

Gordon Research Conferences: Winter Program, 1977

Alexander M. Cruickshank

The Winter Gordon Research Conferences will be held 3 January through 4 February 1977 in Santa Barbara, California, at the Miramar Hotel.

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 members of each conference. 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 effort among laboratories.

Meetings are held in the morning and in the evening, Monday through Friday, with the exception of Friday evening. The afternoons are available for recreation, reading, or participation in discussion groups as the individual desires.

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

In order to protect individual rights and 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. The recording of lectures by tapes, and so forth, and the photography of slides are prohibited. Scientific publications are not prepared as emanating from the Conferences.

Registration and reservations. Attendance at the Conferences is by application. 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. Only registered conferees are permitted in the meeting room.

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 the members in an effort 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 scientists arriving in the United States from foreign countries. Checks are to be made payable to the Gordon Research Conferences. The deposit will be credited against the fixed fee for the conference. *A registration card not accompanied by the deposit will not be accepted.*

The Board of Trustees of the Conferences has established a fixed fee of \$175 for conferees covering registration, double room with bath, City of Santa Barbara room tax, meals, and services for five conference days. It will not provide for telephone, taxi, laundry, conference photograph, or any other personal expenses. The fixed fee was established to encourage attendance for the entire

conference and to increase the special fund that is available to each conference chairman for the purpose of assisting conferees who attend a conference at total or partial personal expense with travel or subsistence expenses or with both.

It is to the advantage of all participants to attend a conference for the entire week. The fixed fee will be charged regardless of the time a conferee attends the conference—that is, for the period of from 1 to 4½ days. It is divided as follows: registration fee \$50 and room (double occupancy) and meals \$125, including services for five conference days. *An additional charge will be made for a single room if no double rooms or roommates are available.* These rooms will be assigned in the order that applications are received. An additional charge will be made for rooms occupied more than five conference nights (Sunday through Thursday).

Guests. Accommodations are available for guests and for children 12 years of age and over. All such requests should be made at the time the attendance application is submitted. The charge for room and meals for a guest is \$125 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. *Guests are not permitted to attend the conference lectures and discussion sessions.*

Special Fund. A special fund is provided from the registration fee and is made available to the chairman of each conference for the purpose of increasing the participation of research scientists who could not otherwise attend and participate because of financial limitations. Its use is not limited to speakers and discussion leaders, but may be granted to any registered conferee by the chairman. 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 location. Total travel and subsistence expenses usually will not be provided.

Cancellation. The conferee deposit is forfeited if an approved application is cancelled. This deposit is not transferable to another conferee or Conference.

Membership. Requests for membership in 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.

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

Agricultural Science

Harold Kaufman, chairman; Fred Slife, vice chairman.

Chemical and Biological Considerations for Yield Enhancement and Crop Design

17 January. Developmental genetics—crop breeding for performance in high yielding ecosystems (Richard Levins, session organizer): Richard Levins, Jim Teeri, and G. F. Sprague. Evening session—related papers and discussions to be formulated.

18 January. Plant pathogen interrelationships—effects on crop yields: (E. Rogers, discussion leader): Gary Strobel, James Sinclair, John Menge, and Peter Albersheim.

19 January. Considerations for overcoming biological barriers to increasing crop yields: John Hanway, Ernest Jaworski, and William Jackson. (Discussion leader to be announced.)

20 January. Biomass and plant efficiency: Clanton Black and Robert Loomis. Keynote evening speaker: Melvin Calvin.

21 January. Alternate crop yield limiting factors: (Orville Chapman, discussion leader): Walter Bonner and Theodore Diener.

Bacterial Cell Surfaces

Jean-Marie Ghuysen and Luis Glaser, co-chairmen.

3 January. Membrane structure and function (E. Kennedy, chairperson): G. Khorana, "A new approach to lipid-lipid and lipid-protein interaction in membranes"; H. McConnell (subject to be announced); P. Overath, "Use of lipid phase transitions in studies of structure-function relationships and hybridization of *Escherichia coli* membranes"; O. Luderitz, "The structure of lipid A from various lipopolysaccharides." Membrane structure and function (C. Schnaitman, chairperson): David F. Silbert, "Modification of membrane lipid-interrelationships between fatty acid structure, physical properties, and membrane function in *E. coli*"; M. Salton (subject to be announced); O. Lampen, "Role of membrane phospholipoproteins in enzyme secretion in bacilli."

