Studies of the two eclipsing variables, Algol and β Lyrae, made by Professor Curtiss have yielded most important information concerning these very interesting systems. In the former system he was able to show conclusively the presence of a third component having a period of 1.9 years. Minor irregularities in the observed velocity curve of Algol suggested another problem, solved several years later by one of his students at Michigan, Dr. D. B. McLaughlin, who found that these are produced by the rotation of the bright component. His pictorial study of the spectrum of Nova Geminorum II, representing the spectral changes in the star observed at the Michigan Observatory, furnished data of great value, which in combination with the observations of others enabled some of the more important variations occurring in the spectrum of this nova to be traced.

For the past few years Professor Curtiss had been engaged, with several of his colleagues and students, in an extended investigation of the difference in displacement shown by spectral lines originating at different levels in the atmospheres of Cepheid variables. This effect, discovered at the Michigan Observatory, is one of great importance in connection with the problem of Cepheid variation, and its final elucidation should throw considerable light upon the complex motion taking place in the atmosphere of a pulsating star.

Dr. Curtiss's published researches are contained in some eighteen memoirs, appearing in the *Publications of the Astronomical Observatory of the University of Michigan, Bulletin of the Lick Observatory, Publications of the Allegheny Observatory* and in astronomical journals. In addition he contributed a number of shorter papers to current astronomical literature. He had just completed the chapter on "Classification and Description of Stellar Spectra," which he was preparing for the fourth volume of the "Handbuch der Astrophysik." Several extended investigations were also in a well-advanced stage and it is hoped that these will be completed by his colleagues at an early date.

Recognition of his scientific work came to Professor Curtiss from many learned societies. He was a fellow of the Royal Astronomical Society, member of the American Astronomical Society, of the Seismological Society of America, Phi Beta Kappa, Sigma Xi, a fellow of the American Association for the Advancement of Science and a member of Commission No. 29 "On Stellar Spectra" of the International Astronomical Union.

Professor Curtiss is survived by his widow, Mary Louise Welton Curtiss, to whom he was married in 1920, and by a brother, Dr. David Raymond Curtiss, professor of mathematics in Northwestern University. Dr. Curtiss was fond of his home life and was never so happy as when playing the host to one of his colleagues. He took an active interest in civic affairs and in the social life of his community. In the world of science he was recognized as a leading authority on stellar spectra, our knowledge of which he has enriched through a long line of most fruitful researches. As an investigator he exhibited marked skill and originality in the treatment of difficult problems, patience and extreme care in the consideration of every detail of the work to the end that the data should have the maximum precision, and finally true scientific caution in the interpretation of his observational results. He was a scientist of wide vision and high ideals and possessed to an unusual degree the power of stimulating others.

J. H. MOORE

LICK OBSERVATORY

# SCIENTIFIC EVENTS

## THE UNITED STATES BUREAU OF FISHERIES

WORK on the nation-wide five-year construction and maintenance program has been begun by the Bureau of Fisheries in accordance with the act of Congress approved on May 31, according to an oral statement made by the Deputy Commissioner, Lewis Radcliffe, on July 8 to the *U. S. Daily*. One important feature of the act is that provision is made for cooperation between the bureau and states, counties, municipalities, individuals and public and private agencies.

The bureau may also accept donations of lands, funds and other aid to the development of the program under the provisions of this act. It authorized additional appropriations for new stations, laboratories and distribution cars to the amount of $1,885,000; annual increases in appropriation for the division of fish culture of $100,000, and increase in appropriation for the divisions of inquiry and fishery industries at the rate of $60,000 and $35,000 per annum for the five-year period, he outlined.

Of the increase for the fish culture division not more than 30 per cent. is for salaries and for the other divisions 40 per cent. The total increases for the fifth year authorized for the three divisions will be $50,000, $300,000 and $175,000, respectively.

Authorizations for new construction by years follow:

*Fiscal year beginning July 1, 1930:* Fish-cultural stations—New Mexico, $50,000; Louisiana, $50,000, and

Idaho, $60,000. Substations—Wisconsin (southern), $50,000; Montana, $35,000; Colorado, $35,000, and New Hampshire (White Mountain Forest), $25,000. A fishery laboratory in Washington, $125,000, and an experimental bass and trout station, Maryland or West Virginia, $75,000.

