Meetings

Gordon Research Conferences: Winter Session

The Winter Gordon Research Conferences will be held from 23 January to 3 February 1967 in Santa Barbara, California, at the Miramar Hotel. The purpose of the Gordon Research Conferences is to stimulate research in universities, research foundations, and industrial laboratories. This purpose is achieved by an informal type of meeting consisting of scheduled lectures and discussion groups. Sufficient time is available to stimulate informal discussions 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. 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 subjects under discussion. The Summer Conferences are held in New Hampshire and Washington [see *Science* **151**, 1249 (1966)].

Registration and reservations. Attendance at the Conferences, limited to approximately 100, is by application. Individuals interested in attending the Conferences are requested to send their applications to the office of the Director. *Applications must be submitted in duplicate on the standard form, which may be obtained from the office of the Director.* The applications will be reviewed by the Conference Committee.

This Committee in selecting the participants will distribute the attendance as widely as possible among the institutions and laboratories represented by the applications. A registration card will be mailed to those selected. Advance registration by mail is required; this is completed when the registration card, with a deposit of $25, is received in the office of the Director. A registration card not accompanied by the $25 deposit will not be accepted. This advance deposit is not required of scientists from foreign countries.

A fixed fee of $125 has been established for resident conferees, and covers registration, double room with bath, City of Santa Barbara room tax, meals, and gratuities for 5 conference days. There will be an additional charge for a single room and for rooms occupied more than the 5 conference nights (Sunday through Thursday). The fixed fee was established to encourage attendance for the entire Conference and to increase the Special Fund that is available to the Conference Chairman for assisting participants who attend the Conference wholly or in part at their own expense.

The participants are expected to live at the Conference location because one of the objectives of the Conferences is to provide a place where scientists can get together informally to discuss scientific research. All participants are urged to attend the Conference for the entire week. Under special circumstances conferees will be permitted to stay at locations other than the site of the Conference. Such nonresident conferees will be charged a registration fee of $60.

Conferees living at the Conference location who will pay all or part of the fixed fee as a personal expense may request a reduction of $25 in the fixed fee. *Application for this special fee must be made at the Conference office during the Conference.*

Accommodations are available for wives who wish to accompany their husbands, 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 $75.

Cancellation. The $25 deposit is forfeited if an approved application for attendance at the Conference is cancelled.

Attendance. Requests for application forms for attendance at the Conferences, or for additional information, should be addressed to W. George Parks, Director, Gordon Research Conferences, University of Rhode Island, Kingston, Rhode Island 02881.

Program

Electrochemistry: Kinetics of Electrode Processes; Electro-Organic Chemistry

Robert A. Osteryoung and Paul Delahay will serve as chairman and vice chairman, respectively.

23 January. Paul Delahay, "Transitory and periodic electrode processes without *a priori* separation of double layer charging"; David Roe, "Measurements of capacitive components during charge transfer process"; Keith Oldham, "Limitations to the measurement of electrochemical rate constants." Discussion.

24 January. John Agar, "Some aspects of the oxygen electrode reaction"; S. B. Brummer, "The mechanism of anodic hydrocarbon oxidation on platinum"; Harry B. Gray, "Electron energy levels in metal complexes"; Raymond Dessy, "Organometallic electrochemistry."

25 January. G. J. Hoijtink, "Some experimental and theoretical aspects of electrochemical processes of aromatic molecules"; A. J. Bard, "Structure and mechanism in organic electrochemistry"; R. N. Adams, "The role of follow-up chemical reactions in organic electrode processes"; John Hale, "Theoretical aspects of electrode reactions at insulators."

26 January. W. H. Reinmuth, "Microsecond chronopotentiometry; approaches and problems"; C. G. Enke, "Kinetic measurements by current impulse relaxation." Open session.

27 January. Roger Parsons, "The kinetics of complex electrode reactions."

Polymers

M. T. O'Shaughnessy and J. F. Johnson will serve as chairman and vice chairman, respectively.

30 January. H. F. Mark, "Polymers —past, present and future"; G. Parravano, "Electrochemical polymerization"; C. G. Overberger, "Catalytic

properties of polymers with imidazole side chains."

31 January. P. H. Geil, "Polymer morphology, crystalline and amorphous"; H. D. Keith, "The formation of molecular linkages between lamellar crystals in polyethylene"; J. D. Hoffman, "Analysis of α-, β-, and γ-transitions in polyethylene and polychlorotrifluoroethylene"; Eric Baer and Jerome Lando, "Epitaxial phenomena in polymer crystallization and solid state reactions."

1 February. K. M. Sinnott, "Mechanical relaxations in polyethylene crystals"; J. M. Peterson, V. F. Holland, and P. H. Lindenmeyer, "Dislocations and dislocation processes in polymer crystals"; Paul J. Blatz, "Mechanical behavior of rubber-like polymeric materials"; Roger de Wames, "Molecular theories of polymers."

