

paratory courses unless they are taken before the doctorate is completed. Every psychologist recognizes his own limitations in applied physical measurements and a course as outlined by Dr. Klopsteg would do much toward extending the limits for the younger men.

In the writer's opinion the best time for taking such a course is before the student has begun experimental work on the problem which is to be the basis for his dissertation. At this time the question of method is uppermost and the problem has already been outlined. If the student is working on apparatus this is the time that the advice of the professor of applied physical measurements is of greatest benefit. These conditions arise in the first year of graduate work, or in a few cases, during the senior year. The course itself, however, should be under the supervision of the graduate school.

Of the seventeen types of physical measurements suggested by Dr. Klopsteg² the following would form an excellent background for the experimental psychologist: (1) The accurate measurement of long and short time intervals. (2) Measurement of temperatures by methods other than that of the mercury thermometer. (3) Temperature regulation and control. (4) Precision calorimetry. (5) The microscope and reading telescope. (6) Spectroscopic analysis. (7) Colorimetry and photometry. (8) The galvanometer. (9) Electrical measurements, both alternating and direct. (10) Graphic and smoke records.

With a practical knowledge of the use of these methods the student is qualified to undertake almost any problem in experimental psychology with the assurance that he is using the most approved methods of measuring his conditions and results.

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GENERAL WILLIAM C. GORGAS

WILLIAM CRAWFORD GORGAS, Surgeon General, U. S. Army, during the four years of the European War, 1914-18, and well-known for

² SCIENCE, April 29, 1919, N. S., 50, 199-202.

his work as chief sanitary officer of the Panama Canal, died in London on the early morning of July 4, in the sixty-sixth year of his age. He had sustained a stroke of apoplexy on May 29, lingering for more than a month in hospital with some hope of recovery, but renal complications intervened and he passed away in unconsciousness.

General Gorgas was born at Mobile, Alabama, on October 3, 1854. He was the son of General Josiah Gorgas, Chief of Ordnance of the Confederate Army, and received his earlier education in the South, graduating from the University of the South in 1875. He then went to New York to study medicine, and received his medical degree from Bellevue Hospital Medical College in 1879. He was intern at Bellevue Hospital during 1878-80, and in the last year of his residence in hospital, took an examination for admission to the Medical Corps of the U. S. Army, receiving his commission as surgeon on June 16, 1880. He was promoted captain in 1885 and during the Spanish-American War, served as a major and brigade surgeon of volunteers, receiving his majority in the Regular Army on July 6, 1898. At the close of the Spanish-American War, he was appointed Chief Sanitary Officer of Havana, holding this position from 1896 until 1902. In connection with this important detail, it fell to his lot to apply to the sanitation of Havana the discovery of the late Major Walter Reed, that yellow fever is transmitted by mosquitoes, which was accomplished by Reed, as the head of an Army Board sent to Cuba to investigate yellow fever in 1900-1901. In February, 1901, shortly after Reed's discovery was established, Gorgas began to screen yellow fever patients and to destroy fever-bearing mosquitoes by oiling the surface of all pools or collections of water where they were likely to breed. In three months time, Havana was freed from yellow fever for the first time in nearly two centuries. For this work in eliminating the disease from Havana, Gorgas was made a colonel and assistant surgeon general by special act of Congress on March 9, 1903. On March 1, 1904, he was appointed chief sanitary officer

of the Panama Canal, where he carried out the same line of work in the cleaning up the Isthmus. When the French, under de Lesseps, began to work on the Panama Canal in 1880, the Isthmus was one of the plague-spots of the world and during their nine years of occupation, they lost 22,189 laborers from disease. When the United States government took charge of the Canal in 1904, the death rate was high and a yellow fever epidemic was going on. In less than a year yellow fever was wiped out and there has not been a single case since May, 1906. Gorgas was made a member of the Isthmian Canal Commission in 1907, and remained in charge of sanitation until the winter of 1913, when he went to South Africa, at the invitation of the Chamber of Mines of Johannesburg, to investigate the high death rate from pneumonia among the natives working in the mines of the Rand. By applying the army methods of increasing the air space of sleeping quarters the death rate was materially lowered. He was appointed surgeon general of the U. S. Army on January 16, 1914, and was given the rank of major general in 1915. In 1916, he spent several months in South America in making a preliminary survey of localities still infested with yellow fever the "endemic foci" of the disease, for the Rockefeller Foundation. Upon his retirement from active duty in the Army in the fall of 1918, he resumed this work and had just started upon an investigation of the African foci at the time of his death. If completed, this work may result in the eradication of yellow fever from the globe. General Gorgas conducted the administration of the Surgeon General's Office in Washington during the war period, and shortly before his retirement, accompanied the secretary of war to France. He was a member of many medical societies and received many honors during his life. He was awarded gold medals by the Liverpool School of Tropical Medicine in 1907, by the American Museum of Safety in 1914, and shortly before his death was decorated by King Albert of Belgium and knighted by King George IV. In March, 1914, he received the degree of doctor of

science from the University of Oxford. General Gorgas was a man of attractive character, and highly popular with the medical profession. In 1885, he married Miss Marie C. Doughty, of Cincinnati, Ohio, who survives him with a daughter. He was the author of many articles on the subject of yellow fever.

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SCIENTIFIC EVENTS

THE ANNUAL REPORT OF THE REGISTRAR GENERAL OF ENGLAND AND WALES

THE eighty-first annual report of the Registrar General which deals with the births, deaths and marriages in England and Wales for the year 1918, has been issued.

According to an abstract in the *London Times* the report shows that the marriage rate was 15.3 per 1,000, being 1.5 above the low rate in the preceding year (13.8), and 0.1 below the average in the last 10 years, 1905-1914, which were unaffected by war conditions (15.4). The provisional figures for 1919 indicate a further rise to 19.7 per 1,000, the highest rate on record.

The birth-rate in 1918 was 17.7 per 1,000, being the lowest on record. This rate was 0.1 per 1,000 below that recorded for 1917, and 6.1 below that for 1914, which, particularly so far as the birth-rate was concerned, might be regarded as the last year unaffected by war conditions. Even this large reduction, however, amounting in all to nearly 26 per cent. in 1918 as compared with 1914, was believed to compare very favorably with the experience of other belligerent countries. The provisional figures for 1919 indicate a recovery, showing an increase of 0.8 per 1,000.

The civilian death-rate in 1918 was 17.6 per 1,000, being 3.2 above the rate in the preceding year. The increased mortality was due to the epidemic of influenza. Apart from this, the year was one of extraordinary healthiness. The provisional figures for 1919 indicate a fall of about 3.8 per 1,000, notwithstanding the continuance of the epidemic into the early part of the year.

Infantile mortality was 97 per thousand