Explorer IV is heavier by 7 pounds than I and III, but identical in size and configuration (80 inches long). Earlier temperature and micrometeorite experiments have been eliminated in favor of four separate cosmic ray detectors that will provide the most detailed radiation data yet obtained by a U.S. IGY satellite. The added weight is in instrumentation and was made possible by improvements made at the Jet Propulsion Laboratory in the solid fuels in the two upper stages of the Jupiter C missile.

Launching was made in a northeasterly direction, which took the satellite on its first pass along the eastern coast of the United States and Newfoundland, over England, central Europe, southern Russia, India, Australia, and up across the Pacific Ocean and the United States.

The new orbit will take the satellite up to approximately 51 degrees north latitude. Earlier Explorers had not gone farther north than 35 degrees. This means that Explorer IV's orbit is over areas of greater population than were the paths of Explorers I and III.

The Jet Propulsion Laboratory's contributions to the Explorer IV project were directed by J. E. Froelich. He works under William H. Pickering, laboratory director.

JPL's responsibility in the Explorer IV program included development of the three upper high-speed stages, the low-power radio beacon and subcarrier oscillators, fabrication of the steel shell of the satellite, except the nose cone which was produced by the Army Ballistic Missile Agency. The Pasadena laboratory, ABMA, Army Ballistic Research Laboratory, Aberdeen, Md., and the Army Signal Corps cooperated in establishing and operating the Microlock ground radio network. The Microlock system was developed by JPL.

The radiation package was developed by James A. Van Allen's physics department at the State University of Iowa at the request of the satellite panel of the National Academy of Sciences IGY Committee. The Naval Research Laboratory provided the high-power beacon, and the Army Signal Corps supplied the battery packs.

The satellite carries two Geiger-Mueller tubes and two scintillation counters to measure cosmic ray intensities. One of each is shielded to eliminate data below certain energy levels, and the unshielded scintillation counter's data is directed into two radio channels reporting different levels of energy. This gives ground radio stations five channels of information.

Explorer IV thus will handle not only a far greater range of cosmic ray data, but will break the information down into levels of intensity. Previous satellites reported only the gross amount of radiation they encountered.

This means that Explorer IV will be able to differentiate between the energy levels of the cosmic rays that strike its counters. The data will show not only the total number of particles but also what fraction of this total falls within certain preselected energy ranges.

For example, Explorers I and III showed a counting rate of more than 20,000 counts per second in the high-altitude portion of the orbit. It is suspected that only a small fraction, about one-tenth of 1 percent, of this total was caused by those high-energy particles which physicists have seen before and identified as cosmic rays. This suspicion implies that almost all of these particles were of a new low-energy type.

However, since Explorers I and III could not differentiate between energy levels, this suspicion could neither be proved nor disproved. Now in Explorer IV the shielded counters will respond only to the high-energy particles, while the unshielded counters will see everything. Furthermore, the unshielded scintillation counter will be provided with special pickups which can further differentiate between energy levels.

Both the high-power and low-power radio beacons will transmit continuously for an expected life of 2 months. The low-power beacon radiates 10 milliwatts of energy. The low-power beacon will be used mainly for tracking, but it will also report the same data as the high-power transmitter. The high-power transmitter radiates 30 milliwatts.

Explorer IV carries no tape recorder such as that in Explorer III. Decision to devote the entire payload to cosmic ray studies was made after the instruments in the first two Explorers were swamped at times by the unexpected intensity of cosmic ray activity in space.

Space Science Board

The National Academy of Sciences–National Research Council has announced the formation of a 16-man Space Science Board, "to survey in concert the scientific problems, opportunities and implications of man's advance into space." Lloyd V. Berkner, president of Associated Universities, Inc., and president of the International Council of Scientific Unions, has been appointed chairman.

Named as executive director of the new board was Hugh Odishaw, who also serves the Academy–Research Council as executive director of the U.S. National Committee for the IGY. A permanent staff will be recruited to serve as a secretariat.

