of the Hydrographic Office, was ordered by the Imperial Navy to sail on the submarine and to help in the management of the expedition. Dr. Matuyama spoke highly of the assistance rendered by Captain Akiyosi, especially in determining the positions and velocities of the submarine.

During the trip 27 measurements of gravity were made during twenty-five submergences of the submarine. In two cases, 2 measurements were made as checks during a single submergence.

At the time of writing his paper for the *Proceedings,* the photographic records and other data connected with the gravity surveys were being carefully studied and it is expected that the final results will be published later. Approximate values of gravity have been calculated and the results are shown on a map accompanying Dr. Matuyama's article together with the free air gravity anomalies. It is hoped that these gravity stations may be reduced by the isostatic method in order to throw some light on the isostatic condition of the crust under the Nippon Deep and surrounding areas.

W. B.

STREAM SURVEYS OF THE NATIONAL FORESTS AND PARKS

During 1934 the Bureau of Fisheries sent sixteen field parties to the different national forests and national parks for the purpose of studying and reporting on the physical, chemical and biological conditions of the streams and lakes lying within the forest or park areas. With this accumulated information as a basis, the aim was to improve the fishing in these areas by adopting a policy of planting the species, size and number of fish for which each surveyed stream or lake is best adapted.

However, the forests and parks were not the only ones to benefit from such a survey. The Bureau of Fisheries has accumulated a great deal of information which may be valuable in the future. The information can hardly be called new, but it is a more concise and quantitative statement of what is rather generally known.

In the East the four parties surveyed, completely or in part, the Great Smoky Mountain National Park in Tennessee and North Carolina and the following national forests: Green Mountain and White Mountain in New England, George Washington and Monongahela in Virginia and West Virginia and Pisgah and Nantahala in the two Carolinas and Georgia.

In the West the twelve parties surveyed, completely or in part, Glacier National Park and the following national forests: Sierra, Shasta, Klamath, Monoluyo, Coconino, Santa Fe, Humbolt, Roosevelt, Wasatch, Tonto, Crook, Coronado, Teton and Wyoming.

Comprehensive reports were compiled from the individual report blanks. These enlarged reports give a description of the methods of survey; a brief account of the physiography of the region; a list of the fishes found in the region; a statement of the natural enemies of fish present; a discussion of the kinds and relative abundance of aquatic fish food; notes on the water fluctuations of the streams and lakes and comments on the accessibility of the waters and the fishing intensity. Included with each of the reports are tables giving the following information about the streams: length, average width, average depth, average volume, gradient, character of stream bed, vegetation, pool grade, food grade, abundance of shade, game fish present, degree fished, fish recommended for stocking, size, section to be stocked, length of section, number of fish per mile, frequency and remarks. For lakes a table is included which gives the following: area, elevation, maximum and average depth, bottom food, plankton, vegetation, character of bottom, whether lake is natural or artificial, extent of shoals, degree fished, fish recommended, size, number, frequency and remarks. These tables are designed to furnish the Forest and Park Services with the major characteristics of each lake and stream and to give stocking suggestions for these waters.

THE JOHNS HOPKINS UNIVERSITY RESEARCH CONFERENCES ON CHEMICAL PROBLEMS

THE chemistry department of the Johns Hopkins University is holding its fifth Research Conference this summer at Gibson Island near Baltimore. The conference will be under the general direction of E. Emmet Reid and will run three weeks from June 24 to July 12. The plan is flexible, varying from day to day according to the nature of the topic under discussion and the wishes of those participating. The day begins with a more or less formal lecture outlining some field of research and directing attention to its unsolved problems. This is followed by a discussion in which each one present takes part, making what contribution he can to the solution of the problems presented. The ideal is to have a group large enough that all points of view may be represented, yet small enough that all who wish may take active part. The plan is to have recognized leaders in each field of research give the lectures and start the discussions, but its success depends on having a number in the group who are capable of contributing ideas. The remainder of the day is left to sports or conversations. These conferences are intended to combine mental stimulation, pleasant personal contacts and healthful recreation. The Gibson Island Club generously shares its facilities for this period. The club has an excellent golf course, fine tennis courts, splendid swimming and beaches, with ample dressing rooms

and commodious club house. There is excellent fishing in the surrounding Chesapeake. Attendants on the conferences may secure rooms in the club house or in adjacent cottages or may come from Baltimore for the day. Meals for all are served at the club house.

The program given below is to be regarded as a tentative outline to be filled in or modified as may seem best.

1. *The Chemistry of the Aliphatic Free Radicals:* Professor Francis O. Rice, June 24–28.

The week's conferences will include a series of lectures and discussion on (1) the preparation and properties of free aliphatic radicals, (2) the mechanism of thermal decompositions from the free radical standpoint, and, (3) the Haber-Willstätter chain mechanism applied to reactions in solution.

