

Meetings

Ionization Phenomena in Discharges

Conference at Clarendon Laboratory

The Clarendon Laboratory at Oxford was host to a Conference on Ionization Phenomena in Discharges from July 18 to July 23, sponsored by The Physical Society, the Electrical Research Association and The Institute of Physics. The conference, which drew two hundred and fifty participants from ten different countries, reversed the usual procedure by having the social functions and guided tours first, on Saturday and Sunday, and primary emphasis on physics from Monday onwards.

The conference was honored by the presence of Sir John Townsend at its opening reception (on Saturday evening) given by Lord Cherwell for the Clarendon Laboratory and by the Electrical Research Association. Guided tours on Sunday to the Oxford colleges, the Clarendon Laboratory and Harwell, and a tea party at the British Council maintained the less serious atmosphere of the week-end. The conference visitors were further pampered by having the gates of Christ Church College, where almost all were housed, held open until midnight during the conference instead of the customary earlier hour, to allow for nocturnal relaxation. Further social events during the week were limited to a reception by His Worship the Mayor of Oxford, and a party given by the British Electricity Authority.

The scientific sessions were opened on Monday morning with a welcoming address by the conference chairman, Dr. A. von Engel, and the secretary, Dr. G. Francis, both of Oxford. The first topic for discussion was the mechanism of sparks; papers on this subject were presented by Drs. Craggs and Meek of Liverpool, Fisher of NYU, Llewellyn Jones of Swansea and Bruce of the Electrical Research Association. The Monday program included a paper on radiation equilibrium by Professor Mannkopff of Göttingen and papers on arcs by Professor Lockte-Holtgreven of Kiel, Dr. Maecker of Erlangen and Dr. Hoyaux of Charleroi.

The Tuesday session included reports on several studies of high frequency discharges. Breakdown phenomena at high frequency were discussed by Drs. Harries and Francis of Oxford, Prowse of Durham and Dalton of London. Professor Brown of MIT talked on plasma oscillations. Also in the day's sessions were papers on glow discharges by Dr. Little of Oxford, corona discharges by Professor Fuchs of Aachen, and shock excited discharges by Professor Kantrowitz of Cornell.

Wednesday morning sessions were divided between

spectroscopic studies by Professor Weissler of USC and Mme. Vassy of Paris, and the effects of magnetic fields by Professor Valle of Bologna and Mr. Somerville of Swansea. The Wednesday afternoon sessions were given over to discussions on discharge counters centering on papers by Messrs. Loosemore of Harwell and Campion of Oxford, Drs. Den Hartog of Amsterdam, Bella of Rome, and Colli, Facchini and Bertolini all of Milan.

Papers for the final day of the conference were presented by the following: Drs. Fortescue and Leech of London on gas breakdown phenomena; Mr. Mason of ERA on dielectric breakdown; Dr. Alpert of Westinghouse on high vacuum technique; Dr. Wagener of London on gettering materials; Professor Geballe of Washington on ionization and attachment coefficients; and Professor Olsen of Monterey on striations.

At the close of each day's lectures, mimeograph abstracts of the papers presented were prepared. Information on the availability of these abstracts can be obtained from the conference secretary, Dr. G. Francis, Clarendon Laboratory, Oxford, England.

Sanborn C. Brown

Massachusetts Institute of Technology

High-Altitude Laboratories

Joint Commission Meeting in Denver

The Joint Commission on High-Altitude Research Stations (JCHARS) met in Denver, Colorado, on August 22-24, 1953. The Commission was originated by the International Biological Union (IBU) which is a member of the International Council of Scientific Unions (ICSU) and is thus affiliated with Unesco. JCHARS is charged with exploring the situation with regard to high-altitude research facilities. Such explorations include listing existing stations, and considering the desirability of establishing new stations or improving existing facilities. The chairmanship of JCHARS is held by Donald Menzel of the Harvard College Observatory, and R. Stämpfli of Berne, Switzerland, has served as secretary since its inception.

