News and Notes

Nuclear Physics and Cosmic Rays: A Symposium at Heidelberg

THIS symposium was arranged by H. Maier-Leibnitz in honor of the sixtieth birthday of W. Bothe, whose contributions to the field of nuclear physics and cosmic rays are well known in this country. Host to the symposium, held July 1–3, was the University of Heidelberg. The sessions were attended by more than 100 guests from Austria, Denmark, England, France, Germany, Italy, the Netherlands, Norway, Sweden, Switzerland, and the United States.

In the course of the two-day program 24 papers were presented, dealing with nuclear structure and nuclear models, general problems of cosmic rays, nuclear spectroscopy, and age determination by means of nuclear decay. The third day of the symposium was devoted to informal discussions in smaller groups. At the conclusion of the meeting, provision was made for those interested to visit the research laboratories of the Heidelberg Institute of Physics.

The sessions began with an excellent review of the nuclear shell model by Maria Goeppert-Mayer (Argonne National Laboratory). This paper served as a starting point from which the subsequent papers could logically proceed. The speaker showed how the so-called magic numbers in nuclear structure can be understood on the basis of a shell model of the nucleus, assuming a strong spin-orbit coupling of the nucleons. The effect of the nuclear shell structure on β-decay was the subject of the two following talks. J. H. D. Jensen (Heidelberg) mentioned the influence of the magic numbers on the β-decay energies and on the coulomb interaction of the nucleons. The relationship between the angular momenta of nuclei as predicted by the shell model and the degree of forbiddenness of β-transitions was presented by L. W. Nordheim (Los Alamos). In the discussion that followed this paper it was pointed out by W. Heisenberg (Göttingen) that a strong spin-orbit coupling of the nucleons is rather difficult to understand on the basis of the current meson theories. The fourth talk, given by Maria Goeppert-Mayer, dealt with the occurrence of nuclear isomers in certain atomic number regions. The shell model gives a satisfactory explanation of this phenomenon. The isotope shift in heavy elements caused by the charge distribution of the nucleus was the subject of the next paper, given by H. Kopfermann (Göttingen).

The afternoon session, devoted to the discussion of cosmic ray phenomena, was opened by W. Heisenberg with a survey of the theories of the π-meson production in cosmic radiation. The theoretical calculations of Oppenheimer, Fermi, and Heisenberg were critically compared. Measurements on the second and third maximum of the Rossi curve were reported by W. Bothe (Heidelberg). The observation of two shower peaks occurring at 16 cm Pb and 26 cm Pb seems to be verified beyond any doubt. The position of the third maximum depends strongly on the reduced atmospheric pressure, a fact that was also discussed in the paper by J. Clay (Amsterdam). T. Lauritsen (Caltech) presented some convincing cloud-chamber pictures showing the decay of a neutral V_0-particle into two charged particles, and gave a survey of our present knowledge of the V-particles. The energy spectrum of the decay electron of cosmic-ray μ-mesons was measured at the Ecole Polytechnique in Paris, as reported by C. Peyrou in association with A. Lagarrigue. As one would expect, the result agrees well with the measurements carried out in Berkeley with artificial mesons.

The next two papers dealt with an anomaly of the cosmic-ray intensity observed June 8, 1951, in Freiburg by A. Sittkus. A possible explanation of this effect was given by A. Ehmert (Weissenau), who related the anomaly to a sudden change in the intensity of the earth's magnetic field. In the last paper of the day E. Schopper (Stuttgart) described some observations on stars photographed at an altitude of 10,000 feet.

J. Mattauch (Berne) opened the second day's sessions with a discussion of the precision measurements of nuclear masses and the problems arising in the evaluation of mass-spectrometric data. A method of precise mass determination useful up to an atomic number of about twenty employs the Q-values of nuclear reactions. T. Lauritsen reported on measurements made by Li, Whaling, Fowler, and C. C. Lauritsen at the California Institute of Technology.

