Gordon Research Conferences

Alexander M. Cruickshank

The Gordon Research Conferences for the summer of 1975 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. It is no longer possible to acknowledge receipt of applications. Please be assured, however, that you will be notified immediately following a review of applications by the Chairman and his committee.

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. This advance deposit is not required from foreign scientists. Checks are to be made payable to the Gordon Research Conferences. The deposit will be credited against the fixed fee for the conference. *A registration card not accompanied by the deposit will not be accepted.*

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 resident 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 conferee attends the conference—that is, for the periods of from 1 to 4½ days. An additional charge per night per person will be made for a room with a private bath or for a single room, if no double rooms or roommates are available.* An additional charge will be made for rooms occupied more than five conference nights (Sunday through Thursday).

The fixed fee will cover registration, room (except single room or room with bath), meals, and services 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 if an approved appli-

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cation for attendance at a conference is cancelled. *This deposit is not transferable to another conferee or conference.*

Program. The complete program for the 1975 Gordon Research Conferences is published in *Science*, 14 March 1975. Reprints are available on request 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 9 June to 29 August 1975 should be addressed to: Dr. Alexander M. Cruickshank, Director, Gordon Research Conferences, Colby Women's College, New London, New Hampshire 03257. Telephone: 603-526-2870.

Conference Fees

New Hampshire	
Conferee:	
Resident (Registration, room, meals, service)	$150
Deposit	30
Non-resident	$120
Deposit	30
Guest:	
(Room, meals, service for five conference days)	100
Deposit	30
California	
Conferee:	
Resident (Registration, room, meals, service)	$175
Deposit	30
Guest:	
(Room, meals, service for five conference days)	125
Deposit	30

The program to be presented is as follows.

Adhesion, Science of

New Hampton School

K. L. DeVries, chairman; John L. Gardon, vice chairman.

25 August. (Douglas Fitchmun, discussion leader): John C. Halpin, "Fracture control and fatigue response of adhesively bonded joints carrying primary structural loads"; Robert Wong, "Adhesion at glass-resin interface." (George Hardy, discussion leader): Roger P. Kambour, "Crazing, shear yielding and the fracture toughness of some more-or-less ductile engineering thermoplastics."

26 August. (Discussion leader to be announced): Armand F. Lewis, "Fundamentals of permanence and endurance of adhesive joints"; Edwin P. Pluddemann, "Adhesion of elastomers to metal and mineral surfaces." (James Huntsberger, discussion leader): Dieter Langbein, "Van der Waals attraction in physics, chemistry and biology."

27 August. (L. H. Peebles, Jr., discussion leader): Kurt Frisch, "Topologically interpenetrating polymer networks"; Thomas W. Greenlee, "Catalysis of silicone elastomer adhesion." (Robert Patrick, discussion leader): A. N. Gent and A. Ahagon, "Effect of interfacial bonding on the strength of adhesion."

28 August. (Robert Sternberg, discussion leader): Leonard Weiss and James P. Harlos, "Biophysical approach to cell adhesion"; Frank Koblitz, "Interfaces and microstructures in dental biomaterials." (Eric Baer, discussion leader): Short current topics (Speakers and titles to be announced).

29 August. (Frank Kelly, discussion leader): Walter H. Cobbs, Jr., and Lee Laurel, "Solventless adhesion and solventless adhesives"; F. B. Jones, "Structure-property relationships for styrene-diene block copolymers."

Agricultural Science

Brewster Academy

Richard Levins, chairman; Harold A. Kaufman, vice chairman.

Interspecies Interactions of Agricultural Significance

7 July. The cultivated field as an ecosystem: David Culver and Monte Lloyd.

8 July. Plant insect interactions—herbivores: Guy Bush, Vincent Dethier and William Heed.

9 July. Plant insect interactions—entomophagous insects: W. Joe Lewis, S. Bradley Vinson and Peter Price.

10 July. Chemical message systems: Lawrence Hendry and Orville Chapman. Evening speaker: Richard Bradfield.

11 July. Plant/plant and plant/insect—chemical interactions: Fred Slife and Paul Feeny.

Analytical Science

New Hampton School

John W. Miller, chairman; Kenneth W. Gardiner, vice chairman.

11 August. Donald E. Leyden, "Reagents immobilized via silylation for preconcentrations and chemical amplification"; Burnaby Munson, "Chemical ionization in mass spectrometry"; John S. Waugh, "Penimetric studies of molecular and crystal structure"; James S. Wood, Jr., "Chemical reactions in tissue residue analysis."

12 August. Wilhelm Simon, "Ion selective ligands and membrane electrodes"; Richard P. Van Duyne, "Tunable dye laser resonance Raman spectroscopy in analytical and electroanalytical chemistry"; Peter T. Kissinger, "Analytical problems in neurochemistry: electrochemical detection in liquid chromatography"; Evan C. Horning, "Liquid chromatograph—or gas chromatograph—mass spectrometer–computer analytical systems based on atmospheric pressure ionization."

13 August. Alex Pines, "NMR characterization of ordered and partially ordered systems"; Albert B. Harvey, "Theory and potential application of coherent anti-stokes Raman spectroscopy"; Rudy Stehl, "Analytical chemistry and separations for the specific determination of organic compounds"; Jaromir Ruzicka, "Universal ion-selective, solid state electrodes, and air-gap sensitive electrodes," and "An ultrafast continuous-flow analyzer."

14 August. Neil D. Jesperson, "Thermometric detection for biochemical analytical reactions"; "Pre-concentration in atmospheric analysis" (speaker to be announced). Informal evening session of short contributions by conferees on current research.

15 August. Peter C. Jurs, "Chemical structures through pattern recognition methods for data reduction."

Animal Cells and Viruses

Tilton School

Aaron J. Shatkin, chairman; Harvey Lodish, vice chairman.

23–27 June. Properties of normal and malignant cells (R. Pollack, chairman). Membranes of cells and viruses (R. Wagner, chairman). Genetic organization of DNA viruses (P. Berg, chairman). DNA Replication (A. Levine, chairman). Synthesis and modification of RNA in vitro (B. Moss, chairman). Integrated viral genomes and their expression (J. Sambrook, chairman). RNA virus genetics (R. Weiss, chairman). Expression of RNA virus genomes (D. Baltimore, chairman). RNA tumor viruses (H. Varmus, chairman).

Asymmetric Synthesis

Kimball Union Academy

James D. Morrison, chairman; Donald Valentine, vice chairman.

25–29 August. H. Brunner, "Chiral metal atoms"; Borislav Bogdanovic, "Chiral catalysis"; H. B. Kagan, "Asymmetric homogeneous hydrogenation and related reactions"; Keiji Yamanoto, "Asymmetric hydrosilylation with chiral metal complexes"; Yoshiharu Izumi, "Asymmetric hydrogenation with chiral heterogeneous systems"; J. J. Partridge, "Reactions of chiral boranes"; A. I. Meyers, "Asymmetric syntheses via chiral oxazolines"; Carl R. Johnson," Asymmetric syntheses involving chiral sulfur compounds"; Harry S. Mosher, "Asymmetric reduction with chiral metal hydride systems"; A. Ramel, "Enzymatic asymmetric synthesis"; George Whitesides, "Aspects of enzymatic asymmetric synthesis"; J. B. Jones, "Asymmetric reactions involving enzymes."

Atherosclerosis

Kimball Union Academy

William E. Connor, co-chairman; Colin J. Schwartz, co-chairman; Robert W. Wissler, co-vice chairman; Daniel M. Steinberg, co-vice chairman; Gardner C. McMillan, co-vice chairman.

23 June. Origin and fate of low density lipoproteins (Daniel M. Steinberg, discussion leader): N. B. Myant, "Turnover of low density lipoproteins in genetically determined hyperlipidemia." Discussants: Robert I. Levy, Godfrey Goetz, Robert S. Lees and David Bilheimer. Lipoproteins and tissue culture cells (Joseph L. Goldstein, discussion leader): Zandil Cohn, "Endocytosis in cultured cells"; Michael Brown, "Lipoprotein binding and cholesterol ester metabolism." Discussants: Joel Avigan and George Rothblat.

24 June. Lysosomes and atherosclerosis (Harvey Wolinsky, discussion leader): Sydney Goldfischer, "Structure and functions of lysosomes"; Stanley Fowler, "Subcellular fractionation of normal and atherosclerotic aorta"; Harvey Wolinsky, "Lysosomes in vascular diseases"; Himanshu Kothari, "In vivo and in vitro effects of hypo-lipidemic drugs on aortic lysosomal enzymes." Biology of the arterial smooth muscle cell (Russell Ross, discussion leader): Y. Stein and O. Stein, "Lipoprotein uptake by tissue culture cells"; K. Dzoga, "The response of smooth muscle cells to stimuli." Discussant: David Weinstein.

25 June. Vascular endothelium (Colin J. Schwartz and F. C. Courtis, discussion leaders): L. James Lewis, "Endothelial cells in tissue culture"; Ross Gerrity, "Ultrastructure"; Abel Robertson, "Interaction of chylomicrons and vascular endothelium"; Michael B. Stemerman, "Endothelial injury and platelet-endothelial interactions." Discussant: M. Daria Haust. Dietary factors other than cholesterol in atherosclerosis (Robert W. Wissler and David Kritchevsky, discussion leaders): David Kritchevsky, "Overview"; Robert W. Wissler, "Effects of peanut oil feeding"; Martin Eastwood, "Role of fiber in lipid and bile acid metabolism"; Jon Story, "In vitro binding of bile salts to nonnutritive fiber"; Fred Mattson, "Trans fatty acids." Discussant: W. Holmes.

26 June. Fluid mechanics, transport phenomenon and the arterial wall: (Donald Fry and Robert Nerem, discussion leaders): Donald Fry, "Response of the arterial wall to hemodynamic forces"; Robert Nerem, "Detailed characteristics of arterial blood flow"; Colon G. Caro, "Experimental models and their validity"; Clark Colton, "Transport phenomenon." Discussant: S. Glagov. Regression of atherosclerosis (Gardner C. McMillan, discussion leader): Earl Benditt, "Maintenance, healing and multicellular versus clonal growth in the arterial wall"; Carl Franzblau, "Interaction of arterial connective tissue"; Mark L. Armstrong, "Fibrous protein and lipids in primate arteries after atherogenic and regression regimens"; Jack Strong, "Reversibility of early lesions in Rhesus monkeys." Discussant: Thomas B. Clarkson.

27 June. Platelets, lipids, thrombosis and atherosclerosis: J. Frazier Mustard, "Introductory review"; Robert S. Lees, "Relationship among hyperlipidemia, platelets and blood coagulation"; J. Glomset, "Do platelets initiate or accelerate atherosclerosis?"; L. A. Harker, "Platelets, homocysteine and vascular disease."

Atomic Physics

Tilton School

Benjamin Bederson, chairman; Edward Gerjuoy, vice chairman.

New Directions in Atomic Physics

14 July. John L. Hall, "High-precision spectroscopy with lasers"; Alexander J. Glass, "Atoms in intense radiation fields"; (speakers to be announced) "Coherence effects in atomic collisions."

15 July. F. M. Pipkin, "Atomic physics tests of basic concepts in quantum mechanics"; P. G. H. Sandars, "The neutral weak current and parity violation in atoms"; Derek Paul and Talbert S. Stein, "Atomic collisions with positrons."

16 July. Jim F. Williams, "Recent experimental developments in atomic collisions"; F. W. Byron, Jr., "Recent aspects of atomic collision theory"; Joseph H. Eberly, "New speculations: neoclassical, statistical, and Markovian approaches to atomic radiation theory."

17 July. Paul R. Berman, "The study of collision effects by the use of laser spectroscopy"; Ingolf V. Hertel, "Scattering processes by laser-excited atoms"; Alex Dalgarno, "Atomic physics in astrophysics."

18 July. Kenneth R. Lea, "Synchrotons, storage rings, and other light sources": William H. Louisell, "X-ray lasers."

Science and Technology of Biomaterials

Miramar Hotel

Stephen C. Woodward, chairman; Everett J. Frazza, vice chairman.

16 June. Artificial bloods (E. J. Frazza, session chairman): Leland C. Clark, "Perfluorochemical polymers as artificial blood"; Rida Ali, "Plasma expanders for treating hypovolemia." Volunteered papers: New and novel biomaterials (A. R. Katz, session chairman).

17 June. Compatibility of biomaterials with blood (John B. Herrmann, session chairman): Emery Nyilas, "Physico-chemistry of blood foreign surface interactions." Volunteered papers. Biomaterials to regulate fertility (E. J. Frazza, session chairman): Gordon W. Duncan, "Effects of biomaterials upon the female reproductive tract"; Elie S. Nuwayser, "The application of biomaterials in the development of male sterilization devices."

18 June. Orthopedic joint replacement and fixation failure: cause and prevention (R. I. Leininger, session chairman): Harlan Amstutz, "Clinical problems"; Keith Markolf, "Femoral component failures"; Charles Homsey, "Fixation methods." New findings in dialysis: membrane diffusion processes with intermediate molecular weight solutes (R. J. Wineman, session chair-

man): Clark K. Colton, "Critical factors in evaluation of membrane diffusion."

19 June. New findings in dialysis: membrane diffusion processes with intermediate molecular weight solutes, continued: Elias Klein, "New hemodialysis membranes—in vitro evaluation methods and results"; Frank A. Gotch, "Clinical performance of high flux dialysis membranes—quantitation of therapy." Some biological properties of the wear products from prostheses for the total replacement of joints (S. C. Woodward, session chairman): Michael A. R. Freeman, speaker.

20 June. Sustained release of drugs from biomaterials (Sumner Levine, session chairman): Joan C. Fu, "Diffusion control polymers"; Jorge Heller, "Bioerodible polymers"; Sumner Levine, "An overview."

Bones and Teeth, Chemistry Physiology and Structure of

Kimball Union Academy

Claude D. Arnaud, chairman; James L. Mathews, vice chairman.

7 July. Contributed and invited short papers, morning and evening sessions (send abstracts to James L. Mathews, Baylor University College of Dentistry, 800 Hall Street, Dallas, Texas 75226).

8 July. Bone formation, resorption and bone cell differentiation (W. Peck, chairman): D. Baylink, "Bone formation mineralization and resorption in the rat"; P. Bornstein, "Procollagen in bone-synthesis, secretion and conversion to collagen"; L. Raisz, "Hormonal regulation of bone formation"; P. Stern, "Interactions of vitamin D metabolites and parathyroid hormone on bone resorption"; G. Mundy, "Old hormones and new factors mediating bone resorption"; J. Brand, "Subpopulations of isolated bone cells—biological and morphological characteristics"; W. E. Roberts, "Kinetics of alveolar bone remodeling"; H. Slavkin, "Extracellular matrix influences on differentiation in calcifying systems."

9 July. Nucleotides and calcium interactions in cell regulation (H. Rasmussen, chairman): W. Peck, "Factors in the regulation of bone cell adenyl cyclase"; A. Borle, "Effects of intracellular calcium on the permeability of the cell membrane to calcium"; H. Rasmussen, "Calcium and cyclic nucleotides in the control of cell proliferation." Cellular events in bone remodeling (H. Rasmussen, chairman): P. Bordier, "Overview." Discussants: D. Baylink, H. Frost, W. Jee, M. Holtrop, J. Jowsey and L. Mathews.

10 July. Mineralization of cartilage (H. C. Anderson, chairman): H. C. Anderson, "Overview and recent studies on the inhibition of matrix vesicle calcification"; C. Gay, "Physical state of mineral during early calcification as observed in ultra-thin sections"; A. Rabinovich, "Thoughts about the origin of matrix vesicles."

11 July. Mineralization of cartilage (H. C. Anderson, chairman): A. Veis, "Free and collagen associated phosphoproteins in mineralizing dentin"; J. Pita, "Role of aggregated proteoglycan in the regulation of calcification of cartilage"; R. G. G. Russell, "Role of mineral inhibitors during normal calcification and in disease states."

Cancer

Colby Women's College

Fred Rapp, chairman; Arthur Pardee, vice chairman.

25 August. (Fred Rapp, chairman): Arnold Levine, "Adenovirus and SV40 early proteins involved in DNA replication and transformation"; Bernard Roizman, "Molecular organization and regulation of herpesvirus genome." (Emil Frei III, chairman): G. Gordon Steel, "The response of clonogenic tumour cells to cytotoxic therapy"; Bayard Clarkson, "Obstacles to drug control of cancer."

26 August. (Satvir S. Tevethia, chairman): Janet Butel, "Control of transformation by SV40"; Robert Pollack, "Revertants of virus transformed cells." (Ingegerd Hellstrom, chairman): Jean Lindemann, "Antibodies to T cell receptors and their role in controlling the immune response"; Fritz H. Bach, "Genetic control of cell interactions."

27 August. (Arthur Pardee, chairman): Robert W. Baldwin, "Antigenic changes in chemical carcinogenesis"; Emmanuel Farber, "Possible role of interrupted differentiation in the pathogenesis of cancer." (Patricia Spear, chairman): William Munyon, "Expression of viral genes in cells transformed by herpes simplex viruses"; Fred Rapp, "Experimental transformation by human herpesviruses."

28 August. (Robert Wagner, chairman): J. Thomas August, "Gene expression of RNA tumor viruses"; Wade P. Parks, "Expression of inherited murine viral genomes in chromatin fractions." (Judah Folkman, chairman): Lewis Thomas, "Planning in science"; Frank Rauscher, "National aspects of cancer control."

29 August. (Osias Stutman, chairman): Robert Schwartz, "Immunological aspects of murine leukemia viruses"; Ronald Glaser, "The expression and regulation of the Epstein-Barr virus in mammalian cells."

Carbohydrates, Chemistry of

Tilton School

T. H. Haskell, chairman; R. H. Marchessault, chairman-elect.

30 June. Symposium on aminoglycoside antibiotics (T. H. Haskell, moderator): Kenneth L. Rinehart, "Biosynthesis of aminoglycosides"; Peter J. L. Daniels, "Resistance development and mechanism of action"; Alan K. Mallams, "Recent advances in aminoglycoside chemistry"; T. L. Nagabhushan, "Conformation of the γ-amino-α-hydroxybutyryl side chain in amikacin and related compounds."

1 July. Physical chemical aspects of carbohydrates (Robert H. Marchessault, moderator): Jerker Porath, "Affinity chromatography"; Adam Allerhand, "C_{13} nuclear magnetic resonance of carbohydrates"; Arthur S. Perlin, "C_{13} NMR studies on carbohydrates"; Edwin R. Morris, "Circular dichroism for analysis of carbohydrate systems."