The board, besides acting as the focal point for all Academy–Research Council activities connected with space–science research, will coordinate its work with appropriate civilian and government agencies, particularly the National Aeronautics and Space Administration [*Science* **128**, 290 (8 August 1958)], the National Science Foundation, and the Advanced Research Projects Agency (see lead news article, this issue), and with foreign groups active in this field.

The functions of the Space Science Board will include studies of research opportunities and needs opened up by the advent of modern rocket and satellite tools, advice and recommendations on space science to interested agencies and institutions, stimulation of research interest in the rocket and satellite fields, and cooperative activities in this area with academies and similar institutions abroad.

Eleven ad hoc committees have already been organized to carry on the work of the board. These committees, together with their chairmen and vice chairmen (who comprise the membership of the board), follow:

1) Geochemistry of Space and Exploration of Moon and Planets—chairman, Harold C. Urey, professor of chemistry, University of California, La Jolla; Vice Chairman, Harrison S. Brown, professor of geochemistry, California Institute of Technology.

2) Astronomy and Radio Astronomy —chairman, Leo Goldberg, chairman of the department of astronomy, University of Michigan.

3) Future Vehicular Development (beyond vehicles immediately available and including possible space stations and interplanetary vehicles for scientific research)—chairman, Donald F. Hornig, professor of chemistry, Princeton University.

4) International Relations Field (coordination with International Council of Scientific Unions and other national scientific bodies on problems in international sharing of payloads, international cooperation in space activities, and advice on the formulation and effects of regulatory policies)—chairman, W. A. Noyes, dean of the College of Arts and Science, University of Rochester.

5) Immediate Problems (space laboratories, orbits, currently feasible research projects, and liaison with the Technical Panel on the Earth Satellite Program of the U.S. National Committee for the International Geophysical Year during terminal phases of IGY)—chairman, R. W. Porter, chairman of the USNC–IGY Technical Panel on the Earth Satellite Program, and consultant (communication and control) Engineering Services, General Electric Company, New York.

6) Space Projects (analysis of advanced space research proposals and long-range planning)—chairman, Bruno B. Rossi, professor of physics, Massachusetts Institute of Technology.

7) Ionosphere (experiments pertaining to auroral and ionospheric effects, including whistlers and special propagation phenomena)—chairman, A. H. Shapley, physicist, National Bureau of Standards, Boulder, Colo.

8) Physics of Fields and Particles in Space—chairman, John A. Simpson, professor of physics, University of Chicago; vice chairman, James A. Van Allen, head of the department of physics, Iowa State University.

9) Future Engineering Development Beyond Available Facilities (telecommunications, telemetry, guidance, environmental conditions, and advanced laboratory requirements—chairman, O. G. Villard, Jr., professor of electrical engineering, Stanford University.

10) Meteorological Aspects of Satellites and Space Research—chairman, Harry Wexler, director of meteorological research, U.S. Weather Bureau.

11) Psychological and Biological Research—chairman, H. Keffer Hartline, biophysics section, Rockefeller Institute for Medical Research; vice chairman, S. S. Stevens, professor of psychology, Harvard University.

A twelfth committee, on geodesy, will be chaired by a board member still to be selected.

Soil and Water Conservation

The U.S. Department of Agriculture has announced the appointment of a working group to study the need for facilities for research in soil and water conservation. The study is being made at the request of the Senate Committee on Agricultural Appropriations. Members of the working group are G. M. Browning of Iowa State College, representing the state agricultural experiment stations; Gerald E. Ryerson of the Soil Conservation Service; and Cecil H. Wadleigh and Darnell M. Whitt of the Agricultural Research Service.

