Gordon Research Conferences

Alexander M. Cruickshank

The Gordon Research Conferences for the summer of 1973 will be held in New Hampshire.

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.

Registration and reservations. Individuals interested in attending the Conferences are requested to send their applications to the office of the director. These applications should be received no later than 2 months prior to the Conference.

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 that is 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 also 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.

The charge for room and meals for each guest is $85 for five Conference days. 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.

Fees:

	New Hampshire
Conferee:	
Resident (Registration, room, meals, service)	$135
Nonresident (Registration, meals, service—no room)	120
Deposit	30
Guest:	
Room, meals, services, for five Conference days	85
Deposit	30

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

Cancellation. The conferee deposit will be forfeited if an approved application for attendance at a Conference is cancelled. *This deposit is not transferable to another Conferee or Conference.*

Program. The complete program for the 1973 Gordon Research Conferences is published in this issue of *Science.* Reprints are available on request.

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

Mail for the office of the director from 11 June to 31 August 1973 should be addressed to Dr. Alexander M. Cruickshank, Director, Gordon Research Conferences, Colby Junior College, New London, New Hampshire 03257. Telephone 603-526-2870.

The program to be presented is as follows:

Adhesion, Science of

New Hampton School

Frederick M. Fowkes, chairman; Willard D. Bascom, vice chairman.

20 August. (R. E. Johnson, discussion leader): W. D. Bascom, "Mechanically focused interfacial failure of adhesive bonds"; M. Tamsky, "Adhesion to low energy surfaces." (J. R. Dann, discussion leader): R. E. Baier, "Aspects of biological adhesion."

21 August. (C. L. Mahoney, discussion leader): J. Bolger, "Current state of the art in adhesives"; K. Hamann, "Polymer reactions on solid surfaces." (R. J. Good, discussion leader): R. S. Drago, "Predictions of magnitude of acid-base interaction."

22 August. (D. K. Donald, discussion leader): C. Weaver, "Electrostatics in adhesion"; D. K. Davies, "Charge-trapping measurements of polymers." (R. R. Stromberg, discussion leader): E. Baer, "Adhesion between domains in polymeric materials."

23 August. (B. L. Butler, discussion leader): K. L. DeVries, "Evaluation of adhesive fracture energy and strength for complex bonding geometrics"; F. L. Howland, "Adhesion of metals to dielectrics and of metals to metals." (D. J. Carlsson, discussion leader): M. Hudis, "Plasma-induced cross-linking of polymers."

24 August. (T. K. Kwei, discussion leader): J. A. Manson, "Effects of fillers on water-permeation of polymers"; J. L. Kardos, "Property control in reinforced polymers through interface tailoring."

Analytical Chemistry

New Hampton School

John T. Funkhouser, chairman; James W. Robinson, vice chairman.

13–17 August. This year's Conference will focus on approaches and techniques for characterization and measurement of water quality. Topics to be covered include: new techniques for water quality monitoring; identification and characterization of organics; quantitative measurements and "zero pollution"; analysis of inorganics; difficulties in sampling "polluted" sources; problems and opportunities in automatic or continuous analysis; need for analytical standards; and research needs for the future. Throughout this Conference, a major emphasis will be placed on participation by individual attendees in technical presentations as well as group discussions so that new insights into this complex problem area can be developed. Participants will include: William Donaldson, John Farrington, Martin Frant, David Hercules, Theodore Kneip, Robert Kroner, Kahil Mancy, Harry Mark, Wayne Matson, Charles Merritt, and John Taylor.

Animal Cells and Viruses

Kimball Union Academy

Purnell W. Choppin, chairman; Robert Perry, vice chairman.

25–29 June. Genetics (Elmer R. Pfefferkorn, chairman). RNA replication and transcription (Joseph R. Kates, chairman). Protein synthesis (Peter Lengyel, chairman). Viral and cell membranes (Richard W. Compans, chairman). Viral interference; persistent infection (Alice Huang, chairman). RNA tumor viruses (J. Michael Bishop, chairman). Double-stranded RNA viruses (Aaron J. Shatkin, chairman). DNA viruses (Lennart Philipson, chairman). DNA tumor viruses; integration (Arnold Levine, chairman).

Arteriosclerosis Research

Tilton School

Abel L. Robertson, Jr., chairman; William E. Connor, co-vice chairman; Colin J. Schwartz, co-vice chairman.

Survey of Current Research in Arteriosclerosis

18 June. A. L. Robertson, welcoming remarks. (J. Geer, discussion leader): J. Geer, "Ultrastructure of the mammalian arterial wall in relation to atherogenesis"; F. Scott, "Metabolic changes of the arterial wall in early atheroma"; S. Glagov, "Comparative structural and functional characteristics of the arterial wall." Roundtable discussion (A. Robertson, discussion leader): My experience with arterial cells in culture. Identification of metabolic requirements in different species. Nomenclature. R. Ross, K. Dzoga, R. St. Clair, T. Daoud, R. Florentin, A. Robertson. (G. McMillan, discussion leader): G. McMillan, "The initial atheromatous lesion, role of repair"; H. McGill, "The 'fatty streak' in man and laboratory models."

19 June. (R. W. Wissler, discussion leader): R. W. Wissler, "Development of experimental arteriosclerosis"; W. A. Thomas, "Species differences in incidence of experimental coronary vs. aortic atheroma"; A. Gresham, "Species differences in response to atherogenic diets." (F. Scott, discussion leader): W. Hollander, "Arterial connective tissue changes"; H. Wolinsky, "Connective tissue studies during atherogenesis"; B. Taylor, "Vascular scarring and atherogenesis."

20 June. (A. B. Chandler, discussion leader): A. B. Chandler, "Intravascular thrombosis and atherogenesis"; K. Brinkhous and F. G. Mason, "Platelet aggregation and release phenomenon"; M. Stemerman, "Interplay of platelets and endothelial cells in vascular disease." Roundtable discussion (C. J. Schwartz, discussion leader): My studies on the structure and function of arterial endothelium. R. Minick, G. Majno, H. Friederici, C. Becker, C. J. Schwartz, A. L. Robertson. (G. Majno, discussion leader): G. Majno, "The contractility of vascular endothelium"; C. J. Schwartz, "Spontaneous changes in arterial permeability and vascular disease"; A. L. Robertson, "Role of circulating vasoactive agents and immunoglobulins in the initiation of atheroma.

21 June. (H. Lofland, discussion leader): R. Levy, "Lipoprotein abnormalities and vascular disease—a review"; E. Smith, "Lipoprotein content of human atheroma"; H. Lofland, "Genetic models for hyperlipoproteinemias." (D. Goodman, discussion leader): D. Goodman, "Cholesterol pools"; P. Schriebman, "Clinical data on cho-

lesterol transport"; W. Philips, "Experimental studies in cholesterol transport"; A. Chobanian, "Metabolism and function of lipoproteins in the arterial wall."

22 June. (W. E. Connor, discussion leader): R. Pritchard, "Evaluation of experimental and clinical regression of atheromata"; M. Armstrong, "Reversibility of established arterial lesions in nonhuman primates"; W. E. Connor, "Clinical evaluation of regression studies in man"; R. Tracy, "A mathematical model of arteriosclerosis." Closing remarks. W. E. Connor, C. J. Schwartz, A. L. Robertson.

Atomic Physics

Proctor Academy

Marvin H. Mittleman, chairman; Benjamin Bederson, vice chairman.

18–22 June. J. Brossel, "Spectroscopy"; M. Ya Amusia, "Limits to many-body calculations"; P. G. Burke, "Close coupling—past, present and future"; H. R. Reiss, "Atoms in intense electromagnetic fields"; P. Thaddeus, "Interstellar molecules and associated puzzles"; W. Reinhardt, "Analyticity methods in atomic physics"; H. Kleinpoppen, "Experiments with polarized particles"; J. W. McGowan, "Future of position scattering experiments"; G. J. Schulz, "High-energy resolution in charged-neutral scattering"; C. E. Kuyatt, "High-energy resolution in charged-neutral scattering"; J. Macek, "Spectroscopy"; K. T. Dolder, "Charged-charged scattering experiments"; R. T. Poe, "Many-body calculations—the future and limits"; J. Nuttall, "Analyticity methods"; J. C. Y. Chen, "Eikonal and intermediate energy methods"; A. Kerman, "Lessons from nuclear physics"; K. Rubin, "Beam coherence experiments"; M. H. Mittleman, "Relativistic effects."

Biological Interaction and Transport

Tilton School

Thomas E. Andreoli, chairman; Gerald Ehrenstein, vice chairman.

27 August. Channel-mediated ion transport in synthetic membranes (G. Ehrenstein, discussion leader): A. Finkelstein, G. Ehrenstein and R. C. Bean. Ion transport in excitable biological membranes (P. Horowicz, discussion leader): R. Sjodin, P. Horowicz and C. Armstrong.

28 August. Ion-linked nonelectrolyte transport in biological membranes (P. F. Curran, discussion leader): U. Hopfer, J. A. Schafer and P. F. Curran. Water and nonelectrolyte transport in biological and model membranes (T. E. Andreoli, discussion leader): J. Diamond, R. M. Hays, T. E. Andreoli and J. Dietschy.

29 August. Carrier-mediated ion transport in synthetic membranes I (D. C. Tosteson, discussion leader): P. Läuger, E. Grell, Yu. A. Chizmadzhev, D. C. Tosteson, C. S. Patlak and B. F. Gisin. Carrier-mediated ion transport in synthetic membranes II (G. Eisenman, discussion leader): G. Eisenman and B. Pressman.

30 August. Ion transport and selectivity in biological membranes (J. F. Hoffman, discussion leader); J. F. Hoffman, H. Passow and R. Gunn. New approaches to model membrane systems (T. E. Thompson, discussion leader): S. Chan, H. Träuble and C. Huang.

31 August. Summary discussion.

Biomaterials, Science and Technology of

Proctor Academy

S. Adam Wesolowski, chairman; Robert I. Leininger, vice chairman.

16 July. Cardiovascular surgery (Robert Leininger, moderator): Edmond Spaeth, "Basic aspects of oxygenator membranes"; H. B. Hopfenberg, "Basic aspects of kidney membranes"; Pierre Galletti, "Application of oxygenator membranes"; Albert Babb, "Application of kidney membranes."

17 July. Dental and oral surgery (Joseph Natiella, moderator): Walter Brown, "Structure and components of teeth"; Max Listgarten, "Periodontal aspects." (Walter Brown, moderator): Joseph Natiella, "Blade implants"; Thomas D. Driskell, "Absorbable ceramics."

18 July. Orthopedic surgery (Patrick Laing, moderator): N. David Greene, C. Onkelinx, L. J. Richelle, P. A. Ward, G. David Ritland, "A multi-disciplinary approach to the selection of mental implants." Joseph A. Spadaro, "Solid state physics of bone approach to orthopedic implants."

19 July. Plastic surgery (Bernard Bloch, moderator): In Chul Song, "Basic and clinical aspects of porcine heterograft skin cover." Leonard R. Rubin, "Polyethylene implants: from polymer to patient—a 22 year study."

20 July. (Clarence Dennis, moderator): Sumner N. Levine, "Biomaterials for the controlled release of pharmacological agents"; Robert I. Leininger, Walter Brown, Patrick G. Laing, Leonard R. Rubin, "Remarks on cross-fertilization."

Biomathematics, Theoretical Biology and

Proctor Academy

Jack D. Cowan, chairman; Evelyn Keller, vice chairman.

2 July. Joel E. Cohen, "Heterologous immunity in human malaria"; Warren J. Ewens, "Selectionism vs. neutralism"; Robert M. May, "Stability of multispecies communities"; Donald Ludwig, "Qualitative results on deterministic and stochastic epidemics"; Richard C. Lewontin, "Selection in multi-locus populations."

3 July. Anthony Durston, "Pacemaker activity during aggregation in *dictyostelium discoideum*"; Stan Caveney, "A stable gradient of intercellular communication in an epidermal monolayer"; Marcus Jacobson, "Development of patterns in the nervous system"; Lewis Wolpert, "Positional signalling and pattern regulation in *Hydra.*"

4 July. Louis N. Howard and Nancy Kopell, "Spatial patterns in the Belousov-Zhabotinski reaction"; John Ross and Peter Ortoleva, "Cooperativity, differentiation and nonlinear waves in biological systems"; Stephen Smale, (subject to be announced); René Thom, "Catastrophe theory and biology."

5 July. John Rinzel, "Solutions of nerve conduction equations"; Clyde C. Boylls, "The function of the cerebellum and its related nucleii, in relation to motor control"; Alden Spencer, "Sensory funneling"; Jack D. Cowan, "Were the Gestaltists right after all?"

6 July. Leon Glass, "the development of simple cells in the visual cortex"; Howard Berg, "Chemotaxis in *E. Coli*: are the theories relevant?" Evelyn Keller, "Mathematical aspects of bacterial chemotaxis."

Bones and Teeth, Chemistry, Physiology and Structure of

Kimball Union Academy

David S. Howell, chairman; David V. Cohn, vice chairman.

9 July. State of the art-brief perspectives and discussion (William F. Neu-

man, session chairman): H. Clarke Anderson, "Role of extracellular matrix vesicles in mineralizing tissues"; Herbert Fleish, "Action of phosphonates upon disorders of bone metabolism"; William F. Neuman, "The nature of electrolyte partition in growing bone." Proparathyroid and parathyroid hormone (David V. Cohn, session chairman): James W. Hamilton and David V. Cohn, "Chemical and biological properties of proparathyroid hormone"; Joel Habener and John T. Potts, Jr., "Mechanisms of secretion and metabolism"; Claude D. Arnaud and H. Brian Brewer, "Chemistry biological properties in immunology of human parathyroid hormone."

10 July. Immunological responses of and in cartilage (John Sandson, session chairman): Hugo Jasin, "Sequestration of immunocomplexes in cartilage"; John Sandson, "Immunology of cartilage proteoglycan"; Jerome Herman, "Immunopathological significance of cartilage antigenic components in polychondritis and rheumatoid arthritis." Biochemistry of skeletal birth defects (Jerome Gross, session chairman): Jerome Gross, "Overview of current state of research and future prospects in this field." Relevant topics will be discussed by George Martin, Charles Lapiere, Stephan M. Krane, Andrew Kang and other invited speakers.

11 July. Continuation of program on skeletal defects (Jerome Gross, session chairman). Mineral studies (Aaron S. Posner, session chairman): E. David Eanes, "Recent studies on synthetic analogues to biological calcium phosphates"; Brian Boothroyd, "Observations on very early formed bone mineral in thin sections by high resolution electron microscopy"; Colin Robinson, "Mineralization of rat incisor enamel."

12 July. Vitamin D and calcium transport; an appraisal (Louis Avioli, session chairman): David Schachter, "Molecular basis of intestinal calcium transport"; Anthony Norman, "Hormonal action of 1, 25, dihydroxycholecalciferol on the transport of calcium"; Eric Lawson, "Biomolecular action of Vitamin D"; Daniel Kimberg, "Perturbations in Vitamin D metabolism and their clinical significance." Review (David S. Howell, session chairman): D. Harold Copp, "Calcium homeostasis—a further progress report."

13 July. Bioelectric phenomena in bone (Robert O. Becker, session chairman): Robert O. Becker, "The significance of bioelectric phenomena"; Bruce Baker, "The electrical stimulation of hyaline cartilage regeneration in mammalian joints"; Arthur Pilla, "The use of electrochemical information transfer in biological growth processes"; Carl Brighton and Zachery Friedenberg, "The response of bone to direct current: observations and hypothesis of action."

Cancer

Kimball Union Academy

Charlotte Friend, chairperson; Judah Folkman, vice chairperson.

27 August. J. Folkman, "Self-regulation of growth in three dimensions"; F. Lacour, "Infectious DNA from avian oncorna virus-transformed cells"; O. Stutman, "Immune functions and tumor development"; F. Ruddle, "Genetic and developmental studies on somatic cell hybrids"; E. Russell, "Relationship between mouse genes and cancer"; H. Preisler, "Relationship between differentiation and malignancy."

28 August. A. Girardi, "Integration and expression of oncogenic viruses"; E. Winocour, "Integration of oncogenic virus DNA"; H. Bauer, "Virus-directed cell surface antigen in oncornavirus-transformed cells"; R. Levi-Montalcini, "Biosynthesis of nerve growth factor (NGF) by neoplastic cell lines"; J. Biedler, "Comparative studies of human and mouse neuroblastoma cell lines *in vitro*"; J. Minna, "Characterization of differentiated functions in the nervous system using somatic cell hybrids."

29 August. D. Baltimore, "Viral DNA polymerases"; J. Hurwitz, "Mechanism of action of reverse transcriptase"; E. Scolnick, "Studies on the mechanism of transformation." (M. Apple, discussion leader): Short presentations of current studies in oncology.

30 August. N. Haran-Ghera, "Tumor-cell host relationship in thymus and bone marrow derived lymphatic leukemia in mice." F. Rapp, "The complex simplex: virogenic, lysogenic and oncogenic"; G. Diamandopoulos, "Experimental induction of leukemia, lymphoma and osteosarcoma by oncogenic DNA virus SV40"; I. J. Fidler, "Immunomanipulation and metastatic patterns"; D. Pinkel, "Treatment of acute lymphocytic leukemia in children"; A. Fefer, "Adoptive chemoimmunotherapy of neoplasia."