2 July. Organic chemistry and synthetic aspects of carbohydrates (Stephen Hanessian, moderator): Serge David, "Disaccharide synthesis by cycloaddition reactions"; Hans Paulsen, "New aspects of conformational analyses"; George Whitesides, "Prospects for large scale organic synthesis using cell-free enzymes"; Y. Ishido, "Glycosylation by use of sugar carbonate derivatives"; Raymond U. Lemieux, "The synthesis and conformational properties of antigenic determinants related to the human blood groups."

3 July. Biochemistry of the cell surface constituents (George W. Jourdian, moderator): Sen-itiroh Hakomori, "Structure and organization of glycolipids"; Vincent Hascall, "Characteristics of interactions involved in proteoglycan aggregation"; Y. C. Lee, "Glycoconjugates: natural and synthetic"; Alan Elbein, W. T. Forsee and J. Chambers, "The role of lipid-linked sugars and lipid oligosaccharides in glycoprotein biosynthesis"; Edward C. Heath, "The role of mono and oligo-

saccharide derivatives of dolichol in glycoprotein biosynthesis"; Luigi M. DeLuca, "Discussion of the involvement of vitamin A on sugar transfer reactions."

4 July. Industrial carbohydrates (Paul A. Sandford, moderator): Karl L. Smiley, "Role of immobilized enzymes in the starch and sugar industries"; Paul A. Sandford, "Extracellular microbial polysaccharides."

Catalysis

Colby Women's College

Gary L. Haller, chairman; Jack H. Lunsford, vice chairman.

16 June. G. A. Somorjai, "Studies of hydrocarbon reactions on platinum crystal surfaces at high and low pressures"; J. Haber, "Mechanism of the selective oxidation of hydrocarbons"; C. O. Bennett, "Transient studies in heterogeneous catalysis: results for carbon monoxide oxidation on nickel oxide."

17 June. R. J. Madix, "Reaction kinetics and mechanism on metallic single crystals: the effect of surface composition and structure on catalytic selectivity and activity"; M. A. Vannice, "Catalytic synthesis of hydrocarbons from CO/H_2 mixtures"; K. Tamaru, "Mechanism of heterogeneous catalysis and chemisorption studies by high resolution auger electron spectroscopy and photoelectron spectroscopy (UPS)."

18 June. D. E. Eastman, "The use of photoelectron spectroscopy as a surface probe of adsorbed molecules and their reactions"; B. H. Bartley, "Dual function catalysis with the metal at a higher temperature than the support"; H. Kagan, "Asymmetric catalysis by supported or soluble rhodium complexes."

19 June. K. H. Johnson, "Theoretical investigation of catalysts by the SCF-Xα method"; J. W. Jenkins, "The characterization of supported metal and alloy catalysts using a temperature programmed reduction technique"; M. Boudart, "Surface science and catalysis: theory and practice: Sir Eric and Sir Hugh"; J. R. Anderson, "Model catalysts and model reactions."

20 June. W. E. Bernhardt, "Catalyst problems with on-board gas generation for automobiles"; J. T. Yates, Jr., and T. E. Madey, "Recent studies of adsorbed species using ESCA and electron impact desorption."

Catecholamines

Proctor Academy

Norman Weiner, chairman; Floyd E. Bloom, vice chairman.

7 July. Modulation of the activity and levels of catecholamine biosynthetic enzymes by nerve stimulation and drugs (N. Weiner, discussion leader): H. Thoenen, W. Lovenberg, R. H. Roth, A. Mandel and J. Glowinski. The use of immunofluorescent techniques for the localization of biogenic amine synthetic and catabolic enzymes (Boyd Hartman, discussion leader): L. Van Orden III and M. Goldstein.

8 July. The genesis, function, fate and contribution to release of different populations of synaptic vesicles (Perry Molinoff, discussion leader). W. P. De Potter, L. Geffen and R. Klein. The regulation of neurotransmitter release with nerve stimulation. (S. Z. Langer, discussion leader): K. Löffelholz and P. A. Shore.

9 July. Studies on the regulation of adrenergic nervous system function during development and in culture. I. Black and W. J. Shoemaker. New insights into the isolation and identification of adrenergic receptors (Robert Furchgott, discussion leader): R. Lefkowitz, P. Molinoff and M. Schramm.

10 July. Comparative biochemistry and function of dopaminergic and noradrenergic neuronal systems in the CNS. (Floyd Bloom, discussion leader). C. O. Rutledge, S. B. Sparber and W. F. Ganong. Biogenic amines and animal behavior (Kenneth Moore, discussion leader): L. Stein, M. Zigmond and P. Mandel.

11 July. Biogenic amines, schizophrenia, and the mechanism of action of antipsychotic agents (Seymour Kety, discussion leader): G. Sedvall, B. Krueger, F. Javoy and R. Wyatt.

Cell Contact and Adhesion

Proctor Academy

Leonard Weiss, chairman; Saul Roseman, vice chairman.

30 June. Interactions between embryonic cells (James Weston, chairman): Stephen Roth, "Morphogenesis, enzymes and cell adhesion"; Aaron Moscona, "Surface specification of embryonic cells"; Bernard Pessac, "Adhesion between chick embryo cells in virto." Physics of cell interactions (Adam Curtis, chairman): Hans Visser, "Adhesion of charged particles to surfaces"; Shlomo Nir, "Quantitation of Van der Waals interactions." Discussion leaders: Adam Curtis and Leonard Weiss.

1 July. Cell surface biochemistry (Saul Roseman, chairman): Albert Dorfman, "Extracellular matrix: possible interactions with cell surfaces"; Luis Glaser, "Membranes as a tool for the study of cell recognition"; Geoffrey Cook, "The isolation and characterization of membrane glycoprotein involved in cell interaction phenomena." Cell surfaces and viruses (Vittorio Defendi, chairman): George Poste, "Cell surface changes caused by non-oncogenic viruses"; Garth Nicolson, "Surface properties of tumor cells"; Mary Catherine Glick, "Host membrane glycoproteins."

2 July. Lymphocyte surfaces and interactions (Michael Edidin, chairman): Christopher Henney, "Antigen/T-lymphocyte interactions"; Klaus Zeiller, "The electrokinetic properties of lymphocytes"; Victor Nussenzweig, "Complement as a regulator of interactions between immune complexes and cell membranes." Macrophage surfaces and interactions (Peter Alexander, chairman): Peter Alexander, "Mechanisms of cell-killing by macrophages"; Dorothy Glaves, "Effects of lymphocyte-antigen products on macrophages"; Heinz Remold, "Studies on the macrophage surface: receptors for MIF and enzymes controlling the MIF-macrophage interaction."

3 July. Pharmacologic interactions with cell surfaces (Gustav Born, chairman): Demetrios Papahadjopoulos, "Interactions of lipid vesicles with mammalian cells"; Eric Mayhew, "Interaction of polynucleotides with cell surfaces"; Vincent Manganiello, "Hormonal control of cyclic nucleotide metabolism." Cell movements (John P. Trinkaus, chairman): Graham A. Dunn, "Contact guidance and the mechanism of cell locomotion"; Colin Izzard, "Regulation of contractility in fibroblast movement"; Albert Harris, Forces of adhesion and propulsion in tissue cell locomotion"; Ju. M. Vasiliev, "Cell infiltration."

4 July. Free papers (Leonard Weiss, chairman).

Ceramics, Solid State Studies in

Brewster Academy

Robert W. Vest, chairman; Sheldon Wiederhorn, vice chairman.

The Science of Today's Electronic Ceramics

4 August. (N. M. Tallan, discussion leader): R. E. Loehman, "Electrical behavior of polycrystalline and polyphased ceramics"; R. M. Cannon, "Impurity segregation and mobility of grain boundaries in ceramics." (G. P. Wirtz, discussion leader): M. A. Seitz, "Characterization of the influence of heterogeneous microstructure on electrical properties via dielectric behavior studies"; L. M. Levinson, "ZnO ceramic varistors—operation application and understanding."

5 August. (D. W. Readey, discussion leader): A. L. Stuijts, "Effects of microstructure in electroceramic materials"; O. Vander Biest, "Domain structure in ferrites by electron microscopy." (A. D. Franklin, discussion leader): L. E. Cross, "The direct and indirect influence of phase, grain and domain boundaries upon the dielectric properties of ferroelectric ceramics"; R. T. McSweeney, "Microstructure and electrical behavior of boundary layer dielectrics."

6 August. (M. H. Brooks, discussion leader): H. M. O'Bryan, Jr., "Semiconducting ceramic—the role of composition, microstructure and processing"; G. E. Pike and C. H. Seager, "The physics of electronic conduction in two ru based thick film resistor systems." (L. Williams, discussion leader): K. R. Bube, "Comments on sintering kinetics and thick film metallization properties"; P. F. Becher and W. D. Bascom, "Adhesion in thick film metallizations."

7 August. (A. M. Diness, discussion leader): G. R. Miller, "Electrode and grain boundary effects on conduction processes in polycrystalline β''-Al_2O_3." (A. M. Diness, discussion leader): S. P. Mitoff, "Microstructure and electrical properties of β''-Al_2O_3"; A. M. Chakrabarty, "Genetic engineering."

8 August. (W. Simmons, discussion leader): J. L. Vossen, "Thin film metallization of electronic ceramics"; D. D. Fraser, "Transparent conductive electrodes for ceramics."

Chemical Oceanography

Holderness School

M. Grant Gross, chairman; Carl Bowser, co-chairman; Dana Kester, vice chairman.

4 August. Physical chemistry of seawater (Dana Kester, convener): Dana Kester, "Thermodynamic treatment of chemical processes in seawater"; Robert Wood, "Activities of trace transition metals in seawater." Seawater: a geological perspective (Heinrich D. Holland, convener): Robert M. Garrels, "Mineral equilibria and seawater composition"; Alexander B. Ronov, (tentative).

5 August. Deep-ocean processes (geosecs) (H. Gote Ostlund, convener): Pierre Biscaye, "Role of suspended particulates in benthic geo-chemical process"; Peter Brewer, "Calcium and carbonate in the deep ocean." Lake processes (James R. Kramer, convener): Noel M. Burns, "Chemical processes in Lake Erie by detailed study"; Herbert E. Allen, "Ligand chemistry in fresh water"; James R. Kramer, "Lake Superior: Taconites."

6 August. Water-sediment interactions (David Schink, convener): Raymond Siever, "Clay water reactions"; William S. Reeburgh, "Gases in sediments"; David Schink. "Chemical effects of some biological and physical processes at the sea floor." Ferro-manganese nodules (Carl J. Bowser, convener): Carl J. Bowser, "The N.S.F.-I.D.O.E. manganese nodule project: objectives and progress"; Gustaf Arrhenius, "The source of components in marine polymetallic nodules"; Edward Callendar, "Geochemical processes in the formation and diagenesis of freshwater ferromanaganese nodules."

7 August. Nutrient cycles: ocean and lake (John Goering, convener): D. E. Armstrong, "Current problems related to nutrient cycling in lakes"; D. K. Button, "Nutrient limited microbial growth: recent trends and new approaches"; J. J. Walsh, "The role of nutrients in simulation models of coastal upwelling ecosystems." Microbiological effects (Galen E. Jones, convener): Robert A. MacLeod, "Effect of major elements in seawater on growth and metabolism of marine bacteria"; Henry L. Ehrlich, "The manganese cycle in the sea and the relationship of microbes to it."

8 August. Developments in chemical oceanography (Michael Healy, convener): Neil Andersen, "Interdisciplinary aspects of marine chemistry"; R. C. Harriss, "Developments in continental waters research."

Applications

Scientists are invited to submit applications for attendance at the Gordon Research Conferences. An application blank is on page 991 and may be submitted to Dr. Alexander M. Cruickshank, Director, Gordon Research Conferences, University of Rhode Island, Kingston, Rhode Island 02881.

Coatings and Films, Chemistry and Physics of

Holderness School

Joseph W. Prane, chairman; John W. Vanderhoff, vice chairman.

14 July. (Frank J. Hahn, discussion leader): Raymond R. Myers, "The paint research institute—research by prospectus"; Jerome A. Seiner, "Coatings containing microvoid opacifiers"; Uwe Biethan, "Contributions to the crosslinking behavior of polyester-melamine baking enamels."

15 July. (Richard Mumma, discussion leader): Kurt C. Frisch, "High temperature resistant isocyanate coatings"; Dieter Dieterich, "Polyurethane–ionomer-based coatings"; Harold Wittcoff, "Science, the environment, and paint: A case history involving an epoxy system."

16 July. (S. S. Labana, discussion leader): Robert A. Ottaviani, "Drying mechanism of water based coatings"; William Rowe, "The scientific approach to making UV-curable materials"; Yu. S. Lipatov, "The structure and relaxation properties of thin polymer layers onto solid surfaces."

17 July. (H. Earl Hill, discussion leader): Marco Wismer and Percy Pierce, "Cathodic electrodeposition"; Henry L. Jakubauskas, "Structured, polymeric dispersants"; Robert W. Lenz, "Recent developments in polymer chemistry relating to novel curing systems."

18 July. (John W. Vanderhoff, discussion leader): Thomas J. Miranda, "A systems approach to coatings."

Corrosion

Colby Women's College

D. L. Douglass, chairman; B. Cox, vice chairman.

7 July. Diffusional aspects of oxidation (Brian Cox, discussion leader): C. E. Birchenall, and D. Reed Kinloch, Jr., "Cation diffusion and the growth

of rhombohedral sesquioxides of iron and chromium"; R. A. Rapp, "The role of noble solute rejection and back-diffusion in the oxidation of Ni-Cr-W and Co-Cr-W alloys." Diffusion (continued) (W. W. Smeltzer, discussion leader): D. Caplan, "The role of grain-boundary diffusion in scales during the oxidation of Fe, Cr, and Ni"; G. Yurek and J. V. Cathcart, "Determination of diffusivities and defect concentration in oxide scales on uranium alloys."

8 July. Hot corrosion (Ian Wright, discussion leader): J. A. Goebel, Mechanisms describing the effects produced by sulfur during the Na_2SO_4-induced hot corrosion of alloys"; A. Rahmel, "Influence of electrochemical potential and stress on the corrosion of Ni-based alloys and heat-resistant steels in sulphate metals." Hot corrosion (continued) (J. P. Pemsler, discussion leader): P. Hancock, "The role of sodium chloride on hot corrosion of superalloys"; A. J. B. Cutler, "The mechanism of accelerated corrosion in molten alkali sulphates."

9 July. Hot corrosion (D. P. Whittle, discussion leader): J. B. Wagner, Jr., "Diffusion of sulfur through oxides and its relationship to the oxidation of Ni and Ni-Cr alloys in O_2-SO_2 mixtures"; H. S. Spacil, "Oxide properties and stability in accelerated oxidation." Simultaneous oxidation and sulfidation (R. Hussey, discussion leader): K. N. Strafford, "The influence of refractory sulphide-forming elements on the corrosion behavior of Ni-Cr alloys in sulphur/oxygen atmospheres"; W. L. Worrell, "Corrosion of nickel in SO_2-O_2 atmospheres at elevated temperatures."

10 July. Alumina films (M. J. Graham, discussion leader): J. S. Sheasby, "The electrical properties of growing alumina scales"; F. S. Pettit and E. J. Felten, "The formation, growth, and adhesion of Al_2O_3 formed during the oxidation of Pt-Al alloys at high temperatures." Defect structures and alloy oxidation (M. J. Pryor, discussion leader): H. Schmalzried, "Defect structures, ionic mobilities, and interdiffusion in oxide solid solutions and their relationship to alloy oxidation."

11 July. Special topics (D. Young, discussion leader): F. H. Stott and G. C. Wood, "The role of oxides on the friction and wear of high-temperature alloys"; J. G. Smeggil "The oxidation behavior of some aligned eutectic alloys."

Cyclic Nucleotides

Kimball Union Academy

Nelson D. Goldberg, chairman; Ora M. Rosen, vice chairman.

9 June. Membrane signal reception (M. Rodbell, chairman): L. Birnbaumer, E. Helmreich, U. Schwabe and A. Wollenberger. (J. Hardman, chairman): W. Seifert, D. Garbers and F. Murad. Address by Edward Krebs.

10 June. Protein kinases, phosphorylated proteins and phosphatases (O. Rosen, chairman): T. Langan, P. Cohen, P. England, S. Rudolphe, J. Traugh, C. Rubin, I. Schwartz, J. Kuo and J. Erlichman. Cyclic GMP responsive systems (N. Goldberg, chairman): W. George, T. Strom, R. Estensen, D. Farber, M. Bitensky, J. Dumont and T. Kaneko.

11 June. Cyclic nucleotides and calcium actions (G. Schultz, chairman): M. Berridge, F. Butcher, L. Ignarro, W. Kukavetz and S. Kackiuchi. Analytical advances and problems (A. Steiner, chairman): H. Cailla, M. Haddox and A. Block. Cyclic nucleotides in steroid and prostaglandin actions (W. Butcher, chairman): S. Nicol and F. Kuehl.

12 June. Cyclic nucleotides in growth and development (I. Pastan, chairman): D. Gospodarowicz, J. Sheppard, L. Shapiro. Attendee presentations and discussion on new direction (T. Rall, chairman).

13 June. Insulin, alpha adrenergic and "anti-hormones" (G. A. Robison, chairman): R. J. Ho, J. Perkins, J. Larner and J. Fain.

Developmental Biology

Proctor Academy

Fred Wilt, Chairman; Alan Shearn, vice chairman.

4–8 August. Plasmids and DNA organization. (David Hogness, chairman). Participants: Eric Davidson and Max Birnstiel. Chromosomal proteins (Gary Felsenfeld, chairman). Participants: Markus Noll and Harold Weintraub. Stem cell differentiation (Richard Rifkind, chairman). Participants: Paul Marks, John Paul and John Wang. Extracellular materials in differentiation (James Lash, chairman). Participants: Elizabeth Hay, Howard Rasmussen, Robert Kosher and Harry MacWilliams. Developmental genetics of lower eucaryotes (Eugene Katz, chairman). Participants: Sydney Brenner, Peter Newell, Kenneth Raper and David Hirsch. Developmental biology of drosophila (Alan Shearn, chairman). Participants: Alan Garen, Ronald Konopka, John Postlethwait and W. J. Ouweneel. Messenger RNA in development (John Bishop, chairman). The storage of developmental information (Hugh Woodland, chairman). Participants: Michael Roshbash, Rudolf Raff and John Sommerville. Biogenesis of organelles (Igor Dawid, chairman). Participants: Murray Rabinowitz, Giuseppe Attardi, Jerome Eisenstadt and Richard Hallberg.

Drug Metabolism

Holderness School

Hans W. Ruelius, chairman; Peter G. Dayton, vice chairman.

