug car-

riers in the treatment of visceral leismaniasis''; R. R. C. New, ''Liposomes as drug carriers in the treatment of visceral leismaniasis.'' (A. C. Allison, chairman; R. L. Juliano and H. K. Kimelberg, discussion leaders): V. J. Caride, ''Liposome accumulation in regions of acute myocardial infarction''; M. Finkelstein and G. Weissmann, ''The effect of liposome-entrapped protease inhibitors on inflammation''; J. T. Dingle, ''Liposome-entrapped steroids in the local therapy of arthritis''; M. J. Ostro, ''Delivery of liposome-entrapped mRNA into eucaryotic cells.'' Poster session in the afternoon.

16 June. General discussion followed by a summary seminar (speaker to be announced).

Drug Metabolism

Holderness School

James R. Fouts, chairman; George J. Wright, vice chairman.

7 August. (Edward S. Reynolds, chairman): Edward S. Reynolds, ''Structural and functional responses of cells to chemical agents''; Walter Stumpf, ''Autoradiographic approaches to sites of drug action.'' (Gustav Dallner, chairman): Gustav Dallner, ''The functional meaning of membrane organizations with particular reference to drug metabolism''; Juris Ozols, ''The relationship between amino acid sequence and function of microsomal cytochromes.''

8 August. (James R. Gillette, chairman): James R. Gillette, ''Experimental design as guided by theoretical pharmacokinetics''; Gerhard Levy, ''Theoretical extrapolations based on experimental pharmacokinetics.'' (Bernard L. Mirkin, chairman): Bernard L. Mirkin, ''Disposition and pharmacodynamics of drugs in the maternal-placental fetal unit.''

9 August. (Edward Bresnick, chairman): William B. Jakoby, ''The several roles of the glutathione transferases''; Joseph McCord, ''The role of super oxides and super oxide dismutase in oxygen toxicity and inflammation.'' (Colin F. Chignell, chairman): Ronald P. Mason, ''The significance of free radical metabolism in the activation of nitrobacterials by mammalian and bacterial nitro reductoses''; Anton Stier, ''Magnetic resonance and a model for the molecular architecture of the liver microsomal cytochrome P-450 complex.''

10 August. (Alan Poland, chairman): Alan Poland, ''Studies on the mechanism of induction of aryl hydrocarbon hydroxylase by TCDD and related compounds''; Russell Prough, ''Elucidation of N-oxidation reactions of microsomal monooxygenase.'' (Sidney Weinhouse, chairman): ''Perspectives in biochemical pharmacology—choosing research priorities in carcinogenesis, mutagenesis, toxicology, drug metabolism.''

11 August. (John R. Bend and Richard M. Philpot, co-chairmen): David Gibson, ''Bacterial and fungal oxidation of aromatic hydrocarbons''; Ernest Hodgson, ''Multiplicity and genetics of mixed-function oxidation in insects''; Richard M. Philpot, ''Cytochrome P-450 in yeast.''

Elastomers

Colby-Sawyer College

Russell A. Livigni, chairman; James E. McGrath, vice chairman.

24 July. Elastomer structure and flow properties: W. W. Graessley, ''Effect of long branches on rheological properties''; L. J. Fetters, ''Dilute solution properties and melt viscosities of star branched homo- and block copolymers''; A. Keller, ''Crystallization induced gelation and novel issues arising therefrom''; S. L. Cooper, G. M. Estes, and A. Lilaonitkul, ''Morphology and viscoelastic properties of polytetramethylene oxide-polytetramethylene terephthalate block polymers.''

25 July. Rubber elasticity: P. J. Flory, ''Recent advances in rubber elasticity theory''; J. E. Mark, ''Recent experiments on rubberlike elasticity''; G. Rehage, ''Elastic properties of crosslinked polymers''; E. A. Meinecke, ''Influence of large static deformations on the dynamic properties of elastomers.''

26 July. Synthesis, characterization and properties of elastomers: J. Lal, ''High unsaturation ozone-resistant rubbers''; C. S. L. Baker, K. Dawes, and R. J. Rowley, ''Functionalisation of natural rubbers with reactive groups and its technical implications''; M. Bruzzone, A. Carbonaro, S. Cesca, and A. Priola, ''Copolymerization of some mon- olefins with conjugated di- and triolefins''; G. L. Wilkes, ''Domain structure and its thermal stability in linear and cross-linked segmented polyurethanes.''

27 July. Molecular dynamics in elastomers: G. Allen, ''Neutron scattering studies of conformation and dynamics of polymer chains in elastomers''; C. J. Carman, ''^{13}C NMR high resolution and relaxation studies of elastomer blends''; E. Campos-Lopez, ''Guayule: a study of present knowledge.''

28 July. Novel approaches in the characterization of elastomer blends: R. S. Stein and T. P. Russell, ''Scattering studies of polymer blends''; G. G. A. Böhm, ''The morphology and physical properties of elastomer blends.''

Electron Distributions and Chemical Bonding

Plymouth State College

Vedene H. Smith, Jr., and Philip Coppens, co-chairmen.

The conference will be devoted to the fundamental aspects of electron charge and momentum densities and their application to the understanding of bonding in molecules, molecular crystals, ionic and covalent solids, metals and alloys, and hydrogen-bonded systems. It is intended to bring together those chemists, crystallographers and solid-state physicists who study electron densities or use the electron distribution in the interpretation of their results.

12 June. Calibration of theory and experiment on simpler systems: charge densities (R. J. Weiss, discussion leader): R. A. Bonham and R. F. Stewart. Calibration of theory and experiment: momentum densities (M. Cooper, discussion leader): W. A. Reed.

13 June. Space partitioning: (H. Shull, discussion leader): R. F. W. Bader and P. J. Becker. Fundamental concepts and density functionals: R. G. Parr and V. H. Smith.

14 June. Metallic and covalent solids (D. E. Ellis, discussion leader): S. Berko and A. J. Freeman. Practical considerations in charge density measurements and interpretation: P. Coppens. Panel discussion on metals, alloys, ionic and covalent solids (A. T. Stewart, discussion leader): J. R. Chelikowsky, G. V. Gibbs, R. Messmer, and F. Mueller.

15 June. Molecule and molecular crystals: E. D. Stevens. Panel discussion: S. Fliszar, M. Newton, and D. R. Salahub. Coordination complexes (K. H. Johnson, discussion leader): F. A. Cotton.

16 June. Hydrogen-bonded systems (G. H. F. Diercksen, discussion leader): L. C. Allen and M. S. Lehmann.

Electron Donor-Acceptor Interactions

Brewster Academy

Allan K. Colter, chairman; Harvey Scher, vice chairman.

14–18 August. Photochemical electron-transfer, exciplexes, and solar energy storage: Michael Grätzel, ''Light induced charge transfer reactions in func-

tionalized surfactant assemblies''; Frederick D. Lewis, ''Unraveling the complexities of photochemical addition reactions''; David G. Whitten, Photoinduced electron transfer reactions of transition metal complexes. Scope and application to synthesis and energy storage.'' Reactions of charge-transfer complexes: Anthony Ledwith, ''Charge-transfer interactions in polymers''; Jay K. Kochi, ''Charge-transfer processes in organometals.'' New materials: Tobin J. Marks, ''Design of synthetic metals''; Edward M. Engler, ''Synthetic approaches for the systematic study of organic metals.'' Chemically modified polymers: Alan J. Heeger, ''Electronic properties of doped polyacetylene, $(CH)_x$''; Gus Pfister, ''The role of localized states in charge transport and generation in disordered organic solids''; Jerome H. Perlstein, ''Structure and photoconduction in donor-acceptor self assemblies within polymer matrices.'' Vibrational effects on charge-transfer: T. D. Holstein, ''Chemical rate treatment of intermolecular charge-transfer''; Michael J. Rice, ''Vibronically driven charge oscillations in linear chain donor-acceptor compounds and the experimental determination of electron-molecular vibration coupling constants.'' Charge-transfer complexes and electron transfer mechanisms in biochemistry: Gordon Tollin, ''Photochemical electron transfer between quinones and chlorophyll or pheophytin''; Gunter Blankenhorn, ''Catalysis by charge-transfer interactions in flavin-dependent oxido-reduction.'' Electrochemistry and radical ion pair recombination: Allen J. Bard, ''Electrogenerated chemiluminescence''; Joachim Bargon, ''CIDNP from the geminate recombination of radical ion pairs.''

Electron Spectroscopy

Brewster Academy

C. S. Fadley, chairman; T. D. Thomas, vice chairman.

17–21 July. J. L. Dehmer, ''Photoelectric cross sections of atoms and molecules''; F. Wuilleumier, ''Photoelectron spectroscopy of gas-phase species using synchrotron radiation''; N. D. Lang, ''Theory of chemisorption and hole state relaxation for metals''; L. Hedin, ''Time scales, hole localization, and final-state effects in electron emission''; F. P. Jona, ''LEED surface structure determinations''; E. G. McRae, ''Low-energy electronic surface resonances and surface structure''; N. V. Smith, ''Solid-state and surface studies by angular-resolved photoelectron spectroscopy''; E. W. Plummer, ''Chemisorption studies by angular-resolved photoemission using synchrotron radiation''; A. Liebsch, ''Recent progress in the theory of angular-resolved photoemission''; J. B. Pendry, ''Theory of angular-resolved photoemission at x-ray energies; R. F. Willis, ''High-resolution energy-loss studies of surfaces''; D. L. Mills, ''Theory of energy-loss spectroscopy''; M. Isaacson, ''Electron microscopy at atomic resolution''; J. M. Morabito, ''Advances in quantitative auger analysis and applications to solid-state device technology''; J. E. Castle, ''Corrosion studies by electron spectroscopy''; M. G. Mason, ''The study of catalytic small metal clusters by x-ray photoelectron spectroscopy''; D. Briggs, ''Electron spectroscopic studies of practical catalysts''; plus a limited number of shorter oral contributions and poster papers to be selected at a later date.

Environmental and Genetic Toxicology

Plymouth State College

Lawrence Grossman, chairman; Bernard Strauss, vice chairman.

26–30 June. Organic chemistry of carcinogens (R. Harvey, chairman); Metabolic activation of carcinogens (J. Miller, chairman); Interactions with cell constituents (A. Dipple, chairman); Repair of damaged DNA (biological) (B. Strauss, chairman); Repair of damaged DNA (enzymes) (L Grossman, chairman); Mutagenesis and chromosome damage (S. Latt, chairman); Environmental carcinogenesis, (R. Hart and R. Albert, chairmen); Toxicology of carcinogens (M. Cranmer and R. Rubin, chairmen); Epidemiological and clinical expression of carcinogens (J. German and R. Miller, chairmen): D. Kennedy, ''Problems of the real world.''

Environmental Sciences: Water

Holderness School

Julian B. Andelman, chairman; Lawrence H. Keith, vice chairman.

Reactions and Fates of Organics in Natural Waters

26 June. (Russell F. Christman, discussion leader): James R. Maxwell, ''Recognition of natural and anthropogenic hydrocarbons in the aquatic environment''; Walter Giger, ''Sources and fates of trace organic constituents in lakes, rivers and ground waters.'' (Daniel H. Stuermer, discussion leader): Robert Gagosian, ''Cycling of biogenic compounds in the ocean.''

27 June. (Robert A. Baker, discussion leader): Donald Mackay, ''Mechanisms and rates of transfer of organics between natural water bodies and the atmosphere''; N. Lee Wolfe, ''Determining the role of hydrolysis in the fate of organics in natural waters.'' (Martin Alexander, discussion leader): Rita R. Colwell, ''Microbial ecology of the biodegradation of organics in estuarine and marine environments.''

28 June. (Donald G. Crosby, discussion leader): Theodore Mill, ''Organic oxidation mechanisms in natural water systems''; Richard G. Zepp, ''Forecasting photochemical transformations of organic water pollutants.'' (Kurt Irgolic, discussion leader): John M. Wood, ''Biosynthesis of organo-metallic compounds in aqueous systems.''

29 June. (Fred T. Weiss, discussion leader): W. Brock Neely, ''Estimating rates of uptake and clearance of organics by fish''; Patrick Gearing, ''The fate of petroleum hydrocarbons in a model marine ecosystem.'' (James J. Morgan, discussion leader): Ronald A. Hites, ''Accumulation and reactions of industrial organic compounds in freshwater and marine sediments.''

30 June. (Lawrence H. Keith, discussion leader): presentations by conferees.

Enzymes, Coenzymes and Metabolic Pathways

Kimball Union Academy

Jeremy R. Knowles and Christopher T. Walsh, co-chairmen; George R. Stark and Eugene H. Cordes, co-vice chairmen.

3–7 July. The program will include the following sessions and speakers: Stereochemical consequences of enzyme reactions: D. Arigoni, W. W. Cleland, and P. A. Frey. Mechanisms of carbon-carbon bond formation and cleavage: F. Lynen, I. A. Rose, J. W. Suttie, and C. D. Poulter. Mechanisms of ATP utilization and myosin action: W. P. Jencks, E. W. Taylor, and D. R. Trentham. Reductive oxygen metabolism: O. Hayaishi, G. A. Hamilton, S. Kaufman, J. P. Klinman, V. Massey, and John T. Groves. The winding and unwinding of DNA: M. Gellert and J. C. Wang. Chemical models for enzymatic catalysis: R. Breslow, P. Dowd and F. McCapra. Multienzyme complexes: G. G. Hammes and R. N. Perham.

Fiber Science

Colby-Sawyer College

James P. Parker, chairman; Stanley E. Ross, vice chairman.

3 July. Max Feughelman, "The microfibril-matrix relationship and the mechanical properties of keratin"; E. G. Bendit, "The transverse compressional mechanical properties of keratin and their relation to matrix structure"; Menachem Lewin, "Halogen-cellulose interactions: fine structural changes"; Allan Hoffman, "Surface energies of fibrous polymers and their effects on bio-medical applications."

4 July. Ludwig Rebenfeld and H. D. Weigmann, "Solvent induced modifications in the morphology and physical properties of fibrous polymers"; Louis Graham, "A new chemistry for reactive dyeing of cellulosic fibers."

5 July. Paul Lindenmeyer, "Application of small system thermodynamics to the structure of polymeric fibers"; V. Rossbach, "Chemical analysis of synthetic fibres"; Ulrich Meyer, "Biodegradation of azo dyes."

6 July. Malcolm Brown, Deborah Delmer, Martin Willison and St. John Manley, "Biosynthesis and structure of cellulose microfibrils"; Norman Hollies, "Human perception in understanding the usefulness of textiles."

7 July. Dusan Prevorsek, R. K. Sharma and Y. D. Kwon, "Dynamic mechanical properties of tire cords under conditions in rolling tires"; Subbash Batra, "Role of fracture mechanics in wear and attrition of fiber assemblies."

Fluids in Permeable Media: Mathematical Methods for Simulating Heat and Mass Transfer

Plymouth State College

Bruce A. Finlayson, chairman; Stanley Eisenstat, Donald W. Peaceman, and George F. Pinder, co-vice chairmen.

19 June. Petroleum reservoir modeling (D. W. Peaceman, chairman): A. S. Odeh, "An overview of methods known and practiced in the oil industry for simulating oil fields"; Gary A. Pope, "Modeling micellar/polymer flooding"; Herbert L. Stone and J. W. Watts, III, "Simulation of chemical flooding."

20 June. Solving sparse equations (Stanley Eisenstat, chairman): Martin Schultz, "Conjugate gradient methods for sparse linear systems"; (speaker to be announced), "Multi-grid methods"; A. Settari, "Application of multi-grid methods for petroleum reservoir simulation." Comparison of numerical methods (Stanley Eisenstat, chairman): Elias N. Houstis, "Evaluation of numerical methods for solution of elliptic problems"; George F. Pinder, "Relation between Galerkin and Collocation finite element methods."

