Saints and Martyrs

IN a lecture of this title recently delivered at the London Hospital and published in the *Lancet* of November 7, Dr. Donald Hunter, physician to the Hospital, remarks that the world to-day is too busy applauding successful military commanders, popular orators and authors to recognize that all its material advance has been achieved by men of science. He quoted numerous instances of scientific and medical men who were distinguished by having met dangers and often death for the sake of their work. In the first place he showed how our knowledge of toxic gases owed much to the self-sacrifice of pioneer workers, as in the cases of Gehlen, a Munich chemist, and Dr. K. C. Shierbeck, of Copenhagen, whose deaths in 1815 and 1920 respectively were due to arseniuretted hydrogen. In like manner, nitrous oxide proved fatal to Dr. S. R. Wilson in 1927, and hydrofluoric acid to Louyet and Nickles in 1869. In addition to numerous deaths among doctors and nurses due to attending patients suffering from acute infectious diseases, many laboratory workers have lost their lives in the investigation of certain dangerous tropical diseases, especially yellow fever, following experimental mosquito bites, as in the case of Lazear in 1900 and Walter Myers in 1901, pneumonic plague (T. C. Parkinson, 1909), verrugas (D. A. Carrion) and kala azar (W. R. Pirie). Numerous injuries and deaths from X-rays after many years of suffering occurred in radiologists before efficient means of protection were discovered, while it is not yet practicable to protect completely those who handle radioactive substances.

Work of the Meteorological Office

THE annual report of the director of the Meteorological Office for the year ending March 31, 1936 (H.M. Stationery Office, 1*s*. net), describes the work done by that Office in its eighty-first year. Military operations are now so dependent upon the help of organized meteorology that an atmosphere of suspicion, merely, between European nations causes repercussions that affect the development of meteorology. In the year under review the Royal Air Force expanded: the Meteorological Office did likewise. Early in October 1935, an Overseas Division was formed to deal with Empire air routes, including the projected trans-Atlantic routes and the Empire air mail scheme. In addition, new stations were opened during the year at Aden, Khartoum and Gibraltar. As additional trained staff could not at once be produced to meet the emergency, the staff at headquarters and some out-stations in Great Britain had to be drawn on for service abroad, in spite of the general increase of work at home, which was augmented by the decision to carry out the scheme of grading and pay recommended by the Committee on the Staffs of Government Scientific Establishments presided over by Sir Harold Carpenter. These activities were not, however, allowed to prevent proper attention being given to two important conferences, the Empire Conference of August 1935 held in London and the International Conference of the following month in Warsaw. The Empire Conference met for discussion of research; the subjects for discussion were set out in sixty-eight memoranda. The International Conference was a gathering of directors of meteorological services, which among other achievements arrived at a uniform system of construction of synoptic weather maps—a valuable aid to international co-operation. The year's changes included also the setting up of an Overseas Division and the introduction in the official library on January 1, 1936, of a revised classification of meteorological literature based on that employed by the International Institute for Documentation.

Overhead Line Insulators

IN a paper read to the Students' Section of the Institution of Electrical Engineers on November 30, Mr. C. H. W. Clark discussed the design, manufacture and testing of overhead line insulators. It is generally considered that 500,000 volts is the most economical pressure at which to transmit large quantities of electrical energy over long distances. The best material for insulating these lines has been found to be porcelain, as its insulating qualities remain practically the same when exposed to all weather conditions. It has low tensile strength but considerable compressive strength, and so most types of insulator are designed to utilize the porcelain in compression. Electrical failure follows a puncture through the porcelain or by 'flash-over' round its surface, which produces an arc short-circuiting the line. As puncture destroys the insulator, it is more serious than flash-over. Insulators are designed with a puncture voltage of about twelve times and a flash-over voltage of about six times the working voltage. Failures occurring in practice are usually due to lightning or to deposits of soot or sea salt on the insulator surface. Lightning affects the design of the transmission line rather than that of the insulators. Often no permanent damage is done by lightning flash-over. The problem of deposits on the surface of the insulators is a serious one and has not yet been completely solved, although many suggestions have been made for improving the standard types. For use near the sea, anti-deposit insulators have long, recessed, protected surfaces. For industrial areas, types with open exposed surfaces which can be cleaned by wind and rain have proved the best. For testing purposes, a percentage of the finished insulators are selected at random and tested for flash-over voltage both dry and in rain (produced artificially by a watering pot), impulse flash-over voltage, mechanical strength and electrical puncture.

Activities of the Imperial Agricultural Bureaux

THE seventh annual report (1935–36) of the Executive Council of the Imperial Agricultural Bureaux has now been published (London: H.M. Stationery Office, 5*s*.). In view of the British Commonwealth Scientific Conference held in London this September, the volume is somewhat fuller than