23 June. Pulmonary responses to exogenous and endogenous agents and the metabolism of inhaled substances (Robert E. McMahon, chairman): James W. Aiken, "Interaction between endogenous humoral substances and the lung"; Donald S. Davies, "Metabolism of bronchodilators"; Vera Thomas Fiserova-Bergerova, "Metabolism, pharmacokinetics and toxicity of volatile anesthetic agents." Discussant: Hartmut Uehleke, "Is covalent binding of haloalkanes connected with toxicity?" Percutaneous absorption of foreign substances. Drug disposition and the kidney (John E. Baer, chairman): Howard I. Maibach, "Percutaneous penetration in humans; clinical relevance"; Jerry B. Hook, "Mechanisms of drug excretion by the kidney."

24 June. Substrate specificity of homologous drug metabolizing enzymes (Franz Oesch, chairman): Anthony Y. H. Lu, "Cytochrome P-450's with different substrate specificities: induction by drugs and environmental chemicals"; Philip Bentley, "Multiple epoxidehydrases and dihydrodioldehydrogenases and their relative importance in drug metabolism, mutagenicity and toxicity"; G. J. Dutton, "The problem of the substrate specificity of UDP-Glucuronyltransferase(s)"; Daniel W. Nebert, "Genetic differences in the cytochrome P-450 mediated oxygenase systems." Hormonal influences on drug metabolism (Alasdair Brechenridge, chairman): John T. Wilson, "Relationship between growth, growth promoting hormones and drug metabolism"; Ian H. Stevenson, "Influence of thyroid hormones, contraceptive steroids and

other hormones on drug metabolism"; Frank W. Janssen, "Elimination and reabsorption of an unnatural amino acid, metabolite of a semisynthetic penicillin: control by sex hormones."

25 June. Regulatory requirements for metabolic studies of agricultural chemicals (William Rader, chairman): Sanford K. Figdor, "Development of a coccidiostat"; Maryln Perez, "Requirements for metabolic studies: impact on food safety regulations"; Theodore A. Jacob, "Drug residues and macromolecular binding of xenobiotics"; William Rader, "Metabolism of agricultural chemicals under conditions of use." Short communications from the frontier of drug metabolism research (Hans W. Ruelius, chairman): Ruth Billings, "Recent drug metabolism studies using isolated hepatocytes"; Daniel E. Duggan, "Accumulative biliary secretion of drugs: a model-independent predictive of localized response"; James W. Bridges, "Initial effects of carcinogens on drug metabolizing enzymes"; Lars F. Gram, "Presystemic elimination of tricyclic antidepressants"; H. J. Dengler, "Interindividual differences in the *N*-oxydation of spartein."

26 June. Perinatal metabolism (Alan K. Done, chairman): Gerhard Levy, "Pharmacokinetics in the human neonate"; Marjorie Horning, "Drugs and their measurement in blood, urine, breast milk and amniotic fluid"; Lester Soyka, "Exogenous influences on perinatal drug metabolism"; Sumner Yaffe, "Disposition of digoxin in infants"; Hershel Jick, "Contribution of epidemiology to our knowledge of drug effects."

27 June. Noncytochrome mediated oxidations and reductions (Kenneth C. Leibman, chairman): Daniel M. Ziegler, "Recent observations on microsomal amineoxidases"; David G. Kaiser, "Enzymic inversion at saturated carbon: inversion of arylpropionic acids"; Discussant: Eric C. Schreiber, "A unique stereoisomeric inversion."

Elastomers

Colby Women's College

D. P. Tate, chairman; R. S. Porter, vice chairman.

4 August. (S. L. Aggarwal, discussion leader): G. L. Wilkes, "Domain structure and superstructure in block and segmented copolymers"; G. Allen, "Vinyl reinforced polyurethanes and polyurethane reinforced vinyls"; P. C. Juliano, "Poly (2,6 diphenyl-1,4-phenylene oxide)-organopolysiloxane block polymers. synthesis and properties"; L. J. Fetters, "Domain morphology of star block copolymers of polystyrene and polyisoprene."

5 August. (Discussion leader, to be announced): R. S. Rivlin, "Anomalous flow effects in viscoelastic fluids"; P. Thirion, "Effect of the degree of crosslinking of the matrix polymer on the viscoelastic properties of the mixtures of elastomers and carbon black; comparison between sulfur vulcanizates and those obtained with dicumyl peroxide"; J. D. Ferry, "Entanglements versus crosslinks in networks of diverse structures."

6 August. (A. F. Halasa, discussion leader): B. A. Dolgoplosk, "Stereospecific catalysis in diene and cycloolefin polymerization; stereoregulation mechanisms"; F. P. Baldwin, "Isobutene copolymers containing conjugated diene functionality"; A. J. Bell, "The preparation and evaluation of new chlorine containing polyalkenamers."

7 August. (R. S. Porter, discussion leader): R. Farris, "Rubber heat engines"; J. Janacek, "Mechanical behavior of hydrophilic poly (methacrylate) networks in the rubberlike state"; R. L. Bebb, "Synthetic rubber—an unnatural birth."

8 August. (Discussion leader, to be announced): Y. Nishijima, "Molecular orientation and molecular motion studied by fluorescence method"; G. A. Böhm, "Radiation chemistry of elastomers."

Electronic Materials

Holderness School

Morton E. Jones, chairman; Bertram Schwartz, vice chairman.

21 July. Materials characterization (Richard E. Honig, discussion leader): Richard E. Honig, "Chemical characterization of surfaces and thin films"; Graydon B. Larrabee, "Emerging developments in bulk chemical characterization"; Wilmer R. Bottoms, "Physical characterization and effects"; Panel discussion.

22 July. Amorphous materials (Simon C. Moss, discussion leader): G. S. Cargill, III, "Structural aspects of amorphous materials"; Neil D. Heimen, "Magnetic ordering in amorphous materials"; John deNeusville, "Photodarkening, photodoping, photocrystallization, optical erosion and related phenomena in amorphous chalcogenide films."

23 July. Polycrystalline materials (Max R. Lorenz, discussion leader): Alan L. Fahrenbruch, "CdTe-CdS and other II–VI compound thin films for heterojunction solar cells"; Joseph J. Hanak, "Electroluminescence in thin films"; R. L. Anderson, "Transparent semiconductors for opto electronic devices."

24 July. Polycrystalline materials (discussion leader to be announced): Cecil Land, "Optical and electrooptic properties of PLZT ceramics"; James E. Adams, "Some materials aspects of liquid crystals." (Morton E. Jones, discussion leader): Richard C. Keezer, "The art and science of enology."

25 July. Ultimate limitations (Bertram Schwartz, discussion leader): Rolf W. Landauer, "Ultimate physical limits on information processing"; John L. Bartelt, "Lithographic limits in ultra-microminiaturization."

Environmental Sciences: Air

New Hampton School

Arthur C. Stern, chairman.

Fine Particulate Matter (0.01–1 μ) in the Troposphere

18 August. Measurement methods for number, size and mass of fine particles in the troposphere (Kenneth T. Whitby, discussion leader): Harry J. Ettinger and Werner Stöber. Measurement methods for chemical composition of fine particles in the troposphere (Thomas A. Cahill, discussion leader): Glen E. Gordon and J. William Nelson.

19 August. Size distribution of fine particles in the troposphere (C. Norman Davies, discussion leader): George A. Sehmel and Volker A. Mohnen. Chemical composition of fine particles in the troposphere (Morton Corn, discussion leader): C. Shephard Burton and William E. Wilson.

20 August. Gas-surface and liquid phase reactions in the troposphere (Rudolf B. Husar, discussion leader): A. W. Castleman, Jr., and Tihomir Novakov. Gas phase reactions in the troposphere (David F. Miller, discussion leader): Parker C. Reist and P. J. Groblicki.

21 August. Fundamentals of aerosol

dynamics: applications to air quality/emission source relationships (Sheldon K. Friedlander, discussion leader): J. R. Brock and Donald L. Blumenthal.

22 August. Role of fine particles in the troposphere (Robert J. Charlson, discussion leader): Peter K. Mueller and John M. Pierrard.

Enzymes, Coenzymes and Metabolic Pathways

Kimball Union Academy

William P. Jencks and Konrad E. Bloch, co-chairmen; Daniel V. Santi and Esmond E. Snell, co-vice chairmen.

30 June. Coenzymes and their mechanism of action (Daniel Santi, chairman): Robert Abeles, "Studies on the mechanism of action of flavoprotein inhibitors"; Harold Bright, "How many ways are there to reduce a flavoenzyme?"; David Sigman, "Neighboring group effects in non-enzymic dihydronicotinamide reductions." Mechanisms for the transduction of chemical free energy (Guido Guidotti, chairman): Robert Post, "Ligand binding in the synthesis of ATP by Na^+, K^+-ATP'ase"; Guido Guidotti, "A review of the present status of oxidative phosphorylation."

1 July. Enzymes—mechanisms for rate acceleration (Jeremy Knowles, chairman): William Ray, "Thermodynamic aspects of the phosphoglucomutase reaction mechanism"; Robert Thompson, "Elastase-substrate interactions and the mechanism of substrate hydrolysis"; Rodney Biltonen, "Electrostatic interactions in inhibitor binding and during catalysis by ribonuclease A"; I. V. Berenzin, "Intrinsic reactivity of chymotrypsin active center nucleophile." Regulation of enzymic and metabolic activity (Bernard Horecker, chairman): Earl Stadtman, "Cascade control systems in regulation of key enzyme activities"; Ora Rosen, "Regulation of cyclic AMP-dependent protein kinase."

2 July. Approaches to the elucidation of enzyme mechanisms (Eugene Cordes, chairman): Irwin Rose, "Secondary isotope effects in Biotin-CO_2 transfers and in acetyl CoA condensations"; Jack Kirsch, "Heavy atom kinetic isotope effects and transition state structure in enzymatic and nonenzymatic reactions"; M. Karpeisky, "The active site conformation of RNase and RNase-ligand complex in solution." Chemical mechanisms relevant to enzymic catalysis: Frank Westheimer, "Mechanisms of hydrolysis of phosphate esters"; Pierre Deslongchamps, "The importance of conformation of the tetrahedral intermediate in the hydrolysis of esters and amides. Selective cleavage of the tetrahedral intermediate controlled by orbital orientation."

3 July. Some anatomical (or topological) aspects of enzyme action (Fred Richards, chairman): Robert Huber, "Natural inhibitor–proteinase complexes: examples of very strong and specific protein-protein interaction"; P. Strittmatter, "Protein-protein and lipid interactions in a microsomal electron transfer system"; D. Dickerson, "Cytochrome structures and the evolution of bacterial metabolism." (Konrad Bloch, chairman): H. DeLuca, "Recent advances in our understanding of the metabolism and function of vitamin D."

4 July. Reactions of carbon dioxide and other carbonyl compounds (Harland Wood, chairman): Harland Wood, "Transcarboxylase subunit structure and reaction mechanism"; Daniel Lane, "Evidence for a 3-keto-2-carboxyribitol diphosphate intermediate in the ribulose diphosphate carboxylase reaction"; A. Mildvan, "Magnetic resonance studies of the role of metals in carbonyl polarizing enzymes."

Fluids in Permeable Media

Kimball Union Academy

Michael Prats, chairman; R. J. Blackwell, vice chairman.

11 August. (L. E. Scriven, chairman): W. Wade, "Experimental studies of low tension systems"; Ted Davis, "Theoretical insight into interfacial tension and low tensions"; Dinish O. Shah, "Surface chemical aspects of surfactant and polymer solutions in relation to oil recovery";* G. Paul Willhite, "Mechanisms of polymer retention in porous media." *

12 August. (R. S. Schechter, chairman): Ron Reed, "Multiphase microemulsions systems"; F. T. Hesselink, "A statistical mechanical theory of the adsorption of polyelectrolyte macromolecules from aqueous solution onto solid surfaces"; Scott Truschenski, "Sulfonate polymer interaction"; H. L. Bilhartz, "Field polymer stability studies." *

13 August. Karl D. Dreher, "Relaxation characteristics of fluids in porous media"; Del Seevers, "Studies of flow anisotropies through passive pulsed NMR measurements";* J. Grens, "In-situ permeability of coal";* Joe Taber, "Transport properties of coal." *

14 August. Leo A. Schrider, "Energy recovery from in-situ coal gasification"; Dave Gregg, "Reacting systems in porous media, as applied to in-situ coal gasification"; Larry Wilson, "Laboratory experiments on forward and reverse combustion of coal." *

15 August. Fred Suffridge, "Liquid chromatography technique for measuring properties of displaced chemicals"; * E. Lefebvre Du Prey, "On scaling problems in fissured oil reservoir blocks";* Art Youmans, "Logging techniques for energy resource evaluation"; C. Y. Cha, "Fluid flow through the in-situ oil shale retort"; * Miklos Szabo, "How to select polymers for secondary and tertiary recovery." *

* Short contributions.

Food and Nutrition

Colby Women's College

Gilbert A. Leveille, chairman; Earl E. Lockhart, vice chairman.

21 July. Obesity—gluttony or metabolic aberration?: Jules Hirsch, "Current knowledge of human obesities," Ethan A. H. Sims, "Experimental obesity in man"; Murray Kaplan, "Obesity in experimental animals."

22 July. Energy balance and feeding behavior: John Brobeck, "Neural regulation of feeding behavior"; Roy Martin, "Hormonal regulation of feeding behavior"; Clifford Baile, "Manipulation of feeding behavior and energy balance."

23 July. Efficiency of energy utilization: J. P. Flatt, "Biochemical aspects of energy metabolism"; N. Smith, "Computer simulation models for the study of energy metabolism"; Robert Johnson, "Calorimetry—a look to future applications."

24–25 July. Sodium, hypertension and health: Robert Kark, "Sodium consumption and its relation to health and disease—an overview"; Walter Kirkendahl, "Sodium in health and disease"; Herbert G. Langford, "Diet and diuretics in the treatment of hypertension"; Louis Tobian, Jr., "Tissue sodium and hypertension"; Fergus Clydesdale, "The anatomy of food."

Free Radical Reactions

Proctor Academy

Earl S. Huyser, chairman; Daniel B. Menzel, vice chairman.

21 July. (James A. Barter, discussion chairman): Elie M. Hayon, "Redox reactions of free radicals in solution"; Thomas W. Koenig, "Photoelectron spectra of radicals and diradicals." (William A. Pryor, discussion chairman): Peter J. O'Brien, "Formation and involvement of peroxides in biological systems."

22 July. (J. Michael McBride, discussion chairman): Stephen F. Nelsen, "Radical intermediates in alkylhydrazine oxidations: hydrazine radical cations and hydrazyl radicals"; Wayne C. Danen, "Reactions of organic halogen compounds with free radicals." (Paul B. McCay, discussion chairman): Irwin Fridovich, "Free radicals in oxygen toxicity: superoxide radical and superoxide dismutases."

23 July. (Earl S. Huyser, discussion chairman): Invited short papers by conferees. (Cheves Walling, discussion chairman): Jay K. Kochi, "The role of free radicals from organometallic intermediates in catalytic reactions."

24 July. (Harold M. Swartz, discussion chairman): Douglas C. Neckers, "Studies in polymer support photochemical synthesis"; Gerald M. Rosen, "Spin off the old and on with the new: spin-labelel reactions in synthesis." (Daniel B. Menzel, discussion chairman): Poster program.

25 July. (Michael J. Mintz, discussion chairman): J. Kollonitsch, "Radical fluorination in strong acids: newer methods and applications"; Norman C. Deno, "Hydroxylations and chlorinations via aminium radicals."

Fuels Science

New Hampton School

Richard C. Neavel, chairman; M. D. Schlesinger, vice chairman.

23–27 June. Coal science I (D. R. Montgomery, discussion leader): Phillip Howard, "Chemical comminution"; Y. Abdul-Rahman, "Western coal drying and rewetting"; Edward Capes, "Ash removal from coal by spherical agglomeration." Coal science II (D. R. Montgomery, discussion leader): E. P. Stambaugh, "Extraction of sulfur from coal"; J. W. Larsen, "Studies on coal alkylation." Oil shale and tar sand science (Alex Oblad, discussion leader): Alex Oblad, "Processing Utah tar sands"; J. Bunger, "Characterization of molecular structure of Utah and Athbasca tars"; Dean Allred, "Recent progress in oil shale processing." State of art, synfuels processing (Everett Gorin, discussion leader): H. E. Lebowitz, "Liquefaction, concise summary of technical status"; M. A. Elliot, "Gasification, concise summary of technical status." Research needs, panel: H. Beuther, G. R. Hill, M. Neuworth, R. E. Vener and P. M. Yavorsky. Mineral elements in coal and syncrude (M. D. Schlesinger, discussion leader): H. Gluskoter and P. Zubovic, "Mineral matter distribution in coal"; E. Gorin, "Precipitation of mineral matter from coal liquids"; A. G. Sharkey and H. Schultz, "Identification of trace elements in coal conversion products." Chemistry of coal liquefaction (Wendell Wiser, discussion leader): L. Anderson, "Coal liquefaction studies"; Howard Lebowitz, "New developments in coal liquefaction"; Kenneth Klabunde, "Characterization of solvent refined lignite." Chemistry and kinetics of coal gasification (J. B. Howard, discussion leader): K. K. Koh and N.C. Nahas, "Studies of coal gasification"; P. P. Feistal, "Pressurized fluid-bed steam gasification"; Ralph Coates, "Nonequilibrium chemistry in coal gasification processes." Fuel gas processing (J. B. Howard, discussion leader): J. T. Schrodt and O. J. Hahn, "Hot gas cleanup processes"; M. B. Sherwin, "Liquid phase methanation."

Gametogenesis

Holderness School

Allen W. Schuetz, chairman.

7–11 July. Initiation of gametogenesis: Ursula Mittwoch, Anne Grete Byskov, Wan C. Lim and Claire Huckins. Hormone synthesis and metabolism during gametogenesis (Larry Ewing, chairman): Gregory Erickson, Joanne E. Forture and Jennifer Dorrington. Cytoplasmic factors in gamete maturation and differentiation (L. Denis Smith, chairman): Yoshio Masui, Anthony P. Mahowald, Marvin Kalt and John C. Gerhart. Gamete growth mechanisms (Robin Wallace, chairman): James Dumont and Franco Mangia. Gamete maturation and activation (John D. Biggers, chairman): Edward L. Chambers, Wallace Clark, Thomas E. Schroeder and Allen W. Schuetz. Genetics mechanisms in gametogenesis (Roger Donahue, chairman): Nina Hillman, Stanley Gartler, Michael S. Esposito and Rochelle E. Esposito. Sertoli cell function during gametogenesis (Don Fawcett, chairman): Frank French, Claude Désjardins, John Davis and Anna Steinberger. Macromolecular products of gametogenesis (Gordon Dixon, chairman): Anthony Bellvé and Stephan Kistler. Mechanisms of gamete and follicular degeneration: Griff Ross and Cornelia P. Channing.

Glass

Brewster Academy

Robert H. Doremus, chairman; Stanley M. Ohlberg, vice chairman.