4 January. Synthesis of cell wall polymers (O. Kandler, chairperson): David Mirelman, "Regulation of cell wall growth and septum formation in *E. coli*"; J. B. Ward (subject to be announced); Luis Glaser, "Synthesis and function of teichoic acid." Mechanism of antibiotic action (D. Tipper, chairperson): J.-M. Ghuysen, "The DD carboxypeptidase transpeptidase system in streptomyces sp"; J. Strominger, "Recent studies on the mechanism of penicillin action"; A. Tomasz, "Autolytic enzymes—physiological role and regulation."

5 January. The outer membrane of gram negative bacteria (L. Levi, chairperson): U. Henning, "Major proteins of the *E. coli* outer cell envelope structure, arrangement and properties as phage receptor"; V. Braun, "Iron transport dependent on cell surface receptors"; M. J. Osborn (subject to be announced); H. Nikaido, "Permeability of the *E. coli* outer membrane." Growth of the cell wall (H. Perkins, chairperson): H. Rogers, "Wall growth in *B. subtilis* and its mutants"; U. Schwarz, "Murine hydrolase and the enlargement of the sacculus"; J. Baddiley, "Mechanism of cell wall assembly."

6 January. Synthesis of cell surface components during the cell cycle (G. Shockman, chairperson): A. Pardee, "Envelope proteins and bacterial division"; R. James, "Periodic incorporation of outer membrane proteins of *E. coli*. A component of a division clock"; J. Park, "Changes in cell envelope properties during the cell division cycle"; Y. Hirota, "Mutants of *E. coli* defective in the outer envelope." The yeast cell wall (E. Cabib, chairperson): C. Ballou, "Biochemistry of agglutination and morphogenesis during mating in yeast"; S. Bartnicki-Garcia, "Chitin biosynthesis"; E. Cabib, "Enzymes and organelles in the formation of the yeast primary septum."

7 January. Chemotaxis (J. Adler, chairperson): J. Adler, M. S. Springer, and S. Szmelcman, "The sensory transduction mechanism in bacterial chemotaxis"; D. Koshland, "The tumble regulator model for bacterial chemotaxis"; H. Berg, "*E. coli* flagellar function"; M. Silverman, "Flagellar proteins in the bacterial membrane."

Chemical Oceanography

Dana R. Kester, chairman; David Schink, vice chairman.

24 January. Chemistry of dissolved organic matter in seawater (J. G. Quinn, session chairman): D. H. Stuermer, "Characterization of humic substances in seawater"; J. P. Riley, "Interactions between humic substances and metal ions in natural waters." Chemistry of biological compounds in the marine environment (J. L. Bada, session chairman): R. Gagosian, "The cycling of reactive biochemicals in seawater and sediments:

the synthetic organic constituent approach"; C. Lee, "Amino acids in seawater."

25 January. Atmospheric transport to the marine environment (E. D. Goldberg, session chairman): J. Prospero, "The atmospheric transport of continental aerosols of natural origins to the ocean"; R. A. Duce, "Chemical transfer between the atmosphere and ocean." Riverine transport to the marine environment (F. L. Sayles, session chairman): K. C. Beck, "Transport of colloidal iron, aluminum, and organic matter from rivers into and through estuaries"; F. L. Sayles, "Ion exchange reactions between fluvial clays and sediments and seawater."

26 January. Reactive minor gases in the ocean (L. I. Gordon, session chairman): I. Kaplan and P. Doose, "Diagenetic gases produced in marine sediments"; J. Hahn, "The role of the oceans in the cycles of some atmospheric trace gases (N_2O , CO , H_2 , CH_4 , a.o.)"; L. I. Gordon, "Trace gas studies in the ocean." Adsorption models in the marine environment (M. Scott, session chairman): R. O. James, "Adsorption models in aqueous systems"; W. Stumm, "Theoretical models of chemical adsorption."

27 January. Chemical studies of continental shelf systems (L. P. Atkinson, session chairman): K. Bruland, J. H. Martin, G. A. Knauer, and W. W. Broenkow, "Trace element concentrations in continental shelf waters"; L. P. Atkinson, "Transfer processes on the South Atlantic Bight." Oceanographic studies of Gulf Stream rings (D. R. Kester, session chairman): P. L. Richardson, "Physical oceanography of Gulf Stream rings"; P. H. Wiebe, "Biological studies of Gulf Stream rings."

28 January. Short-lived radioisotopes in the sea (W. S. Broecker, session chairman): W. Jenkins, "Tritium and helium as mixing tracers in the main oceanic thermocline"; J. Sarmiento, "Radium-228 and radon-222 as mixing tracers in the deep sea"; L. Labeyrie, "Distribution of chemically reactive transuranics and uranium series products in the sea."

