application of them; and, whether we recognize it or not, the world is waiting on the research worker.

If time were available it would be easy to show that practically all the great commercial successes rest upon principles formulated by research workers who, in many cases, labored solely for the love of truth, without any expectation that their work would immediately benefit mankind. But no one can tell at what instant some such observation may become of immense importance. I beg your indulgence to call attention to a few cases. Was Röntgen thinking of the extraction of bullets, the reduction of dislocated limbs or the setting of broken bones when he discovered the X-rays? By no means. Or Helmholtz, did he have in mind the prevention and cure of eye diseases when he worked out the principle of the ophthalmoscope? Not at all. Was Cavendish, to whom I have already referred, thinking of providing food and war munitions for the future when, 132 years ago, he read before the Royal Society his paper on the fixation of nitrogen? I think not. No one will doubt the great practical value to the human race of Pasteur's researches, but it is proper to point out here that he began by the study of the asymmetry of crystals, and that he became a bacteriologist through his attempts to disprove the doctrine of spontaneous generation. Scores of cases could be cited to illustrate the point, but the lesson is, learn the facts, and the applications will be forthcoming.

The expenditure of public money for the erection of the splendid building we are assembled to dedicate is an expression of continued confidence in the leaders in charge of our educational interests, and a pledge that the necessary equipment for the future shall be provided.

It is a pleasure to me to come here to-day and have a part in the dedication, not merely because of my interest in the educational welfare of our state, as a whole, but more particularly because of the opportunity it gives to emphasize the claim of science in general and chemistry particularly in connection with the problems now confronting the world. Interest in the study of chemistry has been steadily increasing for many years, but its importance has been emphasized by the war in a way that could not have been done otherwise. The University of Oklahoma is to be most heartily congratulated on having completed at this time a laboratory so carefully planned and so well equipped, as well as upon the work of its department of chemistry in the past. With the extra space and facilities offered by the new building, both the university and the state may confidently look forward to greater things in the future.

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SCIENTIFIC EVENTS

ENGLISH VITAL STATISTICS

The annual report of the registrar-general on births, deaths and marriages in England and Wales for 1915, as summarized in the London *Times*, is remarkable for the number of previous "records" which are broken. Thus the marriage rate was the highest on record; the birth rate the lowest on record; the death rate from typhoid fever was the lowest on record; that from influenza the highest since 1900; and that from measles the highest since 1896. Again, the age rates of bachelors marrying spinsters and spinsters marrying bachelors were both the highest on record. Finally, the increase of boy babies over girl babies from July, 1915, to June, 1916, was the highest on record for 50 years. The estimated infant mortality rate for 1916 is the lowest on record.

The marriage rate was 19.5 per 1,000, being 3.6 above the rate in 1914. The provisional figures for 1916, however, indicate that what has been described as the "boom" in marri-

ages is passing; they suggest a return to the average experience in 1905–14. The birth-rate was 22 per 1,000. This is 3.5 below the average for the preceding ten years and 1.8 below the rate in 1914. The rate in England and Wales, however, compared "very favorably" with the experience of other belligerent countries. The provisional rate for 1916 is lower still—21.6 per 1,000.

The infant mortality during the year was 110 per 1,000 births. This is five per 1,000 above the rate in 1914, but is below the average of the years 1905–14. The provisional infant mortality rate for 1916 shows a fall to 91 per 1,000, the lowest on record. The civilian death-rate was 15.7 per 1,000, which is 1.2 per 1,000 above the average for the previous 10 years. Various factors, however, affect this figure, including the withdrawal of young men from civilian life. Most of the principal causes of death show increased mortality, but scarlet fever, typhoid fever and diarrhœal diseases are exceptions to this rule. The disease, cerebro-spinal fever, "spotted fever," showed an abnormally high death-rate. There was a remarkable decrease in male suicides. The position with regard to tuberculosis remained serious. There was a marked increase among males and a slight increase among females. These rates refer only to the civil population and are swollen by the fact that healthy males have been taken away from civil life in great numbers.

There were 360,885 marriages, an extraordinary number. The average age of bachelors marrying spinsters was 27.33 and of spinsters marrying bachelors 25.47, these being, as stated above, the highest recorded in each case. The number of births recorded was 814,614, of which 36,245 were illegitimate. Males numbered 415,205, females 399,409, the ratio being 1,040 to 1,000. This ratio for the whole year does not represent the true situation as regards "war babies." The March quarter, for example, which was unaffected by the war, showed a ratio of 1,032 males to 1,000 females. The December quarter, on the other hand, showed a ratio of 1,044 males to 1,000 females. For 1916 the ratios are known to be: March quarter, 1,050 males to 1,000 females; June quarter, 1,051; September, 1,045; and December, 1,050.

For the year from July 1, 1915, to June 30, 1916, that is for the first complete year during which the births registered have been fully affected by war conditions, the ratio is 1,047 males to 1,000 females. This figure is considerably—so far as males are concerned—above any recorded during the preceding 50 years and approximates to the European rate which has for many years been in excess of our own. A rise in mortality among the aged of both sexes has occurred. It is a feature which has appeared in the statistics of other belligerent countries and may be a reflex of the unusual stress and anxiety of the times.

THE COMMITTEE ON COAL PRODUCTION OF THE COUNCIL OF NATIONAL DEFENSE

THE Council of National Defense has appointed Mr. Francis S. Peabody, chairman of and with authority to appoint a committee on coal production, representative of the coal-producing districts throughout the United States. It is the intention that the members of this committee shall act as chairmen of subcommittees to be appointed by them in their respective districts.

The committee convened in Washington on May 9, at which time, in addition to the members of the committee, there were present Secretary of the Interior Franklin K. Lane, Mr. W. S. Gifford, director of the Council of National Defense, and Mr. Bernard M. Baruch, chairman of the committee on raw materials, minerals and metals, of the advisory board of the Council of National Defense, from which an outline of the proposed scope of the committee's work was received.

In approving the appointment of this committee and laying before it the work that it was expected to do, Secretary Lane referred to the cooperative spirit already shown by the business men of the country in this mobilization of the resources of the United States.

It would surprise the nations of Europe to know how intense is the spirit of loyalty on the part of our business men and capitalists. . . . You are at the very root and foundation of the great industry