31 August. H. Koprowski, "Non-ordinary reality of slow viruses"; T. Diener, "The viroid: a novel class of pathogenic agents"; R. Carp, "Changes induced in scrapie- and multiple sclerosis-inoculated mice in the absence of disease."

Cancer Immunology

Holderness School

Mary A. Fink, chairman; Bernard Amos, vice chairman.

16 July. Carcinoembryonic antigens (Richmond Prehn, chairman): Charles W. Todd, E. J. Field, Don Laurence, speakers; Sabine von Kleist, Morton E. Alpert, Norman Zamcheck, discussants. Genetics of the immune response (Ray D. Owens, chairman): Carl Grumet, speaker; Frank Lilly, discussant.

17 July. Transfer factor therapy (Anthony Allison, chairman): H. S. Lawrence, speaker; Albert LoBuglio, Lynn E. Spitler, Gerry J. Goldenberg, Bo Dupont, discussants. Transfer of immunity by RNA (Frank Adler, chairman): Yosef H. Pilch, Clara Bell, speakers; Thomas Merigan, Jr., discussant.

18 July. Depression and augmentation of immune response (N. A. Mitchison, chairman): Ruggero Ceppellini, William Elkins, speakers; Richard Simmons, R. W. Baldwin, discussants. (Jean Lindemann, chairman): W. T. Summerlin, speaker; Barbara Jacobs, discussant.

19 July. Lymphocyte responsiveness in malignancy (Charles F. McKhann, chairman): K. T. Brunner, Ingegerd Hellstrom, speakers; Gideon Berke, Peter Perlmann, discussants. Immunological aspects of Marek's disease (P. M. Biggs, chairman): Martin Sevoian, speaker; Graham Purchase, Raymond McBride, discussants.

20 July. Enhancement and modulation (Robert A. Good, chairman): Hans Sjogren, Henry Winn, speakers; Nathan Kaliss, Peter Alexander, discussants.

Carbohydrates, Chemistry of

Tilton School

Leon Goodman, chairman; Theodore H. Haskell, vice chairman.

25 June. Nucleosides and nucleotides (Leon Goodman, discussion leader): R. L. Tolman, "Synthesis and antiviral structure-activity relationships of certain arabinofuranosyl nucleosides and nucleotides"; G. A. LePage, "Biochemical pharmacology of some arabinosyl nucleosides"; R. J. Suhadolnik,

"Biosynthesis of the nucleoside antibiotics"; F. W. Lichtenthaler, "Synthesis and structure-activity relationships of aminohexosyl nucleoside antibiotics."

26 June. Phytohemmaglutinins as carbohydrate binding proteins (I. J. Goldstein, discussion leader): T. Osawa, "Some problems in the application of phytohemmaglutinins to the structural studies of complex carbohydrates"; G. Nicolson, "The use of plant lectins as molecular probes for membrane structure and topography"; C. F. Brewer, H. Sternlicht, D. Marcus and A. P. Grollman, "Mechanism of binding methyl α and β-D-glucopyranisides to concanavalin A as studied by ^{13}C NMR"; G. N. Reeke, Jr., J. Becker and G. Edelman, "The three dimensional structure of concanavalin A"; I. J. Goldstein, "Sugar binding specificity of phytohemmaglutinins"; M. Etzler "Specificity of the *Dolichos biflorus* lectin: its application to isolation and characterization of glycoproteins"; S. Hammerström, "Specificity of the agglutinin from the snail (*Helix pomatia*)."

27 June. Physical methods in carbohydrate chemistry (R. H. Marchessault, discussion leader): D. A. Rees, "Linkage conformations in polysaccharide solutions and gels"; I. C. P. Smith and H. J. Jennings, "High resolution ^{13}C studies of polysaccharides of biological origin"; S. Wolfe, "The gauche effect in carbohydrate chemistry."

28 June. (S. Hanessian and B. Bannister, discussion leaders): K. Nakanishi, "Studies in the Y base nucleoside of $tRNA^{Phe}$"; J. G. Moffatt, "Reactions of nucleosides with 2-acyloxyisobutyryl halides"; B. J. Magerlein, "Chemical modifications of lincomycin"; B. Bannister, "Some novel aziridine-sulfide chemistry and its applications to analogues of lincomycin."

29 June. Transformations of sugars (S. Hanessian, discussion leader): B. Fraser-Reid, "Explorations with unsaturated sugars"; M. J. Robins, "Conversion of orthoesters into epoxides, unsaturated compounds and deoxy compounds."

Catalysis

Colby Junior College

Joe W. Hightower, chairman; John H. Sinfelt, vice chairman.

2 July. J. J. Carberry, "Ethylene oxidation enhancement by γ-irradiation of supported silver catalysts"; J. A. Cusumano, "Catalytic oxidation of olefins over bimetallic catalysts"; S. J. Teichner, "A new nickel oxide/alumina catalyst for selective oxidation of isobutylene to acetone and methylacrolein."

3 July. N. D. Parkyns, "Infrared studies of nitrogen oxides on oxide catalysts"; H. Knözinger, "Some mechanistic aspects of the double bond isomerization on alumina"; M. J. D. Low, "Reactive silica."

4 July. J. T. Kummer, R. L. Klimisch, T. P. Kobylinski, D. P. McArthur, H. Skala, R. J. H. Voorhoeve, M. L. Unland, R. D. Gonzalez, "Discussion of problems relating to automobile emission control catalysts."

5 July. C. Kemball, "Reactions of hydrocarbons on metal catalysts studied by a gas chromatographic-mass spectrometer technique"; R. C. Baetzold, "Application of molecular orbital calculations to catalytic and electronic properties of metal clusters"; R. T. K. Baker, "Applications of controlled atmosphere electron microscopy."

6 July. M. Ichikawa, "Catalysis by electron donor-acceptor complexes: structure, reactivity and mechanism"; F. E. Massoth, "Characterization of molybdenum-containing desulfurization catalysts."

Catecholamines

Brewster Academy

E. T. Angelakos, chairman; Julius Axelrod, co-vice chairman; Norman Weiner, co-vice chairman.

Bioamines

13–17 August. The first Gordon Conference on Bioamines will deal with fundamental aspects of the adrenergic neurons, terminals and receptors and will include sessions on: Neuronal development and histochemistry; Tissue culture; Axonal flow; Neurotransmitter enzymes and regulation; Role of adenyl cyclase; Cyclic AMP and adrenergic receptors. Participants in presentations and discussions will include E. Angelakos, J. Axelrod, I. Black, F. Bove, W. Brimijoin, M. Brownstein, R. Ciaranello, A. Dahlström, W. Dairman, J. Daly, T. Deguchi, M. Goldstein, G. Guidotti, I. Hanbauer, R. Holz, D. Jacobowitz, T. Joh, D. Klein, I. Kopin, R. Lefkowitz, C. Mao, J. Meek, P. Molinoff, N. Neff, J. Perkins, C. Porter, D. Reis, A. Robison, H. Shein, S. Spector, S. Udenfriend, L. Van Orden, J. Waymire, N. Weiner, R. Weinshilboum, B. Zivkovic.

Cell Contact and Adhesion

Proctor Academy

G. V. R. Born, chairman.

13–17 August. Problems of quantitation (L. Weiss, chairman): M. Steinberg, S. Roth. Morphological aspects (V. Machesi, chairman): R. E. Scott, J. B. Sheffield, N. S. McNutt, G. L. Nicholson. Biochemical aspects (S. Roseman, chairman): L. Warren, G. M. W. Cooke, R. B. Kemp. Biophysical aspects (A. S. G. Curtis, chairman): D. Gingell, D. Brooks, M. Edidin. Adhesion to non-cellular surfaces (R. E. Baier, chairman): G. Poste, J. Ponten, P. D. Richardson. Contact behaviour of normal and transformed cells (M. Abercrombie, chairman): Ira Pastan, H. Rubin, M. M. Burger, Charles McNeill, C. Borek. Fusion and coupling of cell membranes (W. W. Douglas, chairman): N. B. Gilula, J. D. Sheridan, K. Goshima, G. Tagner, J. Watkins. Defense reactions involving cell contacts (G. V. R. Born, chairman): M. L. Karnovsky, D. Perlman, K. Brunner, H. Ginsburg, John Turk. Morphogenetic interactions (J. D. Ebert, chairman): J. P. Trinkhaus, M. Sussman, L. Saxen, T. Humphreys.

Ceramics, Solid State Studies in

Kimball Union Academy

Norman M. Tallan, chairman; Arthur M. Diness, vice chairman.

Properties of Ceramics for Energy Conversion Applications

6 August. (A. D. Franklin, discussion leader): R. A. Huggins, "Mechanism and influence of structure on fast ion transport in solid electrolytes"; M. S. Whittingham, "Fast ion transport materials and batteries"; (A. M. Diness, discussion leader): D. O. Raleigh, "Polarization phenomena in solid electrolyte cells"; M. Kleitz, "Ionic conduction and electrode reactions in heavily concentrated solid electrolytes."

7 August. (B. R. T. Frost, discussion leader): H. K. Bowen, "Ceramics in MHD power generation applications"; F. A. Nichols, "Ceramic phenomena in nuclear systems"; (S. P. Mitoff, discussion leader): M. V. Davis, "Ceramic studies for thermionic converter applications"; T. Reed, "Radiation insulation for energy conservation and generation."

8 August. (R. W. Vest, discussion leader): F. A. Kroger, "High tem-

perature insulators"; H. P. R. Frederikse, "High temperature conductivity of insulators"; E. Rodine, "Electrical conductivity measurements at high temperatures." (A. H. Heuer, discussion leader): Short contributions (subjects and speakers to be announced).

9 August. (D. H. Whitmore, discussion leader): J. Honig, "Metallic conduction in oxides"; B. T. Matthias, "Superconducting compounds—1D, 2D, and 3D"; A. L. Hammond, "Energy, research and materials."

10 August. (D. W. Readey, discussion leader): S. Austerman and K. Lakin, "Surface acoustic waves in ceramic materials and their applications"; G. Haertling, "Optical birefringence and scattering phenomena in electro-optic ceramics."

Coal Science

New Hampton School

Douglas S. Montgomery, chairman; G. Alex Mills, co-chairman.

2 July. Structure and metamorphasis of coal as indicated by new microscopic methods (D. S. Montgomery, chairman): M. Teichmüller, "Generation and alteration of bituminous matter in coal on the basis of fluorescence microscopic studies." New chemical techniques for the study of coal structure (N. Berkowitz, chairman): K. D. Gunderman, "Isolation methods for organic sulphur compounds in coal". (N. Berkowitz, chairman): S. K. Chakrabartty, "Chemical structure of coal as indicated by sodium hypochlorite oxidation"; B. S. Ignasiak, "Reactions with the phenolic OH groups in coal and the role of these groups in determining the fluidity of coal." Structure of coal as indicated by physical and spectroscopic methods (R. A. Friedel, chairman): M. Menster, "Devolatilization of coal studies rate of heating effects, tars produced, spectral identification."

3 July. Structure of coal as indicated by physical and spectroscopic methods (R. A. Friedel, chairman): A. G. Sharkey, Jr., "Structure of coal as indicated by high resolution mass spectroscopy"; H. L. Retcofsky, "Structure of coal as indicated by magnetic resonance spectroscopy." Coal composition and its influence on utilization (R. C. Neavel, chairman): C. L. Wagoner, "For combustion"; R. R. Thompson, "For carbonization"; J. L. Johnson, "For gasification"; P. H. Given, "For liquid fuel production."

4 July. (R. T. Eddinger, chairman): Herman F. Feldman, "Reaction of raw coals with hydrogen to produce methane"; Jack B. Howard, "Gasification of coal by hydrogen under rapid heating conditions"; Robert A. Graff, "Reactions of coal with hydrogen at short times with steam char reaction in an alternating atmosphere." Harald Jüntgen, "Comparative investigations into the kinetics of gasification with steam or hydrogen and conclusions for gasifier design"; Raymond L. Zahradnik, "Chemistry and physics of entrained coal gasification."

5 July. (R. T. Eddinger, chairman): Paul B. Tarman, "Steam-oxygen-char gasification in high pressure fluid beds." New fluidization techniques affecting coal utilization (Arthur M. Squires, chairman): Albert A. Godel, "Ash-agglomerating fluidized bed gasifying coal"; Lothar Reh, "Development and commercialization of highly expanded circulating fast fluidized beds." (A. M. Squires, chairman): Joseph Yerushalmi, "Movies and other observations of fast and sticky fluidized beds"; S. David Freeman, "The role of coal in the energy policy of the United States. A look at the present and future."

6 July. Liquid fuels from coal (Everett Gorin, chairman): Clarence Johnson, "New developments in coal liquefaction by the H-coal process"; Wendel Wiser, "The role of new technology in prospective commercialization of coal liquefaction"; General discussion of prospects for new technology in coal liquefaction.

Coatings and Films, Chemistry and Physics of

Kimball Union Academy

Joseph A. Vast, chairman; Kenneth L. Hoy, vice chairman.

20 August. (Frank J. Hahn, discussion leader): Charles Hansen, "Surface properties and coating performance"; George Spitz, "Analysis of orange peel or ripple in powder coatings"; M. Schlesinger, "The physics of chemically deposited thin metal films."

21 August. (Walter Ropp, discussion leader): Maurice Huggins, "A new approach to the prediction of solubilities"; George Brown, "Interaction of coatings and films with water"; W. E. Broterman, "Unique coating systems from aryl cyclic sulfonium zwitterions."

22 August. (Raymond R. Myers, discussion leader): E. Papirer, "Polymer-filler interactions with solid"; D. Dwight, "Fluoropolymer surface studies"; Norio Ise', "Basic feature of interionic reactions in polyelectrolyte solutions, polyelectrolyte catalysis."

23 August. (Louis Le Bras, discussion leader): E. Panar, "The nature of assemetry in reverse osmosis membranes"; Edward Bobalek, "Exceptional diffusional behavior of organic electrolytes through organic membranes"; J. W. Vanderhoff, "Rate of drying latex films."

24 August. (Kenneth L. Hoy, discussion leader): N. W. Johnston, "Polymer microstructure-macroproperty relationships"; S. H. Schroter, "Ultraviolet cure studies of solventless coatings."

Corrosion

Colby Junior College

J. Paul Pemsler, chairman; Howard W. Pickering, vice chairman.

16 July. Silicon (A. G. Revez, discussion leader): Y. A. van der Meulen, "Thermal oxidation of silicon; kinetic influence of additives to the oxidant"; R. J. Kriegler, "Influence of chlorine on the thermal oxidation of silicon." Gas-metal reactions (W. L. Worrell, discussion leader): F. J. Harvey, "Gas transport controlled oxidation of tungsten"; P. C. Nordine and D. E. Rosner, "Reaction kinetics of gaseous fluorine with solids at high temperatures."

17 July. A dialogue with ceramists (N. M. Tallan, discussion leader): R. L. Coble, "Defect diffusion transients in oxidation"; R. S. Gordon, "Mass transport processes in high temperature creep of polycrystalline ceramics." High temperature coatings (J. C. Wurst, discussion leader): G. W. Goward, "Chemical, metallurgical and mechanical properties of coatings for superalloys"; S. J. Grisaffe, "The high temperature degradation of coatings for superalloys."

18 July. Thin film techniques (M. J. Graham, discussion leader): M. Croset, "Study of the surface regions of solids using nuclear reactions and secondary ion mass spectrometry"; J. Yahalom, "Studies on oxide films by back-scattering." Hot corrosion I (C. S. Tedmon, Jr., discussion leader): S. Mrowec, "Mechanism of high temperature corrosion of some binary alloys in sulfur vapors"; H. C. Graham, "Na_2SO_4-induced oxidation of Ni-8Cr-6Al with and without 0.2Y in various environments."

19 July. Hot corrosion II (J. Stringer, discussion leader): D. W. McKee and G. Romeo, "Effects of carbon

deposition on hot corrosion"; J. A. Goebel and F. S. Pettit, "Comparison of the Na_2SO_4-induced accelerated oxidation of Ni- and Co-base alloys." Interaction of oxidation research with other disciplines. Future direction for the Gordon Research Conference on Corrosion (J. P. Pemsler and H. W. Pickering, discussion leaders).

20 July. Hot corrosion III (P. Hancock, discussion leader): C. J. Spengler and R. Viswanathan, "Variation with temperature of the mechanism of hot corrosion attack of 85Ni-15Cr and two Ni-base super alloys"; N. Birks, "Modification of the oxidation mechanisms of Cu, Ni, Fe and their alloys with Ni and Cr by the presence of sulfur in the atmosphere."

Crystal Growth

Tilton School

John Carruthers, chairman; Arnold Reisman, vice chairman.

2 July. Growth kinetics—theoretical (R. L. Parker, discussion leader): H. Reiss, "Statistical mechanical aspects of growing interfaces"; R. F. Sekerka, "Stability considerations of growing interfaces." Growth kinetics—experimental (D. T. J. Hurle, discussion leader): R. J. H. Voorhoeve, "Nucleation characteristics of solid-vapor interfaces"; A. F. Witt, "Solute incorporation kinetics at solid-liquid interfaces."

3 July. Fluid dynamics and heat flow —liquids (W. R. Wilcox, discussion leader): S. Ostrach, "Thermal convection stability"; F. Weinberg, "Thermal convection flows in liquid metals." Fluid dynamics and mass flow—vapors (D. Richman, discussion leader): M. M. Faktor, "Diffusional limitations in vapor phase growth"; J. P. Dismukes, "Thermal convection effects in vapor growth."