A series of invited papers was given which described representative high-altitude research in quite diverse fields of science, the speakers being both JCHARS members and invited guests. After an address of welcome by Chancellor Alter of Denver University, a review of the problems of developing and operating the high-altitude research station at the Jungfrauoch in Switzerland was given by Dr. Stämpfli. This station, at about 11 345 feet in the Bernese Oberland, is governed by an international foundation, the members of which are the main scientific institutions of Austria, Belgium, England, France, Germany, and Switzerland. The Swiss Government contributes one-half of the annual budget, the balance coming from universities and foundations. Administrative supervision is provided by Prof. von Muralt and Dr. Stämpfli of Berne. At present, a new coelostat and astronomical dome are being installed. An average of 150 to 200 investigators from many different

lands have been accommodated each year for the past several years, for varying stays, and many different branches of science are represented. Among these are included physiology, biology, high-altitude medicine, glaciology, astrophysics, meteorology, and cosmic-ray physics. A large cloud chamber as well as other cosmic-ray equipment has been operated there.

The second speaker was Essie White Cohn of Denver University, who described biological research at the Mount Evans Laboratory. Among the subjects touched upon or discussed she included studies in physiology, metabolism, blood regeneration, anoxia, effects on the nervous system, on rate of growth, and on red-cell polycythemia. The next paper was by Jean Rosch, of the Pic du Midi Observatory in France, who described the corona studies, cosmic-ray work, meteorological investigations and other activities at the Pic du Midi laboratory at 9300 feet in the Pyrenees. Next, Kenneth Greisen of Cornell University described cosmic-ray work at high elevations. This work, he pointed out, had two main divisions, first, the study of reactions in which various kinds of particles participated, the majority of which are considerably more numerous at high elevations, and second, the continuous monitoring of various components of the cosmic radiation to study the time dependence, directional dependence, and correlations with solar effects. This paper was followed by a discussion given by Byron Cohn of Denver University describing the Inter-University High-Altitude Laboratories at Mount Evans and Echo Lake. He described the new housing areas, which have been used this summer by 27 investigators, the total, including wives and families, being 47. Robert B. Brode of the University of California at Berkeley described some further cosmic-ray work at high altitudes, including work on White Mountain, California, and in trailers at high passes in California up to 10 000 feet and in Colorado up to 11 000 feet. He mentioned the advantages of the stimuli obtained at larger research centers through contacts with other investigators.

Takeo Hatanaka of Tokyo University, presently visiting at Cornell University and an authority on radio astronomy, described high-altitude work in Japan. There are several stations at high elevations in Japan, including one which is mainly meteorological near the 12 300 foot summit of Mt. Fujiyama. Coronal research is done at Mt. Morikura, at an elevation of over 9000 feet, this station being accessible by road. Some cosmic-ray observations are also in progress there. Next, Marcel de Quervain, of the Eidg. Institut für Schnee und Lawinen in Switzerland, described studies of glaciology, snow storage and evaporation, runoff, avalanche control, atmospheric ice and hail formation, and permafrost investigations with which his institution is engaged. Carlos Monge, of the Instituto de Biología Andina of Lima, Peru, described progress in the studies of populations living at high altitudes. He stressed the considerable differences, such as the larger volume of blood and greater number of red cells which serve to make such people quite a different group from those

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living at sea level. Next, Serge A. Korff, of New York University, described the establishment of the Mt. Wrangell cosmic-ray observing station at 14 006 feet in Alaska. The establishing of the station was almost entirely an air-support operation, with the buildings and heavy supplies and equipment being airdropped and the personnel and lighter apparatus being ferried in an airplane which landed on the summit. Vernon H. Goerke, of the Central Radio Propagation Laboratory at Boulder, Colorado, described progress in radio astronomy and high-altitude solar observations. Grant Athay, of the High Altitude Observatory of Harvard and the University of Colorado, described the research program of that observatory, which included coronagraph work and some cosmic-ray studies. Finally Dr. Menzel showed some films of the station at Sacramento Peak, New Mexico, depicting both the observing station and some of the excellent films taken to show the motion of solar prominences.

