heartening that we have come so well up to the duties and opportunities of the years that are behind us. They carry the best promise of competence in solving the problems of the future. My plea is for alertness and that our wisdom be limbered up and burnished a bit so as to be ready beforehand instead of a year or two too late.

This is not the time nor do I wish to assume the rôle of monitor concerning the future policy of the society, but I conceive it to be timely that the problem at least be stated, and with it affirm my supreme confidence in the wisdom and ability of the society to meet its enlarging opportunities and maintain its rank both in leadership and service in the almost inconceivably great and comprehensive cause of chemical accomplishment in the years immediately before us.

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FRANCIS WELD PEABODY

FRANCIS WELD PEABODY was born in Cambridge, Massachusetts, on the twenty-fourth of November, 1881. Through many generations his family had been prominent in New England and included among its members distinguished and able citizens. His father, long associated with Harvard University, was at one time dean of the Harvard Divinity School. Peabody's early life was spent in Cambridge and in Boston and thus, not only through inheritance, but through environment, he was deeply imbued with many of the finest attributes of the New England character.

As a boy he lived in an atmosphere of culture and in early youth came intimately in contact with older men of intellectual achievement or of brilliancy of mind. He was frequently at the house of William James, where he became a close friend of the family, and it is interesting that the last year of his life was spent in that quiet old house with its spacious library and charming garden where, years before, William James had lived and worked.

Peabody entered Harvard College in 1899 and graduated with honors in 1903. That autumn he entered the Harvard Medical School. Here he proved to be a student of distinction and before the four years of study were completed, he had become interested in research and had found time during the busy days to devote himself to a bacteriological problem relating to typhoid fever. In 1907 he received the degree of doctor of medicine, conferred again with honors, by the Harvard Medical School. The following year, which was spent as interne in the Massachusetts General Hospital, completed the first period of his medical training, and laid the foundation for the future work which he was to carry out with such distinction.

He must now have had a desire to widen his experience in medicine and to enlarge his knowledge of the ways of men and their methods of work. Such an opportunity arose when an offer came to fill the position of assistant resident physician under Dr. Thayer at the Johns Hopkins Hospital. This he accepted and during the following year he devoted his time to the clinic in Baltimore. It was not long before he had endeared himself to all his associates, and was soon regarded with respect by both the junior and senior members of the staff. His unusual ability, his quiet perseverance and his gentle humor attracted many men, who recall now with pride and affection the happy days spent in his company.

At that time Dr. Welch was active in the pathological laboratory and there could be nothing more natural than that Peabody should wish to have a year in the study of pathology, particularly since it could be spent under the direction of Dr. Welch. During the year 1909–10, therefore, he served as fellow in pathology and came in frequent contact with one of the great men in American medicine.

These two years of varied activity were followed by a third year of preparation and study abroad, where now he went to receive training in organic chemistry. Again he chose to work under two eminent masters, Emil Fischer and Fresinius. One can not doubt for an instant the reason for this selection. With unfailing judgment and acute perception he could always recognize the superior qualities of mind in men. He sought invariably the master, and was accepted as the unusual pupil. In the many delightful relationships which he made in this manner there always seemed to be a mutual recognition of ability and an indefinable sense of attraction between the two men.

There was still another reason, however, why Peabody should wish to spend these years in an apprenticeship in medicine. It was becoming apparent that methods hitherto inapplicable to the study of disease in man were rapidly being adapted to this purpose. By chemical procedures, in particular, one could gain new information. Possibly he had some clinical problem in mind which he thought might be solved through chemical investigation. Certainly if this were true he desired to learn the best methods, to come in contact with the best minds, so that he might render the best service to his problem. One sees him actuated by this motive again and again. No effort is spared to elevate the work to a superior level. But as he himself has said, it is always the problem that must come first, the ardent desire to answer a difficult question propounded in the clinic. When unfamiliar methods are required for the solution of this problem, these must be learned under expert tutelage. Peabody has referred to this as the intellectual rather than the technical approach

to clinical research, and it is the method which he himself invariably employed.