4 July. Phase equilibria and nonstoichiometry (C. D. Thurmond, discussion leader): T. B. Reed, "Growth problems and methods for growth of rare earth chalcogenides"; E. Kaldis, "High pressure-high temperature vapor crystal growth"; R. S. Roth, "Phase equilibria and nonstoichiometry in oxides." Techniques for growth control (J. C. Brice, discussion leader): D. F. O'Kane, "Growth control methods—Czochralski growth"; H. E. LaBelle, Jr., "Edge-defined film-fed growth"; D. Elwell, "Growth control methods—flux growth."

5 July. Applications (R. A. Laudise, discussion leader): R. Ghez, "Magnetic garnet crystal growth"; E. Garmire, "Crystals for integrated optics"; T. B. Reed, "Rise and fall of New England industry."

6 July. Characterization (J. R. Patel, discussion leader): E. S. Meieran, "Structural defects by X-ray diffraction topography"; J. W. Colby, "Ion microprobe mass analysis"; R. Ueda, "Growth and characterization of thin films."

Cyclic AMP

Tilton School

Theodore W. Rall, chairman; Alfred G. Gilman, vice chairman.

11 June. George R. Siggins, "Role for cyclic AMP in inhibition of central neurons by catecholamines"; John W. Kebabian, "Dopaminergic synaptic transmission: the role of cyclic AMP"; Alton Steiner, "Histochemistry of cyclic nucleotides"; Mark W. Bitensky, "Cytochemical localization of adenylate cyclase in isolated capillary endothelium"; Albert Wollenberger, "Cytochemical localization of adenylate cyclase in muscle."

12 June. Joachim Schultz and John Perkins, "Regulation of cyclic AMP accumulation in brain slices and cultured cells of neural origin"; Shiro Kakiuchi, "Regulation of phosphodiesterase activity by calcium ion and a modulator protein"; Gunther Schultz, "Role of calcium ions in control of cyclic GMP levels in smooth muscle."

13 June. Lennart Lundholm and Rolf Anderson, "Role of cyclic AMP and Ca^{++} for mechanical and metabolic responses of smooth muscle"; Walter R. Kukovetz, "Cyclic AMP as cellular mediator of smooth muscle relaxation"; Michael J. Berridge, "Action of 5-HT, hallucinogens, cyclic AMP, and calcium during stimulation of insect salivary glands"; K. Frank Austen, "Role of cyclic nucleotides in regulation of immunologically-induced secretion."

14 June. Ira Pastan. Wayne B. Anderson, Thomas R. Russell and George S. Johnson, "Cyclic AMP, cultured cells and transformation"; Alfred G. Gilman, "Cyclic AMP metabolism in hybrid somatic cells"; Howard Rasmussen, "The relationship of cyclic AMP and calcium ions in the actions of various hormones."

15 June. Nelson Goldberg, "Evidence for dualism between cyclic GMP and cyclic AMP in bidirectionally controlled systems"; Joel Hardman, "Cyclic GMP metabolism: an overview."

Drug Metabolism

Tilton School

Eric C. Schreiber, chairman; Robert S. Rozman, vice chairman.

16 July. Metabolism of tricyclic compounds (E. Usdin, chairman): L. J. Fischer, "Metabolism of cyproheptadine"; S. Garattini, "Relation between tissue levels of tricyclic antidepressants and their pharmacologic effect"; S. Solomon, "Fetal placental metabolism."

17 July. Clinical pharmacology (B. Calesnick, chairman): F. Rieders, "Bioanalytical aspects"; B. Calesnick, "Clinical aspects"; D. S. Lukas, "The metabolism of cardiac glycosides in man." Round table (E. C. Schreiber, chairman): What is drug metabolism and where is it going? W. D'Aguanno, D. V. Parke. Other participants selected from conferee attendees.

18 July. Arene oxides (H. Ruelius, chairman); J. R. Gillette, "Epoxide formation as a mechanism of toxicity"; J. W. Daly, "Formation and fate of arene oxides"; F. Oesch, "Arene oxidase hydrase." Competitive protein—binding assays (H. Ruelius, chairman): D. Rodbard, "General principles and selected applications of radioligant assays"; R. Schneider, "Enzyme immunoassays for drugs and their metabolites."

19 July. Agricultural chemicals (M. Schach von Wittenau, chairman): A. C. Page, "Metabolic fate of Dichlorvos"; J. J. Menn, "Transformation of pesticides in animals"; R. L. Metcalf, "Aspects of metabolism of non-mammalian species"; W. Hewson, "Medico—legal aspects of research."

20 July. Drug interactions (R. Rozman, chairman): F. J. Bullock, "Drug interactions—the role of drug metabolism"; F. Kinoshita, "Drug interactions in animals"; P. K. Gessner, "The isobolographic method applied to drug interaction."

Elastomers

Colby Junior College

Joseph P. Kennedy, chairman; J. R. Beatty, vice chairman.

23 July. (C. E. H. Bawn, discussion leader): D. P. Tate, "Phosphazene elastomers"; M. Bruzzone, "New catalysts for the synthesis of 1,4-cis polybutadienes"; B. Saville, "The use of 'ene' addition in the chemical modification of natural rubber for improved performance."

24 July. (J. Gardon, discussion leader): F. H. Sexsmith, "Mechanisms of

elastomer to metal adhesion"; D. H. Kaelble, "Adsorption-interdiffusion bonding in A-B-A triblock copolymers." (R. Boyd, discussion leader): M. Szwarc, "The frequency of intramolecular collisions between the end groups in a hydrocarbon chain."

25 July. (K. W. Scott, discussion leader): J. L. White, "Rheological properties and processing of elastomers"; V. L. Folt, "Characterization and rheology of polymer blends"; I. Klein, "Theory of rubber processing on screw extruders"; W. R. Pierson, "Airborne particulate matter from rubber tires."

26 July. (F. Eirich, discussion leader): K. L. DeVries, "Correlations between molecular stresses and bond rupture and macroscopic fracture behavior"; P. E. Reed, "Free radical formation and gas adsorption during deformation of oriented elastomers." Panel on "Ecology of rubber" (C. E. Snyder, panel leader): Panelists: B. Baum, J. A. Beckman, H. A. Hill.

27 July. (F. P. Baldwin, discussion leader): C. J. Stacy and G. Kraus, "Determination of long chain branching distribution in polymers"; S. L. Cooper and R. W. Seymour, "Intermolecular bonding and michrophase separation in segmented polyurethanes."

Environmental Sciences: Air

Tilton School

James N. Pitts, Jr., chairman.

Emissions vs. Air Quality—How Do They Relate in Photochemical Smog?

30 July. Health criteria and standards (James N. Pitts, Jr., chairman) Health effects criteria (T. Timothy Crocker, discussion leader): John F. Finklea and Jon M. Heuss. Agricultural and aesthetics criteria and standards (Walter W. Heck, chairman) Agriculture (O. Clifton Taylor, discussion leader) Photochemical aerosols (George M. Hidy, discussion leader).

31 July. Emission inventory (Robert F. Sawyer, chairman) Mobile sources (Wayne Brehob, discussion leader) Stationary sources (Raymond J. Campion, discussion leader). Measurement and monitoring of ambient air (A. Paul Altshuller, chairman) (Peter K. Mueller, discussion leader): Arnold Miller, Robert K. Stevens and Jerome J. Wesolowski.

1 August. Fundamental photochemistry (Garnett R. McMillan, chairman) (Jack G. Calvert, discussion leader): Brian A. Thrush and Ikuzo Tanaka. Applied photochemistry (Hiromi Niki, chairman) (Edgar R. Stephens, discussion leader): Basil Dimitriades and Robert J. Cvetanovic.

2 August. Emission standards (Arie J. Haagen-Smit, chairman) (Jean J. Schueneman, discussion leader): Ernest S. Starkman and Eric O. Stork.

3 August. National and international implications of modelling and health warning systems (Glenn R. Hilst, chairman) (Alan Q. Eschenroeder and Egon Keller, discussion leaders): Vaun A. Newill.

Enzymes, Coenzymes and Metabolic Pathways

Proctor Academy

Stephen J. Benkovic, co-chairman; Irwin A. Rose, co-chairman.

6 August. Isotope effects and reaction mechanism (E. Cordes and V. J. Shiner, Jr., organizers): M. Wolfsberg, "Theory of isotope effects"; V. J. Shiner, Jr., "Application of calculated isotope fractionation factors for simple organic compounds"; E. Cordes, "Secondary deuterium isotope effects for carbonyl reactions and related enzymatic reactions"; R. Schowen, "Beta secondary deuterium and solvent isotope effects in enzymatic deacylations."

7 August. Transition state analogs, TSA (G. Lienhardt, organizer): R. Wolfenden, "Theory and uses of transition state analogs (TSA)"; K. Collins, "Hydroxamates as analogs of enediolate intermediates"; B. Evans, "TSA for purine and pyrimidine amino-hydrolases"; J. Birktof, "Serine proteases: TSA and x-ray crystallography." Active sites (I. A. Rose, organizer): G. T. Robillard, "NMR studies of the charge relay in chymotrypsin"; P. Meloche, "2-keto-3-deoxy-6-P gluconate aldolase"; G. Kenyon, "Stereochemical course of creating kinase reaction"; T. Kalman, "Thymidylate synthetase."

8 August. Superoxide: oxidative mechanisms and biological role (I. Fridovich, organizer): B. Bielsky, "Generation and properties of superoxide"; R. C. Bray, "O_2^- and superoxide dismutase—ESR and pulse radiolysis studies"; V. Massey, "O_2^- in the reoxidation of flavins and flavin enzymes"; O. Hayaishi, "O_2^- and mechanism of dioxygenase reactions"; R. Weisiger, "Superoxide dismutase and evolution of mitochondria"; E. M. Gregory and F. J. Yost, "Compartmentation of dismutase in *E. coli* and role in O_2^- toxicity"; J. McCord, "O_2^- in depolymerization reactions in hyaluronate"; H. P. Misra, "Dismutase in blue green algae"; B. Keele, "O_2^- in phagocytosis."

9 August. Mechanism of natural products biosynthesis (I. Scott, organizer): J. R. D. McCormick, "Cosynthesis as a tool in biosynthesis studies"; F. Lynen, "Enzyme studies in biosynthesis of patulim"; H. Rilling, "Enzymology of terpene condensation"; I. Scott, "Biosynthesis of porphyrins and corrinoids."

10 August. (S. J. Benkovic, organizer): Session open for contributions on enzyme reaction mechanisms. (Send abstracts to S. J. Benkovic, Department of Chemistry, Pennsylvania State University, University Park, PA 16802)

Food and Nutrition

Colby Junior College

Sanford A. Miller, chairman; Richard L. Hall, vice chairman.

6 August. Ontogenesis of taste and flavor (R. Hall, chairman): O. Maller, T. Engen, H. Jacobs.

7 August. Nutrition of the adolescent (F. Heald, chairman): J. Knittle, J. Brassel, D. Hill.

8 August. Adaptation to various nutritional states (H. N. Munro, chairman): M. Brin, M. Nesheim, G. Leveille.

9 August. Regulation of food intake (S. A. Miller, chairman): O. N. Miller and David Lehr. H. N. Munro, "Nutrition, civilization and evolution."

10 August. Evaluation of mass feeding programs (A. Altschul, chairman): D. Rosenfeld, M. Foreman, M. Nichaman.

Free Radical Reactions

Proctor Academy

James C. Martin, chairman; Donald C. Borg, vice chairman.

25 June. (S. F. Nelsen, chairman): G. L. Closs, "Chemically induced dynamic nuclear polarization"; E. G. Janzen, "Spin trapping." (K. U. Ingold, chairman): J. A. Howard, "Kinetic electron spin resonance studies of some reactions of *t*-butylperoxy radicals"; S. A. Weiner, "Equilibrium effects on termination reactions."

26 June. (E. S. Huyser, chairman):

C. Walling, "Reaction of hydrogen peroxide with metal ions—redox reactions of radicals"; B. Bielski and P. C. Chan, "Free radical reactions of biochemical importance studied by radiation techniques." (W. A. Pryor, chairman): I. Yamazaki, "Substrate free radicals in enzymic oxidation"; A. A. Zavitsas, "Energy barriers to atom transfer reactions and the polar effect."

27 June. (M. L. Poutsma, chairman): J. H. Fendler, " 'Soapy free radicals'—Interactions and reactions in micellar systems"; J. M. McBride, "Radical pair reactions in organic solids." (D. C. Borg, chairman): J. Fajer, "Free radicals in porphyrins and related compounds as models of biochemical intermediates"; J. R. Norris, "EPR and and ENDOR studies of free radicals involved in photosynthesis."

28 June. (D. D. Tanner, chairman): H. J. Shine, "Chemistry of aromatic cation radicals"; J. Fried, "Radical cations as possible intermediates in the activation of carcinogenic hydrocarbons." (J. A. Kampmeier, chairman): C. Nagata, "Free-radical forms of chemical carcinogens"; W. G. Bentrude, "Phosphoranyl radicals."

29 June. (B. Goldstein, chairman): D. Menzel, "Lipid peroxidations"; J. B. Mudd, "The reaction of ozone with biological compounds."

Geochemistry

Proctor Academy

U. Petersen, co-chairman; P. M. Bethke, co-chairman.

Hydrothermal Fluids and Ore Deposits

27 August. Volatiles in magmas (C. Wayne Burnham, moderator): D. R. Wones, "Constraints on water and oxygen fugacities in magmas"; H. R. Shaw, "Diffusion of water in granitic magmas"; A. H. Clark, "Fluorine and chlorine in granitoid rocks in Chile, Argentina and Bolivia." Fluids around igneous intrusions (D. E. White, moderator): R. O. Fournier, "Hydrothermal fluids in and around deep vs. shallow crystallizing silicic magmas"; D. L. Norton and L. C. Cathles, "Pluton driven convective flow and its significance in mineral deposit formation."

28 August. Metamorphic fluids (H. D. Holland, moderator): H. Ohmoto, "Redox reactions and hydrogen-carbon-oxygen isotopic compositions of fluids"; R. Rich, "Fluid inclusion studies in New England metamorphic terranes."

Applications

Scientists are invited to submit applications for attendance at the Gordon Research Conferences. An application blank is on page 1043 and may be submitted to Dr. Alexander M. Cruickshank, Director, Gordon Research Conferences, University of Rhode Island, Kingston, Rhode Island 02881.

Modern hydrothermal systems (L. J. P. Muffler, moderator): A. B. Carpenter, "Chemical evolution and base metal content of some oil field brines"; P. R. L. Browne, "Conditions of ore mineral deposition in New Zealand geothermal fields."

29 August. Review—discussion: Application of thermodynamics and kinetics to solution-mineral equilibria as they pertain to ore genesis. (H. C. Helgeson, discussion leader): P. B. Barton, Jr., keynoter. Evidences from ore deposits I: isotopic studies (J. D. Lowell, moderator): B. R. Doe, P. Lipman and T. A. Steven, "Lead isotopic composition of volcanic rocks and related ore deposits, San Jaun Mtns., Colorado"; G. P. Landis and R. O. Rye, "Stable isotope and fluid inclusion studies at the Pasto Bueno tungsten-base metal deposit, Peru."

30 August. Evidences from ore deposits II: fluid inclusion studies (E. Roedder, moderator): B. P. Poty, "Fluid inclusion studies of uranium and porphyry copper deposits"; W. C. Kelly, "Fluid inclusion and geologic studies at Panasqueira, Portugal." Evidences from ore deposits III: alteration studies (J. P. Hunt, moderator): R. E. Beane, "Geochemical characteristics of the potassic alteration zone in the porphyry copper environment"; G. Brimhall, "EDM alteration at Butte, Montana."

31 August. Evidences from ore deposits IV: comprehensive studies (S. R. Wallace, moderator): L. B. Gustafson and J. P. Hunt, "Evolution of mineralization at El Salvador, Chile"; M. T. Einaudi, "Skarn ores in the Yerrington District, Nevada"; J. T. Nash, "Evolution of mineralization of the Mayflower Mine, Park City District, Utah."

Geophysics

Brewster Academy

Don L. Anderson, chairman; Thomas J. Ahrens, co-vice chairman; Leon P. Thomsen, co-vice chairman.

Solid State Geophysics

30 July–3 August. The central theme of this first meeting will be transport and anelastic properties of silicates and oxides and the Earth's mantle. Subjects will include reaction kinetics, diffusion, electrical conductivity, thermal conductivity, creep, viscosity and attenuation. There will be a mix of theory, laboratory experimentation and application to the Earth and the Moon. Tutorials or reviews will be given by H. Schmucker, W. Kaula, R. Gordon, D. Tozer, H. Kanamori and T. Shankland. The following speakers have also been invited: J. Weertman, B. Kamb, R. O'Connell, B. Rayleigh, A. Duba, K. Runcorn, G. Kennedy, C. Scholz, H. Heard, T. Timur. Discussion topics will include transport properties and convection in the mantle, electrical conductivity of the Moon, mechanisms of creep and earthquake prediction.

Glassy State

Brewster Academy

A. R. Cooper, chairman; Robert Doremus, vice chairman.

Structure of Glass

20 August. (M. E. Milberg, chairman): Adrian Wright, "Elastic scattering and structure; linac high Q scattering from simple glasses"; Sigmund Urnes, "Structure of mult component silicate glass." (Larry Hench, chairman): John Konnert and J. Karle, "Physical and mathematical restraints on radial distribution functions"; Donald E. Polk, "Computer constructed tetrahedrally coordinated random networks"; Leslie V. Woodcock and C. A. Angell, "Simulation of metastable states and vitrification of $ZnCl_2$ and SiO_2."