21 June. Ground water movement (George F. Pinder, chairman): S. Gupta, "Finite element simulation of three-dimensional ground water flow"; Ron Lantz, "Simulation of radioactive waste transport." Modeling sharp fronts (D. W. Peaceman, chairman): Alan M. Winslow, "Numerical methods for steep fronts in linear and nonlinear diffusion"; R. C. Y. Chin, "Numerical solution of chemically reacting flows in porous media; numerical dispersion study using model equations."

22 June. Vector processing, theory and partice (Stanley Eisenstat, chairman): Paul N. Swarztrauber, "Software for direct methods: cyclic reduction and Fourier methods"; Jim Nolen, "Comments regarding comparison of vector vs. scalar processing hardware for simulation models." Parameter estimation (D. W. Peaceman, chairman): M. L. Wasserman, "Parameter estimation for large scale reservoir simulation problems."

23 June. Geothermal (George F. Pinder, chairman): J. W. Mercer, "Simulation of geothermal reservoirs."

Food and Nutrition

Colby-Sawyer College

Paul A. Lachance, chairman; Benjamin Borenstein, vice chairman.

Critical Issues in Food Science and Nutrition

7 August. Sweetness and potent sweeteners (Benjamin Borenstein, session chairman): Joseph Brand, "The physiology of sweetness perception"; James Wiffenbach, "The development of sweet perception"; Howard Moskowitz, "The sensory evaluation of sweetness." (Session chairman to be announced): Murray Goodman, "Current research on potent sweeteners"; Richard Ronk, "Regulatory status and research responsibilities."

8 August. Nitrosamines (Steven Tannenbaum, session chairman): Steven Tannenbaum, "The potential hazard to man of *in vitro* and *in vivo* nitrosation"; John Birdsall, "Nitrate as a food additive: benefits and legislation"; Harold Newmark and William Mergens, "Blocking of amine nitrosation"; (speaker to be announced), "Analysis and occurrence"; Laura Green, "Risk: assessment, extrapolation and tradeoff."

9 August. Trace elements (Robert Cousins, session chairman): Robert Cousins, "Trace elements—absorption, metabolism and function in health and disease"; Gerald F. Combs, Jr., "Dietary selenium interactions"; D. R. Van Campen, "Bioavailability of trace elements." (Gilbert Leveille, session chairman): Walter Mertz, "Research needs"; (speaker to be announced), "The regulatory outlook."

10 August. Food practices (Paul A. Lachance, session chairman): Jane Wallace, "Status and trends of away from home eating"; Clinton Rappole, "Food service research needs"; James Trager, "The proper study of mankind is food."

11 August. Dietary data and research goals (Paul A. Lachance, session chairman): Robert Rizek, "U.S. household dietary survey status"; J. B. Cordaro, "Food and nutrition research goals in the U.S.A."

Friction, Lubrication and Wear

Colby-Sawyer College

Carleton N. Rowe, chairman; Ward O. Winer, vice chairman.

12 June. (W. O. Winer, discussion leader): J. B. P. Williamson, "Influence of topography on the interaction between solids"; H. Czichos, "Tribo-measuring techniques: general and simulation." (D. Scott, discussion leader): R. B. Waterhouse, "Metallurgical and environmental effects in fretting fatigue"; E. L. Armstrong, "Rolling contact fatigue—lubricant effects."

13 June. (R. S. Miller, discussion leader): H. S. Cheng, "Surface damage under EHD lubrication conditions"; E. P. Kingsbury, "Starved EHD lubrication in low stress rolling conditions"; L. Rozeanu, "Physico-chemical interpretation of interface effect on boundary and hydrodynamic lubrication"; W. O. Winer, "A case for the limiting shear stress model for lubricant rheology."

14 June. (K. C. Ludema, discussion leader): D. A. Rigney, "Importance of microstructure for sliding wear"; A. W. Ruff, "Wear debris analysis and particle formation mechanisms"; M. Godet, "Micro and macropits, sponges, surface wear and spalls in highly loaded hertzian contacts"; B. A. Baldwin, "The chemistry of wear mitigation by lubricant additives."

15 June. (E. E. Klaus, discussion lead-

er): F. Lockwood, "Synthetic ester lubricant degradative reactions and the relation of these reactions to boundary lubrication"; L. R. Mahoney, "Recent studies of lubricant additive chemistry employing free radical techniques." (C. N. Rowe, discussion leader): D. Dowson, "History of tribiology."

16 June. (D. G. Flom, discussion leader): N. S. Eiss, Jr., "Wear mechanisms of polymers"; H. E. Sliney, "Advanced concepts in self-lubricating coatings and composites."

Fuels Science

New Hampton School

Jack B. Howard, chairman; Lester G. Massey, vice chairman.

26 June. Plastic behavior of coal (Richard C. Neavel, discussion leader): H. Marsh, "Mesophase development in plastic coals"; B. Ignasiak, "Oxygen in coal and its effect on plasticity"; P. R. Ryason, "Plastic coal—rheology, atomization, and reaction"; M. Shibaoka, "Microscopic investigation of the behavior of various coal macerals during thermal alteration."

27 June. Coal structure (Wendell H. Wiser, discussion leader): C. J. Collins, "Studies of coal structure using isotopes"; H. P. Hombach, "Particle size and molecular weight of derivatives from coal"; R. J. Pugmire, "Inferences on coal structure based on ^{13}C nmr spectra of coal and extraction products"; C. W. Curtis, "Inferences on coal structure based on studies of coal and coal fractions using GC-FTIR and other analytical techniques."

28 June. Coal liquefaction (Peter H. Given, discussion leader): D. D. Whitehurst, "Relationships between chemistry of recycle solvents and coal liquefaction behavior"; L. W. Vernon, "Free radical chemistry of coal liquefaction"; A. Szladow, "Mechanism of coal liquefaction—analysis of activation energies"; D. H. Finseth, "Investigations into the storage stability of coal-derived liquids."

29 June. Gasification (Robert A. Graff, discussion leader): C. A. Mims, "Mechanism studies of alkali catalyzed coal gasification"; K. Durai-swamy, "Tar yield and cracking in flash pyrolysis of coal"; C. W. von Rosenberg, Jr., "Coal gasification studies in an explosion driven reactor"; D. V. Punwani, "Peat hydrogasification."

30 June. Environmental considerations (Michael J. Massey, discussion leader): J. P. Strakey, "Relationships between gasification process design, effluent production, and treatment"; B. S. Lee and L. J. Anastasia, "A case study—environmental characterization of the hygas process"; M. Pell, "High temperature desulfurization of fuel gas."

Fungal Metabolites

Holderness School

R. W. Detroy and A. Ciegler, co-chairmen; P. A. Lemke and S. W. Tanenbaum, co-vice chairmen.

Biogenesis and Function

3–7 July. Biochemistry of fungal development (D. Niederpruem, discussion leader): J. van Etten, "Biochemistry of fungal spore germination"; P. Sypherd, "Biochemical signals in mycelial-yeast dimorphism"; C. E. Bracker, "Chitisomes and chitin biosynthesis in fungi." Fungal metabolites: biogenesis and metabolic regulation (J. Bennett, discussion leader): G. Maurice Gaucher, "Regulatory aspects of polyketide biosynthesis with emphasis on patulin"; J. Bennett, "Genetics of aflatoxin biosynthesis"; C. H. Nash, III, "Regulation of synthesis of antibiotics produced by fungi"; L. Lasure, "Fungal extracellular proteases and metabolic control." Fungal nucleic acids, viruses and plasmids (P. Lemke, discussion leader): J. Kandel, "Killer systems in fungi"; P. Perlman, "Characterization, transfer, and role of extrachromosomal DNA in fungi and yeasts"; K. Esser, "Nucleocytoplasmic interactions for senescence in *Podospora*." Fungal metabolites and biological activity (S. Tanenbaum, discussion leader): S. Lin, "Action of cytochalasins"; C. McLaughlin, "Effects of trichothecenes on protein synthesis"; G. Stroebel, "Interactions of *Helminthosporium* toxins." Applied aspects of fungal metabolism (A. Ciegler, discussion leader): B. Malin, "Secondary metabolite production by fungi"; L. M. Seitz, "Fungal metabolites and growth in solid substrate fermentations."

Glass

Tilton School

Donald R. Uhlman, chairman; P. C. Schultz, vice chairman.

Glass Fibers, Ribbons and Surfaces

21–25 August. Optical waveguides; metal alloy glasses; alkaline resistant glass fibers; glass surfaces.

Hemostasis

Proctor Academy

Yale Nemerson, chairman; Michael Mosesson, vice chairman.

12 June. Structure of fibrinogen (Russell Doolittle, chairman): B. Blomback, "The structure of human fibrinogen"; A. Henschen, "Fibrinogen and its primary structure"; R. Canfield, "Structure of fibrinogen: applications to pathophysiology"; R. Doolittle, "Covalent structure of human fibrinogen." Cofactors of serine proteases (session I) (Allen Kaplan, chairman): J. Griffin, "High molecular weight kininogen: cofactor for contact activation reactions"; C. Esmon, "New approaches for studying the relationship between factor V structure and function."

13 June. Cofactors of serine proteases (session II) (Frances Pitlick, chairman): F. Pitlick, "Tissue factor: biological and biochemical reactions"; E. Bjorklid, "Purification and characterization of human tissue factor"; J. Niemetz, "Role of complement in the generation of leukocyte tissue factor activity." Protein-protein and protein ligand interactions (John Suttie, chairman): J. Suttie, "Biosynthesis of the vitamin K dependent proteins"; C. Jackson, "Calcium mediated protein association and cooperactivity of calcium binding to prothrombin fragment 1"; G. Nelsestuan, "Properties and function of vitamin K dependent protein-membrane interactions"; B. Furie, "γ-carboxyglutamic acid and the structure of the metal binding sites of prothrombin."

14 June. Prostaglandins (Aaron Marcus, chairman): A. Marcus, "The role of oxygen in human platelet metabolism"; R. Gorman, "Modulation of human platelet aggregation by thromboxane A_2, prostaglandin I_2 and cAMP"; J. Ryan and U. Ryan, "Pulmonary endothelial cells and prostaglandin-related substances." Von Willebrand factor (Barry Coller, chairman): B. Coller, "The effects of Ristocetin and Von Willebrand factor in platelet surface charge: a potential mechanism for Von Willebrand factors platelet cofactor function"; P. McKee, "Modification of carbohydrate side chains and the effect on Von Willebrand factor activity"; H. Gralnick, "Role of carbohydrate in Von Willebrand factor activity."

15 June. Plasminogen and plasminogen activator (Kenneth Robbins, chairman): K. Robbins, "Plasminogen and plasminogen activation kinetics"; E. Reich, "Plasminogen activation by enzymes from plasma"; R. Radcliffe, "Iso-

lation of plasminogen activator from human plasma"; Dennis Gospodarowicz, "Control of vascular endothelial proliferation."

16 June. Platelets and clotting factors (Samuel Rapaport, chairman): S. Rapaport, "Platelets and clotting factors: an overview"; R. Colman, "Factor V, phospholipids and platelets"; J. Militich, "Properties of the factor X_a binding site on platelets"; P. Walsh, "Platelets in the contact system."

Heterocyclic Compounds, Chemistry of

New Hampton School

Raymond A. Firestone, chairman; Ernest Wenkert, vice chairman.

10–14 July. R. A. Abramovitch, "Rearrangements and syntheses involving N-oxides and -ylides"; H. C. Brown, "Boraheterocycles in organic synthesis"; T. Fukunaga, "Aromatic stability and the HOMO-LUMO gap"; S. Hanessian, "Prospects for using carbohydrates as synthetic precursors to heterocycles"; H. G. Heller, "Pericyclic reactions of novel photochromic heterocyclic compounds"; S. Karady, "Cefoxitin: the chemistry and synthesis of a new antibiotic"; Y. Kishi, "Synthetic studies in the field of natural products chemistry"; G. A. Koppel, "Recent advances in the chemistry of β-lactam antibiotics"; J. C. Martin, "Reactivity and the five-membered ring in heterocycles of hypervalent sulfur and halogen"; W. Oppolzer, "Stereoselective syntheses of ring systems and natural products"; D. H. Reid, "Recent work on 1,6,a λ^4-triheterapentalenes and related structures"; H. B. Renfroe, "Synthesis and chemistry of 1,4-thiazines"; A. G. Schultz, "Photochemical methods for alkaloid total synthesis"; D. Seyferth, "The consequences of squeezing silicon: hyper-reactive silacyclopropanes and silacyclopropenes"; E. C. Taylor, "Some new methods for functional group manipulation in heterocycles"; J. W. Timberlake, "Synthesis and reactions of thiadiaziridine 1,1-dioxides and imidiazolidinones."

High Pressure, Physics and Chemistry at

Kimball Union Academy

J. E. Schirber and E. Whalley, cochairmen.

7–11 August. Electronic properties: H. G. Drickamer and F. Hensel. Structures: W. B. Holzapfel, David Schiferl and K. Gesi. Atomic and molecular motion: W. B. Daniels, W. F. Sherman and J. R. Ferraro. Hydrides/hydrogen: E. N. Yakolev, B. Baranowski and A. McMahan. Liquids: R. L. Mills, G. I. Kerley and P. E. Cladis. Shockwaves: W. J. Carter, D. J. Pastine, Dennis Grady and John Shaner. Biochemical and biological effects: J. R. Trudell, K. Heremans, and K. Suzuki. E-beam fusion: G. Yonas. Techniques.

High Temperature Chemistry

Brewster Academy

E. David Cater, chairman; John W. Hastie, vice chairman.

7 August. Dynamics and energy partitioning in heterogeneous chemical reactions (D. E. Rosner, session chairman): B. Halpern and D. E. Rosner, "Chemical energy accommodation studies of highly exothermic surface-catalyzed reactions"; M. J. Cardillo, "The significance of local equilibrium in elementary molecular processes including molecular beam studies"; G. Wolken, Jr., "Dynamics of gas-surface reactions: computational studies." (K. Douglas Carlson, session chairman): G. Rosenblatt, "Molecular energy accommodation in vaporization and surface reactions."

8 August. Laser and chemiluminescence characterization of high temperature gaseous reactions (J. W. Hastie, session chairman): J. L. Gole, "Novel high temperature phenomena characterized by chemiluminescence and laser fluorescence"; A. Fontijn, "High temperature fast-flow reactor studies of elementary reactions"; M. Lapp, "Laser raman measurements on flames." (J. L. Margrave, session chairman): M. Steinberg, "Fluorescence measurements and chemistry of sulfur intermediates in flames."

9 August. The role of sulfur in high temperature chemical systems (D. Cubicciotti, session chairman): W. L. Worrell, "Sulfur dioxide—metal reactions at elevated temperatures"; J. Oudar, "The role of adsorbed sulfur in heterogeneous catalysis"; P. Cunningham, "High temperature reaction of sulfurous gases with limestones and other minerals." (W. L. Worrell, session chairman): M. Shelef, "The behavior of gaseous sulfur-containing molecules in heterogeneous catalysis"; D. L. Hildenbrand, "Vaporization/decomposition of metal sulfates."

10 August. Solar furnaces and new techniques (T. A. Milne, session chairman): J. P. Coutures, "Fundamental studies at high temperatures of oxide materials using laboratory scale solar furnaces"; C. J. Bishop, "Capabilities and access to solar thermal test facilities"; A. Hertzberg, "New concepts for high temperature solar machines involving advanced energy conversion concepts"; L. S. Nelson, "Steam explosions involving molten oxides." Present and future status of high temperature chemistry (L. Brewer, session chairman): J. S. Kane, "Prospects for high temperature research in DOE."

11 August. High temperature electrochemistry (C. B. Alcock, session chairman): D. O. Raleigh, "Anodic dissolution characteristics of electrode materials in the lithium-iron sulfide molten salt battery." Electrochemical processes in MHD environments: J. L. Bates, "Oxide electrodes and insulators"; R. A. Perkins, "Metal electrodes in coal slag."

Hydrocarbon Chemistry

Brewster Academy

Kendall N. Houk, chairman; Robert D. Miller, vice chairman.

