vided a powerful stimulus to research in the fields of paints, varnishes and solvents. The production in this country of these lacquers and finishes has grown from about 2,000,000 gallons in 1923 to approximately 25,000,000 gallons in 1927.

The low-temperature carbonization of coal is the subject of intensive study in many countries, including our own, and sufficient progress has already been made to demonstrate its commercial feasibility. It seems destined ultimately to have a profound effect upon the gas industry and to hasten the day when our cities will be measurably free from the smoke which now defiles them. The light tars which are produced in quantity in low-temperature carbonization are markedly different in character from ordinary coal tar and are a promising field for scientific investigation as a preliminary to the development of a new coal-tar industry.

Coal seems destined in fact to play a part of greatly increased importance as the raw-material basis of new chemical industries. In support of this opinion I need only mention the success of General Patart in France in effecting syntheses of alcohols and aldehydes from water-gas; that of Fischer in Germany for the production, also from water-gas, of the whole series of paraffin hydrocarbons from methane to solid paraffins; and finally, the remarkable results secured by Bergius in the liquefaction of coal. While it does not seem probable that we shall for many years to come turn to water-gas as the source of liquid and solid hydrocarbons or substitute for petroleum products the oils derived from coal, it may easily happen that we shall convert water-gas to methane and thereby permit the gas industry to distribute a non-asphyxiating gas of such enhanced heating power as to double the energy-carrying capacity of the distribution systems. It also seems probable that through the application of the Bergius method of hydrogenation the tars and bottoms of the petroleum industry may be converted into lighter and more valuable products.

The rubber industry, which has heretofore based its operations on the use of coagulated crude rubber, is now entering upon a new period of development, which, though originally based upon rubber latex, is being extended to include artificial dispersions made from crude rubber, vulcanized rubber or reclaimed rubber by milling and kneading the rubber with water and an inert material such as clay, and with the addition of small amounts of some protective colloid. Many important applications involving the use of rubber dispersions are already well under way.

Much interest has recently been aroused in the problems concerned with the possible utilization of the immense amounts of agricultural wastes annually produced in this country. As to their quantity you may take your choice between estimates ranging from 500,000,000 to a billion tons a year. It is enough in either case to concern those interested in the conservation of our resources. It goes without saying that there are in these wastes a quality and an amount of vegetable fiber adequate to supply a large proportion of our requirements for paper stock, and it is obvious to you that from this purified cellulose the whole range of products based on cellulose compounds can be made. Whether they can be made at a profit is quite another question. It can only be answered after yields of fiber, costs of collection and many other economic factors have been determined. There is now so much activity in this field that it seems probable that reliable answers to these questions may soon be forthcoming.

ARTHUR D. LITTLE

CAMBRIDGE, MASSACHUSETTS

SCIENTIFIC EVENTS

THE LIFE AND SERVICES OF JOHN WARREN. 1874–1928

THE following minute was placed on the records of the faculty of medicine of Harvard University at the meeting of November 1, 1928:

Five generations, in direct succession from father to son, of men eminent in the medical profession, men intimately connected with the Harvard Medical School or the Massachusetts General Hospital—this is a record for which Boston may well feel a proper pride and deep gratitude. In the death of the last of this direct medical line the Harvard Medical School suffers a profound loss.

John Warren, associate professor of anatomy, died suddenly on July 17, last. His connection with the anatomical department had lasted twenty-eight years, for he was appointed assistant in anatomy in 1900, the year after his graduation. From the very beginning of his career his chief interest lay in teaching. His position brought him under the influence of his kinsman, Dr. Thomas Dwight, then Parkman professor of anatomy, a forceful and very lovable example of the older type of professor, by whom the didactic lecture was considered paramount for instruction. It may be that intimate association with Dr. Dwight or perhaps a native gift handed down from his great-great-grandfather, the first professor of anatomy at Harvard, accounts for John Warren's proficiency in the art of the careful preparation and clear and forceful delivery of anatomical lectures, of which he soon became a master. With this he also attained a depth of knowledge of human anatomy and a skill in displaying it by dissection which were acknowledged by all his colleagues in later years and appreciated by a long succession of medical students.