Interactions between Chemical and Physical Phenomena in Glass

11 August. Oxidation state in glass: A. Paul, "Oxidation-reduction and colored glasses"; F. L. Harding, "Oxidation states and sulfur in glass." Gases in glass: J. E. Shelby, "Reaction of hydrogen with glass"; D. M. Roy, "Dissolution of gases in glass."

12 August. Radiation damage in glass: G. H. Sigel, "Optical and ESR spectroscopy of defects in oxide glasses"; P. L. Mattern, "Optical measurements on the interactions of radiation with glass"; P. W. Levy, "Optical absorption and luminescence of glass during electron and gamma-ray irradiation." Photochromic glasses: R. J. Araujo, "Photochromic glass containing silver and copper halides"; C. L. Marquardt, "Darkening mechanisms in silver halide photochromic glass."

13 August. Laser damage in glass: M. D. Crisp, "Laser damage in glass and other transparent dielectrics"; A. J. Glass, "Non-linear optics and laser damage in glass." Water and glass: G. L. McVay, "Structural water and properties of sodium-silicate glasses"; T. Izumitani, "Effect of water in polishing and grinding of glass."

14 August. Water and glass (continued): F. G. K. Baucke, "Surface layers of electrode glasses"; A. Wikby, "Surface layers of some silicate and alumino-silicate glasses." Water and glass (continued): P. B. Adams, "Reactions of water and aqueous solutions with glass"; A. Paul, "Thermodynamic approach to chemical durability of glass."

15 August. Reactions at glass surfaces: L. L. Hench, "Biological interactions with glass surfaces"; C. R. Kurkjian. This session will be followed by short contributions.

Hemostasis

Tilton School

Kenneth C. Robbins, chairman; M. Raphael Shulman, vice chairman.

9 June. Thrombosis models (T. H. Spaet, discussion leader). Platelets (P. Majerus, discussion leader).

10 June. Prothrombin (D. Hanahan, discussion leader). Factors IX and XI, factor X, Fitzgerald factor (R. Colman, discussion leader).

11 June. Plasminogen, plasmin inhibitors, plasminogen activators (G. Markus, discussion leader). Fibrinogen, fibrin, fibrinopeptides (V. Marder, discussion leader).

12 June. Protein inhibitors of coagulation, synthetic serine protease and factor XIII active site inhibitors (R. Rosenberg, discussion leader). Speaker: E. Simon.

13 June. Factor VIII and Von Willebrand factor (L. Hoyer, discussion leader).

Heterocyclic Compounds, Chemistry of

New Hampton School

Rudi A. Abramovitch, chairman; Erwin Klingsberg, vice chairman.

30 June–4 July. The following have been invited to speak: Yoshio Ban, Dov Ben Ishai, R. A. Firestone, Gabor Fodor, A. Hassner, Don Jerina, A. R. Katritzky, J. Kutney, W. W. Paudler, Richard Sundberg, Hans Sushitzky, H. Wamhoff, Harry Wasserman, M. Joullie, Marcel Menard, Y. H. Wu.

Hormone Action

Kimball Union Academy

Bert W. O'Malley, chairman; Isidore S. Edelman, vice chairman.

Molecular Biology and Hormone Action

3 August. Sunday evening. Plenary lecture I: Gerald Mueller, "Replication in the eucaryotic nucleus."

4 August. Chromatin structure and function (Wayne Bardin, chairman): Eric Davidson, "Organization of regulatory and structural gene sequences in eucaryotic DNA"; James Bonner, "Composition and structure of the eucaryotic chromosome"; John Paul, "Regulation of transcription of eucaryotic chromatins"; Brian McCarthy, "Analysis of specific messenger RNAs synthesized in vitro from chromatin"; Bert O'Malley, "Steroid hormone receptor effects on RNA chain initiation in target cell chromatin." Receptor interactions with DNA and chromatin (Gianfredo Puca, chairman): Geoffrey Zubay, "Interactions of positive regulatory proteins with DNA"; Etienne Baulieu, "Hormone receptor interactions with DNA"; William Schrader, "Molecular structure and function of a eucaryotic steroid hormone receptor"; Elwood Jensen, "Effects of estrogen receptor complexes on RNA synthesis in target cell nuclei"; James Clark, "Biologic functions of nuclear receptors for steroid hormones."

5 August. RNA polymerase and gene activation (Terrell Hamilton, chairman): Walter Mangel, "Initiation of transcription in procaryotic systems"; Andrew Travers, "Initiation of transcription by RNA polymerase in relation to promoters"; Robert Roeder, "Comparative aspects of eucaryotic RNA polymerase in relation to products of transcription"; Stan Blatti, "Isolation and purification of a eucaryotic regulatory factor for nucleoplasmic RNA polymerase"; Ian Mainwaring, "Steroid hormone effects on in vitro transcription of target cell chromatin. Terrell Hamilton, "Specificity of steroid induced stimulation of RNA synthesis in uterine and other nuclei in vitro." Messenger RNA (Shutsung Liao, chairman): Hans Berendes, "Characteristics of a primary gene product in drosophila"; French Anderson, "Ontogeny of hemoglobin mRNA during erythroid cell development"; Anthony Means, "Studies on structure and function of steroid hormone-inducible messenger RNAs"; Philip Feigelson, "Steroid hormone effects on target cell messenger RNAs"; Jeffrey Rosen, "Isolation, purification and regulation of casein messenger RNA in mammary cells."

6 August. Regulatory nucleotides and kinases (Suzanne Bourgeois, chairman): Benoit de Crombrugghe, "Regulatory interactions of cyclic AMP binding protein, RNA polymerase and galactose operon of *E. coli*"; Mike Cashel, "Regulatory actions of 'magic spot' (ppGpp) on gene transcription"; Ora Rosen, "Structure-function activities of a eucaryotic protein phosphokinase"; Kevin Catt, "Role of cyclic nucleotides in gonadotrophin-induced steroid synthesis"; Nelson Goldberg, "Relationship of cyclic GMP in relation to cell replication and growth." Membrane structure and function (Stanley Korenman, chairman): George Palade, "Structural organization of eucaryotic membranes"; Pedro Cuatrecasas. "Isolation, purification and structural characteristics of hormone receptors located on membranes of eucaryotic cells"; Rees Midgley, "Biologic function of hormone receptors located on target cell plasma membranes."

7 August. Membrane transduction (Isidore Edelman, chairman): (Martin Rodbell, chairman): Lowell Hokim, "Membrane transduction"; Gerald Aurbach, "Catecholamine interactions with receptors in relation to membrane transport"; Marc Rendell, "Mathematical models for steady state kinetics of adenylate cyclase"; Lutz Birnbaumer, "Characteristics of the coupled response between activation of adenylate cyclase and cyclic AMP generation in hormone target cells"; Isidore Edelman, "Thyroidal regulation of the sodium pump." Plenary lecture II: Gordon Tomkins, "Genetic approaches to hormone action." Short presentations of new observations (Pentti Siiteri, chairman).

8 August. Developmental biology (Jam Tata, chairman): Denis Gospodarowicz, "Isolation of new protein factors which regulate eucaryotic cell replication"; Roger King, "Androgen regulation of cell proliferation in culture"; Jack Gorski, "Steroid hormone effects on target cell growth and function"; Jean Wilson, "Effects of sex steroid hormones on target cell differentiation"; Jam Tata, "Hormone effects on amphibian liver development of protein synthesis."

Hydrocarbon Chemistry

Proctor Academy

Donald M. Fenton, Chairman; Stuart W. Staley, vice chairman.

16 June. (Donald M. Fenton, discussion leader): George A. Olah, "Novel approaches to hydrocarbon transformation reactions"; Michael Siskin, "HF-TaF_5: a stable selective super acid for hydrocarbon reactions.") (Robert D. Miller, discussion leader): D. J. Peretti, "The radical and unimolecular decomposition of chlorinated ethanes."

17 June. (L. T. Scott, discussion leader): Marjorie C. Caserio, "Mechanisms of ionic organic reactions in the gas phase"; John I. Brauman, "Structure and reactivity of ions in the gas phase." (A. G. Anastassiou, discussion leader): Philip S. Skell, "Use of free metal atoms in synthesis."

18 June. (Howard E. Simmons, discussion leader): Jay K. Kochi, "Mechanistic studies of the coupling of alkyl groups from organometallic intermediates in catalytic reactions"; John K.

Stille, "Synthesis and reactions of complexes containing carbon-palladium sigma bonds." (Stuart W. Staley, discussion leader): Paul D. Bartlett, "Diagnosis of mechanism in cyclo-additions and molecular rearrangements."

19 June. (P. A. Argabright, discussion leader): Richard F. Heck, "Palladium catalyzed syntheses with organic halides." Papers from attendees. Chadwick A. Tolman, "Steric effects of phosphorus ligands in organometallic chemistry."

20 June. (Charles H. DePuy, discussion leader): R. W. Etherington, "Oxidative dehydrogenation of ketones over Group IB metals"; Wolfgang Schneider, "Synthesis and transition metal catalyzed isomerization of vinylnorbornene to ethylidenenorbornene."

Immunochemistry and Immunobiology

Proctor Academy

Leonard A. Herzenberg, Chairman; John J. Cebra, vice chairman.

Genetics, Structure and Regulation in the Immune System

11 August. Antibodies: structure and conformational changes in ligand binding sites (A. B. Edmundson, chairman): F. Richards. Ig interaction with membranes, allosteric changes (J. J. Cebra, chairman): H. Metzger.

12 August. Structure of membranes and membrane associated molecules, membrane probes: H. McConnell and J. D. Capra. Lymphocyte subpopulations, alloantigens (H. Cantor, chairman): E. A. Boyse, D. Wilson, R. Stout and D. Mosier.

13 August. Genetics, idiotypes, IR genes (K. Rajewsky, chairman): H. O. McDevitt and C. Cowing. Idiotype regulation (K. Eichmann, chairman): H. Wigzell, H. Kohler and M. Taussig.

14 August. Suppressor T. cells in humoral immunity (R. Gershon, chairman): Lee Herzenberg, T. Tada and C. Pierce. Regulation of cellular immunity (E. Simpson, chairman): N. A. Mitchison and D. Katz.

15 August. B. Cell differentiation (M. D. Cooper, chairman): S. Strober, K. Okumura, M. Klinman and T. Waldman.

Inorganic Chemistry

New Hampton School

Frederick E. Brinckman, chairman; Leonard V. Interrante, vice chairman.

Recent Developments in Inorganic Reaction Mechanisms

4 August. Electron transfer mechanisms (N. Sutin, chairman): T. J. Meyer, "Intermolecular electron transfer between metal ions in solution"; A. Haim, "Role of binuclear complexes in electron transfer reactions"; H. B. Gray, "Electron transfer mechanisms employed by metalloproteins." Excited state energetics and reactivity (A. W. Adamson, chairman): V. B. Balzani, "Quenching of coordination compound excited states by energy transfer, electron transfer and exiplex formation"; G. A. Crosby, "Photophysics of charge-transfer excited states of inorganic complexes"; R. G. Linck, "Photochemistry of ligand field states in inorganic complexes."

5 August. Photoprocesses (G. B. Porter, chairman): J. F. Endicott, "Energetics and dynamics of transition metal photoredox chemistry"; M. S. Wrighton, "Reactive intermediates in inorganic photochemical reactions"; D. G. Whitten, "Photochemistry of metalloporphyrins and related transition metal complexes in solution and monolayer assemblies." Substitution reactions of metal complexes-outer sphere interactions (R. G. Wilkins, chairman): D. W. Margerum, "Stacking interactions"; D. B. Rorabacher, "Steric and internal conjugate base effects as modifying influences on ligand substitution kinetics"; J. R. Vriesenga, "The influence of outer-sphere ion association on transition metal–solvent exchange rates."

6 August. Substitution reactions at metal and non-metal centers (F. Basolo, chairman): H. Diebler, "Dissociative and associative substitution in the formation of octahedral metal complexes"; T. W. Swaddle, "Associative interchange in octahedral substitution"; J. H. Krueger, "Nucleophilic substitution of nitrogen and other non-metal centers." Reactive species on surfaces (M. Michlmayr, chairman): G. A. Somorjai, "Inorganic surface chemistry on the atomic scale"; R. W. Vaughan, "Application of multiple pulse NMR techniques to inorganic chemistry"; F. Stone, "Surface processes on MgO, NiO-MgO and CoO-MgO."

7 August. Heterogeneous catalysis (H. L. Krauss, chairman): L. D. Rollman, "Polymer-bonded transition metal catalysts"; W. R. Moser, "The transition metal dinitrosyl chemistry in the decomposition of nitric oxide"; A. W. Sleight, "Olefin oxidation studies over oxides with Scheelite structures." Mechanisms of organometallic reactions (T. L. Brown, chairman): J. Halpern, "Recent studies of mechanisms of organometallic reactions"; T. L. Brown, "Substitution reactions in metal carbonyls."

8 August. Mechanisms of organometallic reactions (P. Maitlis, chairman); P. M. Maitlis, "Mechanisms of acetylene reactions in organometallic chemistry"; R. G. Pearson, "Mechanisms of ligand insertion reactions"; J. P. Jesson, "On the mechanism of square planar association reactions."

Inorganic Geochemistry

Holderness School

James B. Thompson, chairman; Alan B. Thompson, vice chairman.

Thermodynamics in Petrology

25 August. Calorimetry (R. A. Robie, moderator): R. A. Robie, "Measurement of heat capacity from 5° to 1500°K"; B. Cassel, "Measurement of heat capacity and heat of transition with dynamic scanning calorimetry"; B. Hemingway, "Measurement of heat of formation of silicates by aqueous solution calorimetry"; A. Navrotsky, "Molten salt reaction calorimetry at high temperatures." Aqueous solution studies (R. M. Garrels, moderator): J. W. Cobble, "Thermodynamics of aqueous species"; C. L. Christ and R. M. Siebert, "Free energy of formation of minerals from aqueous solution studies."

26 August. Heterogeneous equilibria (E-an Zen, moderator): G. M. Anderson, "Methods and problems in the correlation of thermochemical and phase equilibrium data"; G. B. Skippen, "Extraction of thermodynamic data from heterogeneous equilibria involving gas mixtures"; J. R. Wood, "Calculation of saturated salt equilibria near room temperature." Controlled activity equilibria (H. P. Eugster, moderator): W. D. Gunter, "Free energies of halogens derived from hydrothermal acid-base buffering experiments"; G. M. Lafon, "Thermodynamics of high P-T reactions made simple by large scale association"; T. M. Gordon, "Use of correlation programs for internally consistent thermochemical data of minerals."

27 August. Equations of state (C. Wayne Burnham, moderator): E. K. Graham, "Thermodynamic behavior of solids at high pressures and tempera-

tures"; J. W. Nicholls, "Activities of components in silicate melts"; J. R. Fisher, "Equations of state for fluids; their utility, and construction." Mixing properties of solutions (H. J. Greenwood, moderator): C. C. Stephenson, "Thermodynamic properties of solid solutions in the system KBr-KI"; J. Grover, "Mixing properties of ternary crystalline solutions: Margules parameters for pyroxenes."

28 August. Calculation of equilibria (H. C. Helgeson, moderator): T. H. Brown, "Mineral equilibria, thermodynamic data, and computers—where do we go from here?" D. L. Norton, "Thermodynamic requirements for evaluating theoretical models of heat and mass transfer in geochemical processes." Special topics and open discussion (J. B. Thompson, moderator): M. Sato, "Thermodynamic data at high temperatures by the solid-electrolyte method."

29 August. Kinetics and non-equilibrium thermodynamics (G. W. Fisher, A. B. Thompson and W. S. Fyfe, moderators): G. W. Fisher, "Non-equilibrium thermodynamics in petrology"; D. E. Anderson, "Intergranular diffusion in petrology"; J. W. Morse, "Reaction kinetics: a review."

Interfaces, Chemistry at

Kimball Union Academy

Robert J. Good, chairman; Gerald D. Hansen, vice chairman.

21 July. Physical methods of studying gas-solid interfaces (A. C. Zettlemoyer, chairman): Herbert Herglotz, "Electron spectroscopy for chemical analysis (ESCA)"; Dean Eastman, "Ultraviolet photoelectron spectroscopy (UPS)"; Edward Sickafus, "Auger electron spectroscopy"; Homer Hagstrum, "Orbital energy spectra of adsorbed complexes by INS (ion neutralization spectra) and UPS."

22 July. Interfaces in biological systems (C.-J. Van Oss, chairman): Joseph Andrade, "Interfacial free energy and interfacial potential considerations at cell-solution interface"; A. W. Neumann and C.-J. Van Oss, "Phagocytosis and interfacial free energies"; Leo Vroman, "Surfaces, proteins, platelets and white blood cells: What goes on?"

23 July. Emulsions (Paul Becher, chairman): Stig Friburg, "Basic aspects of microemulsion structure"; Philip Sherman, "Phase inversion temperature and its relationship to emulsion stability"; (speaker to be announced), "Fundamentals of steric stabilization."

24 July. (Robert S. Hansen, chairman): John A. Padday, "Disjoining pressure: theory and experiments"; Ervin Wolfram, "Solid liquid adhesion in four-phase system: mechanisms, kinetics and thermodynamics of formation and rupture of liquid bridges between solid surfaces"; Sidney Ross, "The first virial coefficient of an adsorbed gas: some new theoretical and practical considerations."

25 July. Detergency (G. D. Hansen, chairman): Anthony M. Schwartz, "Advances in detergency theory"; Arno Cahn, "Problems in detergency of real systems."

Ion Exchange

Brewster Academy

Lionel S. Goldring, chairman; Abraham Clearfield, vice chairman.

21 July. Physical chemistry of ion exchange (J. Marinsky, chairman): L. Leifer, and C. Breem, "Calorimetric studies of water in ion exchange resins"; E. Högfeldt, "Hydration of some sulfonates"; A. Clearfield and M. Reddy, "Ion-exchange selectivity."

22 July. Ion-exchange separations (H. Rothbart, chairman): C. Horvath, "New developments in ion exchange chromatography"; K. Unger, "Stucture and selectivity in bonded ion exchangers"; H. Rothbart, "Gas chromatographic separation of unsaturated species by surface-bonded ion exchanger"; P. Brown, "Microparticulate vs. pellicular ion exchangers for the analysis of nucleotides"; J. Fritz, "Analytical separation wing macroreticular resins."

23 July. Chemistry and engineering of liquid ion exchangers in hydrometallurgy (L. Gallacher, chairman).

24 July. Chemical and engineering developments and problems in industrial ion exchange (L. Goldring, chairman): J. Holloway, "Treatment of nuclear reactor primary coolant"; B. Bolta, "Recent developments in the sirotherm process"; D. DePree, "Ion exchange with total reagent recycle and a solid by-product stream"; R. Anderson, "Kinetic effects in utilizing weak-base ion exchangers; estimation of ion exchange process limits by selectivity calculations."