Following the year abroad, there came an opportunity to assist in developing, under unusually favorable circumstances, ideas and methods which were comparatively new to clinical medicine in this country. The Hospital of the Rockefeller Institute had recently been opened under the direction of Dr. Rufus Cole for the study of disease in man, and in the perfectly equipped wards and laboratories of this hospital it would be possible to investigate human disease as a problem in itself. Peabody was appointed an assistant resident physician, and thus formed one of a small group of men who soon became absorbed in a series of intensive clinical studies. He first devoted himself to some investigations upon poliomyelitis, and wrote upon the subject, but later his attention was turned to certain chemical problems in relation to lobar pneumonia, a disease which was being subjected to investigation at the hospital from many points of view.

It is highly probable that the perplexing problems of dyspnoea and cyanosis in pneumonia awakened his interest in the physiology and pathology of the respiration, for after leaving the Rockefeller Hospital he again went abroad, this time partly to visit European clinics and partly to work in physiology. He chose, at all events, for his physiological studies the laboratory of Professor Krogh, in Copenhagen, a man who is recognized to-day as one of the pioneers in the modern study of respiratory functions in man, and who moreover has contributed work of fundamental importance in the capillary circulation. Peabody was one of the first, if not the first, American student to work in these laboratories.

After several months abroad he returned to Boston to help organize and develop a new and modern medical clinic under the direction of Dr. Henry A. Christian at the Peter Bent Brigham Hospital. He entered upon the duties of resident physician, a position which he held from 1913 to 1915. This new clinic was equipped with excellent laboratories and Peabody soon started a series of important clinical investigations upon the respiration. The problem was continued and developed over many years though interrupted at times by urgent calls to other duties, but through these studies which are now widely known, he contributed knowledge of both fundamental and of practical importance.

These investigations, however, important as they were, formed only a part of his active and useful life at the hospital. He was constantly in the wards, indefatigable in the care of his patients, gaining experience in clinical medicine, working with students, developing the teaching in clinical microscopy and training and stimulating the younger assistants who came to work with him. It was not long before the remarkable example which he set produced an influence far beyond his immediate field of activity. His sound judgment, his wide knowledge and his clear conception of the lines along which clinical medicine should be developed, all led to his being sought in consultation from time to time on matters pertaining to medical education.

Among other requests he was asked in 1914 by the Rockefeller Foundation to join a commission which was being sent to China to confer on the desirability of creating a new medical school in Peking. The counsel which he gave on this occasion was of much value to the commission, and undoubtedly he exerted considerable influence in directing the policies which were to be carried out in this new school of medicine. An appreciation of the service which he rendered was evidenced by the fact that he was made a member of the China Medical Board of the Rockefeller Foundation. His interest in the establishment and growth of the Peking Union Medical College continued, and later he was invited to act as visiting professor to the medical department. The winter of 1921 and 1922 was spent in this position in China.

In 1916 Peabody was appointed assistant professor of medicine at the Harvard Medical School and physician to the Peter Bent Brigham Hospital. With the acceptance of this position he relinquished his post as resident physician and became one of the visiting physicians to the hospital. At the same time he was appointed consulting physician to the Collis P. Huntington Memorial Hospital. The work which had engaged his attention as resident physician was now continued and somewhat expanded. Constant visits to the wards of the hospital, teaching and the development of his important clinical investigations upon the physiology and pathology of respiration occupied his time and attention. In all likelihood, too, it was at about this time that his interest was awakened in diseases of the blood. The course in clinical microscopy, which he had conducted, gave him familiarity with the accepted knowledge of this subject, and the new appointment as consulting physician to the Huntington Hospital placed a new responsibility upon him, for one of the important problems which had been developed in this institution was the investigation and treatment of diseases of the blood. Though spare moments must have been given to theoretic consideration of this subject, his principal interest, as far as investigation was concerned, was not diverted from the study of the respiration, which he pursued thoughtfully and systematically for several years until his problem was brought to a logical conclusion.