Deformation and Failure Mechanics in Polymer Composites

Robert F. Landel, chairman; S. S. Sternstein, vice chairman.

3 January. Fundamental design: M. Waddoups, "Design with composites." Mechanics: Z. Hashina, "Theory and analysis of composite materials." Polymer physics morphology: R. Morgan, "Re-

lationship of structure, fracture processes and mechanical response of polymer glasses."

4 January. Multiaxial testing and response: H. Y. Ko, "Characterization of anisotropic media by multiaxial testing"; P. W. Mast, "A system for studying failure of composites under complex loads." Interphase aspects: D. Kaelble, "Environmental durability of epoxy-graphite composites"; L. Dryzall, "The surface composition and energetics of graphite reinforcing fibers."

5 January. Crack propagation: E. Wu, "Control of dynamic propagation—experimental techniques and observations"; G. Grüninger, "Crack propagation and fracture patterns in cross-plied composites"; Fracture oblique failure: W. Elber, "Mechanical modification of fracture toughness properties of graphite-epoxy composites"; Carl Sweben, "Tensile strength of hybrid composites."

6 January. Thermoplastic and thermoset matrices: L. Cessna, "Mechanical characterization of short-fiber reinforced plastics"; Nicholas S. Enikolopian, "Composite formation and properties of polymer networks for composites." Brief presentations on new results by participants. Conferees are invited to submit contributions to Robert F. Landel, Jet Propulsion Laboratory, 4800 Oak Grove Drive, Pasadena, Calif. 91103.

7 January. New areas: J. Aviston, "Failure mechanisms in fiber-reinforced cement"; J. J. Gilman, "Glassy metals."

Electrochemistry

Herbert P. Silverman, chairman; Royce W. Murray, vice chairman.

17 January. Industrial electrochemistry (E. Yeager, discussion leader): M. Fleischmann, "Electrochemical reaction engineering"; E. Gileadi, "Chemistry and electrochemistry of electrodeposition of aluminum from aromatic hydrocarbon based solvents." Industrial electrochemistry (E. Gileadi, discussion leader): E. Yeager, "The optimization of oxygen cathodes and anodes for various applications"; K. O'Leary, "The chlorine electrode."

18 January. Energy storage (A. Landgrebe, discussion leader): D. D. Wyatt, "Energy storage"; B. Brummer, "Low temperature alkali metal/sulfur batteries." Open session (R. Murray, discussion leader).

19 January. Photoelectrochemistry (A. Bard, discussion leader): K. Handa, "Photoelectrochemical aspects of silver chloride electrode"; G. Hodes, "Photoelectrochemical energy conversion with

polycrystalline semiconductors." Photoelectrochemistry (continued): A. Bard, "Photoelectrochemistry at semiconductor electrodes"; A. Heller, "Efficiencies and near surface defects in semiconductor liquid junction photocells."

20 January. Biological electrodes (H. Silverman, discussion leader): L. Clark, "Enzyme-coupled polarographic electrodes in bioanalytical chemistry"; G. Rechnitz, "Biosensitive membrane electrodes." Modified electrodes (R. Murray, discussion leader): T. Kuwana, "Fixed enzyme electrodes"; S. Ben-Yaakov, "Applications of membrane covered polarographic sensors."

21 January. Modified electrodes (T. Kuwana, discussion leader): R. Murray, "Chemically modified electrodes"; L. Miller, "Organic electrochemistry and modified surfaces."

Hormone Action

Isidore S. Edelman, chairman; Jesse Roth, co-chairman; Kevin J. Catt, vice chairman.

31 January. Dynamics of the regulation of receptors for peptide hormones (J. Roth, session chairman): A. H. Tashjian, "Modulation of hormone receptors in GH-cells"; R. J. Lefkowitz, "Regulation of catecholamine receptors: desensitization of adenylate cyclase"; J. P. Harwood, "Regulation of gonadotropin receptors and adenylate cyclase"; J. M. Varga, "Discontinuous display of MSH receptors during the melanoma cell cycle." Significance of heterogeneity in steroid hormone receptors (E. E. Baulieu, session chairman): J. Katzenellenbogen, "Determinants of covalent and non-covalent binding of steroids to receptor sites"; E. V. Jensen, "Cytoplasmic and nuclear forms of steroid receptors"; M. R. Sherman, "Multiple forms of steroid receptors: roles in hormone action"; H. G. Friesen, "Heterogeneity of receptors for peptide hormones."