Recently published crystal spectrometer measurements of the quantum energy of the annihilation radiation seem to indicate that the mass of the positron is slightly different from the mass of the electron. In the following two papers by G. Lindström (Stockholm) and D. A. Lind (now in Zurich), it was shown that newer measurements yielded the same mass for both particles and that the former discrepancy was due to a systematic error in the spectrometer measurements of DuMond and Cohen.

Neutron cross-section measurements comprised the theme of the next three papers. W. Zünti (Zurich), in association with R. Ricamo, described measurements of the total cross section of carbon, nitrogen, and oxygen for neutrons between 2 and 4 mev. In the case of oxygen, a so-called negative resonance peak was found. The occurrence of such negative resonances was well understood after V. Weisskopf (MIT) spoke on that particular subject. The third paper on neutron cross sections was presented by P. Huber (Basel). With an ionization chamber used in conjunction with a 19-channel pulse analyzer, the angular distribution of fast neutrons scattered by helium and oxygen nuclei was investigated and compared with theoretical calculations. A paper presented by O. Kofoed-Hansen (Copenhagen) dealt with the

measurement of the recoil of nuclei during β-decay.

During the closing session, talks on age determination by means of radioactive decay products were presented by three speakers. F. G. Houtermans (Göttingen) described a new technique using the well-known uranium-lead method. The difficulties in determining the age of meteorites by the helium method were discussed by S. F. Singer (London). A new method to estimate the age of potassium-containing minerals, described by W. Genter (Freiburg), makes use of the fact that a small amount of A^{40} is produced during the decay of K^{40}.

In the evening of the second day the guests were invited on a boat trip up the beautiful Neckar Valley to Neckarsteinach. The generosity of the University of Heidelberg in offering excellent meals and refreshments between the sessions was appreciated by all. As a whole, the symposium was stimulating and marked by lively discussions. The close and informal association of the participants helped to make the meeting a very fruitful one.

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Scientists in the News

The first award of an annual gold "standard medal" has been made by the American Standards Association to **Paul G. Agnew,** consultant to the association and its administrative head from its founding in 1919 until his retirement in 1947. Dr. Agnew also participated in the establishment of the International Organization for Standardization in 1946.

Jorge Ancizar-Sordo, director of the Laboratorio Quimica Nacional at Bogotá, was a recent visitor at the Bureau of Standards, the Beltsville bureau of the ARA, and AAAS headquarters. ARA also reports that **D. S. Carvalho,** president of the Brazilian-U. S. Institute; **C. A. King,** director of the Brazilian experiment station; **C. A. Krug,** head of Brazil's Institute of Agronomy; and **J. Zenda,** director general of agriculture in Peru, were among other South American visitors. Scientists from abroad, many of whom came to this country to attend the chemical conclave in New York, were exceptionally numerous during September, visiting government bureaus in Washington and institutions throughout the U. S. before returning to their native lands.

Hubert C. Armstrong, of the Harvard University Graduate School of Education, has been appointed director of the Public Education Association—a citizens' group working for the improvement of the New York school system.

Frank B. Berry, professor of clinical surgery, College of Physicians and Surgeons, Columbia University, has succeeded **I. S. Ravdin,** of the University of Pennsylvania, as a civilian member of the Committee on Medical Sciences, Research and Development Board. Dr. Ravdin, who will serve on the Armed Forces Medical Policy Council, has just been appointed vice president of the University of Pennsylvania in charge of medical affairs, temporarily succeeding **Robin C. Buerki.** Dr. Ravdin will continue as John Rhea Barton professor of surgery and director of the Harrison Department of Surgical Research at Pennsylvania, and will be assisted in his new academic post by **John McK. Mitchell,** dean of the School of Medicine at the University. Dr. Buerki left to become executive director of the Henry Ford Hospital in Detroit (SCIENCE, **114,** 287 [1951]).

