OBITUARIES.

Prof. Raymond Pearl

PROF. RAYMOND PEARL, whose sudden death from angina pectoris has been announced, was born at Farmington, New Hampshire, in 1879. He graduated A.B. from Dartmouth College in 1899, took the degree of Ph.D. in the University of Michigan in 1902 and afterwards worked at Leipzig and under Prof. Karl Pearson at University College, London. After holding some junior posts in the Universities of Michigan and Pennsylvania, Pearl was appointed head of the Biological Department of Maine Agricultural Station, where he remained until 1918, when he was chosen to be the first professor of biometry and vital statistics in the newly created School of Hygiene in Johns Hopkins University.

Although few heads of departments have been more inspiring teachers and Pearl's enthusiasm was invaluable in the infancy of the School, he did not care for routine teaching and in 1925 took a research professorship, being succeeded in the chair of biometry by his friend and collaborator L. J. Reed; from 1930 to his death he was professor of biology in the School of Hygiene and had in his institute an enthusiastic group of research students.

Pearl was an indefatigable worker; he published thirteen books and a large number of papers. His fundamental training and interests were biological and his outlook had some resemblance to that of Weldon. Although most of the publications of his later years would probably be indexed as statistical, he was a biometrician rather than a statistician, not greatly interested or highly skilled in the modern mathematical developments of statistical theory. His contributions to statistical technique, although far from negligible, were not of first-rate importance; his *forte* was the planning of experiments and using a sound biometric method in the analysis of results.

His earlier work on poultry breeding showed these characteristics, and his well-known experiments with *Drosophila* probably mark his highest level of purely scientific work. Weldon had substituted groups for individual specimens in biological study; Pearl carried this further. He acquired consummate skill in varying the environmental conditions of genetically pure strains of *Drosophila*, maintaining numerically respectable 'populations' under the desired conditions. He was thus able to record the vital-statistical histories of communities of flies with a precision which a medical officer of health might envy.

Pearl was led to generalizations respecting the influence of environment on mortality which were of much interest—for example, that, from the point of view of mortality, there was an optimum density of population—and should stimulate much more experimental work.

Pearl, like Alexander Pope, believed that the proper study of mankind was man, and in his later years, although he still actively promoted laboratory experiments in his institute, devoted much of his

own energies to the study of demography, to the factors regulating the growth and decline of nations. He was a clear and forceful writer so that what he wrote was always interesting; but, to those old enough to remember the thrill of early biometry, his demographic researches have not the charm of his experimental work.

Eager and original-minded men sometimes make mistakes. Great enthusiasm and stern self-criticism are not common bed-fellows. Pearl was sometimes involved in controversies and not always on the winning side. He would scarcely have been so lovable a man and had so many friends on both sides of the Atlantic had he been the ideal man of science of fiction. His general influence on the development of biometry has been great and salutary. His death is a serious loss to science.

MAJOR GREENWOOD.

Prof. J. H. Smith

THE death took place on December 24 of Prof. J. H. Smith, formerly head of the Mechanical Engineering Department at the College of Technology, Belfast. Prof. Smith studied at the Royal College of Science, London, and afterwards at Victoria University, Manchester, where he carried out important researches on the fatigue of metals under the late Prof. Osborne Reynolds. His first appointment was to Sunderland Technical College, where he was head of the Department of Civil and Mechanical Engineering for a period of two years.

Going to Belfast in 1905 as head of the Mechanical Engineering Department in the College of Technology, he found the present building just completed, and his first task entailed the equipment of the engineering laboratories and workshops. His careful planning and inventive genius resulted in the production of laboratories, etc., which were opened by the late Prof. Perry in the year 1911, and described by him as the finest he had ever seen. A description of the laboratories appeared in *Engineering* at the end of 1911.

Technical education at this period was in its infancy in Ireland, and Smith took a leading part in organizing engineering courses not only for the Belfast College but also for those in the provinces.

Smith's fertile brain was continually engaged on research problems, and the results of his many investigations on fatigue of metals, which he continued in Belfast, appear in the publications of the Iron and Steel Institute. The ability which he possessed in applying theory to practice was recognized by many engineering firms, and he was continually engaged in the investigation of practical engineering problems. Chief amongst these was his investigation of the vibration in double reduction geared turbine-driven ships, undertaken at the request of Messrs. Workman, Clark, Ltd., Belfast.