1 February. Hormonal regulation of morphogenesis and development (J. R. Tata, session chairman): J. D. Baxter, "Regulation of messenger RNA by thyroid hormones"; H. Samuels, "Nuclear mechanisms in thyroid hormone action"; G. R. Wyatt, "Control of differentiation and protein synthesis by insect hormones." New techniques in characterizing membrane receptors and probes (K. J. Catt, session chairman): W. Stoeckenius, "Molecular basis of energy transduction in membranes"; J. Lindstrom, "Antibody probes to acetyl choline receptors"; M. Vaughn, "Role of gangliosides in membrane receptors"; R.

Kahn, "Antibody probes to insulin receptors." Contributed papers—poster session, 4:00 to 6:00 p.m.

2 February. Molecular biology of hormone action (P. Feigelson, session chairman): R. D. Palmiter, "The kinetics of mRNA induction in chick oviduct"; J. Gorski, "Estrogen action in target cells"; B. W. O'Malley, "Steroid regulation of gene expression"; R. T. Schimke, "Transcriptional and post-transcriptional regulation of protein synthesis." Adenylate cyclase and new pathways (G. Aurbach, session chairman): E. Neer, "Characterization of soluble adenylate cyclase"; C. S. Rubin, "Cyclic AMP-related enzymes in developing cells"; M. Rodbell, "Regulation of adenylate cyclase: covalent and non-covalent modification"; C. Pert, "Receptors for opiates and related endogenous peptide ligands."

3 February. Cell biology of hormone action (E. I. B. Thompson, session chairman): A. G. Gilman, " β -adrenergic receptor-adenylate cyclase relationships in cultured cells"; P. Coffino, "Genetic analysis of responsiveness to cyclic AMP"; N. Kaiser, "Ion transport mechanisms in glucocorticoid cytotoxicity"; S. Bourgeois, "Genetic analysis of the cytotoxic response to glucocorticoids." (G. C. Mueller, session chairman): S. J. Singer, "Mobility of membrane receptors"; B. Alberts, "Molecular basis of the regulation of gene expression."

4 February. Hormones and cancer (W. L. McGuire, session chairman): G. Sato, "Hormone-sensitive cells in culture"; H. Varmus, "Steroidal regulation of viral replication in tumor cells"; M. Lipmann, "Hormone-sensitive human neoplasms in tissue culture."

Organic Thin Films and Solid Surfaces

Eric Kay, chairman; Derek Dove, vice chairman.

10 January. Contemporary methods of organic film synthesis (I) (G. L. Gaines, session chairman): H. Kuhn, "Monolayer assemblies"; J. Lando, "Polymerization and characterization of ordered multilayers." Contemporary methods of organic film synthesis (II) (R. J. H. Voorhoeve, session chairman): J. Thomas, "Role of structural defects in topochemical organic reactions"; E. Bauer, "Contemporary epitaxy models."

11 January. Vibrational surface spectroscopies (H. Weinberg, session chairman): P. Hansma, "Electron tunneling spectroscopy"; D. Allara, "Surface infra-red spectroscopy"; H. Froitzheim, "Characteristic energy loss spectroscopy." Electronic spectroscopies (W. E.

GORDON RESEARCH CONFERENCES

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IMPORTANT

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, and this information is essential.

Please return to:

Dr. Alexander M. Cruickshank, Director
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Pastore Chemical Laboratory
University of Rhode Island
Kingston, Rhode Island 02881

Tel: (401) 783-4011

The recording of lectures by tapes, etc. and the photography of slide material are prohibited. Printed reference to Gordon Research Conference papers and discussion is not permitted. Authors are requested to omit references to the Conference in any publication. Guests are not permitted to attend the conference lectures and discussion sessions. Each member of the Conference agrees to these regulations when registration is accepted.

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Spicer, session chairman): W. Grobman, "Photoemission of organic molecular films"; J. Ritsko, "High energy electron loss spectroscopy on organic films."

12 January. Reflection and NMR spectroscopies (J. P. McTague, session chairman): M. Philpott, "Optical spectroscopy of organic surfaces"; R. Vaughan, "Surface nuclear magnetic resonance of organics." Radiation science (C. B. Duke, session chairman): J. Bargon, "Radiation chemistry in organic films"; R. Parks, "Radiation physics phenomena."