12 June. (Kendall N. Houk, discussion leader): William R. Dolbier, Jr., "Thermal rearrangements and cycloadditions of partially fluorinated hydrocarbons." (Thomas J. Atkins, discussion leader): Fred Wudl, "Recent achievements in the development of highly conducting organic solids"; Lawrence T. Scott, "1, 5-methano [10] annulene." (W. E. Billups, discussion leader): Philip M. Warner, "Rearrangements of carbenes and carbenoids"; Harold Hart, "Strain in highly substituted aromatic compounds."

13 June. (Donald H. Aue, discussion leader): Rolf Gleiter, "Interactions of mutually perpendicular π-systems." (John Grutzner, discussion leader): Kenneth D. Jordan, "Studies of the temporary anion states of unsaturated hydrocarbons"; Stuart W. Staley, "Ion-impact energy-loss spectrosopy of unsaturated hydrocarbons." (Lawrence T. Scott, discussion leader): W. E. Billups, "Synthesis of methylenecyclopropenes"; Klaus Hafner, "Pentalenesynthesis and properties."

14 June. (Robert D. Miller, discussion leader): Josef Michl, "MCD spectroscopy of cyclic π-electron systems." (Allen Krantz, discussion leader): Gunther Maier, "Tetrahedron problems"; Allen Krantz, "Recent progress in the stabilization of normally transient species." (Philip M. Warner, discussion leader): Donald H. Aue, "Reactions of strained alkenes"; Emanuel Vogel, "Perspectives of annulene chemistry."

15 June. (Samuel E. Horne, Jr., discussion leader): Erwin R. Ruckel, "Cationic polymerization of terpenes." (Marvin L. Poutsma, discussion leader): John E. Baldwin, "Complete kinetic analysis of the thermal geometrical isomerizations of (+)-(1*S*,2*S*,3*S*)-1-cyano-2-phenyl-1,3-dideuteriocyclopropane"; Robert D. Miller, "Photochemical fragmentations of bicyclooctadienes." (Robert D. Miller, discussion leader): Contributed papers.

16 June. (Paul R. Stapp, discussion leader): Bruce E. Smart, "New developments in the sulfonation of fluorinated olefins"; Marye Anne Fox, "Photooxidation of some organic anions"; John Grutzner, "Carbanion rearrangements."

Immobilized Enzymes, Complexes and Cells

Holderness School

David F. Ollis, chairman; Kenneth O'Driscoll, vice chairman.

21 August. Nathan Kaplan and Alexander Klimbov, "Structure of immobilized enzymes"; David Whitten, "Environmental effects on photochemical reactions: photochemistry in monolayers and micelles"; Peter Carr, "Analytical aspects of immobilized enzyme reactors"; Klaus Mosbach, "New approaches in the preparation and use of immobilized enzymes and coenzymes."

22 August. Meir Wilchek, "Affinity therapy"; Indu Parikh, "Immobilized hormones and isolation of hormone receptors"; Charles Pittman, "Polymer matrix effects in reactions using immobilized enzymes"; Robert H. Grubbs, "Characterization of hybrid catalysts."

23 August. J. M. J. Frechet, "Use of polymers as protecting groups in organic syntheses"; Gar Royer, "Polyethyleneimine ghosts: applications in solid phase organic syntheses"; Doug Neckers, "Polymer based reagents in organic syntheses"; Gary Rechnitz, "Bioselective membrane probes."

24 August. George Whitesides, "Organic syntheses using enzymic catalysis"; Joachim Klein, "Polymer-entrapment of whole cells: techniques and catalytic performance"; Christoph Martin, "Immobilized microorganisms for degradation and transformation of organic compounds"; I. Chibata, "Immobilized microbial cells with Carageenan and its industrial applications."

25 August. Howard Weetall, "Production of hydrogen by biophotolysis using immobilized microorganisms"; Donald Kirwan, "Behavior of immobilized nitrogen fixing *Azotobacter vinlandii*."

Conferees are invited upon arrival to submit one paragraph abstracts for 10-minute presentations.

Immunochemistry and Immunobiology

Plymouth State College

John J. Cebra, chairman; Max D. Cooper, co-chairman.

31 July. Genes controlling Ig synthesis: their number linkage, transcription, translation of their messages, and processing of final products (Ru-Chih Huang, session chairperson): Susuma Tonegawa, Philip Leder, Tasuka Honjo, Robert Perry, Terry Rabbitts, Winston Salser, and Israel Schechter. B-lymphocyte ontogeny: sub-populations of B-cells and their functional activities and potentials (Max D. Cooper, session chairperson): Fritz Melchers, R. M. E. Parkhouse, Irwin Scher, and Noel Warner.

1 August. Cell membrane molecules involved in immune recognition: structure, molecular relationships and roles of histocompatibility and Ia-molecules (Michael Crumpton, session chairperson): Leonard Herzenberg, Alan Williams, Patricia Jones, Stanley Nathenson, and Jack L. Strominger. T-lymphocyte interactions with other cells: bases for recognition and mechanisms for affecting other cells (Herman Wagner and Martin Röllinghoff, session chairpersons): Gerald Cole, Klaus Eichmann, Marc Feldmann, Christopher Henney, and Rolf Zinkernagel.

2 August. Antibody molecules: their three-dimensional structures, isotypic differences, interactions with antigens and third party molecules, and conformational changes (John J. Cebra, session chairperson): J. Deisenhofer, F. Franek, Henry Metzger, Israel Pecht, and David Segal. Use of natural and artificial membranes to study immune phenomena: preparation of natural and artificial lipid vesicles, insertion of macromolecules in membranes and membrane pertubations (Carl A. Alving, session chairperson): Michael Edidin, Stephen C. Kinsky, Manfred M. Mayer, Harden M. McConnell, and J. Schlesinger.

3 August. Cell motile processes and chemotaxis: the cytoskeletal-contractile system of myeloid and lymphoid cells, its link with membrane elements, and the role of both in migration and lodging phenomena (Emil R. Unanue, session chairperson): Elmer L. Becker, Lance Taylor, Eugenia Wang. An informal debate on the nature of diversity of energin-specific B and T cells comparing data generated by nucleic acid, protein sequence, and idiotyping studies (Max Cooper, session chairperson).

4 August. Host-parasite relationships and mechanisms of immunity to infectious metazoans and protozoans: application of some principles forthcoming from current immunobiology (Byron H. Waksman, session chairperson): Andre Capron, George A. M. Cross, Anil N. Jayawardena, Thomas C. Jones, and F. Alan Sher. General discussants for the meeting include: Darcy Wilson, Leroy Hood, Norman Kleinman, Leonore Herzenburg, and Charles Janeway.

Inorganic Chemistry

New Hampton School

A. P. Ginsberg, chairman; J. P. Fackler, Jr., vice chairman.

7 August. Strong metal-metal interaction in clusters (M. H. Chisholm, chairman): F. A. Cotton, "The character of strong metal-metal interactions"; J. D. Corbett, "Discrete and extended cluster anions." Weak metal-metal interaction in clusters (A. P. GInsberg, chairman): H. B. Gray, "Electronic structure and reactivity of binuclear complexes of d^8 metal ions"; H. Taube, "Interactions through bridging groups."

8 August. EXAFS studies of clusters and other molecules (J. Hastings, chairman): R. G. Shulman, "X-ray absorption studies of metalloproteins"; B. K. Teo, "EXAFS: A boon to chemistry"; K. O. Hodgson, "X-ray absorption spectroscopy as a structural probe of metal sites in proteins-applications to nitrogenase and the blue copper site." Multimetal centers in proteins and enzymes (J. Valentine, chairwoman): S. J. Lippard, "Imidazolate bridged metal complexes and protein active sites"; E. I. Stiefel, "Multielectron transfers in biology."

9 August. Hydride and carbonyl clusters (L. Dahl, chairman): P. Chini, "Synthesis of large carbonyl metal clusters as models of small metallic crystallites"; B. F. G. Johnson, "The structure and fluxional behaviour of binary carbonyls, a new approach"; R. Bau, "Structural studies of metal hydride cluster complexes." Clusters and catalysis (G. Pez, chairman): K. H. Johnson, "Electronic structure of metallic and bimetallic clusters of catalytic importance"; H. D. Kaesz, "Stepwise reduction of the carbon-nitrogen triple bond on the face of a triiron cluster."

10 August. Polyoxyanions and large copper clusters (J. M. Williams, chair-

man): M. T. Pope, "Heteropolyoxometallate anions: redox behavior, isomerism, and structure"; W. Klemperer, "New approaches to the synthesis and characterization of polymolybdate cluster compounds"; D. Coucouvanis, "Structure and reactions of the Cu_8 metallo cubane and derivatives." Photochemistry, photoelectrochemistry and energy conversion (M. S. Wrighton, chairman): A. Heller, "Surface chemistry of photoanodes in semiconductor liquid junction solar cells"; D. G. Whitten, "Light driven electron transfer reactions of transition metal complexes. Scope and applications."

11 August. Panel discussion on applications of metal clusters (J. P. Fackler, Jr., chairman). Panelists: W. A. Goddard III, R. H. Holm, G. D. Stucky, and H. G. Tennent.

Interfaces, Chemistry at

Kimball Union Academy

Peter Cannon, chairman; Brian Pethica, vice chairman.

17–21 July. The theme of the conference is chemical reactions in nucleation growth and adherence at solid interfaces. State of the art techniques including spectroscopy (Peter Cannon, chairman); structure sensitive and epitaxial reactions on inorganic solids (J. O. McCallin, chairman); structure sensitive and epitaxial reaction on organic crystals, glasses and polymers (David Kaelble, chairman); approaches to the theory of reactivity in nucleation growth and adherence (Jay Mann, chairman). In this conference formal similarities and differences in treatment of organic and inorganic surfaces will be emphasized.

Lasers in Medicine and Biology

Kimball Union Academy

Michael W. Berns, chairman; A. J. Welch and Franz Hillenkamp, vice chairmen.

26–30 June. Laser instrumentation (F. Hillenkamp, chairman); Laser interaction with biological molecules and tissues (A. J. Welch, chairman); Laser studies in photosynthesis (M. Windsor, chairman); Laser cytology and flow cytophotometry (M. Van Dilla, chairman); Lasers in holography, light scattering and clinical diagnostics (chairman to be announced); Lasers in surgery (chairman to be announced); Laser studies in vision (A. Lewis, chairman); Lasers in ophthalmology and safety (M. Wolbarsht, chairman); Special topics (M. Berns, chairman); Lasers in tumor surgery (special international cancer research workshop).

Lipid Metabolism

Kimball Union Academy

John M. Dietschy, chairman; Daniel Lane, vice chairman.

12 June. Interactions between HDL and chylomicrons; synthesis of HDL and chylomicrons in the rat intestine; peptide exchanges in man between chylomicrons and HDL; rapid apoprotein exchanges between HDL subclasses.

13 June. Modification of lipoprotein structure and its effect on biological activity; modification of the carbohydrate and peptide moieties of LDL and uptake in the fibroblast; preparation of modified LDL and its biological activity; modification of arginine-rich peptide and its effect on biological activity of lipoprotein.

14 June. The metabolism of chylomicrons by lipoprotein lipase; chylomicron binding to epithelial cells and its relationship to lipoprotein lipase activity; activation of lipoprotein lipase by peptide fragments.

15 June. The physical chemical organization of lipoproteins; phase transitions in the lipids and apoproteins of lipoproteins; electron microscopic visualization of lipoprotein structure.

16 June. The transport of various proteins and regulation of cholesterol synthesis in different tissues.

Lung, Properties and Functions of the

Brewster Academy

Donald Massaro, chairman; Joseph Brain, vice chairman.

10 July. Mesenchymal-epithelial interactions (E. Weibel, chairman): E. Weibel, "Cell and tissue dynamics in the developing lung"; B. T. Smith, "Fibroblast pneumocyte factor: mediator of mesenchymal-epithelial interaction in fetal lung"; H. C. Slavkin, "Current issues in mesenchymal epithelial interactions."

11 July. Muscle cell physiology (Ronald F. Coburn, chairman): Edwin Daniels, "Cell-cell interactions in canine trachealis muscle"; Robert S. Adelstein, "Myosin light chains and phosphorylation in smooth muscle"; D. Bose, "Metabolic deprivation studies in airway smooth muscle"; N. Stephens, "Alterations in airway smooth muscle in the canine asthma model."

12 July. Endothelial cells (James Ryan, chairman): Una Ryan, "Pulmonary endothelial cells: structure and function"; R. Gryglewski, "Lung prostaglandins and prostaglandin related substances"; A. Fisher, "Regulation of amine uptake by the lung."

13 July. Pulmonary macrophages I (Joseph D. Brain, chairman): J. Brain, "Mechanisms promoting macrophage particle contact"; R. Daniele, "Chemotaxis and pulmonary macrophages"; Z. Werb, "Macrophage secretory products and their biological activity."

14 July. Pulmonary macrophages II (Eugene Robin, chairman): P. Strauss, "Regulation of amino acid transport in pulmonary macrophages"; K. Woodside, "Turnover of endogenous proteins in pulmonary macrophages."

Lysosomes

Proctor Academy

Oscar Touster, chairman; Dorothy Bainton, vice chairman.

3 July. The origin of lysosomal enzymes: Oscar Touster, "Chemistry of lysosomal enzymes"; Kenneth Paigen, "Genetic regulation of lysosomal enzymes"; Günter Blobel, "Mechanisms for the intracellular compartmentation of newly synthesized proteins." The role of oligosaccharide in glycoprotein translocation and secretion: Phillips W. Robbins, "Synthesis and processing of cell surface and viral glycoproteins"; Stuart Kornfeld, "Carbohydrate processing and role of glycosylation in virus secretion and immunoglobulin secretion."

4 July. Lysosomes and membrane fusion: P. Demetrios Papahadjopoulos, "Studies on membrane fusion with lipid vesicles and cultured cells"; Peter J. Oates, "Quantitative studies of *in vitro* fusion of phagolysosomes"; Sylvia T. Hoffstein and Helen Korchak, "Early signals in lysosomal enzyme secretion." Surface receptors and lysosomes in processing regulators and metabolites: Joseph L. Goldstein and Michael S. Brown, "Binding, uptake and lysosomal hydrolysis of low density lipoprotein"; Robert H. Allen, "Binding and internalization of cobalamin transport proteins"; Stanley Cohen, "Binding and internalization of human epidermal growth factor"; Samuel C. Silverstein, "F_c and C_3 receptor mediated phagocytosis: effect of 2-deoxyglucose."

5 July. Endocytotic mechanisms: membrane flow: Thomas Stossel, "Contractile proteins in endocytosis"; Yves-Jacques Schneider, "Recycling of plasma membrane antigens during endo-

cytosis in cultured fibroblasts''; Zanvil A. Cohn, ''Discussion of endocytotic mechanisms.'' Uptake of lysosomal and other glycoproteins: Elizabeth F. Neufeld, ''Uptake of lysosomal enzymes of fibroblasts''; Gilbert Ashwell, ''Current studies on hepatic glycoprotein-binding proteins''; Philip D. Stahl, ''Receptors on macrophages which recognize lysosomal hydrolases''; William S. Sly, ''Phosphohexosyl recognition in the uptake of lysosomal enzymes''; Anne L. Hubbard, ''Localization of the sites of asialo- and azalacto-glycoprotein binding and internalization in liver.''

6 July. Protein turnover in isolated cells and *in vitro* systems: F. John Ballard, ''Regulation of protein breakdown in isolated cells''; Brian Poole, ''Protein degradation in cultured cells''; Alfred L. Goldberg, ''Studies on the mechanism for protein degradation in animal and bacterial cells.'' Special lecture: Gerald Weissmann, ''Lysosomes as metaphor.''

7 July. Protein turnover in intact animals and organs: Harold L. Segal, ''Uptake and disposition of macromolecular markers *in vivo* and *in vitro*''; Darrel E. Goll, ''Turnover of contractile proteins''; Glenn E. Mortimore, ''Autophagy as a physiological process in intracellular protein degradation in rat liver.'' Poster session: A summary of proposed presentation should be submitted to Oscar Touster, Department of Molecular Biology, Vanderbilt University, Nashville, Tennessee 37221.

