the diagnosis and treatment of disease. Experiments conducted at a sewage farm to test the character of the effluent by its effect on the health of fish is an example of work carried out for the preservation of public health. Nearly 20,000 experiments were performed for the preparation and testing of antitoxin serums and vaccines and for the testing and standardizing of drugs. The several registered places were visited frequently by the inspectors, usually without previous notice, and they report that the animals were suitably lodged and well cared for, and the licensees generally attentive to the requirements of the act and the conditions attached to their licenses.

THE REPORT OF THE ENGINEERING COUNCIL ON WORK PERIODS

"THE tendency throughout the world is toward the abolition of the twelve-hour shift," it is held by the report of the Committee on Work-Periods of the American Engineering Council of the Federated American Engineering Societies, which has been adopted after a long discussion by the executive board of the council in Boston. The report, in effect, finds that the two-shift day of twelve hours each is not an economic necessity in American industry.

"In almost every continuous industry," according to the report, "there are plants which are operating on an eight-hour shift basis in competition with twelve-hour shift plants." It is also shown that in practically all major continuous industry plants which have changed from twelve hours to eight hours have increased the quantity of production per man up to as much as twenty-five per cent. In a few cases, the report states, the increase has been much higher. In the steel and iron industry, which is made the subject of a special report, it was found that "the change from the twelve to the eight-hour day has secured results sufficient to compensate in whole or in part for the extra cost."

Other advantages of the eight-hour day in the steel and iron industry are described as increased efficiency, better morale, elimination of the "floating gang," which is maintained to give twelve-hour men a day off a week, and greater prestige of the industry with the public.

Professor Samuel McCune Lindsay, of Columbia University, representing the Cabot Fund of Boston, officialy styled the report as embodying the results of "the most important investigation of any industrial situation ever undertaken in this country." The Cabot Fund cooperated in the engineering investigation, which occupied nearly two years and covered practically every continuous industry in the United States. Professor Lindsay, who is president of the Academy of Political Science, authorized the statement that Professor Henry R. Seager, of Columbia, president of the American Economic Association, shared his general view.

The results of the industrial investigation, which will exercise a great influence on the general labor situation, were obtained through two lines of inquiry. One enquiry, embracing the steel and iron industry of the country, was directed by Bradley Stoughton, of New York, former secretary of the American Institute of Mining and Metallurgical Engineers and former adjunct professor of metallurgy in Columbia University.

The second enquiry was directed by Horace B. Drury, industrial investigator and former member of the faculty of Ohio State University. Each enquiry was made the subject of a separate report, the whole investigation being in charge of the council's Committee on Work-Periods, of which Dr. H. E. Howe, of Washington, is chairman. Dr. Howe presented the report to the board. His associates on the committee are J. Parke Channing, L. P. Alford, Fred J. Miller and Dwight T. Farnham, of New York; Morris L. Cooke, of Philadelphia, and L. W. Wallace, of Washington.

Presentation of the report by Dr. Howe caused a spirited discussion of two hours, during which President Cooley, urging adoption, asserted that the report was a remarkable contribution of the engineering profession toward the advancement of mankind. Others participating in the debate were Philip N. Moore, of St. Louis; Professor Joseph W. Roe, of New York University; Irving E. Moulthrop, of Boston; W. W. Varney, of Cleveland; Calvert Townley, of New York; E. S. Carman, of Cleveland; John A. Stevens, of Lowell; Wil-

liam Rolfe, of St. Louis, and Messrs. Channing, Alford and Wallace, representing the Committee on Work-Periods. The report was finally adopted by an overwhelming vote.

The Drury report was described as a general survey of all industries operating continuously twenty-four hours a day. The leading continuous industries investigated are divided into four groups as follows:

Group I: Iron and steel, non-ferrous metals, glass, Portland cement, lime, brick and pottery.

Group II: Heavy chemicals, fertilizers, explosives, dyes, industrial alcohol, wood distillation, refined corn products, soap, glue, drugs, etc., electro-chemical industries, sugar, table salt, petroleum, cottonseed oil and other oils.

Group III: Paper, flour, rubber, breakfast foods, automobiles, textiles and mines.

Group IV: Power, gas, water supply, ice, shipping, railroads, street railways, telegraph and telephone, mails and express, policemen, firemen and watchmen.

SCIENCE SECTION OF THE ASSOCIATION OF COLLEGES AND PREPARATORY SCHOOLS OF THE MIDDLE STATES AND MARYLAND

AT the annual meeting of the Association of Colleges and Preparatory Schools of the Middle States and Maryland held at Swarthmore College on November 26, 1921, Science Section was organized. Dr. Bertha M. Clark, William Penn High School, Philadelphia, presided at the organization meeting. A constitution prepared by a committee consisting of Dr. H. J. Creighton, Swarthmore; Dr. James Barnes, Bryn Mawr; Dr. Ida A. Keller, Philadelphia High School for Girls; Dr. W. B. Meldrum, Haverford; and Dr. R. H. True, University of Pennsylvania, was presented and adopted by unanimous vote.

According to its constitution the Science Section has been organized to bring about active cooperation between the colleges and preparatory schools in improving the teaching of science. The following officers were elected to serve one year:

President: Dr. Thomas D. Cope, Randal Morgan Laboratory of Physics, University of Pennsylvania.

Vice-president: Mr. Charles E. Dull, South Side High School, Newark, N. J.

Secretary: Miss Margaretta Atkinson, Philadelphia High School for Girls.

Treasurer: Dr. Walter Steckbeck, Macfarlane Hall of Botany, University of Pennsylvania.

The following councillors were elected to serve two years:

Dr. Gellert Alleman, Swarthmore College.

Dr. Bertha M. Clark, William Penn High School, Philadelphia.

Dr. Raymond Brownlee, Stuyvesant High School, New York City.

The council has decided to hold the next meeting of the section at the time of the next annual meeting of the Association of Colleges and Preparatory Schools. This meeting will be held at the Tower Hill School, Wilmington, Delaware, during the Thanksgiving recess in 1922. An attractive program is being prepared and plans are being made to increase materially the membership of the section. Due announcement of the program will be made public.

HERSCHEL CENTENARY PILGRIMAGE[1]

THE centenary of the death of Sir William Herschel, the first president of the Royal Astronomical Society, was commemorated on August 25 at Slough, where he lived and carried out so much memorable work. The Royal Astronomical Society, with Sir F. Dyson, the astronomer royal, made a pilgrimage to the chief places associated with Herschel's history, and were welcomed by the chairman (Mr. E. T. Bowyer) and other members of the District Council of Slough, and representatives of the Herschel family, in whose occupation the astronomer's house—Observatory House—still remains.

The first place to be visited was Old Upton Church, a competitor with Stoke Poges for the honor of having inspired Gray's *Elegy*. Herschel's body lies beneath the flags of the ancient chancel, on which there rested a star-shaped wreath of flowers. The church register records the date of his marriage with "Mary Pitt, widow, of this parish," May 8, 1788, and the baptism of his only son, John Frederick Wil-

[1] The London *Times*.