On the following days the persons attending the conference were taken for a visit to the Mt. Evans laboratories and some of them also visited the Climax observatory. The commission devoted a considerable amount of time to considering organizational problems, and recommended that, as ICSU proposes to dissolve JCHARS, the work be continued by a similar commission or committee directly under ICSU and not as at present under IBU. In this way it was felt that JCHARS or its successor organization could most effectively serve various diverse fields of science. Further, they recommended the publication of a guide to high-altitude laboratory facilities.

The main purpose of the meeting was to discuss the present situation regarding high-altitude research facilities, and to disseminate information about such facilities to as many organizations in diverse fields of science as might wish to make use of them. The research results obtained at the various stations were discussed in order to familiarize persons in one field of research with the problems existing in other fields, and with the requirements of these other fields for such high-altitude facilities. Thus, for example, most physicists present found that the papers presented by the biologists showed that a much wider interest exists in high-altitude biological work than they had hitherto realized. On the other hand, many biologists had not been aware of the existence of some of the high-altitude stations established by cosmic-ray observers. An interchange of knowledge among the various sciences as to facilities open to any science seems to be of the utmost usefulness, both in permitting a better formulation of research programs and in stimulating further work by disseminating the knowledge that certain facilities exist.

The problems common to the administration of high-altitude research stations were also discussed. In this connection it was remarked that some workers, used to extensive laboratories and elaborate accommodations, were slow to adapt to the sometimes primitive facilities at some mountain stations. It was noted that some persons whose entire experience had been with well-

equipped facilities were not very adept at improvising in order to meet a less favorable situation with such facilities as were actually at hand. Also, it was pointed out that some experiments were not sufficiently well-planned before being taken to the high-altitude station. It was insufficiently appreciated that a high-altitude station is not a good place in which to do development work but rather is more efficiently used if the apparatus taken there is adequately checked at the home base before the expedition is started. The hope was expressed that research directors, before sending their men to such stations, would explain to them that facilities were often less good than at home, that improvisation and field repairs might be necessary, that test equipment and spare parts be carefully considered, and that apparatus taken be thoroughly tested beforehand.

Several of the members of the Commission expressed their feeling that the meeting had taught them much, not only about the existence of facilities but also about the extensive interest shown by those in fields other than their own. The meeting adjourned after passing resolutions thanking the various hosts.

Serge A. Korff
New York University

Selenium and Tellurium

A one-day conference on the properties and applications of selenium and tellurium will be held in conjunction with the American Institute of Electrical Engineers meeting in New York City's Statler Hotel, January 18-22. The conference is sponsored by the AIEE subcommittee on semiconductors and transistors, whose chairman is W. C. Dunlap, Jr., General Electric Co., Research Laboratory, P. O. Box 1088, Schenectady, N. Y.

Instrumentation for Biology

The Sixth Annual Conference on Electronic Instrumentation and Nucleonics in Medicine will be held November 19th and 20th at the Hotel New Yorker in New York City. Arranged under the joint sponsorship of the American Institute of Electrical Engineers, the Institute of Radio Engineers, and the Instrument Society of America, the meeting will cover some of the recent advances in instrument technology intended to facilitate medical and biological research and clinical application. S. R. Gilford, National Bureau of Standards, Washington 25, D. C., is chairman of the conference.

Operations Research Society

The fall meeting of the Operations Research Society of America is to be held at the Statler Hotel in Boston on Monday and Tuesday, November 23-24. Registration will begin on Sunday evening, November 22. Four sessions will be held for contributed papers on military operations research (unclassified), industrial operations research, theoretical developments, and case histories. In addition, two sessions will be held for invited pa-