All this work was interrupted abruptly, however, by our entrance into the war. Early in 1917 he was sent to Roumania and later to Russia as a member of the American Red Cross Commission, and on his return to this country entered the Army Medical Corps. Among other duties he was detailed to the Army Hospital at Lakewood, New Jersey, where there were under his care many soldiers suffering from the condition known as "irritable heart" or "effort syndrome." He immediately availed himself of the opportunity to study several perplexing questions in regard to this condition, which was a relatively common and important cause of invalidism in the army, and through his observations added information that was of considerable practical value. Later he was ordered to France where he served as consultant.

On his return he resumed his duties in Boston, and though he saw patients in consultation and was indeed sought after for his expert knowledge, his unusual clinical ability and his human understanding, still his keen sense of responsibility towards the clinic, his devotion to his students and assistants and his desire to advance our knowledge of disease in man occupied practically all his days.

By this time, in spite of his innate modesty, he had attained a position of great importance in the medical profession. His advice was sought on many matters of importance. He was offered the chair of medicine in several of the leading medical schools of this country, and though he felt that his duty lay in Boston and that he must refuse these calls, yet in doing so he never failed to aid these institutions in their efforts to organize the medical clinics along the most productive and idealistic lines.

Finally there came to him a request which he could not refuse. The Boston City Hospital was about to establish in connection with the general hospital a department of research in a new building to be known as the Thorndike Memorial, which was to contain laboratories for investigation and small wards for the study of selected groups of patients. Peabody was asked to become director of the Thorndike Memorial and to take charge of one of the medical services of the Boston City Hospital. The problem which was presented to him was a new one, and he immediately conceived of it as having important bearing upon the progress of medical education and clinical research in America. In 1922 he accepted the offer and was made professor of medicine at Harvard University.

The remaining years of his life were devoted to the organization and development of this clinic. In doing so he laid great emphasis upon the fact that the Thorndike Memorial, a research department, was founded as an integral part of a great city hospital, by which it was supported. It was a significant fact that the trustees of a municipal hospital or indeed of any hospital should consider that they had not fulfilled their responsibilities by limiting the service of the hospital to the treatment of patients alone, but felt obligated to extend the field of activity to medical teaching, preventive medicine and medical research. The idea was of far-reaching importance and the plan must be developed with great thought and care in order that it might grow to fruition. Peabody had a perfectly clear conception of what he wanted to accomplish, and it required only time and patience to work out the details for the organization of this research department, where very shortly he gathered together a productive group of enthusiastic and devoted young assistants. His ideas concerning the development of this great clinic were clearly defined, his vision broad and far reaching. Fortunately he has recorded some of these ideas with characteristic simplicity and beauty of expression, in a letter which has recently been published.

The increased responsibilities that came to him with the directorship of the Thorndike Memorial in no way diverted him from his search for knowledge about disease processes, though it required increasing effort to find time for investigation. With his usual quiet and intelligent persistence he commenced a series of studies on pernicious anaemia. To this subject he made significant contributions before the progress of these researches was cut short by his death. One of the last honors that came to him was his appointment to the Board of Scientific Directors of the Rockefeller Institute for Medical Research in 1926.

The simple record of a man's life reflects in some degree his qualities and his character, but the value of his work and the extent of his influence are indissolubly linked with something more intangible, something less easily defined and measured than the sum of his achievements, great as these may be. The lasting quality of any work, the survival of a personality must depend upon the vision and nobleness of the character of the man himself. It was the rare nature of Francis Peabody that gave his life's work a peculiar significance, that was appreciated even more deeply by the members of his profession and by his friends than by those who could not come so closely in contact with him. Love of truth, sincerity of purpose and human understanding were among the guiding principles of his very existence.

The value of his clinical investigations rests upon the sincerity and patience with which he sought the truth, the accuracy of his observations and the logical development of his problems, but this represents only a part of his contributions to medicine in this country. As a physician and an inspiring teacher of students and assistants his influence was quite as remarkable.