13 January. Radiation science—applications (T. E. Everhart, session chairman): E. Wolf, "Electron and x-ray lithography"; H. Winters, "Surface plasma etching mechanisms"; A. Bell, "Plasma polymerized organic films." Dielectric properties of organic films (P. Mark, session chairman): A. Jonscher, "Dielectric phenomena in organic layers."

14 January. Transport, piezo and pyroelectric properties of organic films (T. C. McGill, session chairman): P. Chaikin, "Transport phenomena in organic films"; M. Broadhurst, "Piezo and pyroelectric phenomena in polymer films."

Polymers

John D. Hoffman, chairman; H. D. Keith, vice chairman.

10 January. (J. D. Hoffman, session chairman): A. Keller, "Crystallization from the strained melt and from solution"; A. J. Hopfinger, "A new theory of polymer melt transitions—a breakthrough?" (F. Stehling, session chairman): S. Krimm, "IR studies on nature of folding"; I. C. Sanchez, "Critique of crystallization theories."

11 January. (W. S. Zimmt, session chairman): Thor L. Smith, "Mechanical properties of elastomeric polyurethane and poly(urea-urethane) block copolymers under large deformations"; M. C. Shen, "Molecular theories of viscoelasticity for homogeneous block copolymers and entangled polymers"; D. Klempner, "Simultaneous interpenetrating networks." (E. Petrie, session chairman): R. F. Boyer, "Glass transitions in semicrystalline polymers"; E. W. Fischer, "A molecular viewpoint of the glass transition."

12 January. (Session chairman to be announced): C. A. J. Hoeve, "Theoretical aspects and challenges of the adsorption of macromolecules on surfaces"; L. E. Smith, "Adsorption of macromolecules on surfaces." (R. W.

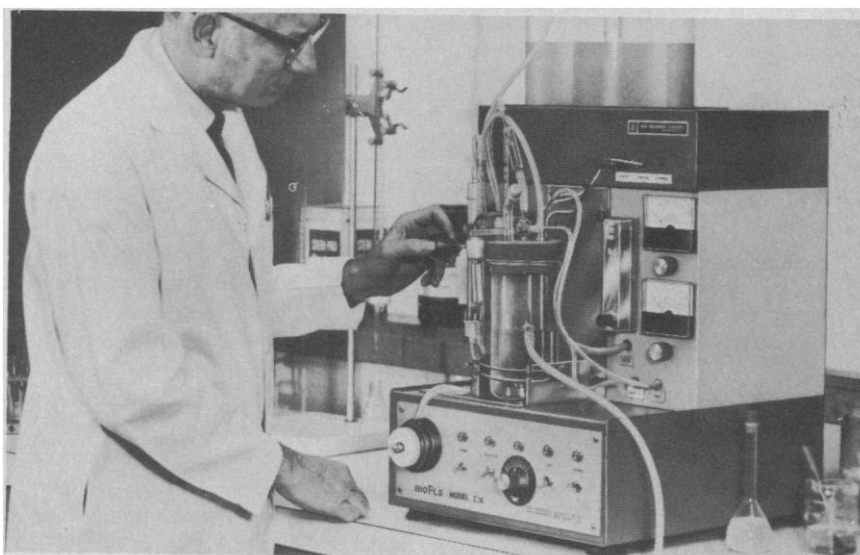
Zwanzig, session chairman): J. L. Schrag, "Apparent side group contributions to the viscoelasticity and oscillatory flow birefringence of polymer solutions: implications for chain dynamics interpretations of dilute solution data"; B. H. Zimm, "Viscoelasticity as a tool for characterization of DNA (also remarks on shear breakage of DNA)."

13 January. (A. Peterlin, session chairman): B. Fanconi, "The longitudinal acoustic mode in helical polymers"; S. L. Hsu, "Perturbations on the longitudinal acoustic mode in polymers." (W. McDonald, session chairman): Short topics: H. H. Hoehn, "Effect of molecular

weight on crystallinity and morphology of polyethylenes recrystallized at high pressures"; L. Nielsen, "Temperature dependence of moduli of composite materials"; R. V. Gemmer, "Carbon-13 NMR studies of epoxidized diene polymers"; J. Lando, "X-ray analysis of a diacetylene polymer"; E. L. Thomas, "Mosaic block structure of polymer single crystals"; M. L. Huggins, "Learning about polymers from Mother Nature."

14 January. (H. D. Keith, session chairman): M. G. Broadhurst, "Piezoelectric effects in polymers"; R. Baughman, "The polymer (SN)_x."

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