25 July. Physical chemistry (continued). G. Janauer, "Reactive ion-exchange"; G. Schmuckler, "Kinetics of chemical reactions on cross-linked polystyrene and its derivatives."

Laser Interaction with Matter

Tilton School

R. E. Kidder, chairman; J. M. Dawson, vice chairman.

18 August. (R. K. Osborn, discussion leader): G. McCall, "Implosion experiments"; R. Godwin, "Diagnostics of laser plasmas." Discussion. C. Yamanaka, "Laser interaction with fusion plasma." Discussion. H. Shay, "Interpretation of recent laser plasma experiments." Discussion. (Keith Brueckner, discussion leader): R. Morse, "Target design"; D. Henderson, "Non-equilibrium burn"; H. Gomberg, "Recent results in experiments and theory at KMS fusion." Discussion. D. Forslund, "Collective effects in laser plasmas"; W. Kruer, "Recent developments in laser-plasma theory and simulations." Discussion.

19 August. (J. L. Bobin, discussion leader): S. Witkowski, "Review of laser fusion research at Garching." Discussion. M. Lubin, "Absorption and compression studies at the University of Rochester." Discussion. O. N. Krokhin, or G. V. Sklizkov, (subject to be announced). Discussion. (K. Boyer, discussion leader): P. Pashenin or V. V. Korobkin, (subject to be announced); J. L. Bobin, (subject to be announced). Discussion. H. Ahlstrom, "Experiments relevant to laser fusion." Discussion.

20 August. (A. Herzberg, discussion leader): J. Fries, "Implosion target fabrication"; R. Malone, "Numerical modeling of target experiments." Discussion. B. Lax, "Laser plasma interactions." Discussion. G. Vlases, "High energy CO_2 laser heating of solenoids and pinches." Discussion (A. J. Alcock, discussion leader): T. K. Chu, "Laser-plasma interactions in a magnetic field"; J. Daugherty, "Pulsed CO_2 lasers." Discussion. J. Emmett, "Physics and technology of high power laser systems." Discussion.

21 August. (Ian Spalding, discussion leader): M. Duguay, "Soft X-ray lasers." Discussion. S. Bodner, "Slab target experiments." Discussion. E. Beckner, "A Comparison of laser fusion and e-beam fusion." Discussion. (A. Guenther, discussion leader): F. Chen, "Parametric backscattering of CO_2 radiation in underdense plasmas"; A. Offenberger, "CO_2 laser induced gas breakdown and heating in a solenoidal magnetic field." Discussion. A. Wong, "Ion accelerations in strong electromagnetic interactions with plasmas." Discussion.

22 August. Business meeting (N. Peacock, discussion leader): Post-dead-

line contributions and discussion. Summary panel (J. Tuck, discussion leader).

Lipid Metabolism

Kimball Union Academy

Howard Goldfine, chairman; John A. Glomset, vice chairman.

16 June. Physical properties of lipids and protein-lipid interactions (session chairman to be announced): J. Seelig, "The dynamic structure of lipid bilayers measured by deuterium magnetic resonance"; J. A. Reynolds, "Protein-lipid associations." Lipid-membrane interactions and cell fusion (session chairman to be announced): S. C. Kinsky, "Interaction of lysolecithin with liposomal model membranes"; R. E. Pagano, "Interaction of phospholipid vesicles with cultured mammalian cells"; G. Poste, "Fusion in natural and model membranes."

17 June. The organization of membranes and the reconstitution of active membrane systems (C. Tanford, session chairman): L. D. Bergelson, "Asymmetry of lipid bilayers in membranes"; R. H. Lozier, "Structure and function of purple membranes from halophilic bacteria"; G. Guidotti, "Membrane transport of ions." Enzymes of lipid metabolism (J. H. Law, session chairman): P. L. Strittmatter, "Protein and lipid interactions in the microsomal stearoyl-CoA desaturase system"; G. J. Schroepfer, Jr., "Recent studies on sphingolipid long-chain base metabolism."

18 June. Regulation of fatty acid synthesis (session chairman to be announced): J. W. Porter, "Structure and regulation of avian and mammalian liver fatty acid synthetases"; K. Bloch, "Regulation of the fatty acid synthetase multienzyme complex from *Mycobacterium smegmatis*." The biosynthesis of lipids (J. E. Cronan, Jr., session chairman): P. K. Stumpf, "Biosynthesis of fatty acids by isolated chloroplasts."

19 June. Interactions of phospholipases with lipid substrates (session chairman to be announced): G. H. de Haas, "The interaction of phospholipase A_2 with lipid-water interfaces"; F. J. Kezdy, "The reaction of lipolytic enzymes with substrate monolayers and with substrate solutions." Mobility and function in membranes (Howard Goldfine, session chairman): C. F. Fox, "Factors affecting the mobility and func-

Program Summary, Gordon Research Conferences

	Colby Women's College New London, N.H.	New Hampton School New Hampton, N.H.	Kimball Union Academy Meriden, N.H.	Tilton School Tilton, N.H.
9–13 June	Milk, Biology of	Nucleic Acids	Cyclic Nucleotides	Hemostasis
16–20 June	Catalysis	Proteins	Lipid Metabolism	Theoretical Biology and Biomathematics
23–27 June	Nuclear Chemistry	Fuels Science	Atherosclerosis	Animal Cells and Viruses
30 June–4 July	Textiles: Fiber Sciences	Heterocyclic Compounds, Chemistry of	Enzymes, Coenzymes and Metabolic Pathways	Carbohydrates, Chemistry of
7–11 July	Corrosion	Statistics in Chemistry and Chemical Engineering	Bones and Teeth, Chemistry, Physiology and Structure of	Nuclear Structure Physics
14–18 July	Transport Phenomena in Synthetic and Biological Membranes*	Radiation Chemistry	Mammalian Genital Tract Secretions	Atomic Physics
21–25 July	Food and Nutrition	Organic Reactions and Processes	Interfaces, Chemistry at	Physico-Chemical Aspects of Photosynthesis
28 July–1 Aug.	Polymers	Natural Products	Toxicology and Safety Evaluations	Organic Photochemistry
4–8 Aug.	Elastomers	Inorganic Chemistry	Hormone Action	Molecular Pathology
11–15 Aug.	Medicinal Chemistry	Analytical Chemistry	Fluids in Permeable Media	Microbiological Degradation
18–22 Aug.	Separation and Purification	Environmental Sciences: Air	Multiparticle Production Processes	Laser Interaction with Matter
25–29 Aug.	Cancer	Adhesion, Science of	Asymmetric Synthesis*	Transport Phenomena in Lipid Bilayer and Biological Membranes

* New conferences in 1975.

tion of surface membrane components."

20 June. Regulation of sterol synthesis (John A. Glomset, session chairman): M. D. Lane, "Cytoplasmic and mitochondrial HMG-CoA synthetases: Roles, regulation, and mechanism"; A. A. Kandutsch, "Regulation sterol synthesis in cultured cells by derivatives of cholesterol."

Liquids, Chemistry and Physics of

Holderness School

R. Zwanzig, chairman; P. Egelstaff, vice chairman.

11 August. D. Chandler, "Hard-core models of molecular liquids"; K. Gubbins, "Antisotropic forces in liquid mixtures"; J. Powles, "Structure of molecular liquids."

12 August. R. Pecora, "Rotational relaxation in liquids"; J. Jonas, "Relaxation in liquids at high pressure"; J. Rowlinson, "The liquid-vapor interface."

13 August. D. Goodstein, "Experiments on two-dimensional fluids"; J. Huang, "Spinodal decomposition in fluids"; M. Moldover, "Nucleation and metastability"; J. Barker, "Computer experiments on the liquid-vapor interface."

14 August. R. Scott, "Ultracentrifugation near the critical point"; B. Mozer, "Critical indices of neon from neutron scattering"; B. Widom, "Surface tension near tri-critical points"; T. Litovitz, "Collisional effects on light scattering by liquids."

15 August. H. Reiss, "Nucleation experiments."

Magnetic Resonance

Holderness School

Jack H. Freed, chairman; Melvin P. Klein, vice chairman.

16 June. R. W. Fessenden, "CIDEP of radicals produced by high energy radiation"; J. K. S. Wan, "CIDEP in carbonyl photochemical systems: the radical-pair theory or the photoexcited triplet model?"; J. B. Pedersen, "Theory of chemically-induced dynamic spin polarization"; P. C. Lauterbur, "Zeugmatography-images from spatially resolved magnetic resonance signals"; P. Mansfield, "Diffraction and image formation by NMR"; R. R. Ernst, "Multidimensional spectroscopy."

17 June. J. Jonas, "Dynamic structure of liquids by NMR"; J. W. Doane, "NMR in liquid crystals"; A. Pines,

1975—New Hampshire and California

Proctor Academy Andover, N.H.	Holderness School Plymouth, N.H.	Brewster Academy Wolfeboro, N.H.	Franklin Pierce College Rindge, N.H.	Miramar Hotel Santa Barbara, Calif.
Plant Cell and Tissue Culture			Space Plasma Physics*	
Hydrocarbon Chemistry	Magnetic Resonance		Physical Metallurgy	Biomaterials, Science and Technology of
Molecular Pharmacology	Drug Metabolism		Polyamines*	Postharvest Physiology
Cell Contact and Adhesion	Muscle: Contraction Mechanism		Quantitative Structure-Activity Relationships in Biology*	Marine Natural Products*
Catecholamines	Gametogenesis*	Agricultural Science		
	Coatings and Films, Chemistry and Physics of	Quantum Solids and Fluids, Dynamics of		
Free Radical Reactions	Electronic Materials	Ion Exchange		
Odor and Taste, Chemistry and Physiology of	Solids, Chemistry and Physics of	Magnetism: Bubble Domain		
Developmental Biology	Chemical Oceanography	Solid State Studies in Ceramics		
Immunochemistry and Immunobiology	Liquids, Chemistry and Physics of	Glass		
Thin Films and Solid Surfaces	Nonlinear Optics and Lasers	Polymer Combustion and Fire Retardance*		
Nonventilatory Lung Functions*	Inorganic Geochemistry	Molten Salts, Chemistry of		

"NMR studies of microscopic structure and dynamics in solid and liquid crystals"; D. Davidov, "ESR of rare-earth ions in magnetic Van-Vleck paramagnets"; K. Baberschke, "ESR of a localized moment in superconductors."

18 June. J. Seelig, "Deuterium magnetic resonance and spin label EPR of lipid membranes"; S. I. Chan, "Molecular order and motion in a lipid bilayer"; D. D. Thomas, "Probes of rotational dynamics in biomacromolecular complexes: spin labels and saturation transfer"; R. C. Richardson, "NMR in the A phase of liquid helium three"; D. D. Osheroff, "NMR in the B phase of liquid helium three"; W. Hardy, "The radio frequency and microwave spectra of solid hydrogen."

19 June. H. C. Wolf, "ESR and ODMR of linear triplet excitons in 1,4 dibromnaphthalene"; A. H. Maki, "Triplet state dynamics from magnetic resonance effects on phosphorescence and delayed fluorescence"; T. A. Miller, "Gas-phase magnetic resonance, the fundamental experiments"; J. Waugh, "Oscillatory polarization of rare spins in solids"; E. L. Hahn, "NQR detection of naturally abundant deuterium in organic solids."

20 June. M. Goldman, "Observation of rare nuclei in magnetically ordered nuclear spin systems"; I. J. Lowe, "Zero-time resolution NMR"; S. J. Knak Jensen, "Dynamics of dipolar coupled spins in crystals studied by computer experiments."

Magnetism-Bubble Domains

Brewster Academy

Raymond Wolfe, chairman; Richard M. Josephs, vice chairman.

28 July. Magnetic garnet materials and devices (A. H. Bobeck, discussion leader): J. E. Geusic, "Progress, problems and prospects in magnetic bubbles"; M. Kestigian, "LPE growth of garnet films." Magnetic garnet materials and devices (F. G. West, Jr., discussion leader): L. L. Rosier, "Bubble lattice devices."

29 July. Amorphous materials (P. Chaudhari, discussion leader): C. H. Bajorek, "Deposition of amorphous magnetic films"; M. H. Kryder, "Bubble devices using amorphous films." Bubble dynamics. (A. P. Malozemoff, discussion leader): F. B. Humphrey and T. Kobayashi, "High speed photography of dynamic effects in magnetic bubbles."

30 July. Bubble phenomena (D. C. Bullock, discussion leader): E. Il'yashenko, "Magnetic bubble logic-possibilities and limitations"; T. H. O'Dell, "Dynamic bubble effects." Contributed papers (R. M. Josephs, discussion leader).

31 July. Physics of magnetic materials (F. B. Hagedon, discussion leader): J. F. Dillon, Jr., "Paramagnetic bubbles in metamagnetic materials"; R. C. LeCraw, "High speed bubble garnets based on large gyromagnetic ratios (high-g)." General interest (R. C. Barker, discussion leader): R. L. White, "Dynamics of a professional transition—magnetics to medical electronics."

1 August. Bubble device concept. (W. D. Doyle, discussion leader): G. Almasi and P. K. George, "Analytical models for bubble domain propagation"; T. T. Chen, "Data longevity and failure modes in bubble devices."

Mammalian Genital Tract Secretions

Kimball Union Academy

Fuller W. Bazer, chairman; William L. Williams, co-chairman.

14 July. Genital tract secretions: general biological functions (Fuller W. Bazer, chairperson): John Aitken, "Uterine secretions in mammals with delayed implantation"; William Hansel, "The luteolytic effects of arachadonic acid and $PGF_{2\alpha}$ in the large domestic animals"; Patricia Coulson, "Ovarian follicular fluid components: headwaters of the reproductive tract." Genital tract secretions: their role as enzymes and enzyme inhibitors (R. M. Roberts, chairperson): R. M. Roberts, "Enzymes in pig uterine fluids"; Hans Fritz, "A new protease inhibitor in human cervical mucous: its biochemical properties and biological function"; H. W. Denker, "Proteases in uterine fluids."

15 July. Genital tract secretions: their role in steroid binding and/or transport (Martin Johnson, chairperson): Martin Johnson, "Steroids in uterine secretions"; M. Beato, "Steroid binding to uteroglobin"; Z. Dickman, "Genital tract secretions: the vehicle for transport of steroid hormones to and from preimplantation embryos"; William W. Thatcher, "Interaction between steroids, uterine proteins and the conceptus"; Hugo Eiler, "Presence of ovarian steroids in the uterine lumina of different species." Genital tract secretions: in vivo and in vitro studies on control of synthesis and secretion (Stanley R. Glasser, chairperson): D. W. Bullock, "Isolation and translation of uteroglobin messenger RNA"; Lee Levey, "Partial purification and translation of blastokinin messenger RNA"; Marian Walters, "Investigations of the transport of amino acids by the luminal epithelium"; Gary L. Whitson, "Hormonal control of blastokinin synthesis in rabbit uterine endometrium in vitro." Discussants: F. A. Murray, Jr., and Fuller W. Bazer.

16 July. Uterine secretions: their role in regulating blastocyst development (Henning Beier, chairperson): Henning Beier, "Consequences of delayed uterine secretion on blastocyst development in rabbits"; Ulrich Petzholdt, "Protein patterns, protein synthesis and enzyme activity in rabbit blastocysts in correlation with uterine secretions"; M. A. H. Surani, "The lability of rat blastocyst behavior to steroid mediated molecules in uterine secretions"; J. C. Daniel, Jr., "Contribution of uterine fluid components to formation of crystalloid inclusion bodies in rabbit blastocysts." Discussants: L. C. Ulberg, R. H. Foote, Shirley McCarthy, J. H. Britt, Nancy Love, Hester Pratt and R. R. Maurer. Uterine secretions: immunological aspects (A. C. Menge, chairperson): A. C. Menge, "Secretory immunoglobulins of the female reproductive tract and their role in infertility"; Sharad G. Joshi, "Antigenic components of the human endometrium of early pregnancy." Discussant: Robert H. Waldman.

17 July. Oviduct and cervical secretions: biological functions (Muriel Feigelson, chairperson): R. D. Lambert, "Extraction of an estrus modulated protein in rabbit oviductal secretions and some of its properties"; G. T. Meglioli, "Dispersion of corona cells of rat ova in vitro by a factor present in uterine secretions"; Sally A. Doehr, "Biochemistry of a major glycoprotein fraction in midcycle cervical mucin"; Muriel Feigelson, "Proteins of rabbit oviducal and uterine fluids." Discussant: O. Wallner. Male genital tract secretions: biological functions (William L. Williams, chairperson): Bruce Morton, "Sperm protective components in epididymal fluid"; Laurens Zaneveld, "Seminal constituents and their physiological function"; W. F. Lehnhardt, "The multiple nature of decapacitation factor"; A. B. Dudkiewicz, "The function of specific seminal components in the fertilization process." Discussant: E. Fink.

18 July. Genital tract secretions: experimental techniques (Fuller W. Bazer, chairperson): W. R. Dukelow, "Laparoscopic techniques applicable to genital tract secretions in a variety of species"; D. E. Longenecker and R. F. Mayol, "Radio-immunoassay measurement of blastokinin levels in rabbit uteri under various hormonal conditions."

Marine Natural Products

Miramar Hotel

Paul Scheuer, chairman; Yuzuru Shimizu, vice chairman.

30 June. F. J. Schmitz, "Assorted natural products from sponges, coelenterates, and sea hares"; R. E. Moore, "Natural products from edible Hawaiian seaweeds"; H. Rapoport, "Dinoflagellate toxins."

1 July. J. F. W. Keana, "Synthetic and biological studies related to tetrodotoxin"; L. P. Hager, "Enzymatic and non-enzymatic synthesis of halogen-containing marine natural products"; L. J. Goad, "Steroid metabolism in echinoderms."

2 July. P. R. Brown, "High pressure liquid chromatography"; J. Clardy, "Applications of x-ray diffraction to marine natural products"; J. B. Cohen, "Functional properties of cholinergic receptors isolated from TORPEDO electric tissue."

3 July. T. Narahashi, "Marine neurotoxins: their mechanisms of action and uses as tools"; P. N. Kaul, "Chemistry-pharmacology miscegenation as a key to biomedical discoveries from the sea"; M. G. Hadfield, "Metamorphosis inducers in marine invertebrates."

4 July. Impromptu contributions and discussions by various speakers.

Medicinal Chemistry

Colby Women's College

Walter T. Moreland, Jr., chairman; Marvin Gorman, vice chairman.

11 August. Prolactin inhibitors and their uses (James A. Clemens, discussion leader): Edmund C. Kornfeld, Olof H. Pearson and Edward Fluckiger. Sickle cell disease (Jerry A. Weisbach, discussion leader): Anthony Cerami and Franklin H. Bunn.