He had learned to know his fellow men, to look with sympathy upon their misfortunes and to use his knowledge wisely for their benefit. He was essentially the good physician absorbed in the patient and in unraveling the intricate meshwork of difficulties that surrounded him, whether these were maladies of the flesh or of the mind. No better impression of his attitude towards the sick can be gained than from his own essay on "The Care of the Patient," where the theme is developed with unusual insight and understanding.

Above all perhaps he inspired perfect faith and confidence in his students, his assistants and his friends, and finally during his last illness, his fortitude and great spiritual qualities bore all before them and uplifted unforgetably those who came in contact with him far above the tribulation of earthly things.

Francis Peabody died in Cambridge on October 13, 1927. His loss is a great one to American medicine. The record of his life, his work and his character remain as an inspiration to all who enter the field of medicine, while his noble fortitude and gallantry persist as a precious memory for his friends.

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SCIENTIFIC EVENTS

CZECHOSLOVAKIAN EXPOSITION

IT is reported in *Nature* that, in celebration of the tenth year of the existence of Czechoslovakia, an exhibition of contemporary culture and scientific achievement has been arranged at Brno, in Moravia, and will remain open until the end of October. The exhibition is designed to show the progress made during the country's brief existence. The scientific and general studies conducted in different types of schools, institutes and colleges are portrayed, culminating in the research exhibits from the science faculties of the universities and from special research associations. The great increase in the number and circulation of cultural periodicals, the production of books and the number of libraries opened is said to afford a striking testimony to the progress made. The undertakings of governmental ministries and transport developments are also intimately connected with this cultural progress, and while new railways have been laid, air services opened, postal, telegraphic and telephonic communications improved and extended in remote areas, much still remains to be completed and such work already in hand is depicted as though it stood, like an artist's unfinished picture, upon an easel.

The Brno exhibition is arranged to show the close interrelationship between the state, the sciences and general culture. The spread of ideas through the receipt of foreign journals and news is expressed by a long aisle, the white walls of which have dark lines to represent railway tracks. The engineering difficulties encountered in duplicating lines in poorly served areas have brought together specialists in different branches of pure and applied science, and such connections are indicated. Other links, such as that of the Ministry of Health with the radium exhibit from Jáchymov and the products from other curative spas, are emphasized. The recent growth of towns, urbanism, is depicted by statistical designs among small-scale apparatus illustrating the latest methods in purifying water supplies, generating electricity, etc. Sciences concerned with inanimate matter and those which are observational and descriptive occupy the ground floor; the mathematical sciences are above, while the philosophical studies are placed still higher. *Nature* says that architecturally the main hall is a surprise of impressive spaciousness. The graceful parabolas of concrete admit a maximum of light; smaller surrounding pavilions contain exhibits of the public works of important towns and the arts sections of culture.

THE CHARTING OF THE HAWAIIAN ISLANDS

THE U. S. Coast and Geodetic Survey reports that the S. S. *Guide,* after completing the work of charting on the Kona coast of the Island of Hawaii, proceeded to the northwest islands of the Hawaiian group. The work there is the beginning of an extended program of latitude and longitude observations, determinations of gravity, measurements of magnetic declination and intensity, charting and topographic mapping. These small islands have needed such observations in order that they may be accurately charted. Their positions have heretofore been located for the most part by sextant observations only.

The geological aspect of these islands has been considered by Professor Harold S. Palmer, of the Bishop Museum. They are uninhabited, and have been given little attention in the way of scientific investigations and surveys. It is believed that these are the older islands of the Hawaiian group and that they were at one time high volcanic cones, now reduced by erosion to projecting fragments and shoals.

The *Guide* has completed the first trip of three weeks to Nihoa and Necker Islands and to French Frigates Shoal. On Nihoa an astronomic station was occupied, where latitude, longitude and azimuth were determined. Observations were also made for gravity and for magnetic declination. A topographic map of the island was made on the scale of 1: 2,500. Some difficulty due to heavy seas attended the first attempt