2. *Long Chain Molecules:* Dr. Thomas Midgley, Jr., July 1–5.

July 1. Formation of polymers by definite chemical reactions; rings and string molecules, Dr. W. H. Carothers.
July 2. Synthetic rubber, Duprene and Thiokol, Dr. W. H. Carothers and Dr. J. C. Patrick.
July 3. The determination of molecular weights of big molecules, Dr. E. O. Kraemer.
July 4. Cellulose, Dr. E. O. Kraemer.
July 5. Rubber, Dr. T. Midgley, Jr.

3. *Vitamins:* Dr. E. V. McCollum, July 8–12.

These conferences consist of lectures and discussion grouped around work in progress on vitamins.

July 8. Vitamin A, Dr. E. V. McCollum.
July 9. Vitamin B, Dr. R. R. Williams.
July 10. Vitamin C, Dr. C. G. King.
July 11. Vitamin D, Dr. C. E. Bills.
July 12. Vitamin G, Dr. H. C. Sherman.

NEIL E. GORDON
THE JOHNS HOPKINS UNIVERSITY

COLD SPRING HARBOR SYMPOSIA ON QUANTITATIVE BIOLOGY

IF we may judge from the results of two years, the conference-symposia method as developed at the Biological Laboratory at Cold Spring Harbor is a successful experiment in method. The cooperation of outstanding chemists, physicists and mathematicians, as well as biologists, has been most gratifying. The unique bringing together of knowledge from these various sources upon a fundamental aspect of biology each year is already widely appreciated. Thus the annual volume resulting from the symposia and discussion is purchased in over twenty-five countries all over the world, and there is evidence that the distribution of the volumes is becoming extended.

This year the conference-symposia will be centered about photochemistry in biology and medicine. They will take place during five weeks, June 26 to August 1. The general aspects which will be considered are: basic photochemistry (June 26–July 2), photosynthesis (July 3–July 16), photoreceptors and bioluminescence (July 17–July 23), and photochemistry in medicine (July 24–July 30).

While plans are still incomplete, it is already known that the following men will present papers, and, with five exceptions, will be in residence from one to five weeks at least:

Dr. Vernon M. Albers, physicist, Kettering Foundation, Antioch College; Dr. William Arnold, Biological Laboratories, Harvard University; Dr. Charles E. Bills, biochemist, director, Research Laboratories, Mead Johnson and Company; Dr. Harold F. Blum, assistant professor of physiology, University of California Medical School; Dr. F. S. Brackett, physicist, Bureau of Cotton Economics, Department of Agriculture; Dr. Dean Burk, associate physical chemist, Bureau of Chemistry and Soils, Department of Agriculture; Dr. E. S. Castle, assistant professor of physiology, Harvard University; Dr. M. Demerec, investigator, Department of Genetics, Carnegie Institution of Washington; Dr. N. R. Dhar, head of Chemistry Department, University of Allahabad (India); Dr. Robert Emerson, Biological Laboratory, California Institute of Technology; Dr. Henry Eyring, physical chemist, research associate, Princeton University; Dr. Hugo Fricke, in charge of biophysics laboratory, Biological Laboratory; Dr. H. Keffer Hartline, fellow medical physics, Johnson Foundation, University of Pennsylvania School of Medicine; Dr. E. Newton Harvey, professor of physiology, Princeton University; Dr. Selig Hecht, professor of biophysics, Columbia University; Dr. O. L. Inman, director, Kettering Foundation, Antioch College; Dr. H. V. Knorr, physicist, Kettering Foundation, Antioch College; Dr. Henry Laurens, professor of physiology, Tulane University School of Medicine; Dr. H. S. Mayerson, assistant professor of physiology, Tulane University School of Medicine; Dr. Harold Mestre, Department of Bacteriology, Yale University School of Medicine; Dr. Karl Meyer, Department of Ophthalmology, College of Physicians and Surgeons; Dr. W. A. Noyes, Jr., associate professor of chemistry, Brown University; Dr. Gerhard K. Rollefson, associate professor of chemistry, University of California; Dr. Paul Rothemund, biochemist, Kettering Foundation for Study of Chlorophyll and Photosynthesis, Antioch College; Dr. S. E. Sheppard, chemist, assistant director Kodak Research Laboratories; Dr. Hugh S. Taylor, David B. Jones professor of chemistry, Princeton University; Dr. George Wald, Biological Laboratories, Harvard University; Dr. Ernst Wolf, Biological Laboratories, Harvard University; Dr. F. Paul Zscheile, Jr., Department of Chemistry, University of Chicago.

Investigators who wish to attend various symposia and discussion may obtain more definite information, including programs, from the Biological Laboratory at Cold Spring Harbor.—R. G. H.