Magnesium in Biochemical Processes and Medicine

Plymouth State College

Ronald J. Elin, chairman.

14–18 August. Cellular biochemistry: Jerry Chutkow, ''Observations on the metabolism of glucose and neurotransmitters in the brain in magnesium deficiency in the rat''; Walter Essman, ''Subcellular metabolism of magnesium in the nervous system''; Frank Heaton, ''Changes in cellular metabolism during magnesium deficiency.'' Magnesium transport: Michele Gagnan-Brunette, ''Magnesium transport along the nephron''; Shaul Massry, ''Magnesium metabolism in phosphate depletion''; Herta Spencer, ''Absorption and retention of magnesium in man.'' Magnesium and the kidney: G. E. Bunce, ''The pathogenesis of renal calcification in magnesium deficiency in the rat''; Marc Cantin, ''The renin-angiotensin-aldosterone system in magnesium deficiency''; Gerald Di Bona, ''The effect of magnesium on sodium and water transport in mammalian and amphibian epithelia.'' Skeletal and endocrine system: Constantine Anast, ''Interrelationship of magnesium and calciotropic hormones in humans and rats''; Richard Forbes, ''Criteria of PTH activity in the magnesium-deficient rat''; Ruth Schwartz, ''Magnesium deficiency and bone development''; Jack Coburn, ''The effect of magnesium depletion on vitamin D metabolism.'' Magnesium and the cardiovascular system: Burton Altura, ''Role of magnesium in regulation of vascular tone''; Kul Chadda, ''Serum magnesium in cardiac arrhythmia and ischemic heart disease''; Heikki Luoma, ''Magnesium and fluoride intake in relation to ischemic heart disease and some mineral imbalance states''; Philip Polimeni, ''Magnesium exchange in the rate ventricle.'' Magnesium and formed blood elements: James Brennan, ''The effects of extracellular magnesium deficiency on the growth and oncogenicity of murine lymphoma cells''; Ronald Elin, ''The effect of magnesium deficiency on erythropoiesis and erythrocyte membrane structure''; Gerald Hungerford, ''Eosinophilia of magnesium deficiency.'' Magnesium and perinatology: J. M. Garel, ''Present knowledge on magnesium metabolism during pre- and post-natal development in mammals''; Luc Paunier, ''Inborn and acquired disorders of magnesium metabolism in children''; Reginald Tsang, ''Neonatal hypomagnesemic and hypermagnesemic disturbances.'' The effect of magnesium on neoplasia and the immune system: Arthur Flynn, ''Tumor growth in relation to magnesium status''; George M. Hass, ''Immunologic aspects of magnesium deficiency and induction of lymphoma and leukemia in the rat''; Gaetan Jasmin, ''Thymic lymphosarcoma in magnesium-deficient rats''; Nancy W. Alcock, ''Factors influencing the enlargement of the thymus by magnesium deficiency in the rat.'' Patient care application of magnesium research: Richard Freeman, ''Influence of magnesium on plasma parathyroid hormone in hemodialysis patients''; Michael Ryan, ''Magnesium-potassium interrelationships''; Robert Whang, ''Routine screening of serum magnesium and potassium.''

Magnetic Resonance in Medicine and Biology

Tilton School

Paul C. Lauterbur, chairman; James R. Bolton, vice chairman.

14 August. Nuclear magnetic resonance imaging and flow measurement.

15 August. Nuclear magnetic resonance in intact biological systems.

16 August. Electron paramagnetic resonance in intact biological systems.

17 August. New experimental techniques and poster review.

18 August. Medical applications of magnetic resonance.

Marine Oil Spills, Chemical Control of

Plymouth State College

William E. Mott and Mason P. Wilson, Jr., co-chairmen.

17–21 July. Microbial utilization of petroleum hydrocarbons and petroleum hydrocarbon-chemical treating agents mixtures (Richard W. Traxler, discussion leader): James E. Stewart, ''Effect of dispersants and emulsifying agents on degradation of petroleum hydrocarbons''; Sheila Bhattacharya, ''Influence of dispersants on microbial utilization of petroleum hydrocarbons as applied to a meso-scale test system.'' Chemical and physical nature of spilled oil (Clayton D. McAuliffe, discussion leader): Donald Mackay, ''Chemical and physical processes and rates of hydrocarbon transport from surface oil''; James N. Butler, ''The chemical and physical properties of dispersed oil versus untreated oil.'' Biological response of marine organism subjected to spilled oil and chemical control agents (Eric B. Cowell, discussion leader): Michael Norton and S. L. Franklin, ''New toxicity research: oil and dispersants''; Jennifer M. Baker, ''Future research on solving the dispersant problem.'' Chemistry and physics of oil spill treating agents (Gerald P. Canevari, discussion leader): Chris Brown, ''Analytical chemistry of oil-water-dispersant mixtures''; Richard Donnelly, ''Surface chemistry of surfactants-oil and water mixtures.'' Physical entrainment and dispersion in the natural environment (Richard A. Griffiths, discussion leader): Peter Cornillon, ''Some entrainment processes in the natural environment''; Thomas J. M. Kim, ''Mixing energy of oil and oil-dispersant mixtures with sea water''; Peter Cornillon and Malcolm Spaulding, ''The role of modeling in the use of dispersants—what we know and don't know about the dispersant process.'' Field research on the use of dispersants and chemical treating agents (discussion leader to be announced): Doug Cormack, ''Field research on the use of dispersants''; J. Stephen Dorrler and Leo McCarthy, ''Research on chemical treatment of oil spills

on beaches and open water." Biological response of marine organisms subjected to spilled oil and chemical control agents (Donald C. Malins, discussion leader): Peter G. Wells, "Biological hazards of controlling marine oil spills with chemicals—A case for caution"; William R. Penrose, "Biological hazards of controlling marine oil spills with chemicals—Are we too cautious?" Laboratory studies of the lethal and sublethal effects of oil and dispersants: Christopher J. Ordzie, speaker. Panel discussion: Problems to be solved concerning the treatment or non-treatment of oil spills.

Medicinal Chemistry

Colby-Sawyer College

Joseph M. Schor, chairman; Jerry A. Weisbach, vice chairman.

31 July. Peptides (Karl Folkers, chairman): Wylie Vale, "Advances on somatostatin"; Ralph Hirschmann, "Somatostatin"; Dietmar Roemer, "Orally active enkephalin analogs"; Miquel A. Ondetti, "Oral inhibitors of angiotensin." Directed approaches in medicinal chemistry (Richard D. Cramer, chairman): S. H. Unger, "QSAR approach"; Anton J. Hopfinger, "3-D shape analysis"; Richard D. Cramer, "Other methods."

1 August. Histamine receptors (C. Robin Ganellin, chairman): G. Victor Rossi, "The function and distribution of histamine receptors"; C. Robin Ganellin, "Chemical characterization of drugs acting at histamine receptors"; Graham J. Durant, "Some structure-activity considerations for histamine H_2-receptor antagonists"; John H. McNeill, "Cyclic nucleotides and histamine receptors." Functional brain asymmetry (Murray Weiner, chairman): Murray Weiner, "Drug therapy aspects of hemispheric asymmetry"; Michael Myslobodsky,

Program Summary, Gordon Research Conferences

	Colby-Sawyer College New London, N.H.	New Hampton School New Hampton, N.H.	Kimball Union Academy Meriden, N.H.	Tilton School Tilton, N.H.	Proctor Academy Andover, N.H.
12–16 June	Friction, Lubrication and Wear	Nucleic Acids	Lipid Metabolism	Water and Solute Exchange in the Microvasculature, Physico-Chemical Aspects of	Hemostasis
29–23 June	Nuclear Chemistry	Polymer Physics	Cyclic Nucleotides	Theoretical Biology and Biomathematics	Physical Metallurgy
26–30 June	Catalysis	Fuel Science	Lasers in Medicine and Biology	Animal Cells and Viruses	Molecular Biology, Diffraction Methods in
3–7 July	Fiber Science	Structural Macromolecules: Collagen	Enzymes, Coenzymes and Metabolic Pathways	*Visual Transduction Process, Physico-Chemical Aspects of the	Lysosomes
10–14 July	Corrosion	Heterocyclic Compounds, Chemistry of	Bones and Teeth, Chemistry, Physiology and Structure of	Nuclear Structure Physics	Chemical Senses: Taste and Olfaction
17–21 July	Polymers	Organic Reactions and Processes	Interfaces, Chemistry at	Nuclear Proteins, Chromatin Structure and Gene Regulation	Biomaterials, Science and Technology of
24–28 July	Elastomers	Natural Products	*Chemotherapy of Experimental and Clinical Cancer	Photosynthesis, Biochemical Aspects of	Microbial Toxins
31 July–4 Aug.	Medicinal Chemistry	Chemical Oceanography	Toxicology and Safety Evaluations	Thin Films and Solid Surfaces	Coatings and Films, Chemistry and Physics of
7–11 Aug.	Food and Nutrition	Inorganic Chemistry	High Pressure, Research at	Ceramics, Solid State Studies in	Particle-Solid Interactions
14–18 Aug.	Separation and Purification	Analytical Chemistry	Photonuclear Reactions	Magnetic Resonance in Medicine and Biology	Organometallic Chemistry
21–25 Aug.	Cancer	Adhesion, Science of	Metal Insulator-Semiconductor Systems	Glass	Plasma Chemistry

*New conferences in 1978

"Psychotherapy in the CNS chemical environment"; Stanley D. Glick, "Functional and pharmacological aspects of asymmetry in the nigrostriatal system of the rodent."

2 August. Prostaglandins (Josef Fried, chairman): (speakers and subjects to be announced). Mutagenesis (Warren Nichols, chairman): David Krahn, "In vitro transformations as tests for mutagenicity and carcinogenicity"; Joyce McCann, "Microbial procedures"; Warren Nichols, "Cytogenetic procedures."

3 August. Anti-neoplastic agents and the use of combination therapy (Stanley T. Crooke, chairman): David W. Henry, "Structure activity relationships of antitumor agents"; Stanley T. Crooke, "Mechanisms of action of several newer antitumor agents"; Thomas C. Hall, "The impact of molecular pharmacology on the clinical use of antitumor agents"; Stephen K. Carter, "Rational analysis of clinical anticancer drug trials." Special topic (I. J. Greenblatt, chairman): Lot B. Page, "Some lessons from primitive societies."

4 August. Slow reacting substance of anaphylaxis (Michael K. Bach, chairman); Jeffrey M. Drazen, "Allergic models of asthma with special emphasis on the role of SRS-A"; Michael K. Bach, "Approaches to the determination of the structure of SRS-A." Medicinal agents displaying high potential for therapeutic utility (Francis L. Scott, chairman): (titles and speakers to be announced).

Metal Insulator-Semiconductor Systems

Kimball Union Academy

Thomas W. Hickmott, chairman; Frank J. Feigl, vice chairman.

21 August. MIS studies on compound

1978 Schedule—New Hampshire and California

Holderness School Plymouth, N.H.	Brewster Academy Wolfeboro, N.H.	Plymouth State College Plymouth, N.H. (North)	Plymouth State College Plymouth, N.H. (South)	Miramar Hotel Santa Barbara, Calif.
Photoconductors, Chemistry and Physics of	Hydrocarbon Chemistry	*Drug Carriers in Biology and Medicine	*Electron Distribution and Chemical Bonding	
Muscle, Cardiac and Skeletal	Radical Ions	Fluids in Permeable Media	Cellular Materials, Chemistry and Physics of	Coherent Optics and Holography
Environmental Science: Water	Microstructure Fabrication, Chemistry and Physics of	*Environmental and Genetic Toxicology	Biopolymers, Physics and Physical Chemistry of	Plasma Physics
Fungal Metabolites	Renewable Resources, Chemicals and Materials from	*Chronobiology		
Biological Regulatory Mechanisms	Lung, Properties and Function of	Quantum Solids and Fluids, Dynamics of	Scientific Information Problems in Research	
Radiation Chemistry	Electron Spectroscopy	Stereochemistry	*Chemical Control of Marine Oil Spills	
Dielectric Phenomena	Atomic and Molecular Interaction	Statistics in Chemistry and Chemical Engineering		
Water and Aqueous Solutions, Chemistry and Physics of	Pyrroles, Chemistry and Biology of	Immunochemistry and Immunobiology		
Drug Metabolism	High Temperature Chemistry	Transport Phenomena in Synthetic and Biological Membranes		
Organic Geochemistry	Electron Donor-Acceptor Interactions	*Magnesium in Biochemical Processes and Medicine		
Immobilized Species	Vibrational Spectroscopy			

semiconductors (R. J. Kriegler, discussion leader): C. W. Wilmsen, "Insulator-III-V compound interfaces"; D. L. Lile, "MIS structures on III-V compounds." MIS solar cells (E. EerNisse, discussion leader): H. C. Card, "Theory of MIS solar cells"; W. A. Anderson, "Design, fabrication, testing and analysis of Schottky MIS solar cells for terrestrial applications."

22 August. Conduction and charge storage in SiO_2. I (D. R. Young, discussion leader): J. M. McGarrity, F. B. McLean, H. E. Boesch, and P. S. Winokur, "Ionizing radiation effects in SiO_2"; Z. A. Weinberg, "Transport properties in SiO_2, induced by VUV light." Conduction and charge storage in SiO_2. II (P. Balk, discussion leader): R. F. DeKeersmaecker, D. J. DiMaria, and D. R. Young, "The rate of electron and hole trapping/detrapping in ion implanted SiO_2"; D. J. DiMaria, D. R. Young, and R. F. DeKeersmaecker, "The location of trapping sites related to ion implantation into the SiO_2 layer of MOS structures."

23 August. Inversion layers in MIS systems (P. J. Stiles, discussion leader): B. McCombe, "MIS structures studied by interferometry"; R. Wheeler, "Frequency studies of the conductivity in silicon MOSFET's"; R. Voss, "Noise properties of conduction in MOS structures." Chemistry of the Si-SiO_2 interface (S. R. Butler, discussion leader): W. A. Tiller, "Fundamental aspects of silicon oxidation"; C. Svensson, "The connection between electrical properties and chemistry of the Si-SiO_2 system."

24 August. Contributed papers (F. J. Feigl, discussion leader): (speaker and subject to be announced). Conduction and charge storage in dual dielectrics (T. W. Hickmott, discussion leader): P. Balk, "Conduction through and charge storage in MAS, MAOS, and MANOS systems."

25 August. Surface states at the Si-SiO interface (E. H. Nicollian, discussion leader): N. Johnson, "Electronic properties of defect levels at the Si-SiO_2 interface"; R. J. Kriegler, "Determination of surface state parameters from CCD loss measurements."

Microbial Toxins

Proctor Academy

D. Michael Gill, chairman; Stanley Falkow, vice chairman.

24–28 July. ADP-ribosylating toxins (A. M. Pappenheimer, Jr., chairman): Neal Groman, "Beta genetics"; Barbara Iglewski, "*Pseudomonas* toxins"; Joan Moehring and Tom Moehring, "Toxin-cell interactions." Chimeric toxins and the problem of protein penetration (R. John Collier, chairman): David M. Neville, Sjur Olsnes, and Michael Brown. Enterotoxins (D. Michael Gill, chairman): Zvi Selinger, "Cholera toxin mode of action"; Paul Sigler, "Cholera toxin structure"; Jan Holmgren, "Cholera immunology"; Michael Field, "*E. coli* ST." (Sam Formal, chairman): Peter Turnbull, "*B. cereus* enterotoxin"; John Olenick, "Shiga toxin action"; Gerald Keusch, "Shiga toxin." Colicins (Karen Jakes, chairwoman): David Fischoff, "E2"; Kazutomo Imahori, "E3"; Bruce Kagan, "E1." Neurotoxins (Susan Wonnacott, chairwoman): Hans Wellhoner, "Botulinum toxin"; Hans Wellhoner, "Tetanus toxins." Membrane-damaging toxins (John Arbuthnott, chairman): John Freer, "Experimental approaches to membrane active toxins"; Sidney Harshman, "Staphylococcal alpha toxin"; Gunther Blobel, "Secretion: how proteins enter organelles." Plasmids (Stanley Falkow, chairman): H. Williams Smith, "Virulence plasmids"; Magdalene So, "Cloning *ent*. genes"; Werner Maas, "*Ent*. plasmid genetics."