21 August. (R. K. MacCrone, chairman): A. J. Leadbetter, "Phonons in glass"; R. O. Pohl, "Thermal conductivity and specific heat of noncrystalline solids"; Herbert B. Rosenstock, "Models for excess low temperature specific heat of simple glasses." (P. J. Bray, chairman): R. J. Bell, "Preliminary thoughts on elastic moduli of silica glass"; George Peterson, "A simple model for the configuration surrounding transition metal

ions in a simple silicate glass"; W. Müller-Warmuth, "Nuclear magnetic resonance and structure of oxide glasses."

22 August. (Norbert Kreidl, chairman): Denis L. Weaire, "Electronic and vibrational properties of tetrahedral networks"; George H. Sigel, "Optical properties and a model for electronic structure of silicate glasses"; Eli Snitzer, "Nonlinear index of refraction of glass." (Donald Uhlmann, chairman): N. S. Andreev, "Kinetics of phase separation in ternary glasses and fluctuation phenomena in single phase glasses"; P. B. Macedo and P. K. Gupta, "Light scattering and phenomenology of phase separation in glasses."

23 August. (A. K. Varshneya, chairman): W. Vogel, "New results in phase separation studies of glasses"; Jerzy Zarzycki: "Relationship of the mechanical properties to microstructure."

24 August. (K. Zaveta, chairman): H. O. Hooper, "Relation of the magnetic properties of alumino-silicate glasses to their structure"; H. Bach, "About the relation of sputtering yield to glass structure"; S. C. Moss, "Structure-property relations in amorphous semiconductors."

Hemostasis

Proctor Academy

Oscar D. Ratnoff, chairman; Earl W. Davie, vice chairman.

20 August. (O. D. Ratnoff, chairman: H. Saito, "Fletcher factor and the activation of Hageman factor"; H. L. Nossel, "Surface activation of Hageman factor"; E. W. Davie, "Activation of Factor X via the intrinsic pathway." (Y. Nemerson, chairman): Y. Nemerson "Activation of Factor X via the extrinsic pathway"; R. W. Colman, "Structure and function of Factor V"; D. J. Hanahan "Interaction of V, X and prothrombin."

21 August. (E. W. Davie, chairman): K. G. Mann, "Mechanism of prothrombin activation"; R. E. Olson, "Mode of action of Vitamin K"; J. W. Suttie, "Mode of action of Vitamin K." (S. I. Rapaport, chairman): R. L. Lundblad, "Relation of structure and function in thrombin"; E. T. Yin, "Inhibitors of Stuart factor and thrombin"; P. C. Harpel, "Human plasma α_2-macroglobulin: inhibitor, mediator or both?"

22 August. (K. C. Robbins, chairman): P. A. McKee, "Fibrin-stabilizing factor"; R. F. Doolittle, "Fibrin-stabilizing factor"; L. Lorand, "The fibrinoligase system of blood plasma." (S. Sherry, chairman): K. C. Robbins, "Plasminogen structure and function"; G. Markus, "Plasma activators of plasminogen"; H. C. Kwaan, "Tissue activators and inhibitors of plasminogen and plasmin."

23 August. (S. Sherry, chairman): V. J. Marder, "Fibrinogen and fibrin degradation"; S. I. Rapaport, "How endotoxin triggers intravascular clotting"; M. Mosesson, "Circulating fibrinogen and pathways of its catabolism." (J. F. Mustard, chairman): T. H. Spaet, "Blood vessel walls and hemostasis"; A. J. Marcus, "Platelet lipids"; R. L. Nachman, "Platelet proteins"; M. B. Zucker, "Platelet function."

24 August. (J. F. Mustard, chairman): D. C. B. Mills, "Cyclic AMP and platelets"; F. M. Booyse, "Platelet adhesion"; J. G. White, "Structural defects of platelets"; E. J. W. Bowie, "Platelets and von Willebrand's disease."

Heterocyclic Compounds, Chemistry of

New Hampton School

A. I. Meyers, chairman; Pius A. Wehrli, vice chairman.

25 June. H. Wynberg, "Chemical and chiroptical properties of condensed thipehenes"; J. Szmuszkovicz, "Some unusual aspects of the chemistry of benzodiazepines"; R. V. Stevens, "Recent studies on the synthesis of naturally occurring heterocyclic compounds."

26 June. S. Danishefsky, "Total synthesis and structure activity relationships in the camptothecin series"; T. Kametani, "Synthesis of isoquinoline alkaloids and related heterocycles"; E. M. Burgess, "Cycloaddition reactions for new functional groups containing sulfur."

27 June. C. K. Bradsher, "Cationic polar cycloadditions"; U. K. Pandit, "The role of the heterocyclic base-component in enamine chemistry"; N. A. LeBel, "Intramolecular 1, 3-dipolar cycloadditions—mechanism, scope and synthetic utility."

28 June. M. Uskokovic, "Total synthesis of heteroyohimbine alkaloids"; J. A. Moore, "Rearrangements and tautomerism in dihydro-1, 2-diazepinones"; G. Markl, "Heteroaromatic systems of phosphorus and arsenic."

29 June. W. Lwowski, "Cycloadducts of aminoisocyanates."

Hormone Action

Kimball Union Academy

Gerard R. Wyatt, chairman; Jean D. Wilson, vice chairman.

13 August. Hypothalamic releasing hormones: R. Guillemin, "Physiology and chemistry"; F. Labrie, "Mechanism of action"; J. Truman, "Insect neurohormones and behaviour." Mechanism of action of insulin (H. E. Morgan, chairman): T. Kono, H. M. Katzen, "Insulin-receptor interactions"; O. B. Crofford, "Insulin degradation and termination of action"; L. S. Jefferson and I. G. Wool, "Effects of insulin on protein synthesis."

14 August. Induction of specific protein synthesis by sex steroids (B. W. O'Malley, chairman): B. W. O'Malley, "Hormonal induction of specific mRNA in the chick oviduct"; A. R. Means, R. D. Palmiter, "Translation of mRNA during tissue differentiation"; J. R. Tata, "Coupling of transcription and translation in *Xenopus* liver." Induction of enzyme synthesis by glucocorticoids (E. B. Thompson, chairman): E. B. Thompson, "Control of induction in HTC cells"; M. Lippman, "Binding proteins from somatic cell hybrids"; T. D. Gelehrter, "Effects of glucocorticoids on transport processes"; R. Steinberg, "Cell-free synthesis of induced proteins"; P. Feigelson, "Regulation of hepatic gene expression."

15 August. Ecdysones and gene activity (G. R. Wyatt, chairman): H. D. Berendes, "Factors in the control of chromosome puffing"; M. Ashburner, "Ecdysones and puffing in *Drosophilia*"; H. Emmerich, "Ecdysone binding proteins"; W. J. Rutter, "RNA polymerases and control of transcription." Juvenile hormone (L. Riddiford, chairman): L. Riddiford, "Juvenile hormone in insect development"; H. Emmerich, "Juvenile hormone transport proteins"; M. L. Pan, "The induction of specific yolk protein synthesis by juvenile hormone."

16 August. Hormonal controls in plants (M. H. Goldsmith, chairman): P. M. Ray, "Biochemistry of action of indoleacetic acid in growth"; M. H. Goldsmith, "Polar transport of indoleactic acid"; W. H. Evins, "Membrane and polysome formation during enzyme induction by gibberellic acid"; H. Rasmussen, "Evolution, hormones and calcium: from fly to man."

17 August. Prostaglandins (R. W. Butcher, chairman): R. W. Butcher, "Prostaglandins and hormone action";

N. D. Goldberg, "Interactions of prostaglandins and cyclic nucleotides"; J. R. Tata, "Hormone action, 1973."

Hydrocarbon Chemistry

Proctor Academy

Howard E. Simmons, chairman; Charles H. DePuy, vice chairman.

11 June. (R. H. Grubbs, discussion leader): N. Calderon, "Metathesis of cycloolefins by homogeneous catalysts —mechanistic aspects"; D. M. Fenton, "Synthesis of carboxylic acids. The hydratocarbonylatin of olefins." (W. Haag, discussion leader): J. H. Sinfelt, "Catalysis by metals."

12 June. (P. D. Bartlett, discussion leader): M. Saunders, "Energies and reactions of alkyl and allyl cations"; R. A. Moss, "Newer aspects of deamination chemistry." (P. G. Gassman, discussion leader): P. E. Eaton, "The [n.2.2] propellanes."

13 June. (S. Staley, discussion leader): W. M. Jones, "Carbene-carbene rearrangements and ten pi-electron analogs of cycloheptatrienylidene"; R. G. Bergman, "Thermal synthesis of reactive organic molecules": (C. H. DePuy, discussion leader): W. Doering, "Internal rotation in thermal reorganizations."

14 June. (E. Wasserman, discussion leader): I. T. Harrison, "The preparation and properties of rotaxanes and other threaded compounds"; K. B. Sharpless, "New reagents for oxygenation and deoxygenation of organic molecules." (H. E. Simmons, discussion leader): B. M. Trost, "New synthetic reactions: allylic alkylation."

15 June. (H. D. Hartzler, discussion leader): L. R. Mahoney, "Thermochemistry of free radical species in solution"; P. J. Krusic, "Configuration and conformation of alkyl radicals in solution by electron spin resonance spectroscopy."

Inorganic Chemistry

New Hampton School

John K. Ruff, chairman; M. Frederick Hawthorne, vice chairman.

6 August. Bioinorganic chemistry (G. N. Schrauzer, chairman): K. Schwarz, "Newly established essential trace elements"; B. Sarkar, "Bioinorganic aspects of Wilson's disease"; G. Eichhorn, "Interactions of metal ions with nucleic acids"; B. Rosenberg, "Coordination complexes in cancer chemotherapy"; G. N. Schrauzer, "The mechanism of biological nitrogen fixation."

7 August. Inorganic free radicals (E. Janzen, chairman): M. T. Rogers, "Irradiated halometallates and transition metal complexes"; T. Howard, "Kinetic and spectroscopic studies of Group IV peroxy radicals in solution"; B. Hoffman, "Synthetic 1:1 oxygen adducts of cobalt and iron"; E. Hayon, "Study of inorganic free radicals by fast reaction techniques"; D. Fessenden, "ESR studies of the reactions of inorganic radicals in aqueous solution"; D. Wood, "Structure of neutral hydrazyl radicals.

8 August. Stereochemically nonrigid molecules (F. A. Cotton, chairman): W. G. Klemperer, "Delineating stereochemical change"; P. Jesson, "Polytopal rearrangements"; R. D. Adams, "Fluxional carbonyl and isonitrile complexes"; L. Pignolet, "Rearrangements of trischelate complexes."

9 August. Metalloboranes and metallo-carboranes (M. F. Hawthorne, chairman): R. Grimes, "Synthesis, structure and chemistry of new metallocarbonane cage compounds"; L. Todd, "Chemical studies of B_9 and B_{10} boranes and heteroatom boranes"; D. F. Gaines, "Metalloboranes: synthetic, structural and bonding considerations"; W. F. Libby, "Environmental chemistry."

10 August. Metalloboranes (continued): R. Wiersema, "Synthesis and electron delocalization in paramagnetic metallocarboranes"; A. Davidson, "Transition metal complexes of boranes and boranate anions."

Interfaces, Chemistry at

Kimball Union Academy

S. G. Mason, chairman; H. M. Princen, vice chairman.

23 July. Techniques in surface chemistry (K. Klier, chairman): M. W. Roberts, "Investigation of molecular events at surfaces by electron spectroscopy"; J. H. Lundsford, "Applications of EPR spectroscopy to surface chemistry"; R. Kellerman, "Investigation of surface complexes by optical spectroscopy."

24 July. Modern developments in coagulation (S. K. Friedlander, chairman): S. K. Friedlander, "The dynamics of coagulation and self-preserving size spectrum theory"; R. L. Drake, "The mathematical theory of coagulation"; R. B. Husar, "Recent experiments in aerosol coagulation and comparison with theory."

25 July. Capillarity-interfacial stability and spreading (H. M. Princen, chairman): E. B. Dussan, "Fluid deformation in the vicinity of a moving contact line"; J. F. Padday, "Axisymmetric meniscus stability"; J. Lucassen, "Capillarity-controlled formation and break-up of liquid cylinders."

26 July. Cell and surface interactions in blood (H. L. Goldsmith, chairman): G. V. F. Seaman, "Physico-chemical properties of erythrocyte membranes"; L. Weiss, "Cell adhesion to surfaces"; H. L. Goldsmith, "The blood cell in flow: particle and wall interactions."

27 July. Contributed papers (H. M. Princen, chairman).

Ion Exchange

Brewster Academy

David H. Freeman, chairman; Lionel S. Goldring, vice chairman.

6 August. Symposium on biological applications related to ion exchange in memory of Aharon Katchalsky. I. Parikh, "Principles of affinity chromatography"; E. Katchalski (subject to be announced); E. F. Casassa, "Separations effected by macroporous media: GPC, ultrafiltration and the SDS gel method"; W. E. Cohn, "Biochemical applications of ion exclusion chromatography."

7 August. Chromatography. R. A. Henry, "High speed ion-exchange chromatography—Can retention and selectivity be predicted?" R. F. Hirsch, "Gas and liquid adsorption chromatography on ion-exchange resins"; F. W. E. Strelow, "Partly non-aqueous media for accurate chemical analysis by ion exchange"; W. W. Pitt, Jr., "Trace organic contaminants in polluted water." Membranes. K. S. Spiegler, "Electro-chemical and optical studies of polarization at ion-exchange membrane/solution interfaces"; H. P. Gregor, "Membrane processes: the new major unit operation."

8 August. Unusual systems and findings. C. U. Pittman, Jr., "Polymer-bound organometallic and metal carbonyl catalyst sites and mixed valence metal containing polymers"; R. Kohn, "Ion binding and ion exchange on polyuronates"; K. Bunzl, "Ion-exchange kinetics of Pb in soil organic matter"; G. E. Boyd, "Thermodynamic and statistical mechanical calculations of

equilibrium constants for reaction between unequally charged ions."

9 August. Crystalline matrices. R. M. Barrer, "Ion exchange and salt imbibition by crystalline ziolites"; A. Clearfield, "Factors determining selectivity in crystalline ion exchangers as determined from gas-solid studies." Large scale ion-exchange. H. Gold and R. F. Probestein, "Large scale truly continuous ion-exchange."

10 August. New process developments R. Rosset, "Fractionation of boron isotopes by displacement development on ion exchangers"; T. A. Davis, "Electro-regeneration of ion-exchange resins."

Laser Interaction with Matter

Tilton School

Richard K. Osborn, chairman; Ray E. Kidder, vice chairman.

20 August. K. Boyer, "Theoretical and experimental investigations revelant to the laser-fusion problem"; M. Lubin, P. Pashinin, "High temperature plasma production with Nd-glass lasers"; C. Yamanka, "Anomalous heating of plasmas by lasers"; O. Krokhin, (subject to be announced).

21 August. R. Sigel, "Laser fusion studies at Garching"; J. Nuckolls, J. Bobin, "Dense plasmas created by lasers"; K. Brueckner, "Laser driven fusion."

22 August. J. Dawson, "Physics of laser-fusion"; R. Morse, "Simulation studies of laser produced plasmas"; S. Bodner, "Analysis of nonlinear optical interactions"; J. McMahon, "Nonlinear optical effects in plasmas"; G. Gobeli, "Laser plasma studies at Sandia"; S. Ramsden, "Interaction of CO_2 lasers with solid targets"; H. Ahlstrom, "Laser heating of a cold plasma in a uniform magnetic field."

23 August. K. Watson, "Laser associated chemical reaction in gases"; M. Key, "X-ray lasers—facts and fantasies"; A. Alcock, "Developments in high power transverse discharge CO_2 lasers"; C. Fenstermacher, "Present status of high energy-short pulse CO_2 lasers and future prospects."

24 August. Postdeadline contributions and panel discussions.

Lipid Metabolism

Kimball Union Academy

William J. Lennarz, chairman; Richard J. Havel, vice chairman.

Its Relation to the Structure and Function of Biological Membranes

11 June. Physical properties of lipids and model membrane systems (J. Law, session chairman): T. E. Thompson, "Liposome structure"; V. Luzzati, "Conformational transitions of the hydrocarbon chains of lipids"; A. F. Horwitz, "The spatial organization and fatty acid motions of the phospholipids in a model membrane." Physical properties of lipids and model membrane systems (D. Silbert, session chairman): A. D. Bangham, "Model membranes with, by or from membrane molecules"; J. Steim, "Transitions in biological membranes: structural-functional correlations"; H. Träuble, "Lipid phase transitions."

12 June. Membrane proteins (H. Goldfine, session chairman): C. Schnaitman, "Analysis of membrane proteins by gel electrophoresis and column chromatography"; A. Abrams, "Streptococcal membrane ATPase: structure, function and interactions"; W. Kundig, "Bacterial membrane proteins involved in sugar translocation." Lipoproteins (J. L. Oncley, session chairman): H. Brewer, "The structure and function of the human plasma lipoprotein"; A. Scanu, "Re-assembly techniques and structure of serum lipoproteins."