Living as he did in a surgical atmosphere, trained to believe that a sound and detailed knowledge of human

anatomy was the essential foundation of every practitioner, he constantly endeavored to improve the older methods of teaching while preserving the basic principles. After Dr. Dwight's death, he raised a memorial fund—the Dwight Fund—to be used for the acquisition of specimens or other material which might be of value to the student. Later he planned and created the Dwight Room, a teaching anatomical museum situated among the dissecting rooms and therefore immediately available to the students. Always a skilled dissector, he himself supplied most of the specimens for this museum, and spent much thought and care on their arrangement and availability for study. Within the last few years he decided to use this abundant material in the preparation of an atlas of anatomy. Beautiful drawings of his dissections have been made, on which he expended years of patient care. That he was not destined to see the completion of this work must be deeply regretted. In all these activities his one idea was that of helpfulness to the student; his viewpoint was that of the teacher.

John Warren's administrative ability was early recognized. In 1903 he became the youngest member of the faculty and since then has been called upon to serve on numerous faculty committees. In 1911 President Lowell appointed him university marshall, in charge of the commencement day exercises. Many graduates will remember the dignity which his presence lent to these yearly gatherings, even though they may not realize the thought and infinite care necessary in their preparation.

During the war this same faculty for administration secured for him posts of considerable importance in the army. His interest in military matters remained after his discharge from military duty, and it is in large part due to his influence that the medical unit of the Reserve Officers' Training Corps now exists at Harvard.

He was always interested in historical matters, as was natural in one of his lineage, and within the last few years became a collector of old books on anatomy, a pursuit in which he was particularly happy. These volumes he added to those already in his possession, handed down from father to son in his family. This truly notable collection he has now bequeathed to this school as a memorial to five generations of Warrens.

Unfailing courtesy, straightforward simplicity and a deep loyalty to this school and to the university mark his career as a teacher. His sweetness of character was well known to his friends. He carried on worthily the tradition of service handed down by his ancestors.

J. L. BREMER,
HARVEY CUSHING,
WALTER B. CANNON,
Committee

THE PROPOSED NATIONAL INSTITUTE OF HEALTH

THE creation of a National Institute of Health is proposed in a bill introduced by Senator Ransdell, of Louisiana, and now on the Senate calendar of business to be considered during the forthcoming short session. The bill has been approved by the Senate Committee on Commerce. The report submitted by this committee recommending the enactment of the bill says:

The object of this bill is to promote the health of human beings, to improve their earning capacity, to reduce their living expenses, to increase their happiness and prolong their lives.

It seeks to prevent disease by ascertaining its cause and applying preventive measures in advance of its outbreak. It has unselfish interests to serve, and its beneficent results will enter every home in the nation.

It appreciates that disease is universal and ignores state and national lines, hence it seeks to establish in this Capital City a great national institute of health in the belief that it will become a clearing house of health for all the world.

It has received the indorsements of distinguished men of science, and of the national organizations of related scientific research.

The bill contains three distinct features.

First, the creation of a National Institute of Health in the Public Service under the administration and control of the surgeon-general, for the special purpose of pure scientific research to ascertain the cause, prevention and cure of disease affecting human beings. It does not create any new bureaus or new commissions, but utilizes existing government machinery and provides for much enlargement of the hygienic laboratory, which is merged in and made an essential part of the National Institute. It authorizes appropriation of such sums as may be adequate to carry out the provisions of the measure.

Second. It authorizes the Treasury Department to accept gifts unconditionally for study, investigation, and research in problems relating to the health of man and matters pertaining thereto, with the proviso that if gifts in the sum of a half million dollars or more are made, the name of the donor shall be attached thereto.

Third. It proposes the establishment and maintenance in the institute of a system of fellowships in scientific research in order to secure the proper scientific personnel and to encourage and aid men and women of marked proficiency to combat the diseases that menace human health.

In conclusion the committee reports:

We are disposed to feel hopeless over the time required for the solution of these intricate and difficult problems of the health of the individual. Yet the necessities of war gave us clear illustration that when researchers in the several sciences are brought together and given adequate facilities and full time for research, results can be accomplished at a speed hitherto undreamed of.

Surely we would be unfaithful to our responsibilities if we do not profit by this striking example and apply similar defenses for the battle of man with disease. Our failure to act will mean a deliberate sentence of sorrow and suffering in the homes of our constituents.

Favorable action will mean an effective start along the road which ultimately will lead to successful solution.