Microstructure Fabrication, Chemistry and Physics of

Brewster Academy

Edward D. Wolf, chairman; Henry I. Smith, vice chairman.

26 June. R. W. Keyes, "Evolution of technology toward physical limits"; H. P. Zingsheim, "Two-dimensional molecular assemblies"; A. N. Broers, "Practical limits of nanostructure fabrication."

27 June. E. Spiller, "X-ray lithography and microscopy"; L. T. Romankiw, "Eletrodeposition"; L. F. Thompson, "Polymer materials for high resolution lithography"; A. R. Neureuther, "Resist line-edge profile modeling for high resolution lithography."

28 June. J. R. Arthur, "Molecular beam epitaxy"; D. C. Flanders, "Oriented crystal growth using artificial surface relief gratings"; K. A. Bean, "Dielectric isolation"; J. D. Plummer, "Thermal oxides."

29 June. J. W. Colburn and H. F. Winters, "Mechanisms of reactive plasma etching"; H. W. Lehmann, "Etching with ion beams and reactive plasmas"; J. M. Ballantyne, "Goals/projects of the National Research and Resource Facility for submicron structures."

30 June. N. C. McDonald, "Scanning auger microscopy"; C. A. Evans, "SIMS and ion beams for analytical studies."

Molecular Biology, Diffraction Methods in

Proctor Academy

D. M. Engelman and Martha Ludwig, co-chairmen.

26–30 June. Use of the electron microscope (R. Henderson, chairman). The folding of polypeptides in proteins (J. Richardson, chairman): A. Hagler and M. Levitt. Allosteric proteins (T. A. Steitz, chairman): R. Fletterick, M. Perutz, and A. Wonacott. Small angle scattering (V. Luzzati, chairman): S. Harrison and P. Moore. Virus structure (M. Rossmann, chairman): R. Burnett, S. Harrison, and A. Klug. New structures (A. Rich, chairman). Refinement of structures (E. Lattman, chairman): S. Bricone, G. Reeke, and J. Sygusch. Presentation of macromolecular structures to a non-specialist audience (R. E. Dickerson, chairman): Richard Feldman, "Computer display: stereo and space filling drawings"; Irving Geis, "Two-dimensional graphics: color and information"; Mallory Pearce, "Movies and animation techniques." Experimental methods (H. Wyckoff, chairman).

Muscle, Cardiac and Skeletal

Holderness School

John Gergely, chairman; Susan Lowey, vice chairman.

19–23 June. Structural aspects (H. E. Huxley, chairman); muscle mechanics (A. F. Huxley, chairman); myosin ATPase mechanisms and the cross-bridge cycle (D. R. Trentham, chairman); probes of filament and cross-bridge motion (J. Gergely, chairman); control: thin filaments (A. Weber, chairman); control: thick filaments; phosphorylation (S. Ebashi, chairman); protein polymorphism and fiber types (S. Lowey, chairman); development, differentiation and transformation of muscle (H. Holtzer, chairman); summary (A. F. Huxley, chairman).

Natural Products

New Hampton School

John E. McMurry, chairman; Milan R. Uskovic, vice chairman.

24–28 July. William Ayer, "Metabo-

lites of bird's nest fungi''; Kaspar Burri, ''A summary of a total synthesis of (−) vermiculine''; Samuel Danishefsky, ''Recent progress in the total synthesis of biologically active natural products''; Bert Fraser-Reid, ''Carbohydrate derivative in the asymmetric syntheses of natural products''; Stephen Hannessian, ''Carbohydrates as chiral templates in organic synthesis''; T. L. Nagabhushan, ''Interaction of vicinal and non-vicinal amino and hydroxy group pairs in aminoglycoside antibiotics with divalent transition metal cations. Selective *N*-blocking and conversion to biologically active derivatives''; William Okamura, ''Vitamin D: synthetic, structural, and biological studies''; Larry Overman, ''New methodology for alkaloid synthesis''; Pierre Potier (subject to be announced); Ralph Raphael, ''Synthesis of antileukaemic lignans''; Steven Weinreb, ''Progress on total synthesis of streptonigrin''; Bernhard Witkop, ''The story of the frog toxins.''

Nuclear Chemistry

Colby-Sawyer College

Franz Plasil, chairman; Noah R. Johnson, vice chairman.

This conference will emphasize nuclear reactions with heavy ions and related gross properties of nuclei. Fission and collisions of relativistic nuclei will also be included.

19 June. (F. Pühlhofer, discussion leader): H. C. Britt, ''Experimental studies of the potential energy surface associated with fission''; Yu. Ts. Oganessian (subject to be announced).(H. Specht, discussion leader): J. V. Kratz, ''Studies of very-heavy-ion reactions with radiochemical techniques''; P. Baseden, ''Prospects for production of superheavy elements in deeply inelastic reactions''; U. Lynen, ''Equilibration processes in deeply inelastic collisions.''

20 June. (J. R. Huizenga, discussion leader): R. Vandenbosch, ''Transfer of orbital angular momentum in deeply inelastic collisions''; A. Gavron, ''Neutron emission from strongly damped reactions between Kr and Er''; B. Tamain, ''Neutron multiplicities in deeply inelastic collisions between heavy ions and Au nuclei.'' (J. B. Natowitz, discussion leader): F. Videbaek, ''Gamma multiplicity distributions from deeply inelastic reactions between ^{86}Kr and ^{144,154}Sm''; L. G. Moretto, ''Fermi jets?''

21 June. (P. J. Siemens, discussion leader): H. A. Weidenmüller, ''Nuclear transport theory''; S. E. Koonin, ''What damps heavy ions?'' (W. Greiner, discussion leader): A. M. Poskanzer, ''Central collisions of relativistic nuclei''; J. R. Nix, ''When relativistic heavy nuclei collide.''

22 June. (J. J. Griffin, discussion leader): K. T. R. Davies, ''Is there life after TDHF?'' V. M. Strutinski, ''Coherent and statistical features of heavy ion collisions.'' (N. R. Johnson, discussion leader): F. C. Yang, ''Nuclear research in the Peoples' Republic of China.''

23 June. J. B. Cumming, ''Target fragmentation by relativistic projectiles.''

Nuclear Proteins, Chromatin Structure and Gene Regulation

Tilton School

G. Felsenfeld, chairman; R. C. Huang, vice chairman.

17–21 July. DNA sequence organization in eukaryotes (W. Gilbert, chairman): P. Leder, I. Dawid. Chromatin structure I (E. M. Bradbury, chairman): A. Klug. J. Pardon, and K. Van Holde. Chromatin structure II (G. Felsenfeld, chairman): R. Simpson, R. Kornberg, and P. Chambon. Replication and chromatin assembly (J. Huberman, chairman): H. Weintraub and R. Laskey. Non-histones and histone variants (V. Allfrey, chairman): G. Dixon, L. Cohen, and I. Isenberg. Higher order structure (H. Zachau, chairman): U. Laemmli, A. Olins, and A. Varshavsky. Gene expression I (B. McCarthy, chairman): R. Roeder and R. Axel. Visualization of transcriptionally active chromatin (S. Elgin, chairman): O. Miller. Gene expression II (R. C. Huang, chairman): C. Weissman and T. Broker.

Nuclear Structure Physics

Tilton School

Gerard J. Stephenson, Jr., chairman; Gerald T. Garvey, vice chairman.

This conference will be devoted to nuclear structure studies with conventional probes and with the new probes now available at intermediate energies. Particular emphasis will be placed on the interplay of conventional ideas about nuclear structure with the wealth of new data becoming available from the latter.

10 July. Studies of neutron distributions as deduced from high energy nucleon scattering both through eikonal and optical model techniques and through comparative studies of positive and negative pion scattering. Inelastic excitations involving high momentum transfer and high angular momentum transfer.

11 July. Inelastic scattering and transfer reactions with light ions at low momentum transfer with emphasis on spectroscopic information. Transfer reactions at very high momentum transfer, for example (p, π) to specific nuclear states.

12 July. Energy loss mechanisms in pion and proton scattering including spallation, pre-equilibrium evaporation and multi-nucleon removals. New developments in reaction theory.

13 July. Inelastic pion scattering to low-lying states including surveys of recent data and, in particular, exploring quantum number selectivity.

14 July. Nuclear structure effects in charge-exchange reactions initiated by heavy ions and by pions.

Nucleic Acids

New Hampton School

Norman Davidson and Joan Steitz, co-chairmen.

12–16 June. Translocatable elements (Nancy Kleckner, chairman); eukaryotic RNA processing (Richard Roberts, chairman); prokaryotic transcripts (Martin Rosenberg, chairman); eukaryotic gene sequence organization (Richard Axel, chairman); eukaryotic gene sequence organization (Tom Maniatis, chairman); recombinant DNA technology and expression of cloned genes (Ronald Davis, chairman); prokaryotic enzymes that act on nucleic acids (Martin Gellert, chairman); DNA replication (Judith Campbell, chairman); eukaryotic protein/nucleic acid interactions (Donald Brown, chairman).

Organic Geochemistry

Holderness School

Richard D. McIver, chairman; Earl W. Baker, vice chairman.

14 August. Keynote: G. T. Philippi, ''The depth, time, and mechanisms of origin of petroleum.'' Geochemistry of young sediments (J. M. Hunt, chairman); J. K. Whelan, ''Low-temperature formation of C_1-C_4 hydrocarbons''; R. Pelet, ''Organic geochemistry of deep marine sediments''; C. Cornford, ''Organic geochemistry and kerogen petrography of East North Atlantic passive margin''; T. Koyama, ''Early diagenesis of organic matter in lakes''; R. Ishiwatari, ''Characterization of young kero-

gen." Environmental geochemistry (W. E. Krumbein, chairman): W. E. Krumbein, "Biogeochemistry of carbon and nitrogen in estuaries as influenced by man-made perturbances"; P. Meyers, "Geolipid distributions in some freshwater sediments"; J. Alberts, "Role of humic and fulvic acids in the aquatic chemistry of transuranium elements"; S. Wakeham, "Anthropogenic and natural origins of PAH in sediments."

15 August. Geochemistry of coal (D. J. Casagrande, chairman): A. Cohen, "Progenitors of coal macerals"; P. H. Given, "Organic geochemistry of coal"; H. Gluskoter, "Elemental distributions in coal"; S. Palmer, "Porphyrins in coal"; H. L. Retkofsky, "Coal structure—spectral approaches"; T. Aczel, "Composition of coal liquids—implications to coal structure"; J. S. Leventhal, "Pyrolysis GC-MS characterization of coals of different rank"; J. W. Smith, "Stable isotope composition of coals—a guide to environment of deposition and maturation"; R. P. Suggate, "Significance of low-rank sequences"; F. T. C. Ting, "Fluorescence microscopy."

16 August. Catageneses of dispersed organic matter (W. G. Dow, chairman): L. R. Snowdon, "The oil and gas generation model—theme and variations"; B. Tissot, "Relation between kerogen type and composition of hydrocarbons generated"; K. E. Peters, "Simulated thermal maturation studies of organic matter from different environments"; K. F. Thompson, "Light hydrocarbons of petroleum—internal evidence of thermal history"; D. McKirdy, "Carbon isotope evolution in microbial kerogen during diagenesis"; L. R. Snowden, "Errors in extrapolating experimental parameters to organic geochemical systems." New developments in crude oil and kerogen classification (A. Douglas, chairman): C. Cornford, "Chemistry of vitrinite reflectance"; J. Trichet, "Kerogen classification by infrared and electron microscopy"; T. Y. Ho, "ESR signals in kerogen as maturation indicators"; H. Morishima, "ESR evaluation of organic maturity"; P. LePlat, "Pyrolysis, ESR and PMR of dispensed organic matter in young sediments." (J. Brooks, chairman): B. Tissot, "Kerogen classification from pyrolysis"; A. Douglas, "Kerogen classification from pyrolysis"; D. McKirdy, "Pyrolysis-hydrogenation—GC of kerogen"; G. J. Demaison, "Evaluation of rocks by pyrolysis"; H. Dembecki, "Effects of water and generated hydrocarbons during pyrolysis of kerogen."

17 August. Biological markers (W. K. Seifert, chairman): W. K. Seifert, "The significance of biological marker compounds in modern organic geochemistry"; A. A. Petrov, "12-methyl and 13-methyl alkanes in crude oils"; R. Gagosian, "Transformation reactions of organic compounds during vertical transport to the sea floor"; G. Ryback, "14-steranes in petroleum and shales"; E. W. Baker, "Metalloporphyrins"; J. R. Maxwell, "The stereochemistry of acyclic compounds as a maturation parameter"; D. R. Simoneit, "Sesqui and diterpenoids in DSDP sediments"; J. Rullkoetter, "The significance of unsaturated cyclic hydrocarbons in deep sediments"; P. J. Arpino, "Identification of series of high molecular weight carboxylic acids from various crudes"; P. Albrecht, "Polycyclic aromatic hydrocarbons related to terpenes and steroids in sediments and crude oils"; G. Eglinton, "Improved characterization of petroporphyrins and their potential as biological markers"; J. de Leeuw, "High molecular weight lipids in a recent sediment"; J. M. Moldowan, "High molecular isoprenoid hydrocarbons in petroleum"; P. Philip, "Biological markers from stepwise oxidation of a kerogen"; A. G. Douglas, "Prist-2-ene in kerogen pyrrolyzates"; D. Rubinstein, "Biological markers in asphaltenes."

18 August. Geochemistry of natural gases (G. J. Demaison, chairman): C. Barker, "Thermodynamic stability of natural gases in the deep subsurface"; R. H. Reitsema, "Carbon isotope equilibrium between CH_4 and CO_2"; M. Schoell, "Hydrogen and carbon isotope analysis of methanes in natural gases of various origins"; J. Leventhal, "Origin and occurrence of nitrogen in natural gases"; K. K. Kvenvolden, "Hydrocarbon gases in marine sediments—offshore Alaska." The oil migration problem (B. Tissot, chairman): R. W. Jones, "Geologic constraints on oil-migration models"; S. Neglia, "Migration of fluids in sedimentary basins"; D. Leythauser, "Distribution of light hydrocarbons in near-surface strata—an empirical model for migration"; B. Durand, "Observations and simulation of oil migration." Potpourri and late developments (E. Baker, chairman) J. W. Smith, "C^{13}-depleted envelope around microbially altered oils"; A. Nissenbaum, "Interaction of organic matter and metals."

Organic Reactions and Processes

New Hampton School

Walter S. Trahanovsky, chairman; Milorad M. Rogić, vice chairman.

17 July. Carl R. Johnson, "Asymmetric synthesis based on sulfoximines"; Larry E. Overman, "New thermal and cyclization-induced [3,3]-sigmatropic rearrangements"; Hans Wynberg, "The non-enzyme synthesis of enantiomers using chiral catalysts: dream or fact?" Amos B. Smith, III, "Recent progress in the synthesis of antitumor agents."

18 July. Yoshito Kishi, "Synthetic studies in the field of natural products chemistry"; Edwin Vedejs, "Synthesis of macrocyclic compounds"; Ellis K. Fields, "Reactions of silver carboxylates." Contributed short papers by conferees.

19 July. Warren W. Kaeding, "Some new methanol reactions"; Glen A. Russell, "Some aspects of the chemistry of radical anions"; Stephen F. Nelsen, "Stabilization and destabilization of hydrazine oxidation intermediates by Bredt's Rule Effects." Contributed short papers by conferees.

20 July. Toyoki Kunitake, "Catalysis by synthetic polymers and polymeric aggregates in aqueous systems"; Paul D. Bartlett, "Problems in photo-oxygenation"; Morley R. Kare, "There is more to taste than meets the tongue."