12 August. Diseases of skin dermatology (Leslie P. McCarty, discussion leader): Jerry McCullough, Diane Snyder, James Herstoff and Koert Gerzon. Pharmacologic control of brain monoaminergic systems (Ray W. Fuller, discussion leader): Ray W. Fuller, Ross J. Baldessarini and Kenneth Moore.

13 August. Pharmacology and chemistry of cannabinols and their analogues (Neal Castangnoli, Jr., discussion leader): Harold E. Zaugg, Louis Lemberger and Louis S. Harris. Pattern recognition in medicinal chemistry (Bruce R. Kowalski, discussion leader): Yvonne C. Martin, Peter H. Gund and Bruce R. Kowalski.

14–15 August. Special topics (Marvin Gorman, discussion leader): Hugh R. Sullivan, Eric C. Schreiber and Richard J. Doisy. Anti-asthma drugs (George M. Fukui, discussion leader): Marvin E. Rosenthale, John Wright, E. S. K. Assem, D. J. Herzig, J. A. Nadel, Maxmillian VonStrandtmann, J. S. G. Cox and Stephen Wasserman.

Microbiological Degradation

Tilton School

A. M. Stern, chairman; A. Demain, vice chairman.

11 August. S. A. Zahler, "Genetic control of transport and permeability"; G. D. Hegeman, "Enzyme engineering"; E. D. Weinberg, "Biosynthesis of secondary metabolites."

12 August. R. L. Metcalf, "DDT degradation"; P. Kearny, "Degradation of herbicides"; D. Hughes, "Co-metabolism in soils."

13 August. Z. John Ordal, "Sub-lethal injury to microorganisms"; F. Adair, "Mode of action of (non-antibiotic) antimicrobials"; W. M. Stark, "How to develop a fermentation."

14 August. H. Tsuchiya and L. K. Nyiri, "Problems associated with multiple substrate-multiple organism systems"; W. Umbreit, "The biologist and environmental responsibility."

15 August. R. Kallio, "Summation."

Milk, Biology of

Colby Women's College

John E. Kinsella, chairman; Dorothy R. Pitelka, vice chairwoman.

Biology of Mammary Tissue and Milk

9 June. Evolution and function of prolactin (H. A. Bern, chairman): H. A. Bern, "Evolution of prolactins"; C. S. Nicoll, "Evolution of control of prolactin secretion"; Selma Kaplan, "Nature and function of prolactin in man." J. B. Josimovich and Y. Nagahama, discussants. Endocrine involvement on the regulation of mammary gland metabolism (D. E. Bauman, chairman): R. L. Baldwin, "Hormonal actions on mammary metabolism"; E. A. Jones, "Hormonal regulation of lactose production"; K. L. Smith and F. L. Schanbacher, "Colostrum formation: an early event associated with lactogenosis."

10 June. Involution of the mammary gland (B. L. Larson, chairman): H. A. Tucker, "General factors involved in mammary involution"; K. A. Hollman, "Cellular changes during lactation and involution"; G. E. Grosvenor, "Myoepithelial function at end of lactation"; B. L. Larson, "Loss of mammary function in vitro." Biology of preneoplastic mammary lesions (S. Nandi, chairman): S. Nandi, "Origin of preneoplastic mammary lesions in mice"; T. L. Dao, "Preneoplastic lesions in mammary tissues of rats"; H. M. Jensen, "Preneoplastic lesion in the human breast."

11 June. Metabolic derangements in mammary cancer (Russell Hilf, chairman): S. Abraham, "Characteristics of preneoplastic mammary tissue"; E. H. Fowler, "Canine mammary neoplasia: an unexplored model"; R. Hilf, "Some biochemical properties of normal and abnormal breast tissues of women." Functions of membranes of the mammary gland (T. W. Keenan, chairman): D. J. Moore, "The intracellular origin of plasma membranes"; I. H. Mather, "The structure of the milk fat globule membranes"; T. W. Keenan, "Informational molecules in cellular membranes."

12 June. Synthesis and structure of milk proteins (M. P. Thompson, chairman): R. Jenness, "Comparative aspects of α-lactalbumins and k-casein from various species"; R. K. Craig, "Properties of specific messenger RNA mediating protein synthesis in mammary tissue"; A. E. Beer, "Immunological significance of mammary gland"; J. L. Linzell, "Unique physiological and biochemical properties of mammary tissue."

13 June. Regulatory role of cations and cyclic AMP in mammary biochemistry (J. E. Kinsella, chairman): M. Peaker, "Regulation of monovalent cations in mammary tissue"; C. R. Baumrucker, "Calcium metabolism in lactation: regulation and secretion"; J. P. Infante, "Magnesium as a regulator of key enzymes-kinetic evidence"; D. F. Scott, "Role of 3′,5′-adenosine monophosphate and related enzyme systems in mammary gland neoplasia."

Molecular Pathology

Tilton School

Donald A. Rowley, chairman; Godfrey S. Getz, vice chairman.

Immunologic Probes of Receptor and Membrane Function

4–8 August. Three main topics will be considered: I. The biochemistry and genetics of membrane antigens. II. Receptors on immunologically reactive cells. III. Regulation of immunity by antibody directed against receptors or other membrane components. Though the emphasis of the conference will be on the immune system itself, the relevance of these studies to other systems will be considered when it is appropriate. The chemistry, morphology and genetics of membrane antigens and other components will be considered in sessions on 4 and 5 August by V. T. Marchesi, H. Furthmayer, F. H. Bach, D. H. Katz, D. H. Sachs, H. Kantor and W. L. Elkins. On 5 and 6 August M. Raff, J. Marchalonis, H. Grey, B. Pernis, V. Nussenzweig, L. M. Lichtenstein, K. Ishizaka and S. Craig will report on the nature of receptors on immunologically reactive cells. The regulation of immunity by antibody directed against receptors and other membrane components will be reported by A. Nisonoff, H. Wigzell, H. Köhler, K. Eichman, T. McKearn, W. E. Paul, E. Shevach, R. Schwartz, L. Herzenberg and C. W. Pierce in sessions on 7 and 8 August.

Molecular Pharmacology

Proctor Academy

Arthur Karlin, chairman; Howard Berg, vice chairman.

23–27 June. Interactions of nucleic acids with proteins and other molecules (Alexander Rich, session chairman). Charles Cantor, Paul Schimmel, Henry Sobel and Thomas Krugh. Protein-ligand interactions (Oleg Jardetzky, session chairman): Patrick Cozzone. Membrane dynamics (Richard Cone, session chairman): Wayne Hubbell. Transport proteins (Guido Guidotti, session chairman): H. Ronald Kaback, Alan Finkelstein, Shin Lin and Jack Kyte. Acetylcholine receptors (Arthur Karlin, session chairman): Michael A. Raftery, Charles F. Stevens, James Patrick, John Lindstrom, Jonathan B. Cohen and Israel Silman. Receptors linked to cyclases (Alfred G. Gilman, session chairman): Solomon H. Snyder, Rodney L. Biltonen, Robert J. Lefkowitz, Gerald D. Aurbach and Perry B. Mollinoff. Chemoreception in bacteria (Howard Berg, session chairman): Sandy J. Parkinson, John Spudich and George Ordal. Cellular control of membrane properties (Douglas Fambrough, session chairman): Fritz Melchers, Zach W. Hall, Anne L. Hubbard and Alfred L. Goldberg. Control of energy flow (Steven E. Mayer, session chairman): Peter C. Hinkle, George Drummond, Thomas Soderling, David Nicholls and Yosef Graziani. Additional speakers to be announced.

Molten Salts, Chemistry of

Brewster Academy

Norman H. Nachtrieb, chairman; C. Austen Angell, vice chairman.

25 August. Transport properties: A. Klemm, "Experimental transport properties in the light of molecular dynamics calculations"; J. Braunstein, "Transport properties in hydrous melts"; C. Vallet, "Concentration-dependence of diffusion coefficients in molten BeF_2-LiF from the eutectic composition to pure BeF_2"; J. J. Egan, "Electronic conductivity in molten halides"; C. Moynihan, "The mixed alkali effect."

26 August. Thermodynamic properties: B. Cleaver, "High pressure studies on molten salt systems"; V. Maroni, R. Yonco and E. Valeckis, "Selected thermodynamic properties for the systems Li-LiH, Li-Li-D, Li-LiT, and Li-Li_3N and their significance to controlled thermonuclear fusion technology"; G. Papatheodorou, "Structural and thermodynamic studies of binary charge-unsymmetrical molten salt systems"; M. Blander and M. Saboungi, "Conformal ionic solution theory of multicomponent ionic systems"; H. C. Brookes, "Experimental and theoretical investigation of mixing in uni-univalent molten salt mixtures."

27 August. Catalysis: G. P. Smith, "The science and witchcraft of molten salt catalysis, and reagents applied to synthetic fuel technology"; J. W. Larsen, "An introduction to magic acid chemistry and its application to the development of a catalyst system (molten zinc chloride) for the liquefaction of scrap tires"; P. R. Rony, "Supported liquid-phase catalysts. Tools for the study of molten salt catalysis"; H. Øye, "Studies of some molten chlorides as catalysts for petrochemical reactions." Electrochemistry: A. Kisza, "Electrode processes in molten organic salts: potentiostatic and galvanostatic studies of hydrogen and oxygen evolution"; G. Mamantov, "Electrochemistry and other studies of refractory metals in molten chloroaluminates."

28 August. Molecular dynamics: J. A. A. Ketelaar, "Problems and results from molecular dynamics calculations on molten salts"; R. Hockney, "The PPPM method for molecular dynamics with more than 10,000 particles"; J. R. D. Copley (title to be announced). Short contributions and recent developments: Harry R. Bronstein, "A potentiostatic method for determination of specific conductants: application to molten salts electrolytes"; Stefania Zuca, "Diffusion in molten salts systems." Spectroscopy: J. H. R. Clarke, "Studies of ionic interactions in molten salts"; N. Bjerrum, "The chemistry of sulfur, selenium, and tellurium in chloroaluminate melts."

29 August. Spectroscopy: C. A. Angell, "Spectroscopic and computer simulation studies of coordination equilibria and structural relaxation in molten salts"; E. Rytter, "Acid-base properties and species formation in molten mixtures with aluminum, gallium and indium chlorides investigated by Raman spectroscopy"; E. B. Yeager, "Studies of the dynamical properties of hydrous melts by Brillouin and Rayleigh scattering."

Multiparticle Production Processes

Kimball Union Academy

Joseph Lach, chairman; T. A. Lasinski, vice chairman.

High Energy Hadronic Interactions

18–22 August. H. Harari, "A theoretical introduction"; G. Giacomelli, "An experimental overview"; G. Goldhaber, "The new particles"; M. Derrick, "Diffractive phenomena (experimental)"; M. Jacob, "Diffractive phenomena (theory)"; H. Sens, "Single particle distributions"; C. Quigg, "Correlations among produced particles"; L. Di Lella, "Phenomena at large transverse momentum"; S. Wojcicki, "A look forward."

Muscle: Contraction Mechanism

Holderness School

R. J. Podolsky, chairman; H. E. Morgan and A. G. Weeds, co-chairmen.

30 June. Cross-bridge rate constants: skeletal muscle (R. J. Podolsky, chair-

man): A. F. Huxley, T. Blangé, T. Hill. Contraction kinetics in simplified preparations of skeletal and heart muscle (A. J. Brady, chairman): G. J. Steiger, J. Gulati, E. Homsher.

1 July. Polymorphism of myofibrillar proteins (A. G. Weeds, chairman): J. Kendrick-Jones, S. Lowey. Phosphorylation of muscle proteins (H. E. Morgan, chairman): J. T. Stull, S. V. Perry, R. S. Adelstein.

2 July. Kinetics of myosin and actomyosin ATPase (D. R. Trentham, chairman): E. Eisenberg. Conformational states of myofibrillar proteins (E. W. Taylor, chairman): M. F. Morales, J. G. Seidel, W. Harrington.

3 July. X-ray analysis of cross-bridge states (H. E. Huxley, chairman): K. Holmes, R. Lymn. Regulation of contraction (A. Weber, chairman): A. G. Szent-Györgyi.

4 July. Summary session. (A. F. Huxley, discussion leader).

Natural Products

New Hampton School

Koji Nakanishi, chairman; Frank Z. Weisenborn, vice chairman.

28 July–1 August. L. Canonica, "Biosynthesis of prenyl aromatic compounds in fungi"; P. Confalone, "A new total synthesis of biotin"; Jacqueline Ficini, "Recent progress in regio- and stereospecific synthesis of terpenoids"; S. Morris Kupchan, "The role of spirodienones in biomimetic alkaloid synthesis"; James P. Kutney, "Recent studies in natural products"; W. D. Ollis, "Molecular rearrangements of natural products—concerted, forbidden, or just observed"; W. Oppolzer, "Stereoselective total syntheses of alkaloids"; David A. Schooley, "Some aspects of insect juvenile hormone chemistry—structural diversity, abundance and biosynthesis"; Ian Scott, "Some aspects of biosynthesis"; Ian D. Spenser, "Biosynthesis of the piperdine nucleus—progress and pitfalls"; Barry M. Trost, "Development of new synthetic methods directed towards natural products"; Kiyoyuki Yamada, "Synthetic study in picrotoxane series."

Nonlinear Optics and Lasers

Holderness School

C. L. Tang, chairman; E. Courtens, M. Duguay, Y. R. Shen, co-vice chairmen.

18–22 August. Nonlinear processes and properties of materials; theories of nonlinear susceptibilities; multipoton processes and high resolution spectroscopy; strong excitation in solids; nonlinear optics in liquid crystals; laser isotope separation; x-ray and VUV lasers; short pulses and related phenomena. (Speakers and discussion leaders): N. Bloembergen, C. D. Jeffries, P. Robinson, M. Duguay, P. J. Mallozzi, A. Laubereau and W. Kaiser, C. V. Shank, J. E. Bjorholm and P. F. Liao, Y. R. Shen, J. Wynne, J. Armstrong, P. Sorokin, P. G. Kriukov, A. A. Manenkov, V. V. Korobkin, M. Loy and D. R. Grischkowsky, A. F. Bernhardt, S. A. Leone, D. H. Auston, P. L. Kelley.

Non-Ventilatory Functions of the Lung

Proctor Academy

Kenneth C Weber, chairman; John A. Clements, vice chairman.

25 August. Lung metabolism (H. H. Heinemann, chairman): L. M. G. Van Golde, "Lipid metabolism"; D. J. Massaro, "Protein metabolism"; A. Fisher, "Energy metabolism."

26 August. Surfactant (E. Scarpelli, chairman): R. J. King, "Apoproteins (composition)"; M. F. Frosolono, "Tracer studies"; R. J. Goerke, G. Colacicco, "Physiochemical properties."

27 August. Endothelial cell functions (J. A. Clements, chairman): B. Smith, "Cultured epithelial cells"; J. Ryan, "Endothelial cell function"; R. J. Mason, "Isolation and properties of type II cells."

28 August. Defense of lung structure I (D. F. Tierney, chairman): D. F. Tierney, "Defense against O_2"; C. E. Cross, "Enzymatic mechanisms"; M. J. Evans, "Cellular response."

29 August. Defense of lung structure II (K. C. Weber, chairman): J. Brain, "Clearance mechanisms"; K. F. Austen, "Immune mechanisms."

Nuclear Chemistry

Colby Women's College

P. G. Hansen, chairman; J. R. Nix, vice chairman.

23–27 June. The conference is experimentally oriented. The central theme will be nuclear structure and spectroscopy with special emphasis on conservation laws, states with high angular momentum, new developments in nuclear theory, nuclear sizes and shapes, and nuclei away from stability. Reports from borderline fields of nuclear chemistry and physics. Speakers: E. G. Adelberger, R. A. Broglia, T. Ericson, J. C. Hardy, R. Klapisch, S. G. Nilsson, M. L. Perlman, E. S. Stephens, M. Véneroni, V. A. Karnaukhov and V. V. Paskevich.

Nuclear Structure Physics

Tilton School

H. Terry Fortune, chairman; Malcolm H. MacFarlane, vice chairman.

7–11 July. Two sessions on heavy-ion reactions, two sessions on medium-energy physics (one experimental, one theoretical), session on charge-exchange, session on nuclear structure theory, session on nuclear structure information obtained from light-ion reactions and session on high-spin states and clustering.

Nucleic Acids

New Hampton School

D. M. Crothers and P. T. Gilham, co-chairman; William Studier and Julius Marmur, co-vice chairmen.

9–13 June. Chemical and enzymatic synthesis of oligo- and polynucleotides (A. L. Nussbaum, chairman). Transfer RNA: structure, enzymology, and function (U. L. RajBhandary, chairman). Physical studies of nucleic acids and their complexes (D. M. Crothers, chairman). DNA sequences (J. N. Abelson, chairman). Chemical modification and affinity probes (J. Ofengand, chairman). RNA synthesis and processing (M. L. Gefter, chairman). DNA tertiary structure (J. Vinograd, chairman). DNA nucleases and recombination enzymes (H. O. Smith, chairman). Structure of chromatin (K. E. Van Holde, chairman).

Odor and Taste, Chemistry and Physiology of

Proctor Academy

David G. Moulton, chairman; G. J. Henning, vice chairman.

28 July. Structure-activity relations (M. G. J. Betts, session chairman): K.-E. Kaissling, E. T. Theimer; W. L. Roelofs and M. G. J. Beets, discussants. Chemical signals controlling mammalian behavior and reproduction (G. Epple, session chairman): B. Keverne; A. B. Smith III, C. S. Evans, discussants. F. Bronson; C. T. Lee and F. Macrides, discussants.

29 July. Sensory functions at the cellular level (G. J. Henning, session chairman). E. J. Ariëns, W. A. Hagins and J. Adler. The development of new sweeteners (L. M. Beidler, session chairman).

30 July. Odor reception in insects (K.-E. Kaissling, session chairman); R. M. Silverstein, R. O'Connell. J. Boeckh, discussant. Volatile analysis and its correlation with odor (R. A. Flath, session chairman): M. R. Sevenants, J. Walradt. G. F. Russell and R. C. Lindsay, discussants.

31 July. Chemosensory coding (C. Pfaffmann, session chairman): R. P. Erickson, M. Frank, V. G. Dethier and R. O'Connell. Isolation of components of response to odors: electrophysiological, behavioral and molecular genetical approaches (D. Ottoson, session chairman): J. S. Kauer, R. Doty. S. Price, discussant.

1 August. Controversial issues in chemoreception (R. C. Gesteland, session chairman): J. Y. Lettvin and S. Shiffmann. M. G. J. Beers, discussant.

