

## Obituary.

SIR ALFRED SEALE HASLAM.

BY the sudden death of Sir Alfred Haslam on Jan. 13 at the age of eighty-three years, Great Britain loses one of its principal pioneers in the development of the practice of refrigeration. More than any country, Great Britain depends on its overseas food supply, and the maintenance of that supply is only possible to-day through the application of artificial cold. Sir Alfred Haslam was one of the first British engineers to manufacture refrigerating machines, and the success of his work was recognised so long ago as 1888, when he received the freedom of the City of London for "services rendered to commerce."

The production of cold by artificial means can be traced back to Cullen and Leslie, and an important step was taken by Dr. Gorrie of New Orleans, who about 1845 caused compressed and cooled air to expand, working a piston in a cylinder. Other experimenters about that time used either ether or sulphur dioxide; but little progress was made until the mechanical theory of heat had been developed. The earliest attempt to preserve a cargo of meat by ice was made in 1860, but proved a failure. In 1876 the French worker Charles Tellier directed the fitting-out of the *Le Frigorique* with refrigerating apparatus for running between France and Buenos Ayres. Other workers in the field were Linde, John and Henry Bell, and James Coleman, who in 1877 produced a cold-air machine and with this brought home a cargo of meat from Australia.

It was about this time Sir Alfred Haslam took up the matter, and his great improvement was the invention of a dryer through which the air passed after compression and cooling, but prior to expansion. This successfully solved the problem of the prevention of the formation of snow. He bought up the Bell-Coleman patents, and one of the first Haslam machines was fitted in the R.M.S. *Orient* in 1881. By 1889 some 350 Haslam machines were at work ashore or afloat. In the development of the carbon dioxide and ammonia machines he also took a leading part. There are many types of refrigerators now in use, but the growth of the cold-storage industry has been remarkable, while in 1925 no fewer than 340 ships with a total insulated space of 70,000,000 cubic feet possessed Lloyds' refrigerating machinery certificate. Refrigerating machinery is also used largely in warships for maintaining explosives at a moderate temperature.

Sir Alfred Haslam came of a family long connected with the iron trade of Derby, and the Haslam Engineering Works there grew out of a small iron works belonging to his father. His knighthood was bestowed upon him in 1891 when Queen Victoria visited Derby.

DR. L. P. MANOUVRIER.

IN the *Times* of Jan. 20 appeared a brief announcement of the death of Dr. Leonce Pierre Manouvrier, of Paris, at the age of seventy-seven

years. This is a loss to French anthropology which, notwithstanding his advanced age, will be deeply deplored. Manouvrier was Director of the laboratory at the Collège de France of the School of Advanced Studies (Anthropology) and professor of the School of Anthropology. He was secretary-general of the Society of Anthropology of Paris, which he joined in 1889, following Ch. Letourneau as secretary on the death of the latter in 1902. Latterly, Prof. Anthony has been associated with him as *Secrétaire adjoint*. Although Manouvrier never attained the commanding position of his great predecessors in office at the Society—Broca and Topinard—he had long been regarded as one of the foremost of French anthropologists. As a teacher of the School he was pre-eminent. His published work was characterised by its accurate and minute attention to detail, as was shown particularly in his many contributions to the *Bulletin* of the Society of Anthropology. He rarely failed to take part in the meetings of the Society, and his contributions to the discussions were marked by clarity and precision. He was an honorary fellow of the Royal Anthropological Institute of Great Britain, and an honorary or corresponding member of most of the important anthropological societies on the Continent.

By the death of Frederick Gordon Pearcey at Newport, Mon., on Jan. 26, at the age of seventy years, there passed away the last survivor of the scientific staff of the *Challenger* Expedition. Mr. Pearcey was attached to the biological laboratory of the *Challenger* in 1872 as taxidermist and general assistant, and on the completion of the voyage he assisted Sir Wyville Thomson and Sir John Murray in the *Challenger* Office at Edinburgh, acquiring great skill in identifying species, especially of Foraminifera, on which he wrote several papers. He devised methods for cutting microscopical sections of marine deposits, and became proficient in all branches of practical oceanography and museum arrangement. His alert intelligence and obliging disposition made him a favourite with all contributors to the *Challenger* memoirs. When the last of the *Reports* was published he worked for a time at the Marine Biological Station at Granton and at Millport on the Clyde. In 1889 he went to the Owens College Museum in Manchester. Nine years later he joined the staff of the Scottish Fishery Board, but in 1905 he returned to museum work, going to the Bristol Museum as assistant curator of zoology; there he remained until his retirement after the breakdown of his health last year.

WE regret to announce the following deaths:

Mr. J. J. Lister, F.R.S., distinguished for his work on the Foraminifera and author of the article on Mycetozoa in the eleventh edition of the "Encyclopædia Britannica," on Feb. 5, aged sixty-nine years.

Prof. Thorkild Røvsing, professor of clinical surgery and sometime Rector Magnificus of the University of Copenhagen, on Jan. 13, aged sixty-two years.