21 July. C. Dale Poulter, "Reactions in the terpene biosynthetic pathway"; Ei-ichi Negishi, "Selective carbon-carbon bond formation via transition metal catalysis."

Organometallic Chemistry

Proctor Academy

Paul M. Treichel, chairman; Herbert D. Kaesz, vice chairman.

Organometallic Compounds as Catalysts and Reagents in Organic Syntheses

14–18 August. E. C. Ashby, "Hydrometallation: transition metal catalyzed reactions of main group metal hydrides with alkenes and alkynes"; J. E. Bercaw, "Homogeneous activation of carbon monoxide"; J. J. Eisch, "Organometallic metallocycles in bonding and mechanistic studies"; M. Green, (subject to be announced); R. F. Heck, "Palladium catalyzed reactions of vinylic halides with amines and olefins"; A. Halasa, "Organolithium catalysis of olefin and diene polymerization: a fruitful area for research"; P. M. Maitlis, "New types of homogeneous catalysts and the hydrogenation of aromatics"; J. F. Normant, (subject to be announced); R. Pruett, "Catalysis of carbon monoxide-hydrogen reactions"; H. J. Reich, "Selenium and silicon in organic synthesis"; F. G. A. Stone, "Synthesis via ligand free platinum complexes"; J. K. Stille,

"Transition metal catalyzed organic synthesis"; R. R. Schrock, (subject to be announced).

Particle Solid Interactions

Proctor Academy

Leonard C. Feldman, chairman; B. R. Appleton, vice chairman.

7 August. Ion penetration in matter (R. H. Ritchie, discussion leader): J. Lindhard, "Progress and problems in the theory of charged particles through matter"; C. D. Moak, "Resonant coherent excitation of atomic states." Energy loss (W. M. Gibson, discussion leader): H. Knudsen, "Higher order Z effects in the stopping power of energetic ions"; D. Ward, "Z_2 dependence of Z_1 oscillations in stopping power."

8 August. Surface structure methods (J. E. Rowe, discussion leader): E. W. Plummer, "Surface structure determination from photoemission"; F. Jona, "Surface structure determination from LEED." Ion scattering I (M. B. Webb, discussion leader): I. Stensgaard, "Surface structure by MeV ion scattering."

9 August. Ion scattering II (H. H. Brongersma, discussion leader): D. P. Jackson, "Role of computer simulation in the interpretation of ion scattering experiments"; E. Taglauer, "Structure determination of surfaces with adsorbed layers by low energy ion scattering." Secondary ion emission (R. Kelly, discussion leader): K. Wittmaack, "Energy distributions of sputtered neutrals and ions."

10 August. Inelastic processes (J. Remillieux, discussion leader): R. Levi-Setti, "Contrast mechanisms in the scanning proton microscope"; N. H. Tolk, "Optical polarization effects in ion scattering from single crystals at grazing incidence." Sputtering: astrophysical aspects (G. K. Wehner, discussion leader): W. L. Brown, "Erosion of condensed gas films by energetic ions."

11 August. (speakers and subjects to be announced).

Photoconductors, Chemistry and Physics of

Holderness School

R. Cozzens, chairman; P. Reucroft and J. Elmore Jones, co-vice chairmen.

12–16 June. Albert Rose, "Photoconductivity, 1948–1984"; Ronald Chance; Karl Hauffe, "Electrophoretic phenomena on photoconducting particles dispersed in liquids"; J. Noolandi, "Theoretical studies of photogeneration models in photoconductors"; Damodar M. Pai; U. Y. Merritt; Marvin Silver, "Simulation of charge and excitons hopping in polymers and other random media"; Charles L. Braun, "Photoconductivity quantum yields"; Larry Kevan, "Photoconductivity associated with localized electrons in glassy matrices"; Philip Reucroft, "Studies on conductivity mechanisms and the photovoltoic effect in polymer film systems"; Dietrich D. Haarer; H. Baessler, "Localized states in non-crystalline tetracene and anthracene and their influence on transport processes"; H. J. Hovel, "Photovoltoic devices at high light intensities"; George C. Hartmann; Harvey Scher; A. C. Albrecht; Mark Wrighton, "Chemically derivatized semiconductor photoelectrodes"; Richard H. Bube, "Photoelectronic properties of heterojunctions involving CdTe or InP"; Paul Borsenberger; Leonid Rozenshtein, "Electrochromism of triphenyl methane dyes"; Martin Pope, "Electrodeless photoemission studies in organic crystals"; L. B. Schein, "Band-hopping transities for electrons in single crystal naphthalene."

Photonuclear Reactions

Kimball Union Academy

James O'Connell, chairman; Roland Bergere, vice chairman.

14–18 August. H. R. Weller, "Radiative proton capture"; E. Wolynec, "Electrodisintegration experiments and virtual photon theory"; Contributed papers. (Speaker to be announced), "Hydrodynamic models of giant resonances"; W. Knupfer, "Shell models of giant resonances"; S. Kowalski, "High resolution electron scattering." (speaker to be announced), "Recent results from Sendai"; B. Frois, "Elastic electron scattering"; (speaker to be announced), "Widths of giant resonances"; P. Stoler, "Photopion experiments and calculations"; H. Hadjimichael, "The electromagnetic operator"; J. Moss, "Giant resonances and hadron scattering"; A. M. Saruis, "Continuum theory of photon reactions"; L. C. Maximon, "Extra nuclear electromagnetic interactions"; (speaker to be announced), "Low energy photon scattering"; L. S. Cardman and J. R. Calarco, "Electromagnetic coincidence experiments"; (speaker to be announced), "Photoneutron reactions in P-shell nucleii." Future shock: S. Penner, "Accelerators"; R. Neuhausen, "Electron scattering"; (speaker to be announced), "Photon reactions"; J. Speth, "Theory."

Photosynthesis, Biochemical Aspects of Electron Transport, Photophosphorylation, Membrane Structure

Tilton School

David W. Krogmann, chairman; William W. Parsons, vice-chairman.

24 July. Photosystem 1 to NADP (A. San Pietro, chairman): M. Losada, G. Zanetti, D. Arnon. The photoact, bacteria, P870 to X (W. Parsons, chairman): R. Clayton, G. Feher, and L. Dutton. The photoact, higher plants, P700 to X (J. Biggins, chairman): M. Evans, A. Bearden, B. Ke, K. Sauer, and J. Goldbeck.

25 July. The intermediate electron transport chain (W. Cramer, chairman): J. Amesz, B. Bouges-Bouquet, G. Schmid, W. Haehnel, and D. Bendall. The intermediate electron transport chain (continued) (D. W. Krogmann, chairman): M. Kamen, G. Hauska, A. Trebst, and R. Malkin. Photosystem II, water to Q (G. Cheniae, chairman): B. Kok, W. Butler, Govindgee, G. Renger, P. Horton, and S. Lien.

26 July. Membrane structure, bacteria (P. Loach, chairman) C. Fuller, S. Kaplan, and E. Gantt. Membrane structure, higher plants (C. Arntzen, chairman) K. Miller, N. H. Chua, and J. H. Hoober. Membrane structure, higher plants (continued) (R. Dilley, chairman): E. Gross, P. Thornber, K. Apel, and S. Shibata. Photophosphorylation and proton pumps, bacteria (A. Crofts, chairman); T. Melandri, M. Baltscheffsky, and D. Knaff.

27 July. Photophosphorylation and proton pumps, higher plants (J. Barber, chairman): M. Avron, C. Fowler, H. Rottenberg, H. Witt, N. Nishimura, G. Hind, N. Good, and S. Izawa. Coupling factor, structure and function, bacteria (C. Carmeli, chairman): R. Backofen, Z. Gromet-Elhanan, and C. Sybesma.

28 July. Coupling factor, structure and function, higher plants (A. T. Jagendorf, chairman): N. Nelson, R. Vallejos, R. McCarty, N. Shavit, B. Selman, and D. Winget.

Physical Metallurgy

Proctor Academy

R. W. Balluffi, chairman; J. D. Embury, vice chairman.

Grain Boundary Structure and Kinetics

19 June. Grain boundary structure. I: W. Bollmann, "Formal geometrical aspects"; (J. P. Hirth, discussion leader). D. A. Smith and O. L. Krivanek, "Field

ion microscopy, lattice imaging"; (J. J. Hren, discussion leader). R. C. Pond, "Transmission electron microscopy"; (G. Sainfort, discussion leader). S. L. Sass, "Diffraction effects"; (R. Sinclair, discussion leader).

20 June. Grain boundary structure. II: V. Vitek, "Computer simulation (static models)"; (M. Biscondi, discussion leader). G. H. Bishop, "Computer simulation (dynamic models)"; (P. D. Bristowe, discussion leader). K. H. Johnson, "Cluster approach to electronic structure of grain boundaries"; (R. J. Harrison, discussion leader). P. J. Goodhew, "Relationship between structure and energy"; (L. E. Murr, discussion leader).

21 June. Grain boundaries in real materials: B. Ralph, "Grain boundaries in real materials"; (D. Warrington, discussion leader). Grain boundary transport: G. Martin, "Analysis of grain boundary diffusion"; (D. Campbell, discussion leader). P. S. Ho, "Measurement of grain boundary diffusion"; (N. L. Peterson, discussion leader).

22 June. Grain boundary migration: C. L. Bauer, "Mobility measurements"; (G. Gottstein, discussion leader). P. R. Howell, "Migration during recrystallization"; (K. T. Aust, discussion leader). H. Gleiter, "Diffusion along migrating boundaries"; (G. R. Purdy, discussion leader). J. Cahn, "Migration models"; (G. T. Higgins, discussion leader).

23 June. Additional topics: H. Föll, "Boundaries in semiconductors"; H. I. Aronson, "Interphase boundaries"; (G. C. Weatherly, discussion leader).

Plasma Chemistry

Proctor Academy

Peter H. Dundas, chairman; Daniel L. Flamm, vice chairman.

21–25 August. Cold plasma: semiconductor processing. Plasma chemistry for device processing (Alan Reinberg, chairman): Rudolf Heinecke, "On the concept of localized plasma for IC processing"; C. J. Mogab, "Things I don't understand"; L. Holland (subject to be announced). Amorphous semiconductor deposition (Ted Moustakas and Jim Amick, co-chairmen): Stanislav Veprek, "Plasma chemistry of amorphous semiconductors—fundamental processes and some novel materials"; David E. Carlson, "Deposition of amorphous silicon in glow discharges using silanes." Plasma etching (R. P. H. Chang, chairman): J. S. Logan and J. L. Mauer, "The effect of pressure on reactive ion and plasma etching"; John Coburn and Harold Winters, "Basic mechanisms related to plasma etching"; Haruhito Abe (subject to be announced). Discussion talks on the plasma processing of semiconductor materials (Harald Suhr, chairman). Certain topics are best understood when presented as a 5- to 8-minute oral presentation accompanied by a more complete written discussion in which available answers and open problems are clearly stated. Papers may treat unsolved problems as well as recently completed research which might benefit from extensive discussion. Contributions are invited and may be sent to Daniel L. Flamm, Room 6E-216, Bell Laboratories, Murray Hill, N.J. 07974. Thermal plasma and its applications. Industrial applications (Phillip Wilks, chairman): J. P. Williamson, "Effect of quenching rates on plasma dissociated zircon"; Werner Borer, "Large scale spheroidization of oxide powders." Plasma chemistry of reactive metals (William Gauvin, chairman): N. N. Sayegh, G. R. Kubanek, and W. H. Gauvin, "Plasma extraction of molybdenum—1978 update"; Giancarlo Perugini, "Arc plasma reactions for ceramics"; Omer Biceroglu, "Kinetics of plasma chlorination of zirconia." Special topics (Steven Hamblyn, chairman): Ward Roman, "High temperature UF_6 plasma research"; Brian Waldie, "DC plasma at elevated pressures"; Tom Miller, "Thermal plasma deposition of optical waveguides." Thermal plasma diagnostics (Emil Pfender, chairman): A. E. Guile, "Plasma arc electrode erosion measurements"; David Benenson, "Diagnostics in time varying high speed or turbulent arcs." General diagnostics (chairman to be announced): Alan Hare, "Velocity measurements in plasma flow"; Hendrik J. Oskam, "Mass spectrometric and probe diagnostics of chemical plasmas."

Plasma Physics

Miramar Hotel

Miklos Porkolab, chairman; Herbert Berk, vice chairman.

Confinement, Heating, and Transport of Magnetically Confined Plasma

26 June. Toroidal confinement experiments (W. Stodiek, chairman): H. Eubank, "Neutral beam heating and associated phenomena on PLT"; A. Razumova, "New results on the T-10 tokamak"; S. Sesnic, "Recent results on pulsator"; D. Overskei, "Low-Q regimes on alcator A." Plasma transport in tokamaks (P. Rutherford, chairman): G. Guest, "Advances in plasma transport theory and numerical codes"; M. N. Rosenbluth, "Magnetic brading and transport"; N. Sauthoff, "Disruptions in tokamaks."

27 June. Approaches to thermonuclear power (R. Davidson, chairman): H. P. Furth, "TFTR and subsequent reactor experiments"; B. Coppi, "Ignitors and anomalous transport"; R. Pyle, "Recent and future developments in neutral beam technology." Physics of high-β tokamaks (J. Clarke, chairman): D. Nelson, "Evolution of finite β equilibria"; J. Wesson, "High-β limit due to MHD instabilities"; D. Sigmar, "α-particle heating and associated instabilities."

28 June. Non-tokamak toroidal confinement (H. Dreicer, chairman): H. Wobig, "Recent results on Wendelstein VII stellarator"; J. Dawson and A. Y. Wong, "Multipoles"; D. Baker, "Recent advances in pinches." Mirrors and tormac (L. Shohet, chairman): W. Turner and D. Baldwin, "Mirrors, experiment and theory"; D. Rytov, "Triple mirror well"; M. Levine, "Tormac."

29 June. R.F. heating I—ICRF and ECRH (J. Hosea, chairman): J. Adam, "ICRF experiments on TFR"; F. W. Perkins, "Advances in the theory of ion cyclotron and alfven wave heating"; W. Quon, "ECRH heating on ELMO"; V. V. Alikaev, "ECRH heating of tokamaks and future plans for T-10." R. F. heating II—lower hybrid range (R. W. Gould, chairman): T. Consoli, "Lower-hybrid and TTMP heating on the Wega and Petula tokamaks"; T. Nagashima, "Lower-hybrid heating experiments at TOKAI"; T. Jensen, "Electron landau heating on doublet-II."

30 June. Basic plasma physics (A. Kaufman, chairman): K. Mima, "Vortices in plasmas"; H. Okuda, "Diffusion studies using computers"; R. E. Slusher, "Fluctuation measurements using CO_2 lasers"; M. Ono, "Parametric instabilities in multi-ion species plasmas."

Polymer Physics

New Hampton School

Eugene Helfand, chairman; Richard S. Stein, vice chairman.

19 June. P. G. deGennes, "Scaling laws in polymer statistics"; M. Adam, "Light scattering experiments on polystyrene-benzene solutions: dynamical properties"; William W. Graessley, "Chain entanglement effects on viscous and elastic properties"; Jerold Schultz, "Dynamic SAXS studies of crystallization."

20 June. E. W. Fischer, "Structure in-

vestigations of bulk polymers by means of neutron scattering"; Leo D. Mandelkern, "Supermolecular structure and properties of semicrystalline polymers." Three minute precis followed by poster presentations.

21 June. Jacob Schaefer, "High resolution C-13 NMR of solid polymers"; Gary D. Patterson, "Rayleigh-Brillouin scattering from polymers"; J. L. Koenig, "Spectroscopic analysis of amorphous polymers"; Richard H. Boyd, "Conformational energy calculations of the molecular motions underlying relaxation."