2 February. T. E. Helminiak, "Dilute solution properties of stiff-chain, high-temperature polymers"; Adi Eisenberg, "Silicate and phosphate glasses as polymers—a discussion of some physical properties"; F. E. Bailey, "Polyvinyl chloride—a modern view."

3 February. R. M. Fitch, "The initial transient in free radical polymerization rates"; conferees—general discussion of previous papers or new research results.

W. GEORGE PARKS
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Immunity, Cancer, and Chemotherapy

In the past, the principal aims in cancer chemotherapy have been to find drugs that show a higher toxicity against tumors than against normal cells and to use these drugs at the highest levels tolerated by the patients. The integration of immunological concepts into cancer chemotherapy will make it an aim of drug usage to reduce the suppression of the immune response generally caused by these drugs and to utilize the natural defense mechanisms that can be evoked against tumor antigens. These and many other facets of the immune response that may be relevant in the chemotherapy of cancer were discussed at an international symposium that was held at Roswell Park Memorial Institute and at the State University of New York at Buffalo on 20–22 September 1966, under the chairmanship of E. Mihich (Buffalo). The attendance at the symposium was limited to 200 scientists.

The areas covered most extensively were the mechanism of the immune response, the effect of chemotherapeutic drugs on the immune response, and antigenic expression in normal tissues and tumors. With regard to the mechanism of the immune response, G. L. Ada (Melbourne) reported that when a strong antigen is injected into rats, only ½ percent of the antigen retained within the body may localize in the lymph nodes. He reflected that the initial disposal of antigen is inefficient, and that the body is forced to use a special procedure—antibody production—to speed elimination of the antigen. Lymph nodes were studied particularly closely, because of their involvement in the immune response. Ada found that soluble antigen diffuses throughout the lymph nodes, but is cleared rapidly and remains only in relatively few cells (in some macrophages of the medulla, or else in some reticular cells of a lymphoid follicle). At this point, progressive changes occur, presumably in the cells that have taken up antigen; these changes were described by J. L. Turk (London). First, pyronin-positive lymphoblasts develop. Two types of response then appear to be possible, although these are seldom clear-cut. The lymphoblasts can differentiate into antibody-producing plasma cells, or else divide into two small lymphocytes that presumably contain cell-bound antibody and are immunologically active, for instance in delayed hypersensitivity reactions. Electron microscopic observations by S. L. Clark, Jr. (St. Louis) indicated that there is a gradual and continuous transition from large lymphocytes to lymphoblasts, and then to plasma cells.

Both in the primary immune reponse and in the secondary response obtained after repeated injection of an antigen, G. Biozzi (Paris) found that only a small number of cells, perhaps 1000 to 6000, respond initially within a given lymph node. In the secondary response, these cells then multiply for a shorter time interval, but at a rate almost twice as fast. Clark thought that the number of new cells produced —as evidenced by the development of lymph node follicles—parallels the intensity of the secondary response.

With regard to the 7*S* and 19*S* classes of antibodies, Clark thought that different cells may be responsible for their production. According to J. W. Uhr (New York), 7*S* antibody can either prevent or shut off production of 19*S* antibody, depending upon the time when it is passively administered. Persistence of antigen seemed necessary for the 19*S* response.

The question of whether one plasma cell can make antibody to two different antigens was discussed by both Ada and Biozzi. The consensus was that perhaps only 1 cell in 100 can respond to more than one antigen. Ada thought that when a favored antigen enters a cell, it triggers a process that locks the cell to production of the corresponding antibody. He used "favored antigen" in the sense of Burnet's clonal selection theory, that each immunologically competent lymphoid cell is genetically able to make antibody only against a closely defined antigenic specificity, that different such cells react to different antigenic specificities, and that the range of specificities to which antibody can be made is limited.

The data on "syngeneic preference" presented by K. E. Hellström (Stockholm) were important, since they suggested that lymphoid cells from nonimmunized mice are able to recognize and react against foreign tumor cells on first contact. These data grew from Snell's finding that if a tumor of parent strain is injected into an F_1-hybrid, it grows less well than in the parent strain. The claim that the basis for syngeneic preference is genetic rather than immunological was challenged during the discussion by G. Cudkowicz (Buffalo), who presented evidence that Snell's F_1-hybrid effect is immunologically mediated.

Biochemical studies on the translation of the genetic code into proteins are of interest as models for immunoglobulin synthesis. In this context, P. Zamecnik (Boston) outlined the molecular series of events by which sRNA initiates protein synthesis; he also mentioned a new compound involved in this sequence, diadenosine tetraphosphate. L. Gorini (Boston) discussed the ambiguity in translation of the genetic code into proteins that is induced by streptomycin, while M. Fishman (New York) examined the role of macrophage RNA on antibody formation.

Many immunosuppressive drugs are cancer chemotherapeutic agents. The reason for this was clarified by M. C. Berenbaum (London), who reported that, in contrast to x-rays that act against all cells, the cytotoxic action of immunosuppressive drugs is mainly directed against rapidly dividing cells.