of four sodium chloride crystals on a cylinder which is placed midway between the source and the receiver slit of a Geiger tube. The "lens" focusses a monochromatic beam on the slit and the wavelength is varied by moving the receiver slit and Geiger tube along the optical axis of the instrument at exactly twice the speed of the "lens." There are many types of analyses that can be made with the instrument, including the accurate quantitative analysis of the chlorine content in hydrocarbon mixtures. Elements with atomic number greater than 22 can be determined by their characteristic absorption edges.

At the Franklin Institute meeting, twenty-four papers were presented on the structures of metals, inorganic and organic compounds, theory of electron diffraction and structure analysis, and miscellaneous topics. One evening was spent at a cocktail party and banquet, after which W. G. Burgers of Technische Hoogeschool, Delft, Netherlands gave a fascinating lecture in which he demonstrated many geometrical features of x-ray and electron diffraction photographs by optical means.

W. H. Zachariasen, who has spent the past several years studying the structure and crystal chemistry of the 5-f elements, reported that in many compounds of these elements the observed interatomic distances correspond to a higher valence state of the 5-f element than is indicated by the usual chemical valence rules. Some examples of these subnormal valence compounds are ThS with Th valence 4.3 while in Th_2S_3 and ThP the valence is 3.8; in US the valence is 4.7 but in UP it is 4.3, etc.

The atomic energy program has made available strong sources of neutrons so that it is now possible to study the diffraction of neutrons from crystalline materials. C. G. Shull of Oak Ridge has been able to determine the relative orientation of the magnetic ions in the crystal lattice by neutron diffraction. Since there is larger interaction between the neutron magnetic moment and atomic magnetic moments, pronounced intensity effects are obtained in the diffraction patterns of ferromagnetic, antiferromagnetic, and paramagnetic substances. He found that the magnetic unit cell was larger than the chemical or structural unit cell in some substances.

—William Parrish

SPECTROSCOPY

JUNE SYMPOSIUM AT OHIO STATE

A symposium on molecular structure and spectroscopy will be held at the Mendenhall Laboratory of Physics at Ohio State University from June 12 to June 17, 1950. There will be discussions of the interpretation of molecular spectroscopic data as well as methods for obtaining such data. In addition, there will be sessions devoted to those phases of spectroscopy of current interest. A dormitory will be available for those who wish to reside on the campus during the meeting. For further information, or for a copy of the program when it becomes available, write to Professor Harald H. Nielsen, Mendenhall Laboratory of Physics, Ohio State University, Columbus 10, Ohio.

PROJECTS INVITED

FOR ARCTIC RESEARCH

The Arctic Research Laboratory, originated by the Office of Naval Research in August, 1947 as a frontier Arctic field station for basic scientific research of physical and biological phenomena associated with the region, will henceforth be operated by the Johns Hopkins University under contract with the ONR. The Laboratory, located at Point Barrow, Alaska, will be available to scientists from American institutions originating research of a type which can be carried out only in the arctic region; this, of course, excludes projects which can be studied in the academic laboratory under simulated conditions.

Detlev Bronk, president of the University, explained in making the announcement that the new arrangement is "designed to make the facilities of the Laboratory more available to the scientists of this country and to relate the activities of the Arctic Laboratory to research and teaching in American universities." George E. MacGinitie, who is on leave from the California Institute of Technology where he has been director of the Kerckhoff Marine Laboratory, has been appointed resident director of the Point Barrow Laboratory.

Scientists interested in special fields of arctic research are free to outline their projects and submit them to the ONR or to the Hopkins Institute for Cooperative Research for consideration.

AT INSTITUTE FOR NUMERICAL ANALYSIS

Appointments of summer studentships and of thesis fellowships are being offered to properly qualified graduate students in pure and applied mathematics at the Institute for Numerical Analysis of the National Bureau of Standards at the University of California, Los Angeles. In making the announcement, the Bureau points out that the central function of the Institute is to perform mathematical research and exposition pertinent to the use of automatic digital computing machinery, while it is a supplementary function to support certain projects which, while they do not bear directly upon the development of numerical analysis, nevertheless require extensive computations of a type for which automatic machinery is suitable.

The summer studentships involve stipends ranging from $500 to $700 and a program lasting for some ten weeks during the summer, from the middle of June to the end of August. The thesis fellowships are intended only for doctoral candidates whose research program seems relevant to the work of the Institute and who have completed all residence and language requirements for the PhD degree at an accredited university. The stipend is at present fixed at approximately $2,000 for an eleven-month period.

Applications for these appointments should be made in writing to the Director of Research of the Institute for Numerical Analysis before March 1. A transcript of the applicant's academic record should be included, as should two supporting letters addressed to the Director of Research from established scientists familiar with the work of the applicant.