13 June. Control of lipid metabolism (G. Schroepfer, session chairman): M. D. Lane, "Regulatory 'early' enzymes of cytoplasmic fatty acid and cholesterol synthesis"; M. Dempsey, "Role of squalene and sterol carrier protein in cholesterol synthesis, metabolism and transport"; T. J. Scallen, "The sterol carrier protein hypothesis." Metabolism and function of membrane lipids (A. Fulco, session chairman): C. F. Fox, "The influence of lipid phase separations on the function and assembly of cellular membranes"; J. Cronan, "Interrelationships between growth and phospholipid composition in *Escherichia coli.*"

14 June. Metabolism and function of membrane lipids (L. Leive, session chairman): S. Wakil, "The regulation of fatty acid metabolism"; M. Osborn, "Assembly of the outer membrane of salmonella"; J. Strominger, "Role of enzymes and polyisoprenyl alcohols involved in the synthesis of complex carbohydrates." Metabolism and function of membrane lipids (R. J. Havel, session chairman): P. R. Vagelos, "Synthesis and function of membrane lipids."

15 June. Metabolism and function of membrane lipids (D. White, session chairman): P. Overath, "Lipid phase transitions in *E. coli* membranes"; E. P. Kennedy, "Biosynthesis and function of membrane phospholipids in *Escherichia coli.*

Liquids, Chemistry and Physics of

Holderness School

Jan V. Sengers, chairman; Robert Zwanzig, vice chairman.

13 August. H. C. Andersen, "Perturbation theories of the structure and thermodynamic properties of fluids"; G. S. Rushbrooke, "Triplet correlation function"; G. Stell, "Thermodynamic and dielectic properties of polar and polarized fluids"; A. Ben-Reuven, "Microscopic theory of polarizability."

14 August. W. B. Daniels and R. K. Crawford, "Liquid-solid transition in simple systems"; R. D. Mountain, "Liquid structure at the melting line"; B. Widom, "Equilibrium critical phenomena."

15 August. L. A. K. Staveley, "Current research on mixtures of simple liquids"; R. L. Scott, "Thermodynamics of critical phenomena in fluid mixtures"; W. W. Wood, "Computer studies in the kinetic theory of fluids"; J. R. Dorfman, "Time correlation functions in fluids."

16 August. G. Birnbaum, "Infrared band shapes and molecular motion in liquids"; E. Elson and W. W. Webb, "Thermodynamic fluctuations in chemically reacting liquids"; Round table discussion: B. J. Alder, T. A. Litovitz, C. J. Pings, S. A. Rice, G. S. Rushbrooke, R. Zwanzig.

17 August. E. U. Franck, "Polar, ionic and metallic fluids at high pressures and supercritical temperatures; experimental results and comparisons."

Magnetic Oxides

Brewster Academy

Robert L. White, chairman; Raymond Wolfe, vice chairman.

23 July. A. H. Bobeck, "Applications of magnetic oxides: bubble devices"; G. Bate, "Recording"; J. J. Green, "Microwave devices."

24 July. A. P. Malozemoff, G. P. Vella-Coleiro, R. M. Josephs, "Domain dynamics, experimental"; E. Callen, "Magnetite."

25 July. J. C. Slonczewski, E. Schlomann, F. Hagedorn, "Domain dynamics, theoretical"; S. Banerjee, "Magnetic oxides in paleomagnetism."

26 July. S. L. Blank, B. F. Stein, E. A. Giess, B. C. McCollum, "Epitaxial crystal growth."

27 July. S. H. Wemple, "Magneto-optics: physical basis"; (speaker to be announced) "Applications."

Magnetic Resonance

Kimball Union Academy

Erwin L. Hahn, chairman; J. H. Freed, vice chairman.

18 June. Metals. C. P. Slichter, "Measurement of electron spin density near iron group atoms in copper"; R. E. Walstedt, "NMR studies of local moment impurities in metals"; R. L. Orbach, "Dynamics of localized moments in metals." Pseudo-magnetic resonance phenomena. R. G. Brewer, "Optical analogues of transients in magnetic resonance"; A. Abragam, "Nuclear pseudo-magnetism."

19 June. Optically detected magnetic resonance. J. H. Van der Waals, "Progress in microwave phosphorescence double resonance in zero field"; H. C. Wolf, "ESR of triplet excitons by optical and microwave detection"; C. B. Harris, "Phosphorescence microwave double resonance in coherent molecular exciton states." Nuclear polarization and magnetometry. M. Goldman, "Recent results in the study of nuclear magnetic ordering"; K. H. Hausser, "Optical nuclear polarization"; J. E. Opfer, "NMR by superconducting quantum interference magnetometry."

20 June. NMR molecular motion studies. R. Blinc, "Measurement of self diffusion in liquid crystals by a multiple pulse method"; S. Clough, "Quantum tunneling rotation of methyl groups"; J. Haupt, "Thermally induced dipolar polarization." EPR molecular motion studies. J. H. Freed, "Slow tumbling, molecular diffusion, and spin polarization in ESR"; J. S. Hyde, "Application of non-linear EPR methods to rotationally diffusing spin systems."

21 June. Ultrasonic magnetic resonance. D. I. Bolef, "Nuclear acoustic resonance—interactions, techniques, results"; N. S. Shiren, "Ultrasonic spin echoes"; R. L. Melcher, "Acoustic magnetic resonance in ordered materials." High resolution double resonance. A. Pines, "The advent of high-resolution nuclear magnetic resonance in solids"; C. S. Yannoni, "Steady state double resonance in solids with line narrowing."

22 June. Pulsed echo and C. W.-E. P. R. spectroscopy. W. B. Mims, "Electron spin echo envelope spectrometry"; S. R. Hartmann, "Echo ENDOR in ruby"; J. P. Wolf, "Whither the diffusion barrier? An introduction to near nuclei magnetic resonance in dilute paramagnetic crystals."

Mammalian Genital Tract Secretions

Kimball Union Academy

Joseph C. Daniel, Jr., chairman; Fuller W. Bazer, vice chairman.

16 July. Secretions of the female genital tract (R. McGaughey, session chairperson): R. McGaughey, "Follicular fluid and oocyte maturation"; N. Moghissi, "Biochemical and biophysical changes of human genital tract secretion during the menstrual cycle"; F. Murray, "Bovine placental proteins"; B. Mintz, "Control of implantation initiation in the mouse"; J. Daniel, "Blastokinin in the human." S. Joshi, "Patterns of synthesis and secretions of proteins in baboon endometrium during the expected times of ovulation and implantation." Secretions of the female genital tract (continued) (F. Bazer, session chairperson): F. Bazer, "Uterine protein secretions of the pig, sheep and cow"; A. Kulangara, "Passage of serum proteins into rabbit uterine fluid"; M. Renfree, "Uterine secretions and embryonic growth in the marsupial"; Y. Menezzo and C. Thibault, "Proteins, amino acids and enzyme contents of uterine and tubal fluids during estrus and beginning of pregnancy in sheep and rabbit"; D. Black, "The autonomic nervous system and oviduct secretion."

17 July. Biological activity of genital tract secretions (C. Hamner, session chairperson): C. Hamner, "The development of rabbit embryos in oviductal secretions"; D. Dabich, T. Kurosawa and E. Hafez, "Transport system of amino acids in the blastocoelic fluid"; L. Ulberg, "Influence of genital tract secretions on embryo development"; U. Petzoldt, "The protein pattern of preimplantation rabbit embryos and its relation to the pattern of the genital tract secretions"; G. Oliphant and B. Brackett, "The effects of reproductive tract secretions and sperm capacitation"; I. Noske, "Effect of hamster genital tract secretions on sperm capacitation." Biological activity of genital tract secretions (continued) (R. Gwatkin, session chairperson): R. Gwatkin, "Genital tract secretions and the capacitation of sperm"; E. Hafez, "Cervical mucus and sperm migration: ultrastructural and physiological aspects"; D. W. Schomberg, "Further studies of a cytolytic macromolecule(s) of swine uterine flushings"; W. Hansel, "Luteolytic effects of bovine endimetrial extracts"; C. Channing, "Systematic and local follicular control of granulosa cell luteinization in the rhesus monkey and pig"; C. Kirchner, "The fate of the biasto cyst covering in the rabbit at the beginning of implantation."

18 July. Hormonal control of secretion (H. Beier, session chairperson): H. Beier, "Hormonal control of endometrial protein secretion involved in blastocyst development and implantation"; A. Arthur, "Synthetic steroid induction of blastokinin"; R. Greep, K. Yoshinaga, M. Demers and G. Macdonald, "Observations on the genital tract secretions in the female rhesus monkey"; K. Rezabek, "Effect of testosterone on estrogen-induced accumulation of intrauterine fluid in rats"; W. Bates, "Hypothalamic and pituitary control of human endometrium"; D. Bullock, "Regulation of specific uterine protein synthesis by estrogen and progesterone." Non-proteinaceous components of female fluids (J. McCracken, session chairperson): J. McCracken, "The occurrence and biological role of prostaglandins in the ovine uterus"; B. Caldwell, "Prostaglandins from the female genital tract"; E. Inskeep, "Variations in levels of prostaglandins in ovine endometrium during the estrous cycle and early pregnancy"; I. Finkelstein, "Lipids in the rabbit uterus"; L. Levey, "Nucleic acids in uterine fluids."

19 July. Immunological considerations (A. Shivers, session chairperson): A. Shivers, "Effects of specific antibody on hamster ova"; L. Glass, "Effects of additives on protein uptake by preimplantation embryos"; M. Johnson, "The role of immunological barriers in the genital tract"; A. Sacco, "Specific antigens in the rabbit reproductive tract"; E. Shirai and R. Iizuka, "Immunological considerations about rabbit uterine fluid"; R. Tyndall, "Implications of the pseudopregnant response to malignancy." H. Decker, "Blastocyst and uterine enzymes and the implantation process." Secretions of the male tract (M. Ketchel, session chairperson): M. Ketchel, "Antigens of human seminal plasma and cervical mucus"; B. Setchell, "Secretions of the seminiferous tubules and rete testis"; L. Nicander, "The ultrastructural basis of secretion in the epididymis and accessory glands"; W. Williams, "Sperm enzymes involved in penetration of the ovum

and their inhibition for contraceptive purposes."

20 July. Panel discussion—Contraceptive applicability of information on genital tract secretions. (Speakers to be announced). Other participants: M. C. Chang, H. Friesen, A. D. Johnson, P. A. Kelly, R. S. Krishnan, F. Rigby and M. Urzua.

Materials for Building, Research on

Tilton School

Morris E. Fine, co-chairman; James T. Waber, co-chairman; Harold Taylor, vice chairman.

9 July. Introductory remarks—Morris E. Fine. Material needs in buildings; an overview (Harold B. Olin, chairman): Joseph Newman, Lev Zetlin. Panel discussion: Dan Morgenroth, Rodney Cornish. Recent developments in wood products (Jerome Saeman, chairman): Dwight Hair, "Timber supply and distribution"; Stanley K. Suddarth, "Lumber and lumber products"; Wayne C. Lewis, "Wood panel materials"; George G. Marra, "Impact of future technology."

10 July. Recent developments in concrete and masonry (Paul Klieger, chairman): George Verbeck, "Developments in cement binders"; Bryant Mather, "Developments in aggregates"; Surendra P. Shah, "Developments in steel reinforcement"; Henry Toennies, "Developments in Masonry"; Charles Knight, "Developments in concrete construction techniques." Recent developments in steel (Harold Taylor, chairman): W. A. Milek, Jr., "Hot rolled and welded steel structures"; Wei-Wen Yu, "Light gauge, cold formed structural developments and application"; Myron Goldsmith, "Architectural steels."

11 July. Aluminum and glass (Kenneth E. Rose, chairman): Lawrence M. Dunn, "Architectural uses of aluminum"; Pandit Patil, "Environmental control using glass"; George Schipporeit, "Use of materials in curtain walls." Energy conservation, thermal insulation (Harry Paxton, chairman): Sheldon Cady, "Thermal performance of materials"; Richard G. Stein, "Architecture and efficient use of energy"; Dan Morgenroth, "Energy utilization in buildings."

12 July. Durability and life safety (Irwin A. Benjamin, chairman): William C. Cullen, "Durability of building materials"; Walter A. Haas, "Fire safe-

Program Summary, Gordon Research

	Colby Junior College New London, N.H.	New Hampton School New Hampton, N.H.	Kimball Union Academy Meriden, N.H.
11–15 June	Milk, Biology of	Nucleic Acids	Lipid Metabolism
18–22 June	Nuclear Structure Physics	Proteins	Magnetic Resonance
25–29 June	Nuclear Chemistry	Heterocyclic Compounds, Chemistry of	Animal Cells and Viruses
2–6 July	Catalysis	Coal Science	Oil and Other Hazardous Materials
9–13 July	Textiles and Fiber Science	Statistics in Chemistry and Chemical Engineering	Bones and Teeth, Chemistry, Physiology, and Structure of
16–20 July	Corrosion	Organic Reactions and Processes	Mammalian Genital Tract Secretions
23–27 July	Elastomers	Radiation Chemistry	Interfaces, Chemistry at
30 July–3 Aug.	Polymers	Natural Products	Toxicology and Safety Evaluations
6–10 August	Food and Nutrition	Inorganic Chemistry	Ceramics, Solid State Studies in
13–17 August	Medicinal Chemistry	Analytical Chemistry	Hormone Action
20–24 August	Separation and Purification	Adhesion, Science of	Coatings and Films, Chemistry and Physics of
27–31 August	*	Subsurface Fluid Displacement, Chemistry and Physics of	Cancer

* Weeks not available

ty of building materials"; Edward Halstead, "Durability and life safety of materials from architect's point of view." Plastics (Albert Dietz, chairman): Irving Skeist, "Potential of polymers in construction"; Armand and Barbara Winfield, "Materials for low cost housing: realities and possibilities."

13 July. Teaching of materials for buildings (William Hooper, chairman): Panel discussion: Albert Dietz, Nicholas Fiore, Richard Whittaker, Robert Wehrli. Final resume: James T. Waber.

Medicinal Chemistry

Colby Junior College

William J. Wechter, chairman; Jack Peter Green, vice chairman.

13 August. New aspects of the cholinergic nervous system: P. I. A. Szilagyi, "Studies on acetylcholine using pyrolysis gas chromatography"; D. R. Haubrich, "Studies on the synthesis of acetylcholine"; B. Collier, "Acetylcholine synthesis and release"; J. K. Saelens, "Some aspects of acetylcholine metabolism in rat brain"; J. Schubert, "On the compartmentation of acetylcholine in the brain"; F. C. MacIntosh, "Some prolonged effects of activity in cholinergic pathways"; I. Hanin, "Pharmacological and kinetic studies of brain acetylcholine turnover in vivo"; E. F. Domino, "Psychotropic drug interaction with the central cholinergic system"; J. Jenden, "Drug effects on acetylcholine turnover."

14 August. Prostaglandins and cyclic nucleotides: F. A. Kuehl, Jr., "Prostaglandins, cyclic nucleotides and cell function"; C. J. Sih, "A completely stereospecific synthesis of the primary prostaglandins"; I. Weinryb, "Therapeutic agents and cyclic AMP metabolism"; N. Goldberg, "The interaction of cyclic AMP and cyclic GMP."

15 August. J. D. Fernstrom, "The physiological control of brain serotonin synethsis by diet-induced changes in plasma amino acid levels"; A. Lajtha, "Alteration of cerebral amino acid compartments"; M. Orlowski, "Glutathione, the gammaglutamyl cycle and amino acid transport"; J. Black, "The H_2 receptor"; R. Neri and E. H. Gold, "The chemistry and pharmacology of a new class of non-steroidal antiandrogens."

16 August. H. H. Fudenberg, "Transfer factor"; H. Remold, "Purification of lymphocyte mediators"; C.

Conferences, 1973—New Hampshire

Tilton School Tilton, N.H.	Proctor Academy Andover, N.H.	Holderness School Plymouth, N.H.	Brewster Academy Wolfeboro, N.H.
Cyclic AMP	Hydrocarbon Chemistry	Multiparticle Production Processes	*
Arteriosclerosis Research	Atomic Physics	Physical Metallurgy	*
Carbohydrates, Chemistry of	Free Radical Reactions	Plant Cell and Tissue Culture	*
Crystal Growth	Biomathematics, Theoretical Biology and	Muscle: Smooth Muscle	*
Materials for Buildings, Research on	Molecular Pharmacology	Molecular Pathology	*
Drug Metabolism	Biomaterials, Science and Technology of	Cancer Immunology	Quantum Solids and Fluids, Dynamics of
Structural Macromolecules	Molecular Energy Transfer	Microbiological Degradation	Magnetic Oxides
Environmental Sciences: Air	Molecular Electronic Spectroscopy	Solids, Chemistry and Physics of	Geophysics
Organic Photochemistry	Enzymes, Coenzymes and Metabolic Pathways	Metals and Metal Binding in Biology	Ion Exchange
Regulatory Mechanisms in Photosynthesis	Cell Contact and Adhesion	Liquids, Chemistry and Physics of	Catecholamines
Laser Interaction with Matter	Hemostasis	*	Glassy State
Biological Interaction and Transport	Geochemistry	*	Molten Salts, Chemistry of

Henney, "Target cell killing"; H. Benson, "Role of the relaxation response in modern society and heart disease."