Organic Photochemistry

Tilton School

A. A. Lamola, chairman; D. Arnold, vice chairman.

28 July. Theoretical aspects, spectroscopy and fast kinetic methods: W. C. Herndon, K. Eisenthal, M. Robin, G. Closs and M. Ottolenghi.

29 July. Photochemistry of coordination compounds: V. Balzani and J. Endicott. Industrial and device applications: S. Bloom. Other speakers to be announced.

30 July. Synthetic aspects: R. Givens and A. Kende. Photobiology: speakers to be announced.

31 July. Mechanistic organic photochemistry: R. Caldwell, J. C. Dalton, F. D. Lewis, and R. S. H. Liu. Reviews and prospectus: G. S. Hammond and H. E. Zimmerman.

1 August. Photooxidation: B. Stevens, C. S. Foote and I. Matheson.

Organic Reactions and Processes

New Hampton School

John A. Ford, Jr., chairman; James C. Martin, vice chairman.

21 July. Gilbert Stork, "Latent functionality in annelation reactions"; Richard H. Schlessinger, "The Michael addition reaction applied to total synthesis"; Heinz G. Viehe, "The chemistry of phosgenimonium salts."

22 July. William L. Jorgensen, "Synthetic strategies: appendage and reconnective chemistries"; William J. Middleton, "Some uses of aminosulfur compounds in organic synthesis"; Harold Kwart, "Applications of kinetic isotope criteria to the elucidation of reaction mechanism."

23 July. Edward C. Taylor, "Synthesis of some unusual heterocyclic antibiotics"; Norman L. Weinberg, "Prospects for organic synthesis through electrochemistry"; Manuel M. Baizer, "Organic syntheses by electrolytic reductive coupling."

24 July. Fritz Beck, "Cell design and engineering in organic electrosynthesis"; Lennart Eberson, "Synthetic aspects of organic electrochemistry"; Arnold Weissberger, "A chemist's view of color photography."

25 July. James L. Webb, "The use of cyclic voltammetry to monitor the fate of electrically generated carbanions." This will be followed by relevant contributed papers by conference members.

Physico-Chemical Aspects of Photosynthesis

Tilton School

Roderick K. Clayton, chairman; D. W. Krogmann, vice chairman.

21–25 July. Pigment-protein complexes; reaction centers and antenna components: gross analysis, structural organization and activity: G. Drews, P. A. Loach, J. M. Olson, J. P. Thornber. Quantum distribution and trapping; evidence from light emitted by chlorophyll: J. Barber, A. Borisov, W. L. Butler, Govindjee, G. Hoch and J. Myers. Finer considerations of localization and orientation of components: C. Arntzen, N. Geacintov, W. Junge, R. P. Levine. Reaction centers; primary photoproducts and their interactions with secondary components: green plant system 1: A. Bearden, J. R. Bolton, B. Ke, A. San Pietro. Bacterial reaction centers: G. Feher and M. Y. Okamura, G. Gingras, C. A. Wraight and R. J. Cogdell. System 2 and oxygen evolution: J. Amesz, B. Diner, L. N. M. Duysens and H. van Gorkom, D. Knaff, R. Malkin, B. Kok, P. Mathis, K. Sauer and G. Babcock. Model systems and natural systems: properties of chlorophylls and their aggregates; physical models for photosynthetic mechanisms: J. Connolly, F. Fong, J. J. Katz, T. Cotton, J. Norris and M. Thurnauer. Metastable states and photochemical mechanisms; evidence from rapid optical and microwave spectroscopy; K. Kaufmann, D. Mauzerall and W. W. Parson. Comparative photochemistry of chlorophylls and their reaction partners in vitro, in purified reaction centers, and in vivo; R. K. Clayton, O. T. G. Jones, G. Tollin. The photochemistries of bacterial rhodopsin and bacteriochlorophyll. E. Abrahamson, B. Kohler, A. Lewis and W. Stoeckenius. Electron transport and energy coupling: electron and proton transport, ion distributions and optical probes, Part I. W. A. Cramer, P. L. Dutton, G. Hind, J. B. Jackson, D. W. Krogmann, C. Sybesma; Part II, M. Avron, B. Chance, R. I. McCarty, H. T. Witt. Electron transport and phosphorylation; sites and stoichiometries: D. I. Arnon, N. Good, D. O. Hall, A. Trebst. Intermediate states in energy coupling; the state of coupling factor in relation to its activity: R. Dilley, A. T. Jagendorf, D. Keister, R. Kraayenhof.

Physical Metallurgy

Franklin Pierce College

Charles J. McMahon, chairman; J. D. Livingston, vice chairman.

Critical Problems in Understanding the Micromechanisms of Fracture

16 June. Toughness at ordinary and low temperatures (J. R. Rice, chairman): J. F. Knott, G. T. Hahn, A. R. Rosenfield, J. C. Williams and J. C. Chesnutt. (S. J. Burns, chairman): J. R. Low Jr., J. D. Embury and J. B. Vander Sande.

17 June. (D. A. Woodford, chairman): M. Guttmann and R. A. Mulford. Fatigue crack initiation and growth (Campbell Laird, chairman): P. Neumann, C. J. Beevers and R. O. Ritchie.

18 June. (A. J. McEvily, chairman): R. M. Pelloux and B. Tomkins. Cavitation and cracking at elevated temperatures (D. P. Pope, chairman): R. Townsend, R. Raj and D. M. R. Taplin.

19 June. (A. S. Argon, chairman): M. F. Ashby and J. R. Rice. Environment induced cracking (chairman to be announced): R. N. Parkins, I. M. Bernstein and A. W. Thompson.

20 June. (M. J. Blackburn, chairman): M. O. Speidel and Peter Ford.

Plant Cell and Tissue Culture

Proctor Academy

Ernest G. Jaworski, chairman; Louis G. Nickell, vice chairman.

9 June. Plant improvement and breeding (C. A. Laible, discussion leader): G. F. Sprague, "Plant breeding and molecular genetics"; C. E. Green, "Application of *Zea mays* L. tissue cultures to breeding." Genetic applications of cell cultures (H. H. Smith, discussion leader): G. R. Fink, "Yeast, a model for molecular biological study of higher cells"; O. E. Nelson, Jr., "Biochemical genetics of higher plants."

10 June. Protoplast technology and application (O. L. Gamborg, discussion leader): F. Constabel, "Intergeneric protoplast fusion"; I. Potrykus, "Uptake of macromolecules and organelles." Haploids (pollen and anther culture) (N. Sunderland, discussion leader): K. J. Kasha, "Approaches to the development of haploid plants"; C. Nitsch, "Advantages of pollen culture for research in genetics and plant breeding."

11 June. Plant cell modification and selection (C. R. Merrill, discussion leader): D. Hess, "The use of pollen as vectors in genetic manipulation"; H. Smith, "Phage and plasmid applications to plant cell transformation." Plant cell modification and selection (continued) (P. S. Carlson, discussion leader): E. Signer, "Microbial mutant selection approaches and strategies"; J. M. Widholm, "Mutation and selection techniques for cultured plant cells."

12 June. Regeneration of organs and plants (T. A. Thorpe, discussion leader): H. E. Street, "Embryogenesis in somatic cells"; T. Murashige, "Morphogenesis and organogenesis." Special guest lecture: S. N. Cohen, "Construction of biologically functional plasmids in vitro."

13 June. Conference summary (L. G. Nickell, discussion leader): selected participants, "Definition of current and future needs in somatic cell biology."

Polyamines

Franklin Pierce College

Diane H. Russell, chairman; Werner K. Maas, co-chairman.

23 June. Polyamine synthesis and its control by cyclic AMP (Uriel Bachrach, session chairman): Diane H. Russell, "Ornithine decarboxylase as a general tertiary messenger in cell stimulation processes"; Brigid Hogan, "Roles of cyclic nucleotides and polyamine synthesis in the response of quiescent tissue culture cells to serum"; Craig V. Byus, "Ornithine decarboxylase regulation by cAMP-dependent protein kinase"; Carol-Ann Manen, "Ornithine decarboxylase and its relationship to RNA polymerase I"; David V. Maudsley, "On the apparent antagonistic relation of ornithine decarboxylase and histamine decarboxylase"; Peter McCann and Francis Schuber, "Regulation of ornithine decarboxylase and putrescine biosynthesis during the HTC cell cycle"; Pierre Mamont and Phillippe Bey, "Inhibitory effects of α-methyl ornithine on ornithine decarboxylase and on the growth rate of HTC cells"; Elizabeth Burg; and A. Worcel, "Polyamines stabilize the folded *E. coli* chromosome."

24 June. Possible physiological roles of polyamines (Carl C. Levy, session chairman): Seymour Cohen, "Polyamines and RNA viruses"; Werner K. Maas, "Mutations affecting synthesis of polyamines in *E. coli*"; P. R. Srinivasan, "Polyamines and translation"; David R. Morris, "Physiology of polyamine deficient cells"; Paul Popkin, "A mutant with a defect in lysine transport and a constitutive lysine decarboxylase"; Joel G. Flaks, "Polyamines and ribosomes."

25 June. Clinical aspects of polyamines (Diane H. Russell, session chairman): Brian G. M. Durie, "Polyamines as biochemical markers of cancer"; Laurence J. Marton, "Increased polyamine concentrations in the CSF of patients with brain tumors"; Robert A. Campbell, "Clinical radioimmunoassay studies of polyamines in cancer, cystic fibrosis and kidney disease"; Harlan Giles, "Polyamines in urine, serum and amniotic fluid during pregnancy: their usefulness as markers of high-risk pregnancy"; Edward Herbst, "Polyamines in *N*-nitrosamine carcinogenesis"; Frantisek Bartos, "Development of specific polyamine antibodies and their importance for future research"; Dagmar Bartos, "Immunoassays as a new approach for determinations of polyamines in biological fluids."

26 June. Metabolism (Seymour Cohen, session chairman): Leon T. Kremzner, "Neural modulation of polyamine metabolism in normal and dystrophic muscle"; John A. Sturman, "Polyamine metabolism in brain and liver of the rhesus monkey: neonate to adult"; Nikolaus Seiler, "Aspects of polyamine catabolism in vertebrates"; Carl C. Levy, "Relationship between polyamines and ribonuclease activity"; Robert B. Loftfield, "In vivo participation of polyamines in the synthesis of aminoacyl-tRNA"; Lewis Stevens, "Intracellular polyamine levels and rates of RNA synthesis."

27 June. Synthesis (Leon T. Kremzner, session chairman): Uriel Bachrach, "Polyamine synthesis in chick embryo fibroblasts transformed by Rous's sarcoma virus"; Takami Oka, "Hormonal regulation of spermidine synthesis during development of mammary gland in vitro"; John L. A. Mitchell, "In vivo modification of ornithine decarboxylase in *Physarum polycephalin*."

Polymers

Colby Women's College

John K. Stille, chairman; W. Carl Wooten, Jr., vice chairman.

28 July. (N. G. Gaylord, chairman): N. J. Turro, "Energy transfer and photochemical mechanisms in polymers"; J. J. O'Malley and J. Pearson, "Synthesis and properties of organic photoconductors." (W. A. Hewett, chairman): D. Williams, "The generation and transport of charge in polymeric materials"; M. J. S. Bowden, "Electron irradiation of polymers and its application to resists for electron beam lithography."

29 July. (W. H. Stockmayer, chairman): R. Koningsveld, "Thermodynamic properties of multicomponent macromolecular systems"; D. J. Meier, "The interfacial activity of block copolymers in mixed homopolymer systems." (F. R. Eirich, chairman): S. Sharda, "Recent work in rubber rheology."

30 July. (M. Litt, chairman): G. Montaudo, "Structural effects on the thermal and photolytic degradation of cyclobutane containing polyamides"; T. Saegusa, "No catalyst copolymerization by spontaneous initiation mechanism. A new type of alternating copolymerization." (J. Economy, chairman): P. W. Morgan, "Polyamides which form liquid crystalline solutions." R. Koningsveld and W. H. Stockmayer: "Polymer Music" (a four-movement two-piano suite: I. Random Coils and Crosslinks. II. Fluctuations. III. Folded Chain Chorale. IV. Helical Waltz.)

31 July. (H. Ringsdorf, chairman): R. Capozza, "Controlled drug release via polymer erosion"; A. Schindler, "Charge mosaic membranes, preparation and piezodialysis." (O. Vogl, chair-

man): T. G. Traylor, "Models for heme proteins."

1 August. (C. S. H. Chen, chairman): E. J. Vandenberg, "A new class of polyethers—poly(1,4-dicholoro-2,3-epoxybutane)—synthesis, mechanism and property aspects"; W. C. Forsman, "Dilute solution characterization of poly(1,4-dichloro-2,3-epoxybutane)."

Polymer Combustion and Fire Retardance

Brewster Academy

Sharon K. Brauman, co-chairman; Eli M. Pearce, co-chairman.

18 August. A. S. Gordon, "Unwanted flames and their extinguishment from a chemist's view"; A. M. Kanury, "Chemistry in diffusional combustion of polymers"; R. Magee, "Flame spread mechanisms"; F. A. Williams, "Diffusional flame theory and its relationship to retardance and extinction of polymer combustion."

19 August. N. Grassie, "Application of thermal volatilization analysis to the investigation of the thermal degradation of polymers"; J. Parker, "Application of advanced materials for enhancing aircraft survivability"; W. Van Krevelen, "Relationships between flammability, char forming reactions and chemical structure"; D. E. Steutz, "Mechanisms of polymer flammability."

20 August. B. Miller, "Recent studies on the burning behavior of fabrics"; M. Lewin, "The effects of fine structure on pyrolysis"; R. Barker, "Fire retardant fiber blends."

21 August. R. J. Schwarz, "Mechanistic studies of flame retardance in polyolefins"; J. W. Hastie, "Chemical mechanisms of fire retardance"; K. C. Salooja, "Ignition, combustion, and inhibition; comparative behavior of hydrocarbons and polymers."

22 August. J. H. Futrell, "New analytical methods for characterizing products of combustion"; D. Lawson, "Structural effects on smoke inhibitors in polymers."

Postharvest Physiology

Miramar Hotel

James M. Lyons, chairman; James K. Palmer, vice chairman.

23 June. Biochemistry and physiology of ripening and senescence (R. J. Romani, discussion leader). Current concepts in the role of calcium in senescence (M. Faust, discussion leader).

24 June. Current concepts in ethylene physiology (G. Laties, discussion leader). Growth regulators other than ethylene in fruit development and ripening (N. Looney, discussion leader).

25 June. Quality changes after harvest (M. A. Stevens, discussion leader). Low temperature disorders (W. Grierson, discussion leader).

26 June. Relationships between physiological disorders and modified atmosphere (W Lipton, discussion leader). Postharvest pathology—physiological and biochemical implications (N. Sommer, discussion leader).

27 June. Postharvest physiology—where from here? (James M. Lyons, discussion leader).

Proteins

New Hampton School

George Nemethy, co-chairman; Alan N. Schechter, co-chairman; Stephen J. Benkovic, co-vice chairman; Philipp Strittmatter, co-vice chairman.

16 June. Evolutions of proteins (R. Hill, chairman): W. Miller, "Globularity in copolymers"; B. Hartley, "Enzyme specificity"; M. Rossmann, "Enzyme structural comparisons." X-ray structures (B. Matthews, chairman): R. Stroud, "Serine proteases"; S. Harrison, "Tomato bushy stunt virus."

17 June. Self-assembly of proteins (K. Piez, chairman): J. Hofrichter, "Gelation of hemoglobin S"; G. Borisy, "Microtubules"; W. Harrington, "Muscle thick filaments." Immunoglobulins and cell receptors (D. Davies, chairman): E. Padlan, "Immunoglobulin crystallography"; R. Poljak, "Immunoglobulin crystallography"; J. Wang, "Cell receptors."

18 June. Cascade systems (Y. Nemerson, chairman): H. Müller-Eberhard, "Complement"; J. Pisano, "Kallikrein and Kinin"; K. Mann, "Thrombin generation"; P. McKee, "Plasminogen." Session of short contributed papers.

19 June. Protein-nuclei acid interactions (P. von Hippel, chairman): B. Alberts, "DNA-protein interactions in T_4"; P. Schimmel, "tRNA-protein complexes"; G. Felsenfeld, "Chromatin." Special lecture.

20 June. Protein chemistry in the solid phase (C. B. Anfinsen, chairman): M. Wilchek, "Affinity chromatography."

Quantitative Structure-Activity Relationships in Biology

Franklin Pierce College

Paul N. Craig, chairman

30 June. P. Craig and C. Hansch, "Introduction and conference objectives"; P. Craig, S. Siegel and F. Fisher, "Potential applications of quantitative structure-activity relationships (QSAR) to fields of cancer and the environment"; C. Hansch, T. Fujita, J. Shorter and I. V. Berezin, "Applications of QSAR techniques to enzyme studies."

1 July. Substituent constants (R. W. Taft, discussion leader): R. Topson, B. M. Wepster, F. Bordwell, L. Allen and R. Taylor. A. Leo, R. F. Rekker and T. Fujita, "Partition substituent constants."

2 July. Pattern recognition—multivariate statistics (A. Cammarata, discussion leader): K. Enslein, B. Kowalski, Y. C. Martin and K. Chu. Special contributions submitted in advance by those in attendance (W. P. Purcell, discussion leader).

3 July. Applications of QSAR to the development of medicinal agents (J. Topliss, discussion leader): S. Unger, J. Seydel, C. Silipo, E. Kutter, Y. C. Martin, E. Lien and R. W. Cramer.

4 July. Applications of QSAR to development of pestcides (K. Buchel, discussion leader): P. Kurtz, W. Draber, R. Fukuto and C. Wilkinson.

Quantum Solids and Fluids, Dynamics of

Brewster Academy

S. Doniach, chairman; G. Ahlers, vice chairman.

Cooperative Phenomena in Solids and Fruits

14–18 July. The conference will be concerned with results of renormalization group theory applied to condensed matter physics with particular reference to critical phenomena. One of the main objectives of the conference will be to stimulate exchange of ideas between experimentalists and theorists. Topics to be discussed will include applications of renormalization group techniques to static and dynamic critical phenomena including tricritical points, liquid helium, dipolar Ising systems, disordered systems. Singular phenomena in one dimensional conductors and Kondo systems, phase transitions in liquid crystals.

Speakers will include A. Aharoni, J. Als-Nielsen, P. W. Anderson, R. Birgenau, E. Brezin, V. Emery, M. E. Fisher, B. I. Halperin, L. P. Kadanoff, T. Lubensky, A. Luther, W. McMillan, F. Pobell, B. Widom, A. Zawadowski and W. Zimmermann.

Radiation Chemistry

New Hampton School

Larry Kevan, chairman; Russell Johnsen, vice chairman.