Robert Lee Black, of Channing, Tex., has been appointed for a four-year term as chief of the Army's Medical Service Corps, succeeding **Othmar F. Goriup. Monroe Edward Freeman,** head of the department of biochemistry at the Army Medical Service Graduate School, was named chief of the allied sciences section; **Raymond J. Karpen** was reappointed chief of the sanitary engineering section; **Henry D. Roth** was named head of the pharmacy, supply, and administration section; and **John W. Sheridan,** now at the Walter Reed Army Medical Center, was appointed chief of the optometry section. Formed in 1947 from the amalgamation of the former Medical Administrative, Pharmacy, and Sanitary corps, the Medical Service Corps consists of 5,000 officer-specialists in pharmacy, medical administration, sanitary engineering, optometry, bacteriology, biochemistry, psychology, and other fields allied to medicine.

Arnold K. Brown has been named president and director of the Transducer Corporation of Boston, electronic subsidiary of the American Machine and Foundry Company. Mr. Brown also is executive vice president as well as a director of AMF.

Ruby F. Bryant, of Emmerton, Va., has become ninth chief of the Army Nurse Corps, succeeding **Mary G. Phillips,** who is retiring after 22 years of service. Colonel Bryant, who will serve for a four-year term in her new post, has been chief nurse for the Sixth Army area, with headquarters at the Presidio of San Francisco.

J. A. Clarkson, head of the Department of Mathematics of Tufts College, has succeeded **J. R. Kline** in the position of executive secretary of the Division of Mathematics, recently established by the National Research Council.

John T. Creighton, head of the Division of Entomology at the University of Florida, has been granted a year's leave of absence in order that he may accept an invitation extended by ECA to join a special technical mission to Thailand. Dr. Creighton, who will serve as head of the Entomology Section of the mission, will help plan a program in the teaching, research, and extension phases of entomology.

George B. Cressey has just been appointed Maxwell professor of geography at Syracuse University. Dr. Cressey, who has completed 20 years as chairman of

the university's Department of Geography, has served since 1949 as president of the International Geographical Union. **Preston E. James** will succeed him as chairman of the Department of Geography.

Beal B. Hyde has joined the staff of the Botany Department, Indiana University, where he will carry on cytogenetic investigations on *Oenothera* under a grant from the Rockefeller Foundation.

Mark Nickerson, formerly of the Department of Pharmacology, University of Utah College of Medicine, has been appointed associate professor of pharmacology at the University of Michigan School of Medicine.

F. G. Snyder, until recently teacher of geology at the University of Tennessee, has joined the technical staff of the St. Joseph Lead Co., Bonne Terre, Mo. He is now stationed at Leadwood, Mo.

Grant Wernimont, staff assistant in Eastman Kodak Company's color control division, has been appointed to the International Union of Pure and Applied Chemistry's newly formed Commission on the Expression of Analytical Results. The commission will draft proposals for the uniform expression of quantitative and qualitative analytical results and will deal with recommendations on the format of analytical results and on precise definition of certain chemical terms. Chairman of the commission is **I. R. J. Forbes,** of Amsterdam.

Claude E. ZoBell, professor of marine microbiology at the Scripps Institution of Oceanography, is among 17 international scientists aboard the Danish ship *Galathea* currently exploring the Emden Deep near Mindanao, P. I. He is conducting bacteriological examinations on marine bottom deposits, which have been collected from the deepest known parts of the oceans. Dr. ZoBell's work has been made possible by research grants provided by the Office of Naval Research and the University of California.

Education

Columbia University has begun a long-range study, financed by more than a dozen industrial concerns, of thermal problems in quenching. If successful, it may make possible the use of low-alloy steels, thus saving critical raw materials. Victor Paschkis, technical director of the Columbia Heat and Mass Flow Analyzer Laboratory, will be head of the project.

Through the generosity of Herbert F. Johnson, of Racine, Wis., **Cornell University** has purchased the personal library of the late Frank Hull, of Fortaleza, Brazil. Nearly all the 4,000 volumes relate to the history and development of Brazil, the most valuable part of the library describing discovery and travel in the Americas.