17 August. New agents in the control of cardiac dysrhythmias: J. P. Buyniski, "Chemistry and pharmacology of BL-3677A"; R. Dean, "Chemistry and pharmacology of SC-7031"; P. Cervoni and W. R. McGrath, "Chemistry and pharmacology of USVP-G-233"; B. K. Yeh, "Potassium carrenoate in digitalis toxicity"; B. K. Yeh, "Current status of cardiac dysrhythmic drugs."

Metals and Metal Binding in Biology

Holderness School

Richard H. Holm, chairman; William H. Orme-Johnson, vice chairman.

6 August. Oxygen binding in natural and synthetic systems (B. M. Hoffman, chairman): J. P. Collman, "Models for oxy and deoxy myoglobin"; B. M. Hoffman, "Oxygen-carrying cobalt-substituted hemoglobins"; Q. Gibson, "Molecular changes upon ligand binding to hemoglobin." Oxidases and superoxide dismutase (I. Fridovich, chairman): K. V. Rajagopalan, "Metalloproteins: an overview"; I. Fridovich, "Mangano and cupro-zinc superoxide dismutase: distribution, mechanism and biological function"; H. J. Cohen, "The molybdenum of mitochondrial sulfite oxidase: electron spin resonance and nutritional studies."

7 August. Chemical and biochemical aspects of Vitamin B_{12} (J. Halpern, chairman): J. Halpern, "Some aspects of the chemistry of low-spin cobalt complexes related to Vitamin B_{12}"; J. M. Wood, "Mechanisms for cobalamin-dependent methyl transfer"; B. M. Babior, "Aspects of B_{12} coenzyme-dependent rearrangements." Metals as probes of enzyme conformation and function (B. L. Vallee, chairman): B. L. Vallee, "Conformational properties of metalloenzymes"; H. A. O. Hill, "Resonance spectroscopic studies of local conformational changes in cobalt substituted metalloenzymes."

8 August. Synthetic and biological polynuclear metal cluster compounds (L. F. Dahl, chairman): L. F. Dahl, "Structural and electronic systematics of tetra-nuclear cluster systems"; R. H. Holm, "Synthetic analogs of the active sites of iron-sulfur proteins"; E. Adman and L. H. Jenson, "Structural studies on iron-sulfur clusters in proteins." Iron-sulfur enzymes (W. H. Orme-Johnson, chairman): W. H. Orme-Johnson, "Iron-sulfur centers in mitochondrial electron transport"; G. Palmer, "Electron transfers among nitrogenase components"; A. J. Bearden and R. Malkin, "Bound and free ferredoxins in photosynthesis."

9 August. Trace metals in biological systems I (R. M. Izatt, chairman): R. M. Izatt, "Selectivity in metal ion coordination"; K. Schwarz, "Trace elements newly discovered to be essential"; H. Rudolph, "Some biological and medical applications of X-ray fluorescence." Trace metals in biological Systems II. B. Sarkar, "Miscoordination of copper: Wilson's disease."

10 August. Recent NMR investigations of metalloproteins and metalloenzymes (W. D. Phillips, chairman): W. D. Phillips, "Isotropic shifts in metalloenzymes"; A. S. Mildvan, "Nuclear relaxation studies of enzyme-metal-substrate interactions"; S. H. Koenig, "Magnetic field dependence of solvent-proton magnetic relaxation in solutions of metalloproteins."

Microbiological Degradation

Holderness School

Z. John Ordal, chairman; Arthur M. Stern, vice chairman.

23 July. Mixed cultures and substrates in biodegradation (D. Klein, session chairman): Renato Fuchs and D. I. C. Wang, "Paired substrate—paired microorganism interaction kinetics in continuous culture"; Elizabeth Gaudy and A. F. Gaudy, Jr., "Substrate utilization by heterogenous microbial populations in continuous culture systems." Nitrogen conversion in waste water treatments (R. Brink, session chairman): James A. Mueller, "The chemistry and kinetics of biological denitrification."

24 July. Cell transport and its role in degradation (A. Demain, session chairman): Vincent P. Cirillo, "Characteristics of microbial transport systems"; Antonio H. Romano, "Regulation of microbial transport systems." Immobilized enzymes (J. Troller, session chairman): Garfield Royer, "Immobilized enzymes."

25 July. Degradation of waste waters (Arthur Stern, session chairman): R. J. Smith, "Degradation of agricultural wastes"; H. Amberg, "Degradation of pulp and paper mill effluents." Mycotoxins (Z. John Ordal, session chairman): C. W. Hesseltine, "Mycotoxins."

26 July. Utilization of C_1 compounds (R. Kallio, session chairman): E. R. Leadbetter, "Natural history of the organisms"; Douglas W. Ribbons, "Metabolic pathways and enzymes." (Arthur Kaplan, session chairman): Ross E. McKinney, "Our environmental medicine show."

27 July. Conference postscripts (Z. John Ordal, session chairman): R. Kallio, Summation and general discussion.

Milk, Biology of

Colby Junior College

Marvin P. Thompson, chairman; Richard Saacke, vice chairman.

11 June. (K. Brew, discussion leader): K. Brew, "Structural homologies between α-lactalbumin and lysozymes from different species"; R. Hill, "The function of α-lactalbumin in lactose biosynthesis"; B. Ribadeau-Dumas, "Casein: structures and functions." (R. Jenness, discussion leader). R. Jenness, "A Darwinian view of lactation"; K. Brew, "Evolution of milk proteins"; R. E. Sloan, "A paleontological view of mammalian evolution."

12 June. (S. Patton, discussion leader): S. Patton, "Biosynthesis of milk lipids"; S. Kinsella, "Lipid metabolism of isolated mammary cells"; D. Bauman, "Lipogenic enzyme systems of mammary tissue"; R. Dils, "Chain length of milk fatty acids"; T. Scott, "Polyunsaturation of milk fat"; S. Smith, "Fatty acid synthetase." (T. J. Keenan, discussion leader): T. J. Keenan, "The problem of carcinogenesis in the bovine"; C. Welsch, "Hormonal influences"; D. R. Pitelka, "Ultrastructural aspects"; R. Hilf, "Biochemical changes." (D. Paige, discussion leader): D. Paige, "Lactose intolerance: The situation"; J. H. Woychik, "Hydrolysis of lactose by free and immobilized lactase"; T. M. Bayless, "Clinical studies on lactose intolerance."

13 June. (D. F. Waugh, discussion leader): D. F. Waugh, "Considerations in building models for casein micelles"; B. Ribadeau-Dumas, "The primary structure of α_{s1}-, β- and κ-caseins"; H. M. Farrell, Jr., "A model for casein micelle structure based upon electron microscopic studies"; C. W. Slattery, "Colloidal properties of casein micelles"; R. Jenness, "Ionic equilibria of the milk system." (T. A. J. Payens, discussion leader): T. A. J. Payens, "Association of α_{s1}- and β-caseins"; V. Moreno, "Functionality of the milk

proteins"; R. L. J. Lyster, "Denaturation of β-lactoglobulin and α-lactalbumin"; R. Aschaffenburg, "Crystallographic studies on α-lactalbumin and lysozyme." (B. L. Larson, discussion leader): B. K. Vanderhaar, "Control of milk protein production in mouse mammary epithelium"; H. A. Tucker, "Further studies on cortisol binding in mammary tissue"; B. L. Larson, "Redifferentiation in *in vitro* mammary cell cultures."

14 June. (M. Reynolds, discussion leader): A. Cowie, "Statement of the problem"; R. Denimore, "Prolactin"; S. Nandy, "Insulin"; J. B. Josimodich, "Chorionic-gonnadotrophin."

15 June. (E. Rivera, discussion leader): E. Rivera, "Introduction to estrogens"; F. Bresciani, "Progesterone-estrogen"; G. Shyamala, "Estrogen and cortisol receptors"; M. R. Banerjee, "Adrenal corticol hormones"; W. Heald, "Induction of milk secretion."

Molecular Electronic Spectroscopy

Proctor Academy

G. Wilse Robinson, chairman; Jon Hougen, vice chairman.

30 July. William A. Goddard III, "Theory of molecular electronic states"; Kurt Dressler, "Vibronic interactions in diatomic molecules and in molecular crystals."

31 July. Anthony J. Merer, "Spin and vibronic effects in the electronic spectra of CS_2 and other molecules"; Donald A. Ramsay, "Triplet states of polyatomic molecules."

1 August. Otto Schnepp, "Circular dichroism and magnetic-circular dichroism in the vacuum ultraviolet"; Robin M. Hochstrasser (subject to be announced).

2 August. Richard N. Zare (subject to be announced); W. Martin McClain, "Two-photon electronic spectroscopy."

3 August. Peter M. Rentzepis, "Picosecond spectroscopy."

Molecular Energy Transfer

Proctor Academy

C. Bradley Moore, chairman; A. B. Callear, vice chairman.

23 July. R. G. Brewer, "Coherent and incoherent rotational relaxation"; Y. T. Lee, and H. E. P. Knaap, "Rotational energy transfer."

24 July. R. D. Sharma, "Resonant energy transfers"; A. B. Callear, "Electronic energy transfer in small molecules."

25 July. P. M. Rentzepis and J. T. Yardley, "Relaxation of large electronically excited molecules"; S. A. Rice, F. Legay and W. Kaiser, "Vibrational relaxation in condensed phases."

26 July. I. W. M. Smith, "Vibrational relaxation in reactive and in low velocity encounters"; S. H. Bauer and J. C. Polanyi, "Chemical reactions of vibrationally excited species."

27 July. B. H. Mahan, "Hyperthermal inelastic collisions."

Molecular Pathology

Holderness School

Earl P. Benditt, chairman; George M. Martin, vice chairman.

Regulation of Mammalian Cell Proliferation

9 July. The mitotic cell cycle (David Korn, chairman): H. Temin or G. Smith, "A new model of the mammalian mitotic cell cycle"; P. N. Rao, "Analysis of cell cycle regulation by cell fusion"; L. Thompson, "Use of temperature sensitive mutants for the analysis of the cell cycle"; R. Tobey, "Control of macromolecular synthesis in synchronized cell lines"; T. Pederson, "Control of macromolecular synthesis in synchronized cell lines." The role of cyclic nucleotides (A. Millis, chairman): R. D. Estensen, "Phorbalmyristate acetate effects on cellular proliferation and on intracellular concentrations of cyclic GMP"; J. R. Sheppard, "Role of cyclic AMP in control of cell division in cultured cells"; R. Johnson, "Cyclic AMP concentrations in synchronized HeLa cells"; A. Millis, "Cyclic AMP and the mitotic cycle in cultured human lymphoid cells"; J. Voorhees, "Role of cyclic AMP and cyclic GMP in the control of normal and accelerated epithelial production."

10 July. Viral involvement in regulation of cell proliferation (G. Todaro, chairman): David Baltimore, J. M. Bishop, B. Hampar, and G. Todaro, Proliferation of cells of the immune system (D. A. Rowley and D. Lagunoff, co-chairmen): Erwin Diener, "The role of lymphocyte surface dynamics during immune induction"; Emil Unanue, "Triggering of lymphocytes by antigen; the role of antigen presentation and receptor movement"; Richard Dutton, "Mitogens and the initiation of the immune response"; Donald Rowley, "Specific suppression of proliferation lymphocytes by antibody and anti-antibody"; Fritz Bach, "Genetic control of lymphocyte activation."

11 July. Proliferation in the hematopoietic system (N. Wolf, chairman): A. Goldstein, "Chemical and biological properties of thymosine, a thymic hormone"; E. Goldwasser, "Erthropoietin effects on proliferation and differentiation"; F. Stohlman, Jr., "Factors controlling granulopoeisis *in vivo* and *in vitro*"; A. Axelrad, "*In vitro* cultivation of erythrocytic versus granulocytic cells"; N. Wolf, "Local stromal tissue control of hematopoiesis." Regulation of proliferation in organized mammalian tissues, liver cells (E. A. Smucker, chairman): J. Grisham, "DNA synthesis during hepatic regeneration"; I. Lieberman, "Nucleic acid synthesis and its control in regeneration"; E. A. Smuckler, "Morphological features of liver regeneration"; R. W. Holley, "Serum factors affecting macronuclear synthesis in regeneration"; T. Webb, "RNA transport in regeneration"; J. Short, "Nucleic acid synthesis and its control in regeneration." Proliferation of cells of vascular and connective tissues (E. P. Benditt, chairman): S. Schwartz, "Turnover of endothelial cells in large vessels"; J. Folkman, "Endothelial growth promoting factor derived from tumors"; W. Thomas, "Cell cycle analysis in vascular smooth muscle"; R. Vracko, "Factors regulating proliferation during regeneration of capillaries and parenchyma in muscular tissues."

12 July. Loss of proliferative capacity in mammalian cells (L. Hayflick, chairman): L. Hayflick, "Protein turnover in WI-38 cells"; P. Kruse, "Metabolic time versus division potential in WI-38 cells"; G. Rovera, "Chromatin chemistry in WI-38 cells"; V. Cristofalo, "Histone acetylation in WI-38 cells" S. Goldstein, "HL-A antigens in normal and progeric fibroblasts."

13 July. Loss of proliferative capacity in mammalian cells (continued). (G. M. Martin, chairman): L. Orgel, "Clonal senescence and the Orgel hypothesis"; R. Holliday, "Tests of the Orgel hypothesis in animal cells"; G. Stidworthy, "Connective tissue proteins and polysaccharides: Effects of *in vitro* and *in vivo* aging"; E. McCulloch, "Clonal senescence of hematopoietic stem cells"; A. Williamson, "Clonal senescence of lymphoid cells"; C. Daniel, "Limited replicative life-span of passaged mammary gland tissue."

Molecular Pharmacology

Proctor Academy

Robert T. Schimke, chairman; A. Karlin, vice chairman.

9–13 July. Ligand-protein interactions and conformation changes in proteins (Oleg Jardetzky, chairman): Yu. A. Ovchinikov, "Cyclic peptide conformation and transport"; C. K. Roberts, "Folding of ribonuclease"; G. K. Radda or R. A. Dwek, "Ligand interactions with glycolytic enzymes." Oleg Jardetzky, Michael Raftery, discussants. Ligand-nucleic acid interactions (Henry Sobell, chairman): William C. Galley, "Spin orbital probes of dye-polynucleotide complexes"; Thomas R. Krugh, "Association of actinomycin D and deoxyribonucleotides"; Susan B. Horowitz, "Camptothecin and other antitumor agents"; Henry Sobell, "Symetry and interactions of ligands with DNA." Leonard Lerman, discussant. Membrane structure (Guido Guidotti, chairman): Guido Guidotti, "Membranes and permeability"; Alan Finkelstein, "Pore formation in membranes." Reconstitution of membranes ((Phillip Strittmatter, chairman): Phillip Strittmatter, "Reconstitution of cytochrome b_5"; Stanley Golden, "Na-K-ATPase"; Wayne Hubbel, "Reconstitution of rhodopsin." Nicontinic receptors (Arthur Karlin, chairman): Jean-Pierre Changeux, Humphrey Rang, Jon Lindstron, Arthur Karlin, speakers; Israel Silman, A. Klett, discussants. Other receptors (Lowell Hokin, chairman): Edgar Haber, "Identification of norepinephrine receptors"; Lowell Hokin, "Purification and character of Na^+ -K^+ ATPase"; A. Parikh, "Affinity chromatography and receptor isolation"; Arnold Ruoho, "Photoaffinity labeling of B-adrenergic receptor." Interactions of hormones with adenyl cyclase system (Steven Mayer, chairman): Joseph Larner, "Interactions of insulin with the adenyl cyclase system"; David Goodman, "The role of calcium in cAMP mediated responses"; James Allen, "Hormonal control of red cell deformability"; Michael Lin, "Kinetic aspect of glucagon action on adenylate cyclase from rat liver." Yoram Salomon, discussant. Steroid hormone receptors (Robert Schimke, chairman): Keith Yamamoto, "Steroid binding hormone interactions with DNA"; John Baxter, "Steroid hormone binding in hepatoma cells in culture"; Lewis Aronow, "Steroid hormone binding in cultured fibroblasts"; Tom Spellsberg, "Binding of hormones and carcinogens to chromatin." Chemoreception in bacterial systems (Howard Berg, chairman): Howard Berg, John McNab, Julius Adler, speakers.

Molten Salts, Chemistry of

Brewster Academy

Samuel J. Yosim, chairman; Norman H. Nachtrieb, vice chairman.

27 August. Transport (R. Laity, discussion leader): L. V. Woodcock, Molecular dynamics calculation of time dependent properties"; A. Klemm, "Experimental and computer simulated isotope effects in molten salts"; J. Braunstein, "Chronopotentiometry based on diffusion of mobile non-electroactive species." Electrochemistry (R. A. Osteryoung, discussion leader): P. G. Zambonin, "The electrochemical behavior of oxides and their catalytic effects on redox mechanisms in molten nitrates"; Y. Delimarsky, "Advanced electrochemical kinetics in molten salts"; A. R. Kay, "Steel making salts."

28 August. Application to environmental problems (G. Janz, discussion leader): L. F. Grantham, "Molten carbonate process for removal of SO_2 from stack gases"; S. J. Yosim, "Application of molten carbonates to other pollution problems." Application to environmental problems (S. Cantor, discussion leader): L. Mudge, "Molten salt processing of solid wastes"; J. Greenberg, "Catalytic combustion in molten salts"; R. H. Moore, "Removal of sulfur compounds and fly ash from low BTU gases."