The group will receive recommendations from federal, state, and local organizations concerned with the conservation of soil and water resources. Those interested are invited to present their evaluation of the kind and extent of soil and water problems needing research. A series of public hearings is planned. To make a presentation at these hearings, a written request should be submitted before *29 August* to the secretary of the working group, Dr. Darnell M. Whitt, Plant Industry Station, Beltsville, Md.

The new study will provide an estimate of (i) total soil and water conservation research needs with respect to problems of regional and national significance, (ii) the capacity of existing research facilities to meet those needs, and (iii) the need for any additional research facilities. Representatives of federal, state, and local agencies concerned with soil and water resources are expected to present material for consideration. The working group is planning to complete its study and make its report to the Secretary of Agriculture on or before 31 December 1958.

French Science Association

The French Association for the Advancement of Science (Association Française pour l'Avancement des Sciences) met at Namur, Belgium, 15–22 July. The program allowed time not only for the regular sessions at which scientific papers were read, but also for several trips to places of special interest: archeological sites in Namur, the Belgian littoral, the Brussel's exposition, and the Ardennes region. Major addresses were given by Dr. Cox, who spoke on the advances in astronomy since publication of *Traité du ciel,* and by M. Laffineur, director of the Radioastronomy Laboratory of the Institute of Astrophysics in Paris, on radioastronomy.

Wallace Brode, president of the American Association for the Advancement of Science and science adviser to the Secretary of State, represented the AAAS at the annual banquet at which J. Peres, president of the French association and dean of the faculty at the University of Paris, presided.

Scientists in the News

GLENN T. SEABORG, Nobel laureate and professor of chemistry at the University of California, Berkeley, assumed the chancellorship of the Berkeley campus on 15 August. He succeeds CLARK KERR, who became president of the university on 1 July. Seaborg will continue in his position as associate director of the Radiation Laboratory.

HARALD T. FRIIS of Rumson, N.J., the electrical engineer who set up the receivers in England for the radiotelephone system that connected America and Europe in 1923, will receive the Franklin Institute's Stuart Ballantine Medal on 15 October. A consulting engineer, formerly director of research in high frequency and electronics for Bell Telephone Laboratories, Friis is being honored for "his many important contributions to the science of radio-communications during a lifetime of consistently productive research in this field, through which this science has been so notably advanced."

WAYNE C. HALL, professor of plant physiology at the Agricultural and Mechanical College of Texas, has been appointed head of the college's department of plant physiology and pathology.

DAVID M. YOUNG, JR., head of the mathematical analysis department at the Ramo–Wooldridge Corporation computation and data reduction center in Los Angeles, Calif., has been named professor of mathematics at the University of Texas and first director of the university's new Computation Center, effective next month.

WILLIAM L. DOYLE, chairman of the division of biological sequence in the department of anatomy at the University of Chicago, has been named associate dean of the Division of Biological Sciences in charge of nonclinical affairs. He succeeds the late Merle C. Coulter.

HILGARD O. STERNBERG, professor of geography at the University of Brazil, Rio de Janeiro, and director of the Center for Research in Geography of Brazil, will spend the second semester of the academic year 1958–59 at Indiana University as visiting professor of geography.

HAROLD A. BOLZ has been appointed dean of Ohio State University's College of Engineering. Associate dean of the engineering college since joining the Ohio State staff in 1954, Bolz was named acting dean last March when GORDON B. CARSON, former head of the college, was made the university's vice president, business and finance. Bolz also was given the title of director of the Engineering Experiment Station. He retains a professorship in the department of mechanical engineering.

JOHN F. DASHIELL, Kenan professor emeritus of psychology at the University of North Carolina, has been appointed by the John Hay Whitney Foundation to a visiting professorship at Wake Forest College, where he is to advise in the organization of a new independent department of psychology.

CHESTER A SWINYARD, former medical director of the Rehabilitation Center at the University of Utah College of Medicine, has been appointed associate director of the Children's Division of New York University–Bellevue Medical Center's Institute of Physical Medicine and Rehabilitation.