Florida State University has added the following members to the staff of the Department of Chemistry: Michael Kasha, physical chemist; Raymond Sheline, radiochemist; and Russell H. Johnson and Francis J. Kearley, organic chemists.

New York Academy of Medicine will begin its Lecture to the Laity series, on "Society and Medicine," Nov. 9 with an address by James Spence of Newcastle upon Tyne, Eng. Ralph W. Gerard will speak November 21, Howard S. Liddell Dec. 5, Theodore H. Ingalls Dec. 19, Milton J. E. Senn Jan. 9, and Russell M. Wilder Jan. 30. Admission is free.

University of Texas Medical Branch has placed Charles D. Dukes in charge of the Laboratory for Surgical Bacteriology; Robert L. Hargrave has been made assistant professor of pathology and coordinator of the cancer clinic and teaching program; Salvador Infante, professor of surgery in the Medical School of the University of San Salvador, will study for a year as a fellow in the Department of Pathology; and Roger Lienke has been appointed assistant professor of pediatrics. During August Harvey Slocum, professor of anesthesiology, was guest lecturer at the University of Nuevo León Medical School, Monterrey, Mexico, under an exchange program arranged between the two schools.

The **George Vanderbilt Pacific Equatorial Expedition of 1951** returned in September after a 3½ months' cruise through the Hawaiian, Leeward, and Line Islands. Under the joint sponsorship of the Academy of Natural Sciences of Philadelphia and the California Academy of Sciences, the expedition obtained the largest fish collections yet taken from the Leeward and Line Islands. Preliminary indications are that there will be many new records, as well as species. The expedition was under the personal direction of George Vanderbilt. Earl S. Herald, curator of aquatic biology of Steinhart Aquarium, aided in the organization of the biological work and made the cruise through the Line Islands. Vernon E. Brock, director of the Hawaiian Division of Fish and Game made the Leeward Island cruise as the official observer of the territorial government. Robert R. Harry, graduate student in ichthyology at Stanford University, made both cruises. The fish collections are now being sorted at the California Academy of Sciences, with reports on the collections being made by Robert Harry and some groups being reported by Earl Herald.

Grants and Fellowships

During the season that is rapidly coming to an end, grants from the **Arctic Institute of North America** have supported field research by John D. Campbell, of McGill University, on glacial and postglacial climates of the Yukon; Hannah T. Croasdale, of Dartmouth, on the ecology of fresh-water algae in arctic and subarctic Alaska; Felix G. Gustafson, of the University of Michigan, on the vitamin content of plants in the Point Barrow district; William Irving, of the University of Alaska, on the archaeological possibilities of the Brooks Range; Deric O'Bryan, of the Arctic, Desert and Tropic Information Center, on Eskimo culture on Mill Island (Hudson Strait); Dale J. Osborn, of McGill, on the fauna of Ungava-Labrador; Jacques Rousseau, of the Montreal Botanical Gardens,

on the flora of the Torngat Mountains–Korok River region; and Kirk H. Stone, of the University of Wisconsin, on ice-dammed lakes in Alaska.

The 1951 **Lasker Awards** of the American Public Health Association went to Florence R. Sabin, of Denver, for "outstanding accomplishments in public health administration;" to Elise L'Esperance, of the Strang Clinics, New York, and Catharine Macfarlane, of Women's Medical College of Pennsylvania, joint award for their "inspiring application of preventive medicine to cancer control;" to Karl F. Meyer, of the University of California Medical Center, for bacteriological research extending over four decades; and to William G. Lennox, Boston Children's Medical Center, and Frederick A. Gibbs, University of Illinois Medical College, joint award for their investigation of epilepsy. Group awards were conferred on the Health Insurance Plan of Greater New York and Alcoholics Anonymous. Awards will be presented Oct. 30 at the APHA annual meeting.