29 August. Some very recent advances (speakers to be announced). Structure and thermodynamics (C. A. Angell, discussion leader): G. Papatheodorou, "Enthalpies of mixing of charge-unsymmetrical binary systems"; M. L. Saboungi, "Theoretical study of reciprocal molten salt phase diagrams"; A. Tete, "Theoretical and experimental aspects of dielectric polarization in molten salts."

30 August. Application to the energy crisis (M. Blander, discussion leader): E. Cairns, "Lithium-sulfur and other molten salt batteries"; V. A. Maroni, "Some physiochemical and thermodynamic studies of lithium-containing systems and their importance to fusion reactor technology"; W. R. Grimes, "Molten salts as blankets and coolants for controlled thermonuclear reactors." Reactions in molten salts (B. Sundheim, discussion leader): J. Guion, "Organic reactions in molten salts"; C. B. Root, "Catalytic oxidation of O-xylene in melts."

31 August. Spectra (G. P. Smith, discussion leader): N. J. Bjerrum, "A multi-instrumental approach to the study of halo complexes in molten salts"; H. A. Øye, "Bonding in gaseous and molten chlorides"; J. H. R. Clarke, "Light scattering studies of structural dynamics in molten salts."

Multiparticle Production Processes

High Energy Multiparticle Production Processes

Holderness School

W. Peter Trower, chairman; Albert R. Erwin, vice chairman.

11 June. Experimental results from Hadronic interactions: electronic chambers (A. Mann, discussion leader): F. Turkot, "A review"; F. Erné, "Recent CERN results." Experimental results from electromagnetic interactions (L. Lederman, discussion leader): M. Perl, "A review of SLAC results"; B. Wiik, "A review of Cornell and DESY results"; R. Schwitters, "A review of colliding beam results"; L. Hand, "A review of results using Muon beams."

12 June. Experimental results from Hadronic interactions: bubble chambers (T. Ferbel, discussion leader): A. Wróblewski, "A review"; J. Lach, "Recent NAL results." Experimental results from weak interactions (M. Schwartz, discussion leader): C. Franzinetti, "A review of CERN results"; L. Hyman, "A review of Argonne and NAL bubble chamber results"; B. Barish, "A review of NAL electronic chamber results."

13 June. Contributed experimental results or new interpretations (S. Ratti, discussion leader). Theory of electromagnetic and weak production processes (D. Gross, discussion leader): J. Bjorken, "Parton models"; J. Preparata, "Current algebras, light cones, etc."

14 June. Strong interaction models (C. N. Yang, discussion leader): P. Carruthers, "Hydrodynamic model"; S. Frautschi, "Statistical model"; M. Bander, "Feynman gas model"; R. Hwa, "Fragmentation model." Experimental devices and techniques (D. Ritson, discussion leader): J. Ficenec, "Spectrometer systems"; H. Bøggild, "Colliding beam devices"; W. Willis, "A review of new techniques."

15 June. More strong interaction models (A. Mueller, discussion leader): R. Brower, "Decoupling of the Pomeron"; C. Quigg, "Multipheriphal model"; M. LeBellac, "Correlations, energy momentum sun rules, etc.";

H-M. Chan, "A critical review of current models and speculation of future directions."

Muscle: Smooth Muscle

Holderness School

Lloyd Barr, chairman; LeRoy Constantin, co-vice chairman; Elizabeth Twarog, co-vice chairman.

2 July. Proteins of the contractile apparatus (Benjamin Kaminer, chairman): David Hartshorne, John Kendrick-Jones, Casper Ruegg and R. A. Murphy. Muscle filaments (Andrew Somlyo, chairman): Gerald Elliott, Jack Lowey, Geoff Burnstock and Robert Rice.

3 July. Excitation contraction coupling (Edwin Daniel, chairman): C. van Breeman, Avril Somlyo, R. A. Janis and David Bohr. Length tension relations (Mary Siegman, chairman); Borje Johanson, Richard Meiss, N. Stephens and Philip Dobrin.

4 July. Ion distribution (Lloyd Barr, chairman): Elizabeth Stephenson, Alison Brading, Peter Goodford and R. Castells. Electrogenesis—ionic hypothesis (Edith Bulbring, chairman): T. Tomita, C. Y. Kao, Nels Anderson, W. R. Keating and Jean Marshall.

5 July. Membrane properties of tissues with complex geometries (J. W. Moore, chairman): Lee Peachey, Mailen Kootsey and Fidel Ramon. Electrogenesis—ion pumps (C. L. Prosser, chairman): R. E. Bolton, R. Castells, William Weems, J. C. Connor and Graham Taylor.

6 July. Mechanisms of action of neurohumoral agents (R. F. Furchgott, chairman): T. Bolton, J. H. Szurszewski and G. Schultz.

Natural Products

New Hampton School

John W. ApSimon, chairman; Arnold Brossi, vice chairman.

30 July–3 August. The following persons have been invited to speak: R. D. G. Cooper, S. Danishefsky, M. Hesse, G. W. Kirby, H. Maehr, K. Nakanishi, P. Stadler, Ch. Tamm, Z. Valenta, E. E. van Tamelen, J. Waters, F. Ziegler.

Nuclear Chemistry

Colby Junior College

Eugene Eichler, chairman; James J. Griffin, vice chairman.

25–29 June. Central theme will be nuclear spectroscopy with special emphasis on collective phenomena. Rotational states: backbending phenomena (sudden increase in moment of inertia), decoupling or loss of paring. New regions of deformation, unusual nuclear shapes. The question of 0^+ states in deformed nuclei. Vibrational states near the gap and in the continuum. Status reports from new accelerators and on-line separator projects. Nuclear chemistry in art and archeology.

Nuclear Structure Physics

Colby Junior College

Rubby Sherr, chairman; Larry Zamick, vice chairman.

18–22 June. J. W. Negele, "The present status of the coulomb energy anomaly"; L. Wilets, "Exotic probes of the nucleus"; J. Cerny, "An overview of the masses and decay schemes of exotic light nuclei"; R. D. Macfarlane, "New methods for the study of short-lived nuclei"; W. Benenson, "Studies of proton-rich nuclei using multiparticle transfer reactions"; H. Wildenthal, "What can be learned about nuclear wave functions by comparing experimental and theoretical nucleon transfer strengths"; N. Hintz, "New information on deformed nuclei obtainable from two neutron transfer reactions"; P. D. Kunz, "Aspects of particle transfer channels in two-step processes"; N. B. DeTakacsy, "Charge exchange and two-nucleon transfer reactions in second order D. W. B. A."; R. C. Johnson, "Three body effects in (d,p) and (p,d) reactions"; N. Austern, "Antisymmetrization effects"; W. Von Oertzen, "Direct reactions with heavy ions and nuclear structure"; D. P. Balamuth, "Angular correlation studies using heavy ions"; D. Kurath, "Nuclear structure effects in alpha transfer reactions"; P. J. Ellis, "Information from heavy ion reactions"; G. R. Satchler, "Excitation of giant resonances in nuclei"; G. T. Garvey, "Spin-flip giant resonances"; J. N. Bahcall, "Solar neutrinos."

Nucleic Acids

New Hampton School

Maxine Singer, co-chairman; Dieter Söll, co-chairman; Phillip Leder, co-vice chairman; Malcolm L. Gefter, co-vice chairman.

11 June. C. C. Richardson, "Enzymatic synthesis of DNA and the role of RNA in DNA synthesis"; R. L. Letsinger, "Polynucleotide chemistry and synthesis."

12 June. D. M. Crothers, "Conformation of RNA in solution"; D. Söll, "tRNA: structure, synthesis, enzymology and function."

13 June. G. Felsenfeld, "Protein-nucleic acid interaction"; B. Witkop, "Modification of mono- and polynucleotides."

14 June. D. Nathans, "Bacterial restriction enzymes in the analysis of DNA"; S. Weissman, "DNA sequence determination."

15 June. S. Linn, "DNA enzymes (recombination enzymes, modification enzymes, etc.)."

Oil and Other Hazardous Materials

Kimball Union Academy

Edward W. Kleppinger, chairman; C. Hugh Thompson, vice chairman.

2 July. G. Orians, "Critical geographical areas within the biosphere"; J. Cairns, "Critical species, including man, within the biosphere."

3 July. E. Baysinger, "Critical species, including man, within the biosphere"; R. Ayres, "Economically critical materials."

4 July. E. Goldberg, "The most critical hazardous materials and their pathways"; C. Lettow, "Critical levels in the environment—transport, accumulation, threshold?"

5 July. G. Morgan, "Monitoring for materials"; C. Starr, "Risk analysis and hazardous materials."

6 July. Presentations by participants.

Organic Photochemistry

Tilton School

Nicholas J. Turro, chairman; Angelo A. Lamola, vice chairman.

6 August. (G. S. Hammond, discussion leader): Th. Forster, "Photochemical transformations and potential energy surfaces"; L. Salem, "Towards a classification of photoreactions." (N. J. Turro, discussion leader): Invited papers.

7 August. (Donald Valentine, discussion leader): David G. Whitten, "Perspectives and recent results in the photochemistry of organometallic and coordination compounds"; Ernst Koerner von Gustorf, "Photochemical syntheses and transformations of organometallic compounds"; N. C. Yang, "Organic photochemistry."

8 August. (Arnold Zweig, discussion leader): Anthony M. Trozzolo, "Some recent applications of organic photo-

chemical concepts"; James Guillet, "Some aspects of photochemistry in macromolecular systems." (A. A. Lamola, discussion leader): Madu Pathak, "Photochemistry in molecular biology"; G. Jori, "Photochemistry of proteins."

9 August. (William C. Herndon, discussion leader): R. Kaptein, "Principles of chemically induced dynamic nuclear polarization"; Heinz Roth, "Applications of chemically induced nuclear polarization to photochemical problems"; Mustafa El-Sayed, "Study of photochemical mechanisms by phosphorescence microwave double resonance spectroscopy." (Frank Wilkinson, discussion leader): Invited papers.

10 August. (G. O. Schenck, discussion leader): Saul Cohen, "Electron and charge transfer mechanisms in organic photochemistry"; Orville Chapman, "Matrix isolation of photochemically generated reactive intermediates."

Organic Reactions and Processes

New Hampton School

Warren W. Kaeding, chairman; Carl R. Johnson, vice chairman.

16–20 July. W. O. Haag, "Catalytic properties of polymer bonded transition metal complexes"; R. A. Firestone, "C-6 (7)—Substituted penicillins and cephalosporins"; J. K. Kochi, "Oxidation of arenes by cobalt III"; W. H. Trahanovsky, "Cerium IV oxidations of organic compounds"; P. Kovacic, "Recent developments in N-haloamine chemistry"; O. L. Chapman, "Mechanisms of insect sex phermone action"; L. J. Andrews, "Trifluoroethanol mixtures as media for solvolysis"; I. L. Mador, "Oxyacetylations of olefins and aromatics with palladium"; J. G. Kuderna, "Synthesis and reactions of biocidal atropamides and atroponitriles—versatile carbamoyl and cyano aralkylating reagents"; W. S. Knowles, "Synthesis of α-amino acids by asymmetric hydrogenation"; W. Reifschneider, "Synthetic approaches to (alkylthio) phenols"; J. E. Lyons, "The selective liquid phase oxidation of olefins using homogeneous bimetallic transition metal catalyst systems"; D. A. Evans, "New synthetic methods using organosilicon and organosulfur reagents"; D. Seebach, "Metallated nitrosamines."

Physical Metallurgy

Holderness School

Ali S. Argon, chairman; B. H. Kear, vice chairman.

The Physical Basis of Constitutive Equations for Crystal Plasticity

18 June. General developments: J. R. Rice, "Thermodynamical basis of constitutive relations, review of rheological developments"; U. F. Kocks, "Kinetics of slip based on the defect state of crystals." E. W. Hart, "Rationally based self consistent phenomenological formulations of constitutive behavior for crystal plasticity"; M. F. Ashby, "Maps for steady state deformation of different materials."

19 June. Constitutive equations in low temperature plasticity of single phase metals: H. Mughrabi, "Description of the defect state in deformed single phase metals"; J. Zarka, "Computer modeling of changes in the defect state and the constitutive relations." L. M. Brown, "Description of the defect state in particle hardened metals, its changes with strain, and the Bauschinger effect."

20 June. Constitutive equations in low temperature cyclic deformation: J. C. Grosskreutz, "Description of the defect state resulting from cyclic deformation"; P. Neumann, "Computer modeling of cyclic deformation and changes in the defect state in cyclic deformation." Constitutive equations in hot creep: H. M. Miekk-oja, "Development of the defect state in hot creep"; B. Ilschner, "Development of constitutive equations and process equations for hot creep."

21 June. Computer applications and data: G. Y. Chin, "Modeling the developments of deformation textures"; R. Weeks, R. Poeppel and V. Z. Jankus, "Application of constitutive equations in the fuel element life code"; C. Y. Li, H. Yamada and G. Wire, "Stress relaxation and mechanical equations of state for structural metals"; J. Gittus, "Modeling the mechanical equation of state."

22 June. Short contributions.

Plant Cell and Tissue Culture

Holderness School

Oluf L. Gamborg, chairman; Ernest G. Jaworski, vice chairman.

Techniques of Plant Tissue Culture and Their Application in Research and Methods of Crop Improvement

25 June. Growth and differentiation (A. C. Hildebrandt, discussion leader): H. E. Street, "Growth and embryogenesis"; T. Murashige, "Organogenesis in meristems and cultured cells." Meristem and pollen culture (I. Vasil, discussion leader): G. Morel, "Meristems in virus therapy"; C. Nitsch, "Anther culture and haploid plants."

26 June. Plant protoplasts (E. C. Cocking, discussion leader): F. Constabel, T. Eriksson, P. K. Evans, "Isolation, culture and fusion of protoplasts." Cell structure and organelles (W. M. Laetsch discussion leader): P. Ray, "Cell membranes"; R. M. Leach, "Organelle culture."

27 June. Genetics (Colin Doy, discussion leader): L. Ledoux, "Gene transfer by transformation"; P. S. Carlson, "Somatic cell hybridization." Nitrogen fixation (T. LaRue, discussion leader): John Postgate, R. C. Valentine, "Microbial genetics and *in vitro* systems."

28 June. Host-parasite relations (D. S. Ingram, discussion leader): I. Takebe, "Infection of protoplasts"; J. Helgeson, "Resistance of tobacco to *phytophthora.*"

29 June. Tissue culture in crop development (L. G. Nickell, discussion leader): D. Heinz, "Sugar cane"; L. L. Winton, "Forest trees."

Polymers

Colby Junior College

Herbert Morawetz, chairman; Paul W. Morgan, vice chairman.

30 July. (R. Buchdahl presiding): H. Mark, "Synthetic paper"; L. H. Sperling, "Interpenetrating polymer networks." (W. Prins presiding): M. Goodman, "Conformational studies of polypeptides and polydepsipeptides by NMR and CD"; S. Krimm, "The structure of 'random' polypeptides and proteins."

31 July. (E. J. Vandenberg presiding): G. Wegner, "Chemistry and physics of the polymerization of diacetylene derivatives in the crystalline state"; W. L. Carrick, "Recent studies on olefin polymerization by transition metal catalysis." (F. R. Eirich presiding): S. S. Sternstein, "Biaxial viscoelastic phenomena in glassy polymers as related to thermal history and generalized superposition"; A. Eisenberg, "Viscoelastic properties of some ion-containing polymers in relation to their supermolecular structure."

1 August. (N. D. Field presiding): A. Patchornik, "The use of polymeric reagents in organic synthesis"; S. I. Nozakura, "Studies of branching in poly (vinyl alcohol)." (R. S. Stein presiding): G. Allegra, "Recent statistical-mechanical studies on polypropylene and on ethylene-propylene copoly-

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(Children must be at least 12 years of age.)
State **name** and **age** of each child requiring school accommodations.)

Indicate your particular activities which justify favorable consideration of you as a participant in and contributor to this Conference. (Not required of speakers.) Applications are referred to the Conference Committee for review in accordance with the established regulations.

Please return to:
Dr. Alexander M. Cruickshank, Director
Gordon Research Conferences
Pastore Chemical Laboratory
University of Rhode Island
Kingston, Rhode Island 02881

Address from June 11-Aug. 31
Colby Junior College
New London, N. H. 03257

Signature _____

Date _____

Telephone: Business _____ _____

Home _____ _____

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mers"; R. Ullman and J. E. Anderson, "Mechanism of desalination by neutral polymer membranes."

2 August. (A. R. Shultz presiding): Turner Alfrey, "Properties of multilayer polymer films"; I. M. Krieger, "Studies on monodisperse latices." (J. K. Stille presiding): H. J. Harwood, "Radiotracer and spectroscopic studies of polymer reactivity."

3 August. (C. Schuerch presiding): G. Scott, "Additives for the acceleration of polymer photodegradation"; T. Takekoshi, "Electrophilic substitution polymerization."

Proteins

New Hampton School

John A. Schellman, co-chairman; Russell F. Doolittle, co-chairman; Gordon G. Hammes, co-vice chairman; Gregorio Weber, co-vice chairman.

18 June. Ribosomal proteins (M. Nomura, chairman): H. Wittmann, G. Craven and C. Cantor. Predictive schemes for determining protein structure (C. Schellman, chairman): B. Robson, H. Scheraga, T. T. Wu and E. A. Kabat.

19 June. NMR and protein structure (A. G. Redfield, chairman): V. Hruby, M. Raftery and H. Sternlicht. Non-enzyme precursor proteins (P. Bornstein, chairman): J. Habener, J. Maizel and J. Potts.