*Fiscal year beginning July 1, 1931:* Fish-cultural stations—Alabama, $50,000; Indiana, $50,000; Tennessee (middle), $50,000, and Pennsylvania (including a substation), $100,000. Substations—South Carolina (or enlargement of Orangeburg station), $25,000; Texas (western), $35,000; New York, $35,000. The purchase of Mill Creek station in California, $20,000, and the purchase and repair of Rogue River substation, Oregon, $35,000.

*Fiscal year beginning July 1, 1932:* Fish-cultural station—Florida, $60,000. Fish-cultural substations—Maine (including enlargement Craig Brook), $50,000; Virginia (eastern), $75,000, and Minnesota, $50,000. A fishery laboratory in Texas (Gulf coast), $75,000, and the purchase or construction of steel fish-distribution car, $75,000.

*Fiscal year beginning July 1, 1933:* Fish-cultural stations—Nevada, $60,000; Illinois, $75,000, and New Jersey, $75,000. Substation — Mississippi (southern), $50,000, and the purchase or construction of steel fish-distribution car, $75,000.

*Fiscal year beginning July 1, 1934:* Fish-cultural substations—Ohio, $35,000; Kansas, $35,000; North Dakota, $35,000; Georgia, $35,000, and the purchase and repair of Little White Salmon station in State of Washington, $35,000. A fishery laboratory in the territory of Alaska, $50,000, and an experimental and bass and trout station in Pisgah National Forest or Great Smoky National Park in North Carolina, $35,000.

## AWARD OF THE STORROW FELLOWSHIPS

THE Storrow fellowships in geology and geography are based upon a fund of $5,000 placed with Mr. Arthur Keith, chairman of the division of geology and geography of the National Research Council, by Mrs. J. J. Storrow, of Boston, Massachusetts, for the promotion of training in research in those branches. In the allocation of the fund the committee on fellowships of that division has given primary consideration to aiding outstanding students in these fields to make successful beginnings in research careers, rather than to securing advanced degrees. It has even held that it is not necessary for the candidate actually to be engaged in university study at the time of his application for aid in further training.

Following are the recipients announced by the committee through the National Research Council: H. J. Fraser, Cambridge, Massachusetts; Norman Hinchey, St. Louis, Missouri; Ralph L. Lupher, Pasadena, California, and Jerome S. Smiser, Princeton, New Jersey.

So meritorious were the cases presented that the fund was fully allocated for the coming year. Nothing could more unmistakably show the great need for research fellowships available to graduate students in geology and geography than the applications and supporting letters received since the announcement of these fellowships was published in SCIENCE in mid-January. They reveal the existence of a large group of young men of fine character and ability who have graduated from the universities and who are pressing for special training with a view to entering definite research careers in different branches of our subject. Applications stating present training and specific research objectives and plans are supplemented by letters relating to the character, training, ability, industry and special aptitude of the candidates for the particular line of work in view. Among the group of selected cases remaining there are enough of distinctly high rank and promise to make profitable use of a fund of $20,000 a year. Some of these cases are opportunities to launch trained and ambitious young men into productive contribution to the knowledge of geology and geography.

Most of the applications relate to geology, and of these more of the outlined plans lie in the fields of invertebrate paleontology than in any other single subject. Four applications fall within the broad province of geography.

A very interesting though small group of applications are from men no longer in the universities who have developed perspective and purpose relating to certain fields or problems of research which they wish to enter upon but which they can not undertake without aid or for which they can not insure the necessary preparation without funding which, in most cases, is on a very modest scale.

The committee hopes that the demonstration of desire on the part of young men and women to engage in research in geology and geography, the ability and earnestness of purpose indicated, and the generally practicable as well as meritorious plans in view will appeal to persons of means who are interested in the promotion of research in geology and geography.

DAVID WHITE,
*Chairman, Committee on Fellowships*
DIVISION OF GEOLOGY AND GEOGRAPHY,
NATIONAL RESEARCH COUNCIL

## AWARDS OF THE AMERICAN SOCIETY OF CIVIL ENGINEERS

FOR outstanding achievement five engineers received awards at the opening session of the sixtieth annual convention of the American Society of Civil Engineers which opened at Cleveland on July 9.

A gold bronze medal, the first prize in the annual Phebe Hobson Fowler professional award, was be-