14 July. (A. Mozumder, discussion leader): Neil Kestner, "Theoretical studies of electron-solvent interactions." (Brian Webster, discussion leader): Marshall Newton, "Ab-initio calculations of solvated electrons."

15 July. (Hiroshi Yoshida, discussion leader): Yu. D. Tsvetkov, "The application of electron spin echoes to radiation chemistry." (Peter Sargent, discussion leader): Edward G. Janzen "Spin trapping." (Hans Ache, discussion leader): Ole Mogensen, "Solvated positron chemistry and positronium formation in spurs."

16 July. (Annette Bernas, discussion leader): John Miller, "Electron tunneling in rigid matrices: pulse radiolysis studies." (John Willard, discussion leader): David C. Walker, "Laser photobleaching of solvated electron bands." (A. O. Allen, discussion leader): Gordon Freeman, "Electron mobilities in liquids."

17 July. (Larry Patterson, discussion leader): J. Kerry Thomas, "Radiation-induced processed in micellar systems"; Dietrich Schulte-Frohliner, "Radiation chemistry of DNA model compounds." (Russell Johnsen, discussion leader): contributed papers.

18 July. (Leon Dorfman, discussion leader): Dieter Asmus, "Chemical studies by pulse radiolysis."

Separation and Purification

Colby Women's College

Wolf R. Veith, chairman; Alan S. Michaels, vice chairman.

18 August. Extraction processes (Wolf R. Vieth, discussion leader): Karl Schügerl, "Interaction of fluid dynamics, interfacial phenomena and mass exchange in extraction processes"; Gordon Flynn, "A priori estimation of separation capabilities based on physical chemical parameters"; Max E. Breuer, "Countercurrent controlled cyclic liquid-liquid extraction."

19 August. Chromatographic separations (E. G. Perry, discussion leader): E. N. Lightfoot, "Polarization chromatography and the systematic design of separations processes"; Eli Grushka, "Chromatographic studies of liquid crystals as stationary phases"; G. David Novelli, "The application of reversed-phase column chromatography for the large scale production of pure species of transfer RNA."

20 August. Electrochemical separations and macromolecular purification (H. J. Bixler, discussion leader): Harris J. Bixler, "Purification and utilization of natural polysaccharides"; Shuichi Suzuki, "Electrolytic purification of sugars, amino acids and waste waters"; Joseph D. Henry, Jr. "Dual functional solid-liquid separations: implications of electrophoretic phenomena"; K. Venkatasubramanian, "Electrocode position of collagen-enzyme conjugates."

21 August. Membrane processes (H. P. Gregor, discussion leader): Burton Davidson, "Combined reverse osmosis, enzyme membrane and ion exchange process for wastewater purification"; Channing Robertson, "An immobilized enzyme reactor using asymmetric hollow fiber membranes"; Harry P. Gregor, "Liquid-liquid extraction processes across membranes.

22 August. Recent developments (Norman Li, discussion leader): Jeffrey M. Howell, "Dual sorption theory and applications"; R. P. Cahn, "Removal of ammonium sulfide from industrial sour water by a liquid membrane process."

Solids, Chemistry and Physics of

Holderness School

Fred R. Gamble, chairman; E. W. Plummer, vice chairman.

28 July–1 August. The Conference on the Chemistry and Physics of Solids will be focused primarily on quasi two-dimensional solids and especially on the layered chalcogenides. We expect to cover super conductivity, magnetism, charge density waves, optical properties, electronic properties generally, ionicity, preparative techniques, intercalation chemistry, electrochemistry, interlayer molecular and ionic dynamics and bonding, and finally band structures. A small portion of the meeting will be devoted to experimental studies and surface physics (namely chemisorption) that relates to two-dimensionality of the layered compounds. (Speakers to be announced.)

Space Plasma Physics

Franklin Pierce College

Edward Ott, chairman; Donald T. Farley, vice chairman.

9 June. (B. Balsley, discussion leader): M. Hudson, "Theory of equatorial spread F"; R. Woodman, "Radar observations of equatorial spread F"; M. Kelly, "In situ observations of equatorial spread F." (K. Papadopoulous, discussion leader): D. T. Farley, "Plasma turbulence in the equatorial electrojet"; T. Coffey, "Computational approaches to modeling ionospheric irregularities"; F. Perkins, "Small scale irregularities in the ionosphere."

10 June. (Discussion leader to be announced): S. L. Ossakow, "Morphology, striations and image effects in ionospheric clouds"; L. Linson, "Barium cloud striation onset time—theory and observation"; R. Greenwald. "Radar aurora." (D. Tidman, discussion leader): P. Kellog, "Finite amplitude waves in the solar wind"; D. Fairfield, subject to be announced.

11 June. (C. S. Wu, discussion leader): W. Feldman, "Plasma velocity distributions in the solar wind"; S. P. Gary, "Solar wind heat conduction regulating mechanisms"; J. V. Hollweg, "Waves and instabilities in the solar wind—possible resolution of some theoretical problems." (R. Kulsrud, discussion leader): G. Hearendel, "Shear flow instabilities in the magnetosphere"; A. Hasagawa, "Kinetic theory of the Kelvin-Helmholtz instability."

12 June. (T. R. McDonough, discussion leader): J. A. Simpson, "Acceleration modes for energetic particles in the Jovian and Mercurian magnetospheres"; John H. Wolfe and J. D. Mihalov, "The interactions of the solar wind with Jupiter"; S. D. Shawhan, "Decametric radiation in light of pioneer results." (T. Birmingham, discussion leader): R. Thorne, "Particle precipitation processes"; R. Fredricks, "Plasma instabilities and particle precipitation in the outer magnetosphere"; D. Gurnett, "The earth as a radio source."

13 June. (E. Ott, discussion leader): R. Helliwell, "Active VLF experiments in the magnetosphere"; R. N. Sudan, "Theory and computer simulation of

triggered VLF emissions"; J. Meltz, "Ionospheric heating with radio waves."

Statistics in Chemistry and Chemical Engineering

New Hampton School

John D. Hinchen, chairman; Peter W. M. John, vice chairman.

7 July. (David W. Bacon, moderator): Robert V. Hogg, "Robust regression procedures with applications." (Louis J. Painter, moderator): Jacob Sredni, "Application of Box-Cox transformation in the manufacture of integrated circuits."

8 July. (William M. Wooding, moderator): John Mandel, "Hypothesis testing as a scientific tool: a critique and some suggestions." (William W. Foster, moderator): William S. Cleveland and Beat Kleiner, "A statistical investigation of the photochemistry and transport of ozone in the Northeast United States."

9 July. (John S. Ramberg, moderator): Oscar Kempthorne, "Inference and randomization." (John W. Gorman, moderator): John A. Cornell, "Interpretation of surfaces in mixture experiments by gradients: some graphical aids."

10 July. (Harry O. Hehner, moderator): H. O. Hartley, "Incomplete data analysis." (John J. Halsey, moderator): Kurt Enslein, "Clustering, pattern recognition and classification."

11 July. (S. M. Free, Jr., moderator): Howard R. Moskowitz, "Multidimensional scaling and clustering of odorants."

Textiles: Fiber Science

Colby Women's College

Hans-Dietrich Weigmann, chairman; Dusan Prevorsek, vice chairman.

30 June. Harold Schonhorn, "Surface properties of polymers and environmental aspects of adhesion"; David J. Carlsson, "The study of polymer weathering by internal reflection IR spectroscopy and electron microscopy"; Gerhard Egbers, "Characterization of surface properties of synthetic fibers with streaming potential method."

1 July. Raymond A. Young, "Interrelationships of fiber, yarn and fabric wetting characteristics"; Erik Kissa, "Soiling and detergency"; Norman R. S. Hollies, "Exploration of microsurface effects in the chemical finishing of textiles."

2 July. Adam Wesolowski, "Application of fibers to cardiovascular protheses"; Elie S. Nuwayser, "The use of microfabric structures for the development of vascular assist devices"; William K. Walsh, "Electron beam curing of adhesives in textiles."

3 July. Russel J. Diefendorf, "The surface of carbon fabrics and composite performance"; William A. Fraser, "Measuring coupling and sizing agent effects in fiber reinforced composites"; Roger McCraith, "The biaxial load-extension properties of knitted fabrics."

4 July. Gerhard Heidemann, "Special processing aspects in the heat setting of polyester yarns and fabrics."

Theoretical Biology and Biomathematics

Tilton School

George F. Oster, chairman; Stuart Kauffman, vice chairman.

16–20 June. The general theme of this year's conference is the mathematical modelling of biological populations at various levels of organization. Cell populations and the cancer problem: J. Aroesty and T. Lincoln, "Mathematical models for cancer chemotherapy"; S. Rubinow, "Normal neutrophil production, leukemia and the optimization of chemotherapeutic regimens." Lymphocyte populations and the immune system: U. Rutishauser, "Population dynamics of cells and molecules in the immune system"; G. Bell, "Mathematical models in immunology"; N. Jerne, (subject to be announced). Animal populations and population ecology: R. May, "Biological populations with nonoverlapping generations: stable points, stable cycles, chaos"; E. O. Wilson, "The central questions of sociobiology"; N. Keyfitz, "What mathematical demography tells us that we wouldn't know without it"; R. Payne, "Long range communication in whales." Developmental biology; spatial and temporal organizations of cell populations: S. Kauffman, "Analysis of determination decisions in drosophila"; P. Bryant, "Pattern formation in imaginal discs of drosophila"; M. Steinberg, "Adhesion-guided multicellular assembly"; S. Kochen, "Symmetry and morphogenesis"; A. Winfree, "A biological clock as a population of oscillators." Motility and the movement of cell populations: M. Cohen, "Wave propagation during the aggregation of *Dictyostelium discoideum*"; G. Odell, "A continuum theory of axoplasmic transport"; L. Segel, "Incorporation of receptor kinetics into a model for bacterial chemotaxis"; J. Keller, "Mathematical problems in athletics."

Thin Films and Solid Surfaces

Proctor Academy

James F. Freedman, chairman; Eric Kay, vice chairman.

18 August. Mass transport I: T. Tsong, "Surface diffusion of single atoms and clusters and atomic interactions"; J. Gibbons, "Ion implantation and controlled diffusion in semiconductors." Mass transport II: P. Turner, "Thin film diffusion"; R. S. Sorbello, "Driving forces for electromigration."

19 August. Phase transformation I: K. Tu, "Kinetics of silicide formation"; T. Reith, "Metallurgical reactions of metal-silicon rectifying interfaces." Phase transformation II: M. Shatzkes and M. Av-Ron, "Impact ionization and positive charge in SiO_2 thin films." Contributed papers and open discussion.

20 August. Corrosion/oxidation I: T. Madey, "Recent experimental studies of chemisorption"; L. Young, "Oxidation studies of silicon." Corrosion/oxidation II: J. Silcox, "Oxide structures in evaporated Al films." H. M. Flower and P. Swann, "The use of electron microscope environmental cells in the study of gas solid reactions."

21 August. Reliability physics I: C. G. Peattie, "Elements of semiconductor device reliability"; E. Philofsky, "Factors affecting the reliability of thin films and interconnections in semiconductor devices." Reliability physics II: P. Petroff, "Degradation phenomena in III–V compound semiconductors." Election. Contributed papers.

22 August. Defect studies: B. Berry, "Internal friction studies of defects in thin films"; A. Howie, "Direct visualization of surface structures in the electron microscope."

Transport Phenomena in Lipid Bilayer and Biological Membranes

Tilton School

Gerald Ehrenstein, chairman; Jared Diamond, vice chairman.

25–29 August. Transport through membrane lipids (D. Tosteson, discussion leader): S. Krausne, J. Gutknetch

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and O. Sparre-Anderson. Ionic transport through hydrophylic pores (A. Finkelstein, discussion leader): J. Moreno, and M. Eisenberg. Membrane transport related to other biological processes (W. Hagins, discussion leader): P. Maloney, S. Yoshikami. Voltage-dependent gating (H. Lecar, discussion leader): J. Hall, F. Bezanilla, L. Goldman. Functional organization of epithelium (J. Diamond, discussion leader): E. Frömter, and S. Lewis. Reconstitution of function in membranes (T. Thompson, discussion leader): P. Hinkle, G. Kemp. Synaptic transmission (W. Van der Kloot, discussion leader): F. Sachs, and A. Clark. Membrane fluidity (S. McLaughlin, discussion leader): M. Edidin, and H. McConnell. Summary (G. Ehrenstein, discussion leader): P. Mueller.

Transport Phenomena in Synthetic and Biological Membranes

Colby Women's College

Norman N. Li, chairman; Christopher T. Rhodes, vice chairman.

14 July. William J. Ward, III, "Mass transfer through liquid and polymer membranes"; R. M. Minday, "Separations by selective transfer through liquid membranes." (Harold K. Lonsdale, discussion leader): H. K. Lonsdale and W. Pusch, "Donnan effects in synthetic membranes"; E. Drioli, H. K. Lonsdale and W. Pusch, "Dynamically formed and transient membranes."

15 July. (Christopher T. Rhodes, discussion leader): Victor Smolen, "Cooperative phenomena in solute interactions and transport"; G. N. Ling, "Applications of physical chemical theories to transport in biological membranes." (Donald R. Paul, discussion leader): C. E. Rogers, "Structure modification of polymer transport properties"; short presentations (invited or contributed by attendees. Attendees who would like to contribute should contact Prof. D. R. Paul of University of Texas, Austin, Texas 78712 before 15 June). A. A. Kozinski, "Separations with protein liquid crystals"; Joseph D. Henry, Jr., "Potential applications of dynamic membranes in biological transport systems."

16 July. H. B. Hopfenberg, "Relaxation-controlled transport processes in polymers"; William Eykamp, "Membrane processing of aqueous solutions." (Gilbert N. Ling, discussion leader): H. R. Kaback, "Molecular aspects of active transport in isolated bacterial membrane vesicles"; Richard Jones, "Investigation of drug transport across the skin."

17 July. (James Danielli, discussion leader): David Triggle, "Calcium utilization and transport in smooth muscle"; Harden M. McConnell, "Molecular motion in biological membranes." (Clark K. Colton, discussion leader): Thomas M. S. Chang, "Microcapsule artificial kidney"; John A. Quinn, "Carbon dioxide transport through reactive membranes."

18 July. Harry P. Gregor, "Electrodialytic water splitting"; Edwin N. Lightfoot, Jr., "Modeling membrane transport."

Toxicology and Safety Evaluations

Kimball Union Academy

Ralph C. Wands, chairman; Anne M. Wolven, vice chairwoman.

28 July. (L. D. Scheel, chairman): J. D. MacEwen, "Inhalation toxicology

of coal tar pitch volatiles"; C. F. Reinhardt, "Fire toxicology." (William E. MacDonald, chairman): P. N. Kaul, "Toxicology of marine natural products."

29 July. (Rolf Hartung, chairman): W. B. Buck, "Toxicology of copper and related metals"; Donald Barltrop, "Toxicology and absorption of lead in the young animals." (R. M. Hehir, chairman): W. K. Talley, "Research and development at EPA"; John Buckley, "Substitute pesticide development."

30 July. (W. G. Flamm, chairman): J. F. Fraumeni, "Human genetics and cancer"; David Brusick, "Mutagenesis and carcinogenesis screening." (R. J. Weir, chairman): A. E. New, "Primate supply and breeding."

31 July. (E. V. Anderson, chairman): Panel discussion: Carcinogenesis data extrapolation. David Gaylor, R. E. Albert and C. S. Weil. (B. D. Dinman, chairman): W. W. Lowrance, "Safety evaluation and the public."

1 August. (A. M. Wolven, chairwoman): W. R. Muir, "Environmental decision making."

BOOKS RECEIVED

(Continued from page 946)

Clifford A. Barnes. Washington Sea Grant Program, Seattle, 1974 (distributor, University of Washington Press, Seattle). xii, 236 pp. Paper, $15.

Automata, Languages and Programing. Papers from a colloquium, Saarbrücken, Germany, July 1974. Jacques Loeckx, Ed. Springer-Verlag, New York, 1974. 620 pp., illus. Paper, $19.70. Lecture Notes in Computer Science, vol. 14.

The Behavioral Treatment of Psychotic Illness. Advances in Theory and Technique. William J. DiScipio, Ed. Behavioral Publications, New York, 1974. 240 pp., illus. $12.95.

Bilayer Lipid Membranes (BLM). Theory and Practice. H. Ti Tien. Dekker, New York, 1974. xii, 656 pp., illus. $39.50.

Biochemical Reactors. B. Atkinson. Pion Limited, London, 1974 (U.S. distributor, Academic Press, New York). xiv, 268 pp., illus. $13. Pion Advanced Biochemistry Series, 2.

The Biology of the Laboratory Rabbit. Steven H. Weisbroth, Ronald E. Flatt, and Alan L. Kraus, Eds. Academic Press, New York, 1974. xiv, 496 pp., illus. $49.50.

Brain Dysfunction in Metabolic Disorders. Proceedings of a symposium, Dec. 1973. Fred Plum, Ed. Raven, New York, 1974. xii, 324 pp., illus. $21.50. Association for Research in Nervous and Mental Disease Research Publications, vol. 53.

By Bread Alone. Lester R. Brown with Erik P. Eckholm. Published for the Overseas Development Council by Praeger, New York, 1974. xvi, 272 pp., illus. $8.95.

Calkin Algebras and Algebras of Operators on Banach Spaces. S. R. Caradus, W. E. Pfaffenberger, and Bertram Yood. Dekker, New York, 1974. x, 146 pp. Paper, $13.75. Lecture Notes in Pure and Applied Mathematics, vol. 9.

Capitalism in a Changing World. Rex Dye. Vantage, New York, 1974. x, 230 pp. $9.50.

The Challenge of Facts. Selected Public Health Papers of Edgar Sydenstricker. Richard V. Kasius, Ed. Published for the Milbank Memorial Fund by PRODIST, New York, 1974. xii, 386 pp., illus. $15.

Changing Perspectives in the History of Science. Essays in Honour of Joseph Needham. Mikuláš Teich and Robert Young, Eds. Reidel, Boston, 1973. xxii, 490 pp., illus. + plates. $19.50.

Chemistry of the Carbonyl Group. A Programmed Approach to Organic Reaction Mechanism. Stuart Warren. Wiley, New York, 1974. Variously paged. Paper, $4.95.

Child-Centered Group Guidance of Parents. S. R. Slavson. International Universities Press, New York, 1974. x, 334 pp. Paper, $3.95. Reprint of the 1958 edition.

Children in the Hospital. Thesi Bergmann in collaboration with Anna Freud. International Universities Press, New York, 1974. 162 pp. Paper, $2.45. Reprint of the 1965 edition.

Chromosomes and Cancer. James German, Ed. Wiley, New York, 1974. xxviii, 756 pp., illus. $35. Chromosomes Series, vol. 1. A Wiley Biomedical-Health Publication.