The **Leonard Wood Memorial** (American Leprosy Foundation) will sponsor a clinical research program in five foreign countries to test the value of the sulfones and other drugs in the treatment of Hansen's disease. Principal financial support will come from a USPHS grant and from the Veterans Administration. Abbott Laboratories, American Cyanamid Company, Merck & Co., Inc., Parke, Davis & Co., Chas. Pfizer & Company, Squibb, Winthrop-Stearns, and Pan American World Airways have also contributed cash or drugs, or both. The first research unit will be established at Westfort Institution, Pretoria, S. A.

NRC News

Wallace R. Brode, National Bureau of Standards, has been appointed chairman of a new NRC **Committee on Infrared Absorption Spectra.** Other members are E. Carroll Creitz, R. Robert Brattain, Bryce L. Crawford, Robert R. Hampton, Lester E. Kuentzel, and James D. Stroupe. Working in close collaboration with the National Bureau of Standards, the committee will design a punch-card system for presenting and distributing infrared absorption data in both graphical and tabular forms; devise and implement methods of collecting the desired spectral data; direct and supervise evaluation of the data, appraise their quality, and devise means for checking the reported observations and the making of new measurements when the available data are unsatisfactory or conflicting; prepare a bibliography; and supervise the printing of punch cards and other forms of record. The new committee takes over the work of the Punch Card Committee of the Symposium on Molecular Structure and Spectroscopy of Ohio State University. For information about committee activities, address E. Carroll Creitz, National Bureau of Standards, Washington 25, D. C.

Applications for **American Cancer Society Scholars in Cancer Research,** to be effective July 1, should be submitted before *Jan. 1.* Awarded annually on recommendation of the NRC Committee on Growth, the grants amount to $18,000, payable over three years, made directly to each scholar's institution. Inquiries should be addressed to the executive secretary of the committee, National Research Council, 2101 Constitution Ave., N.W., Washington 25, D. C. **Damon Runyon Clinical Fellowships,** formerly recommended by the same committee, are now being administered by the Damon Runyon Memorial Fund, Hotel Astor, New York 19, where inquiries should be addressed.

The **USA National Committee for Crystallography,** under the auspices of NRC, is canvassing contributions in support of the publication program of the International Union of Crystallography. The publications, started as replacements for wartime casualties, include: *Acta Crystallographica,* a journal now in Volume IV; *Structure Reports,* an annual critical review of all published work in the field of crystallography and x-ray and electron diffraction; and *International Tables for X-ray Crystallography,* a compilation of physical and mathematical data required for x-ray diffraction analysis. A strong and progressive publication program is essential to the use of x-ray and electron diffraction methods for determining crystal and molecular structures, and for crystal identification. Most of the support for this international program prior to 1951 came from British sources, and the solicitation of an equivalent amount (about $35,000) from sources in this country has been authorized by NRC. Contributions have already been received from research foundations and industrial organizations, but an additional $14,000 is needed. Chairman of the Canvassing Committee is L. O. Brockway, Department of Chemistry, University of Michigan.

Miscellaneous

The **National Science Foundation** has moved from its temporary headquarters to larger offices at 2144 California St., N.W., Washington, D. C. The new telephone number is Dupont 7625.

A new policy group within the **Research and Development Board** will include James A. Perkins (Carnegie Corporation of New York), deputy chairman; Robert C. Gunness (Standard Oil of Indiana), and Edwin A. Speakman (RDB Committee on Electronics), vice chairmen; S. Douglas Cornell, director of planning; and the three full-time military secretaries of the board, James F. Phillips, Robert W. Crichlow, and Steadman Teller.

A new mathematical organization, the **Tensor Society,** has been founded at Hokkaido University, Sapporo, Japan. The society's journal, *Tensor,* new series, will appear in two to three issues annually, and will contain 40 to 80 pages. Membership, at $2.00 per year, is open to all interested persons; application blanks may be obtained from A. Kawaguchi, of Hokkaido, or from H. V. Craig, University of Texas, Austin.