22 June. S. S. Sternstein, "Mechanically enhanced aging of glassy polymers as studied by small strain viscoelastic processes"; S. Matsuoka, "Phenomenological aspects of viscoelastic behavior of polymeric glasses"; A. S. Marshall, "Physical aging of glassy polymers: diluent effects"; Robert Simha, "Configurational thermodynamics of polymer solids"; Edward J. Kramer, "Mechanical properties of crazes".

23 June. Julia S. Higgins, "Molecular investigation of polymer blends"; Isaac C. Sanchez, "Critical behavior in polymer blends and solutions."

Polymers

Colby-Sawyer College

E. J. Vandenberg, chairman; G. B. Butler, vice chairman.

17 July. (M. Litt, presiding): Joseph P. Kennedy, "Molecular engineering by understanding the mechanism of cationic olefin polymerization"; Takeo Saegusa, "No catalyst alternation copolymerization of cyclic phosphorous compounds—new synthetic methods for phosphorous-containing polymers." (George B. Butler, presiding): poster summaries. (Michael Szwarc, presiding): Norman G. Gaylord, "Radical (?) polymerization induced by rapid catalyst decomposition"; H. R. Kricheldorf, "^{15}N NMR sequence analysis of synthetic polypeptides and polyamides."

18 July. (Charles B. Duke, presiding): A. G. MacDiarmid, "Synthesis and chemical properties of semiconducting and metallic covalent polymers"; A. J. Heeger, "Electronic properties of semiconducting and metallic covalent polymers." (George B. Butler, presiding): poster summaries. (P. Pino, presiding): Yu. I. Yermakov, "The mechanism of active center formation and propagation in olefin polymerization by some solid catalysts"; T. Keii, "Propylene polymerization with supported $MgCl_2$-type catalysts."

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19 July. (John Schaefgen, presiding): Robert J. Samuels, "Structural engineering: the effect of internal structure on the mechanical properties of crystalline polymers"; A. J. Pennings, "Longitudinal growth of polyethylene crystals and their properties." (O. Vogl, presiding): P. Teyssie, "New block polymers: synthesis physical properties and application to control of materials morphology"; James E. McGrath, "Homogeneous and microheterogeneous block copolymers"; H. Morawetz, "A new method for studying polymer compatibility."

20 July. (S. E. B. Petrie, presiding): J. Economy, "High performance polymers of *p*-hydroxybenzoic acid"; J. Collette, "Ultra-high molecular weight polyethylene composites." (H. Morawetz, presiding): Herbert W. Boyer, "Chemical synthesis of DNA and recombinant DNA technology."

21 July. (M. Peter Dreyfus, presiding): E. J. Goethals, "Cationic degradation of polyalkylenesulfides and polyethers"; S. Penczek, "Anionic copolymerization of elementary sulfur."

Pyrroles

Brewster Academy

Rudi Schmid, chairperson; Robert Troxler, vice chairperson.

31 July. Regulation of heme synthesis (B. A. Schachter, chairperson): I. M. London, "Regulation of heme and hemoglobin synthesis in erythroid cells"; G. Padmanaban, "Regulation of heme, hemoprotein synthesis in the liver." (J. Kushner, chairperson): T. McDonald, "Biosynthesis of uroporphyrinogen III"; A. H. Jackson, "Biosynthesis of coproporphyrinogen III"; D. Shemin, "Porphobilinogen synthetase: structure, function, mechanism."

1 August. Porphyria (D. Tschudy, chairperson): G. H. Elder, "Defects of porphyringen metabolism"; J. R. Bloomer, "Protoporphyria"; U. A. Meyer, "Experimental models of heme synthesis." Heme degradation (M. Kreimer-Birnbaum, chairperson): G. Kikuchi, "Heme oxygenase reaction, studied with purified pig spleen enzyme"; M. D. Maines, "Heme oxygenase"; S. B. Brown, "Non-enzymatic models of heme oxidation."

2 August. Bilirubin: structure in relation to excretion (A. F. McDonagh, chairperson): R. Bonnett, "Bilirubin structure"; H. Falk, "Bile pigment structure"; M. S. Stoll, "Excretion of unconjugated bilirubin." (E. Gordon, chairperson): N. Blanckaert, "Excretion of bilirubin isomers"; F. Compernolle, "Bilirubin conjugates"; P. L. M. Jansen, "Bilirubin conjugation."

3 August. Plant pyrrole pigments (D. Dolphin, chairperson): K. D. Nadler, "Synthesis of heme in symbiotic legume nodules"; S. I. Beale, "ALA synthesis in plants"; H. W. Siegelman, "Bile pigments in plants." Free, selected papers (S. S. Bottomley, chairperson).

4 August. Tetrapyrrole transport (I. M. Arias, chairperson): A. W. Wolkoff, "Intracellular tetrapyrrole transport"; J. L. Gollan, "Biliverdin"; A. F. McDonagh, "Placenta."

Quantum Solids and Fluids: Properties of Disordered Systems

Plymouth State College

R. Orbach and M. J. Stephen, co-chairmen.

10–14 July. The purpose of this conference is to bring together theorists and experimentalists from physics, chemistry, and metallurgy interested in disordered systems. The intention is to highlight the communality of content in seemingly diverse physical systems. Spin-glasses: M. A. Moore, "Numerical studies of spin-glasses"; G. Sarma, "Frustration theory"; L. R. Walker and R. E. Walstedt, "Elementary excitations." Random magnets: R. A. Cowley, "Fluctuations in dilute antiferromagnets close to the percolation threshold"; T. Lubensky, "Phase transitions in quenched random systems." Granular and composite materials: B. Abeles, "Electronic properties"; G. Deutscher, "Granular and percolating superconductors"; D. Bergman, "Analytic properties of the dielectric constant in composite materials." Percolation theory: A. L. Efros, "Coulomb gap in disordered systems"; M. J. Stephen, "Conductivity of random systems near percolation threshold"; J. P. Straley, "Cooperative phenomena in the conductivity of random resistor lattices and inhomogeneous media." Polymers and rubbers: Sam Edwards, "Rubbers"; G. Jannink, "Neutron scattering from polymer solutions"; P. Pincus, "Polyelectrolytes." Glasses: B. Golding and J. E. Graebner, "Coherent effects"; S. Hunklinger, "Dynamic properties"; J. Jackle, "Relaxation theory." Amorphous materials: T. Egami, "Structural

short range order''; B. I. Halperin, ''Localization theory''; W. E. Spear, ''Transport in disordered systems.''

In addition to the invited speakers, provision will be made for poster sessions at the conference. Those interested in making a presentation should contact one of the chairmen for details.

Radiation Chemistry

Holderness School

Richard F. Firestone, chairman; Gerhard Meisels, vice chairman.

17 July. Shaul Mukamel, ''Multiphoton molecular processes''; George Flynn, ''Vibrational energy transfer and reactivity in laser pumped molecules.''

18 July. Dieter Perner, ''Pulse radiolysis of gases''; Jean Futrell, ''Ion-molecule reactions in gases''; John Warman, ''Microwave cavity monitoring of reactions of ions in liquid hydrocarbons and of electrons in ice.''

19 July. Richard Holroyd, ''Energetics and equilibria of excess electrons in nonpolar fluids''; Neil Kestner, ''Electrons in fluids. Structure and reactivity''; Charles Jonah, ''Properties of dry electrons in polar fluids.''

20 July. Machio Iwasaki, ''Formation and pairwise trapping of free-radicals in organic solids at low temperatures''; John Willard, ''Trapped hydrogen atoms, electrons and free-radicals in organic matrices.'' Contributed papers.

21 July. Robert Schuler, ''Spectroscopic studies of free-radical reactions in liquids''; Myron Sauer, ''High LET pulse and radiolysis of aqueous solutions.''

Radical Ions

Brewster Academy

Wayne C. Danen, chairman; Robert D. Allendoerfer, vice chairman.

19 June. Richard W. Fessenden, ''Time-resolved ESR studies''; James R. Norris, ''New aspects of primary photosynthesis as revealed by magnetic resonance''; Robert C. Dunbar, ''Spectroscopy and photochemistry of gas-phase radical ions''; Allen J. Bard, ''Electrogeneration of radical ions''; Vitaly D. Pokhodenko, ''Ion radicals as homogeneous catalysts for redox reactions in solution.''

20 June. M. C. R. Symons, ''Mechanisms of electron addition and dissociative electron capture in the solid-state''; Paul H. Kasai, ''ESR study of organometallic complexes generated in rare gas matrices''; Fred Wudl, ''Radical ions, neutral radicals, and organic conductors''; John R. Morton, ''The semi-occupied orbital in inorganic fluoride radicals and radical ions''; Paul J. Krusic, ''ESR studies of organoiron radical anions.''

21 June. Michael Szwarc, ''Electron-induced cis-trans isomerization of stilbene and stilbene radical anions''; Joseph F. Bunnett, ''Frangible radical anions viewed as reactive intermediates''; Aryeh Frimer, ''Some recent advances in the organic chemistry of superoxide anion radical''; Richard N. McDonald, ''Chemistry of hypovalent radicals''; Y. L. Chow, ''Steriochemical probes on radical structures.''

22 June. F. Gerson, ''Recent ESR and ENDOR studies in the cyclophane and annulene series''; Norman G. Gaylord, ''Role of comonomer charge transfer complexes in polymerization''; Stephen F. Nelsen, ''Kinetic stabilization of amino-substituted radical cations by the 9-azabicyclo[3.3.1] nonyl group''; John A. Ford, Jr., ''Chemistry and color photography.''

23 June. Leon M. Dorfman, ''Fast reaction studies of carbocations and carbanions in solution''; K.-D. Asmus, ''Radical cations from organic sulphides.''

Renewable Resources, Chemicals and Materials from

Brewster Academy

Ingemar Falkehag, chairman; Alf deRuvo, vice chairman.

3 July. (Kent Kirk, chairman): James A. Bassham, ''Photosynthesis and biosynthetic pathways for production of chemicals from plants''; Clanton Black, ''CO_2-metabolism in plants.'' (Wolfgang Glasser, chairman): Hans Grisebach, ''Biosynthetic pathways for aromatic compounds''; Mikio Shimada, ''Biochemical specificity of plants in relation to biosynthesis of guaiacyl and syringyl lignins.''

4 July. (Kyosti Sarkanen, chairman): Barbara Krieger, ''Microwave plasma fragmentation of lignocellulosic materials''; Nyok-Sai Hon, ''Photoinduced reactions in lignocellulosic materials''; Gordon Leary, ''Reactions of quinone methides and formation of lignin-carbohydrate bonds.'' (Knut Kringstad, chairman): Joseph Gratzl, ''Chemistry of quinone-hydroquinone systems in delignification processes''; Henry Bolker, ''Redox reactions in alkaline degradation of lignin.''

5 July. (Tore Timell, chairman): Ulla Westermark, ''The chemical composition of the wood fiber and the fiber wall''; Tony Scallan, ''The mechanism of swelling of wood fibers''; (Alf deRuvo, chairman): Richard Mark, ''Effect of lateral force on wood fiber deformation''; E. Ehrnrooth, ''Environmental influence on the rheology of the cell wall and its components.''

6 July. (Vivian Stannett, chairman): Hyoe Hatakeyama, ''Biodegradability and thermal properties of polystyrene derivatives related to lignin''; Bengt Rånby, ''New graft polymerizations for cellulose and starch''; Lynn Margulis, ''Three billion years of atmospheric cycling on the surface of the earth.''

7 July. Mini-paper session with the theme: ''Novel concepts and basic research related to future utilization of renewable organic resources.''

Scientific Information Problems in Research

Plymouth State College

Sidney Siegel, chairman; Martha E. Williams, vice chairman.

Chemical and Biochemical Information Problems

10 July. Emerging information activities in the physical, chemical and biological sciences. The effect on decision-makers of new and projected technologies.

11 July. Future trends for information capture and analysis systems for the physical, chemical and biological sciences.

12 July. Netting and interfacing biological, chemical and physical data and information systems.

13 July. Artificial intelligence—framework for future chemical and biological information systems.

14 July. Voluntary and mandatory data depositories—impact on science and science/administrators.

Separation and Purification

Colby-Sawyer College

Edwin N. Lightfoot, chairman; Armand J. deRosset, vice chairman.

14 August. Separations strategy and design (Aage Fredenslund, session chairman): Ruth Blumberg, ''Solvent extraction: a powerful separation tool''; Tomáš Mišek, ''New developments in modelling of liquid-liquid extraction columns''; J. J. Siirola, ''Progress towards the synthesis of heat-integrated distillation schemes''; Erik Krabbe, ''Separations problems in pollution abatement.''

15 August. Behavior of particulate systems (N. N. Li, session chairman): Stig Friberg, "Colloidal aspects"; Alan D. Randolph, "Crystallization"; John Bridgwater, "Fundamentals of segregation in deforming particulate solids."

16 August. Membrane transport processes (E. J. Parsi, session chairman): E. A. Mason, "Statistical mechanics of membrane transport"; K. S. Spiegler, "Molecular backwashing"; K. J. Liu, "Water splitting"; R. F. Madsen, "Concentration polarization in thin channels."

17 August. Unfamilar aspects of well-known separations (Eli Grushka, session chairman): A. Warshawsky, "Solvent impregnated resins"; Stephen S. Moore, "Host-guest chemistry"; H. J. Palmer, "Hydrodynamic instability during rapid evaporation."

18 August. Electromagnetically induced separations (J. F. G. Reis, session chairman): A. R. Thomson, "Continuous preparative electrophoresis"; Henry Kolm, "Magnetically induced separations."

Statistics in Chemistry and Chemical Engineering

Plymouth State College

Ronald D. Snee, chairman; John Mandel, vice chairman.

24 July. George E. P. Box, "Statistics in Science"; (Otto Dykstra, moderator). James J. Tiede and William J. Hill, "Detecting trends in worldwide stratospheric ozone levels"; (Peter Bloomfield, moderator).

25 July. Gary E. Blau and Park M. Reilly, "Use of chemical engineering models to assess the hazard of chemicals to humans and their environment"; (David W. Bacon, moderator). Svante Wold, "Analysis of chemical data in terms of similarity and analogy"; (William H. Lawton, moderator).

26 July. Gerald R. Chase and William F. Gaffey, "Epidemiological studies of the relationship between exposure to chemicals and cancer"; (Sidney Pell, moderator). Wesley L. Nicholson, "Application of robust/resistant regression to crystal structure refinement"; (Albert S. Paulson, discussant, Mavis B. Carroll, moderator).

27 July. George A. Barnard "Ridge regression in chemical engineering: leaving Bayes to the last minute"; (J. Stuart Hunter, moderator). F. Michael Speed and Ronald R. Hocking, "Interpretation of experiments with large amounts of missing data"; (Donald W. Behnken, moderator).

28 July. Jack M. Becktel, "New applications of ranking methods in clinical trials"; (Charles W. Dunnett, moderator).

Stereochemistry

Plymouth State College

Donald Valentine, Jr., chairman; Ernest Eliel, vice chairman.

17–22 July. S. Hanessian, "Carbohydrates: cornerstones in stereochemical manipulations"; G. Whitesides, "Stereoselective catalytic organic synthesis"; I. Ojima, "Asymmetric reduction of prochiral carbonyl compounds by means of catalytic hydrosilylation and hydrogenation"; J. D. Dunitz, "Chemical reaction paths from crystal structure data"; B. D. Vineyard, "Asymmetric hydrogenation with rhodium chiral phosphine catalysts"; K. Mislow, "Some applications of molecular mechanics to stereochemistry"; J. D. Roberts, "Stereochemistry and ^{15}N nuclear magnetic resonance spectroscopy"; K. N. Raymond, "Coordination isomers of microbial iron transport compounds"; G. Saucy, "Asymmetric reactions applied to synthesis of α-tocopherol"; A. I. Meyers, "Asymmetric synthesis using chiral lithium salts"; P. C. Vollhardt, "Selective cobalt mediated acetylene cyclizations in organic synthesis"; G. Wilke, "Chiral metal complexes and asymmetric synthesis"; J. D. Morrison, "Ligand-substrate matching in chiral hydrogenations."