20 June. Protein structure and evolution (V. Ingram, chairman): G. Koch, F. Morgan, H. Gray and R. Doolittle. Protein folding, kinetics and mechanism (R. Baldwin, chairman): W. Kauzmann, C. Matthews and A. Schechter.

21 June. Three concurrent mini-sessions dealing with various aspects of the conference. Special lecture.

22 June. Conference summation (C. Anfinsen, chairman): F. Richards.

Quantum Solids and Fluids, Dynamics of

Brewster Academy

T. M. Sanders, chairman; R. C. Richardson, vice chairman.

16–20 July. Lectures and ample discussion time will be provided for discussion of recent experimental and theoretical work on liquid and solid helium. Topics to be discussed include: "Low-temperature magnetic properties of solid He^3"; "Recent work on 'sounds' in liquid He^4"; "Experimental and theoretical developments in He^3-He^4 mixtures"; "Interacting Fermi systems in astrophysics." Particular emphasis will be placed on research indicating new phases of liquid He^3.

Radiation Chemistry

New Hampton School

Richard Holroyd, chairman; Larry Kevan, vice chairman.

23 July. (R. H. Schuler, discussion leader): Arnim Henglein, "Pulse polarography of radicals in aqueous solution." (G. Scholes, discussion leader): L. S. Myers, Jr., "Radiation chemistry of nucleic acids."

24 July. (G. Czapski, discussion leader): Max S. Matheson and Charles D. Jonah, "Radiation chemistry of water, 100 psec-100 nsec." (R. C. Jarnagin, discussion leader): H. Ted Davis, "Transport of thermal electrons in non-polar hydrocarbons."

25 July. (C. Greenstock, discussion leader): A. John Swallow, "One-electron processes in biochemical systems"; Benon H. J. Bielski, "Study of peroxidase mechanisms by pulse radiolysis." (D. R. Smith, discussion leader): Richard W. Fessenden, "Time resolved detection of radicals by ESR in pulse radiolysis."

26 July. (P. Ludwig, discussion leader): Martin L. West, "Fluorescence excitation and quenching under pulsed proton irradiation"; Andries Hummel, "Ionization in some liquid hydrocarbons." (L. Kevan, discussion leader): Contributed papers.

27 July. (C. J. Hochanadel, discussion leader): Wayne Sieck, "Significance of ion-molecule collision complexes in radiolysis."

Regulatory Mechanisms in Photosynthesis

Tilton School

Anthony San Pietro, chairman; R. K. Clayton, vice chairman.

13–17 August. Quantum level: Absorption and distribution (C. S. French, chairman): W. Arnold, J. Myers, speakers; D. Fleischman, J. C. Goodheer, Govindgee, G. Hoch, A. Krasnovskii, D. Mauzerall, J. Pickett, E. Rabinowitch, K. Sauer, discussants. Energy coupling and transduction (M. Avron, chairman): B. Chance, D. L. Keister, speakers; H. Baltscheffsky, D. DeVault, R. A. Dilley, L. Packer, W. W. Parsons. B. Rumberg, discussants.

Energy coupling and transduction (continued) (M. D. Kamen, chairman): P. Mitchell, E. Racker, speakers; M. Avron, A. Crofts, G. Forti, A. Jagendorf, S. Lien, B. A. Melandri, E. Moudrianakis, R. McCarty, discussants. Reaction center and membrane components (physical) (R. K. Clayton, chairman); B. Ke, H. T. Witt, speakers; D. I. Arnon, W. Butler, W. A. Cramer, P. L. Dutton, R. C. Fuller, G. Gingras, A. A. Shlyk, C. Sybesma, discussants. Reaction center and membrane components (biochemical) (D. I. Arnon, chairman): N. K. Boardman, R. K. Clayton, speakers; J. M. Briantais, H. Huzisige; S. Kaplan, D. W. Krogmann, P. Loach, J. M. Michel, N. Nelson, J. Neumann, J. P. Thornber, A. Trebst, L. P. Vernon, discussants. Oxygen evolution: multi-quantum cooperation (H. Gaffron, chairman): P. Joliot, B. Kok, speakers; G. Chenaie, B. Diner, G. Hind, P. Homann, S. Katoh, B. C. Mayne, G. Schmid, K. L. Zankel, discussants. Carbon metabolism (D. A. Walker, chairman): M. Gibbs, M. D. Hatch, speakers; J. Bassham, C. C. Black, M. L. Champigny, J. M. Galmiche, R. Jensen, W. Kowalik, E. Latzko, S. Miyachi, D. A. Walker, discussants. Genetic analysis (R. P. Levine, chairman): N. I. Bishop, H. Gest, speakers; B. Epel, H. Lyman, B. Marrs, J. A. Schiff, R. Smillie, S. Surzycki, R. K. Togasaki, discussants. Experimental approaches (A. San Pietro, chairman): (discussants to be announced). Special evening lecture, Robin Hill.

Separation and Purification

Colby Junior College

Norman N. Li, chairman; Harold B. Hopfenberg, vice chairman.

20–24 August. V. A. Ettel, "Highly selective solvent extraction in hydrometallurgy"; R. A. Schwind, "Development of two chemical exchange systems for isotope separation,"; R. A. Kremer, "Purification of organic compounds by continuous fractional crystallization from vapor phase"; A. Kolin, "Separation and characterization of molecular and particulate components by endless belt electrophoresis"; E. J. Fuller, "Slurry separations based on molecular shape"; C. Horvath, "High performance liquid chromatography"; J. E. Mitchell, "CO_2 removal from gases by heatless adsorption"; P. R. Rony, "Chemical separations, as seen from the field of catalysis"; G. A. Davies, "Mass transfer

during coalescence of droplets and dispersion"; R. B. Grieves, "Precipitate flotation of anionic species with applications to water pollution control." Separations by liquid surfactant membranes: S. W. May and N. N. Li, "Enzyme-liquid membrane systems"; W. J. Asher and H. W. Wallace, "Biomedical applications"; E. L. Cussler, "Transfer of solutes against their concentration gradients"; W. R. Vieth, "Aspects of enzymatic action and semipermeability in enzyme-membrane systems"; T. M. S. Chang, "A new approach to separation using semipermeable microcapsules: combined dialysis, catalysis and absorption"; J. S. Johnson, Jr., "Dynamically-formed membranes in aqueous separations."

Solids, Chemistry and Physics of

Holderness School

J. C. Phillips, chairman; T. Geballe, vice chairman.

New Materials

30 July. B. B. Snavely, R. D. Maurer, "Optical materials"; G. H. Brown, "Liquid crystals."

31 July. H. B. Callen, "Magnetic materials"; T. H. Geballe, "Layer materials."

1 August. A. Kelly, G. Y. Chin, "Macroscopic anisotropy"; C. Overberger, "Polymers."

2 August. A. W. Sleight, "High pressure synthesis"; B. B. Owens, A. Bloch, "Electronic and ionic conductors."

3 August. A. L. Rubin, "Biomaterials."

Statistics in Chemistry and Chemical Engineering

New Hampton School

Otto Dykstra, Jr., chairman; David W. Bacon, vice chairman.

9 July. S. M. Free and John E. Overall, "Prediction of success of new compounds through use of the relationship between lab data and actual clinical response"; Louis Broekhoven, "Spline regression."

10 July. George Tiao and George E. P. Box, "Time series analysis of pollution data"; Gary G. Koch, "Statistical analysis of large data sets."

11 July. Graham N. Wilkinson, "Integrating statistical inference and processing on computers"; David S. Salsburg, "The jackknife and its applications."

12 July. Lalitha Sanathanan, "Visual scanning"; Robert E. Wheeler, "Efficient experimental design."

13 July. Ronal D. Snee, "Shape studies."

Structural Macromolecules

Tilton School

Roger W. Jeanloz, chairman; Victor Ginsburg, vice chairman.

Cell Surface and Membrane Glycoproteins

23 July. R. W. Jeanloz, "Chemical methods of structure identification"; D. M. Carlson, "Biochemical and immunological methods of structure identification."

24 July. V. T. Marchesi, "Molecular orientation of surface glycoproteins"; G. A. Jamieson, "Methods of isolation and characterization.

25 July. H. Schachter, "Biosynthesis of glycoproteins"; R. H. Kornfeld, "Interaction of lectins with cell surface glycoproteins."

26 July. G. Ashwell, "Carbohydrate determinants of cellular recognition"; P. W. R[illegible]bins, "Glycoproteins in normal and[illegible]ansformed cells, I."

27 July. L. Warren, "Glycoproteins in normal and transformed cells, II."

Subsurface Fluid Displacement, Chemistry and Physics of

New Hampton School

R. L. Parsons, chairman; L. L. Handy, vice chairman.

22–31 August. Lincoln Elkins, "Impact of heterogeneity and anisotropy on efficiency of displacement processes"; C. E. Johnson, Jr., "Equivalent relative permeabilities for stratified porous media"; M. L. Jackson, "Origin of shales traced by oxygen isotopic ratio"; Floyd W. Preston, "Identification and prediction of spatial variation in reservoir physical properties"; E. L. Claridge, "Interaction of viscous fingering with other factors influencing sweep efficiency"; L. W. Holm, "Mechanisms of displacement by CO_2"; Charles L. Hearn, "Interpretation of a miscible displacement project"; Joseph J. Taber, "Interfacial tension and flooding rate: combinations which permit displacement of residual oil"; Paul F. Fulton, "Role of wettability in capillary displacement of oil by water"; Michael Prats, "Selected examples of capillarity"; R. K. Knight, "Flow of aqueous polymer solutions in permeable media"; B. B.

Sandiford, "Modification of profiles with polymers"; S. W. Nicksic, "Adsorption of sulfonates"; P. A. C. Raats, "Unstable wetting fronts in soils"; T. C. Boberg, "Numerical dispersion and history matching"; E. L. Dougherty, "Compositional models"; R. E. Cook, "New developments in black oil compositional models"; G. W. Thomas, "New approaches to reservoir simulation"; F. Sam Johnson, "Chemical fracturing and solvent injection—a field trial"; Marion K. Hubbert, "Basic hydrodynamics of mixed systems"; H. J. Ramey, "New developments in transient well testing"; Jacob Bear, "Flow through porous media at high Reynolds numbers"; D. J. Graue, "Some aspects of oil displacement by steam."

Textiles and Fiber Science

Colby Junior College

Harry R. Billica, chairman; John P. Knudsen, vice chairman.

9 July. A. Peterlin, J. W. S. Hearle, D. C. Prevorsek, W. O. Statton, "Current concepts of synthetic fiber fine structure." (F. Fortess, discussion leader): general discussion.

10 July. P. G. Kassenbeck, "Morphology of cotton fibers and its influence on mechanical properties"; S. P. Rowland, "Chemical finishing of cotton cellulose and its effect upon microstructure and performance qualities"; J. S. Little, "New developments for polyester in tires."

11 July. G. Valk, "New methods for the determination of thermal and mechanical prehistory of polyesters and their application"; H. Herlinger, "Correlation of chemical and physical structure to the properties of elastomeric fiber materials."

12 July. J. J. Willard, "Functional finishes of synthetic fabrics"; F. J. Rizzo, "Electrostatic phenomena in textile materials in clothing"; C. W. Ericson, "Bonding in spunbonded nonwovens."

13 July. S. Backer, "Material and machine interactions in false twist texturing."

Toxicology and Safety Evaluations

Kimball Union Academy

Harold Grice, chairman; Harold M. Peck, vice chairman.

30 July. The heart in toxicology (David Lehr, discussion leader): R. Hamlin, "Electrocardiography in toxi-

cology"; A. Heggtveit, "Pathology of toxic and nutritional cardiomyopathies"; T. Balazs, "Drug induced ischemic myocardial necrosis."

31 July. Computer technology in toxicology (Robert Carlson, discussion leader): Carlton Smith, "Data acquisition and retrieval systems"; Lionel Mawdsley-Thomas, "Automated analysis of cellular change." (C. Middleton, discussion leader): Geoff Lord, "Model diseases in toxicology, congenital and induced."

1 August. Drug adverse reactions (Nelson Irey, discussion leader): Jim Campbell, "Problems and control"; Ian Henderson, "Drug reactions and interactions." (R. Scala, discussion leader): Lionel Rubin, "Ophthalmological toxicology."

2 August. Immunologic technics in toxicology (L. Perelmutter, discussion leader): I. L. Bernstein, "*In vivo* and *in vitro* technics in immediate allergic reactions"; Roger Morrell, "Radioimmunologic assays in toxicology present and potential." (Harold Grice, discussion leader): Robert Kinch, "Contraception through the ages."

3 August. Screening tests for carcinogenicity (Harold Peck, discussion leader): Lionel Poirier, "Screening tests for carcinogenicity."

BOOKS RECEIVED

(Continued from page 993)

A Cost-Effectiveness Study of Clinical Methods of Birth Control. With Special Reference to Puerto Rico. William J. Kelly. Praeger, New York, 1972. xii, 122 pp., illus. $12.50. Praeger Special Studies in Internaticnal Economics and Development.

Critical Variables in Differentiation. Barbara E. Wright. Prentice-Hall, Englewood Cliffs, N.J., 1973. xvi, 110 pp., illus. $7.95. Concepts of Modern Biology Series.

Crop Processes in Controlled Environments. Proceedings of a symposium, Littlehampton, England, July 1971. A. R. Rees, K. E. Cockshull, D. W. Hand, and R. G. Hurd, Eds. Academic Press, New York, 1972. xiv, 392 pp., illus. $19.50. Applied Botany, vol. 2.

Current Topics in Membranes and Transport. Vol. 3. Felix Bronner and Arnost Kleinzeller, Eds. Academic Press, New York, 1972. xii, 436 pp., illus. $24.50.

Cyclotrons—1972. Proceedings of a conference, Vancouver, Canada, July 1972. J. J. Burgerjon and A. Strathdee, Eds. American Institute of Physics, New York, 1972. xiv, 838 pp., illus. $14.75. AIP Conference Proceedings, No. 9.

Data Communications and Business Strategy. A Working Sourcebook for the Modern Manager. A conference, New York, Oct. 1971. John J. Tarrant, Ed. Auerbach, Princeton, N.J., 1972. x, 146 pp. $9.95.

Death and Attitudes toward Death. Proceedings of a symposium, Minneapolis, Jan. 1972. Stacey B. Day, Ed. University of Minnesota Medical School Bell Museum of Pathology, Minneapolis; Batesville Casket Co., Batesville, Ind., 1972. 94 pp. $5.50.

Dictionary of Scientific Biography. Vol. 6, Jean Hachette—Joseph Hyrtl. Charles Coulston Gillispie, Ed. Scribner, New York, 1973. xvi, 620 pp. $35.

Dielectric and Related Molecular Processes. Vol. 1, A Review of Selected Developments in the Period 1966–1971. Mansel Davies, senior reporter. Chemical Society, London, 1972. xvi, 394 pp., illus. £8. Specialist Periodical Report.

Dr. Robert Broom. Palaeontologist and Physician, 1866–1951. A Biography, Appreciation and Bibliography. G. H. Findlay. Balkema, Cape Town, South Africa, 1972. xvi, 158 pp. + plates. R7.50. South African Biographical and Historical Studies, vol. 15.

Dynamics of Health and Disease. Carter L. Marshall and David Pearson. Appleton-Century-Crofts, New York, 1972. xiv, 458 pp., illus. $8.50.

Enzyme, Moleküle, Lebenserscheinungen. F. Brunó Straub. Akadémiai Kiadó, Budapest, 1972. 126 pp., illus. Paper, £1.

The Epidemiology of Posttransfusion Hepatitis. Basic Blood and Plasma Tabulations. J. Garrott Allen. Published by the author, Stanford, Calif., 1972. xvi, 360 pp., illus.

Experimental Meson Spectroscopy—1972. A conference, Philadelphia, Apr. 1972. Arthur H. Rosenfeld and Kwan-Wu Lai, Eds. American Institute of Physics, New York, 1972. xiv, 490 pp., illus. $11. AIP Conference Proceedings, No. 8. Particles and Fields Subseries, No. 3.

Experiments in Physiology and Biochemistry. Vol. 5. G. A. Kerkut, Ed. Academic Press, New York, 1972. xvi, 346 pp., illus. $19.50.

Explorations in Basic Biology. Stanley E. Gunstream and John S. Babel. Burgess, Minneapolis, 1973. xii, 242 pp., illus. Spiral bound, $5.50.

Families of Frequency Distributions. J. K. Ord. Hafner, New York, 1972. viii, 232 pp., illus. Paper, $14.95. Griffin's Statistical Monographs and Courses, No. 30.

Graphic Languages. Proceedings of a conference, Vancouver, Canada, May 1972. F. Nake and A. Rosenfeld, Eds. North-Holland, Amsterdam, 1972 (U.S. distributor, Elsevier, New York). viii, 442 pp., illus. $23.85.

History of Science. An Annual Review of Literature, Research and Teaching. Vol. 10, 1971. A. C. Crombie and M. A. Hoskin, Eds. Heffer, Cambridge, England, 1972 (U.S. distributor, Neale Watson, New York). vi, 138 pp. $11.

Intellectual Functioning in Adults. Psychological and Biological Influences. Two symposia, San Francisco (1968) and Miami (1970). Lissy F. Jarvik, Carl Eisdorfer, and June E. Blum, Eds. Springer, New York, 1973. xiv, 178 pp., illus. $7.50.

Interpersonal Messages of Emotion.