Structural Macromolecules: Collagen

New Hampton School

John H. Fessler, co-chairperson; Stephen M. Krane, co-chairperson.

3 July. Structure of procollagens and collagens (K. Kühn, chairperson): P. Fietzek and W. Butler. Biosynthesis (H. Boedtker, chairperson): J. Monson and K. Kivirikko.

4 July. Unusual collagens (E. Miller, chairperson): M. Tanzer and R. Burgeson. Immunology of collagen (A. Kang, chairperson): R. Timpl and A. Townes.

5 July. Basement membranes (J. Fessler, chairperson): N. Kefalides and R. Trelstad. Interactions of collagens with cell surface and other macromolecules (E. Rouslahti, chairperson): P. Bornstein and H. Kleinman.

6 July. Collagenolysis (S. Krane, chairperson): J. Gross and R. Crystal. Close encounters with collagen (R. Trelstad, chairperson).

7 July. Gene expression and development (B. Peterkofsky, chairperson): K. von der Mark and D. Rowe.

All participants are cordially invited to submit posters if they wish to do so. Details of display, and possibly of selection if there are many, are to be arranged by the Conference Committee. Please state in the application whether you intend to submit a poster and give title and outline of contents.

Taste and Olfaction, Chemical Senses

Proctor Academy

Linda M. Bartoshuk, chairman; Ernest H. Polak, vice chairman.

10 July. Structure-function relations in taste (R. Shallenberger, session chairman): G. Birch, R. Shallenberger, "Stereochemistry binding forces and chemical kinetics"; L. Kier and G. Crosby. Structure-function relations in olfaction (E. Polak, session chairman): H. Bestman, "Relationship between structure and activity of pheromones"; A. Holley, "Relation of odorant structure to single cell activity in the frog"; H. Boelens, "Quantitative structure-activity relations in olfaction."

11 July. Taste psychophysics: the phenomenology of taste (D. McBurney, session chairman): D. McBurney, "The four-quality model of taste"; S. Schiffman, "Descriptions of the taste world via multidimensional scaling"; E. Skinner, "Industrial perspectives on the sensory evaluation of taste"; (C. Pfaffmann, discussion leader). Psychophysics of sweetness (L. Bartoshuk, session chairman): L. Bartoshuk, "Taste of saccharin: different to different individuals?" A. Fourion, "Sweetness of sugars: is there more than one kind of receptor?" B. Halpern, "*Zisyphos jujuba* and *Gymnema sylvestre*: sweetness inhibitors"; D. McBurney, "Cross-adaptation among sweet compounds"; H. Meisselman, "Modern psychophysical scaling methods: impact on the measurement of sweetness"; H. Moskowitz, "Measurement of the hedonics of sweetness"; S. Schiffman, "Multidimensional scaling's perspectives on sweetness."

12 July. Peri-receptor processes affecting mucosal odorant analysis (M. Mozell, session chairman): M. Mozell, "Why focus on peri-receptor processes?" D. Hornung, "Following the odorant molecules at the mucosa: their access, egress, and distribution"; F. Macrides, "Central regulation of exploratory sniffing: implications for olfactory processing"; R. Gesteland, "Effects of odorants on granule secretion and ciliary motion"; T. Getchell, "Sources of secre-

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tory products in vertebrate olfactory epithelium and their effects." Development and maintenance of chemosensory systems (B. Oakley, session chairman): F. Margolis, "Biochemical approaches to the olfactory system"; B. Oakley, "Trophic dependence in taste"; A. Farbman, "Histochemistry of cultured olfactory epithelium"; R. Bradley and C. Mistretta, "Development of the sense of taste in fetal sheep."

13 July. Cognitive aspects of olfactory functioning (W. Cain, session chairman): W. Cain, "To identify an odor"; T. Engen, "Odor memory and recognition"; R. Davis, "Comparison of olfactory and visual information processing"; G. Beauchamp, "Olfaction in humans and other animals: how close a correspondence?" The science of the perfumer. H. Hoffmann.

14 July. Chemoreceptor macromolecule isolation and characterization (L. Beidler, session chairman): L. Beidler, "Why a receptor macromolecule?" R. Cagan, "Olfactory receptor macromolecules"; J. Brand, "Gustatory receptor macromolecules"; G. Mooser, "Critical analysis and a view to the future." (S. Price, discussion leader).

Poster sessions will be held 4:00 to 6:00 p.m. Instructions will be sent to those invited to the conference.

Theoretical Biology and Biomathematics

Tilton School

George I. Bell, chairman; Charles DeLisi, vice chairman.

19–23 June. Theory of the configuration of biological macromolecules: Andrew McCammon, "Protein structure and dynamics"; Michael Levitt, "DNA and chromatin structure"; Craig Benham, "DNA supercoiling"; Stan Ullman (subject to be announced). Organizations of genetic information in eukaryotes: Lee Hood, "Multigene families"; Charles Thomas, "The palindrome story"; Roy Britten, "Evolution of DNA organization"; Michael Young, "Organization of the drosophila genome"; Alan Perelson and George Smith, "Evolution of multigene families by unequal crossing over." Factors determining cell behavior: Judah Folkman, "Control of cell growth by cell shape"; Clarence Cone, "Ion concentration"; Pushpa Bhargava, "Nutrition and membrane receptors"; Harvey Greenspan, "Fluid dynamic models of cell behavior"; David Rodbard, "Models of hormone receptor interaction"; Byron Goldstein and Micah Dembo, "Receptor cross-linking and histamine release"; Mones Berman, "Insulin kinetics *in vivo*." Cell behavior in differentiating systems: Barbara Wright, "Slime mold biochemistry"; Lee Segel, "Analysis of slime mold aggregation"; Stuart Kauffman, "Sequential commitments in drosophila development"; Lewis Wolpert, "Pattern formation in the developing chick limb."

Thin Films and Solid Surfaces

Tilton School

Derek B. Dove, chairman; David L. Allara, vice chairman.

31 July–4 August. The topic for the 1978 meeting is Optical Applications of Thin Films and particular attention is being given to films for display applications. Sessions will be held on electrochromic films, electroluminescent films, ferroelectric films, transparent conductors, and dielectrics. Following the tradition of previous years, each session will attempt to explore materials preparation, property measurements, and physical principles. A new departure this year is the arrangement of a poster session in an attempt to enhance attendee participation. Suggestions for poster presentations are especially welcomed and should be directed to the conference chairman: Dr. Derek B. Dove, IBM Corporation, Watson Research Center, Yorktown Heights, N.Y. 10598.

Invited speakers and discussion leaders include: A Deneuville, "Influence of hydrogen and oxygen on the preparation and properties of WO_3 films"; B. Faughnan, "Mechanisms of coloration of WO_3 films"; M. Green, "Solid-state electrochromic systems"; F. Kaufman, "Organic films for electrochromic applications"; J. B. Goodenough, "Electrochromics"; M. Francombe, "Ferroelectric films"; H. Matsunami, "Films of PLZT"; J. Vossen, "Transparent conducting layers"; K. Fugate, "Electroluminescent films"; D. Ketchpel, "Electroluminescent films."

Toxicology and Safety Evaluations

Kimball Union Academy

Robert J. Weir, chairman; Hans P. Drobeck, vice chairman.

31 July. Immunology in toxicology (Jack H. Dean, discussion leader): John Moore, "General considerations for assessing effects of environmental chemicals on immunocompetence"; Robert Spiers and Dean Roberts, "A model for assessing effects of drugs and toxicants on immunocompetence"; Raghubir Sharma, "Immunotoxicologic studies of environmental chemicals."

1 August. Immunology in toxicology (Jack H. Dean, discussion leader): Douglas Archer. "Predictive value of *in vitro* methods in assessing immunosuppresive potential of ingested compounds"; J. George Bekesi, "Impaired lymphocyte function in Michigan farmers who have been exposed to polybrominated biphenyls"; Jack H.Dean, "Abnormal immunologic parameters in high risk cancer families."

2 August. Immunology in toxicology (Jack H. Dean, discussion leader): round table discussion; all discussants. The role of pharmacokinetics in carcinogenesis (Perry J. Gehring, discussion leader): Peter Magee, "New biochemical insights into carcinogenesis"; Philip G. Watanabe, "Coupling pharmacokinetics to macromolecular events in assessing the risk of carcinogens."

3 August. Behavioral toxicology (Thomas J. Sobotka, discussion leader): Richard Butcher, "Practical outcomes of behavioral teratology testing"; Hugh Tilson, "Development of methods for the assessment of behavioral and neurological toxicities in adult animals." (Robert J. Weir, discussion leader): Charles J. Krister, "Art, science and politics of safety evaluation."

4 August. Transplacental toxicology (Hans P. Drobeck, discussion leader): John A. McLachlan, "Transplacental toxicology of diethylstilbestrol: a special problem in safety evaluation," Manfred Metzler, "Activated metabolism of diethylstilbestrol and other estrogens."

Transport Phenomena in Biological and Synthetic Membranes

Plymouth State College

Christopher T. Rhodes, chairman; Harold K. Lonsdale, vice-chairman.

7–11 August. William Galey, "Transport of nonelectrolytes into red blood cells"; David Godman, "Membrane transport of drugs in relation to intracellular events"; John Quinn, "Membrane reactors"; C. Anthony Hunt, "Microsomes as potential drug delivery systems"; Daniel Thomas, "Recent advances in membrane technology"; James E. Anderson, "Electric relaxation studies of synthetic membrane cells"; Robert Riley, "Composite membranes";

Elias Klein, "Transport in hollow fibers"; Edward Lightfoot, "Microscopic and macroscopic characterization of membrane transport"; Wolfgang Pusch, "Electric and electro-osmotic transport in asymmetric cellulose acetate membranes"; E. H. Bresler, "Effects of mosaic properties of epithelial membranes on theories of transport"; Richard P. Wendt, "Solute rejection by hemodialysis membranes."

Vibrational Spectroscopy

Brewster Academy

Clara D. Craver, chairman; Erich P. Ippen, vice chairman.

21 August. Intensities (C. Craver, session chairman): B. L. Crawford, Jr., "The rediscovered significance of vibrational intensities"; M. A. Gussoni, "Transferability of intensity parameters." (B. L. Crawford, Jr., session chairman): J. E. Griffiths, "Raman intensities and band shapes"; P. R. Griffiths, "Infrared intensities and band shapes."

22 August. Surfaces, interfaces and catalysts (C. Craver, session chairman): N. Sheppard, "IR emission and Raman investigations of hydrocarbons adsorbed on metal and oxide catalysts"; R. G. Greenler, "Adsorbed molecules as seen by reflection-absorption IR and by energy loss spectroscopy." (A. Harvey, session chairman): P. J. Hendra, "Raman as a major tool in surface science"; P. J. Trotter, "Kinetics and surface reactions on catalysts by Raman"; G. Rosasco, "Raman microprobe spectroscopy."

23 August. Polymers (R. J. Jakobsen, session chairman): S. Krimm, "Spectroscopy of ordered and biological polymers"; G. Zerbi, "Spectroscopy of disordered and amorphous polymers." (R. Snyder, session chairman): J. R. Scherer, "Organization and Raman spectra of extended and not-so-extended chain molecules."

24 August. Cluster compounds (R. Greenler, session chairman): D. Shriver, "Vibrational spectra of metal cluster compounds related to catalysis"; K. Waters, "Metal clusters as model crystals for adsorption studies"; R. Van Duyne, "Enhanced Raman spectroscopy of surfaces." New techniques (E. Ippen, session chairman): R. Hochstrasser, "Picosecond vibrational relaxation processes in molecules"; D. Levy, "Spectroscopy in supersonic molecular beams."

25 August. Nonlinear Raman spectroscopy (A. Harvey, session chairman): M. D. Levenson, "Coherent Raman techniques"; A. Owyoung, "Vibrational spectroscopy by stimulated Raman effects"; L. A. Carreira, "Automated CARS spectroscopy,"

Visual Transduction Process, Physico-chemical Aspects of

Tilton School

Aaron Lewis, chairman; Allen Kropf, vice chairman.

3–7 July. Time sequence of vision (S. Ostroy, organizer); primary events (A. Kropf, organizer); visual pigment-membrane interactions (A. Waggoner, organizer); theoretical studies (B. Honig, organizer); photochemistry of model systems (B. Kohler, organizer); biochemical aspects of photoreceptive function with special emphasis on nucleotide metabolism (H. Shichi, organizer); physical techniques I (B. Callender, organizer); physical techniques II (A. Lewis, organizer); bacteriorhodopsin (W. Stoeckenius, organizer); visual pigment analogs (K. Nakamishi, organizer); J. Dowling "Chemistry and physiology of vision." Electrophysiological aspects of visual transduction (Dennis Baylor, organizer).

Water and Aqueous Solutions, Chemistry and Physics of

Holderness School

Robert H. Wood, chairman; C. Austen Angell, vice chairman.

31 July. Monte Carlo calculations (J. P. Valleau, discussion leader): D. L. Beveridge, "Theoretical studies of the structure of liquid water and dilute aqueous solutions based on Monte Carlo calculations and quasicomponent distribution functions"; H. A. Scheraga, "Empirical potentials and the thermodynamic properties of aqueous solutions." Protein and surface hydration (G. Hertz, discussion leader): J. L. Finney, "Organization and function of water in protein crystals"; R. G. Bryant, "NMR relaxation of water at surfaces."

1 August. Theoretical approaches (F. Stillinger, discussion leader): A. Pullman, "Quantum-mechanical studies of the solvation of biomolecules"; D. Chandler, "The theory of the hydrophobic effect." The hydrophobic interaction (F. Franks, discussion leader): A. Geiger, "Molecular dynamics study of the hydration of Lennard-Jones solutes"; J. P. O'Connell, "Molecular thermodynamic model for aqueous solubility and micellization"; H. S. Frank, "Entropy-driven reactions, icebergs, and the hydrophobic bond."

2 August. Structure of solutions (S. A. Rice, discussion leader): J. Enderby, "Recent progress in determining the structure of aqueous solutions"; D. R. Sandstrom, "Application of x-ray absorption spectroscopy (XAFS) to the study of solutions."

3 August. Conductance and infrared techniques (H. Friedman, discussion leader): J.-C. Justice, "Models fit to both thermodynamic and transport properties of ionic solutions"; C. Jolicoeur, "Near infrared investigation of the role of solvent in solute-solute interactions in aqueous solutions"; G. E. Walrafen, "High pressure raman studies of water." Water under unusual conditions (discussion leader to be announced) O. Vetter, "Practical utilization of thermodynamic data on aqueous solutions at elevated temperatures"; J. Cobble, "Thermodynamic properties of aqueous solutions at 300°C"; E. M. Arnett, "Non-aqueous water."

4 August. Solute-solute interactions (J. E. Desnoyers, discussion leader): G. Somsen, "Salting out of aqueous tetraalkylammonium halides by cosolvents"; T. H. Lilley, "Enthalpy of protein-protein interactions."

Poster session: Proposed titles should be submitted to R. H. Wood, Department of Chemistry, University of Delaware, Newark 19711.

Water and Solute Exchanges in the Microvasculature, Physicochemical Aspects of

Tilton School

Eugene M. Renkin, chairman; Aubrey Taylor, co-chairman.

12 June. Electron-microscopic studies of capillary transport (S. Wissig, N. Simionescu, discussion leaders). Chemical constitution of the interstitial matrix (R. Pearce, discussion leader).

13 June. Exclusion phenomena in the interstitium (T. Laurent, discussion leader). Hydrostatic and osmotic interactions (K. Aukland and H. Granger, discussion leaders).

14 June. Interstitial distribution kinetics (G.-F. Rutili and P. Watson, discussion leaders). Osmotic transients, relation to permeability measurements (F. Vargas and N. Granger, discussion leaders).

15 June. Osmotic transients—analysis of kinetics (J. Bassingthwaighte, discussion leader). Permeability measurements on single capillaries (C. C. Michel, discussion leader).

16 June. Light-microscopic studies of capillary transport (H. Wayland, discussion leader).