

even, in some instances, in native risings. The small area which may be required on any given holdings, and the temporary character of the exclusion, both points which are stressed, are irrelevant. There are other points in which the memorandum of the Colonial Office falls short in facing the difficulties of the situation. These cannot be discussed within the compass of a brief note; but it is evident that further deliberation is a vital necessity.

George Edwards, F.R.S.

AN illustrated article by Mr. T. E. James in the first quarterly issue of *Science Progress* for 1933 recalls the work and interests of George Edwards, an eighteenth century naturalist (1694-1773) and Copley medallist in 1750 of the Royal Society. Edwards was made library-keeper of the Royal College of Physicians in 1733, on the recommendation of Sir Hans Sloane, its president, remaining in office at Warwick Lane for thirty-six years. During that period he devoted himself to the portrayal in colour of birds, quadrupeds and fishes (mostly new to science) from actual specimens. The Linnean Society has recently received from Major V. Seymer a set of Edwards's works, containing annotations and memoranda by a contemporary and correspondent of Edwards, namely, Henry Seymer, of Hanford, Dorset. It may be of interest to mention that the Linnean Society already possessed copies of Edwards's works, these having originally belonged to Joseph Grote, a collector of rare books on natural history and botany. At his death in 1805, his brother inherited his property, and ultimately the books, with many fine engravings, passed into the ownership of George Grote, the historian. His widow gave the greater portion of the collections to University College, London. Mrs. Grote reserved, however, the works by Edwards, but in 1877 placed them at the disposal of Sir Joseph D. Hooker, whom she designated as "the worthy and distinguished president of the Royal Society". In the end, Sir Joseph gave the books to the Linnean Society.

Arthur Woolf, 1766-1837

ONE of the most interesting chapters in the history of the steam engine is that relating to the Cornish pumping engine. Early in the eighteenth century, Newcomen engines were installed for pumping at the Cornish mines, and in 1777 these began to be superseded by the low-pressure condensing engines of Boulton and Watt, which required much less coal. While the mines gained greatly by the use of the latter, the all-embracing patent of Boulton and Watt prevented other inventors from putting their ideas into practice. The expiry of this patent in 1800 was a boon to the whole county and through the work especially of Woolf and Trevithick, the pumping engine of the nineteenth century proved as superior to the Boulton and Watt engines as the latter had been superior to the Newcomen engines. Of Trevithick's work a great deal will be said at the forthcoming centenary celebrations, while of Woolf's work a review was given in a paper entitled "A Cornish Engineer, Arthur Woolf, 1766-1837", read

to the Newcomen Society by Mr. Rhys Jenkins on January 18. The first great improvement due to Woolf and Trevithick was the use of steam pressures up to 40 lb. per sq. in., while Woolf was one of the pioneers of the compound engine. Like all their contemporaries, these engineers worked at a time when the caloric theory still held sway, and they were quite ignorant of the true theory of heat. Carnot, however, in his famous essay of 1824, referred to Trevithick and Woolf as being among the veritable creators of the steam engine, and it is as such they will be remembered.

British Science Guild Research and Development Lecture

THE Council of Management of the British Science Guild, at a meeting held on January 19 last, decided to establish an additional lecture to be known as the Research and Development Lecture. The main object of this annual lecture, which will be delivered in London in April or May, is to promote attention to the importance of research—both purely scientific and technical—and the utilisation of its results in the service of mankind. The increase of knowledge thus secured has direct relationship with industrial development, the daily needs of the community, economic principles and social problems, human welfare and progress as well as methods of thought and the trend of civilisation. Each lecturer will be asked to select from his own particular field suitable examples of contacts with any of these factors of progressive thought. In establishing the lecture, the British Science Guild associates it with the name of Sir Richard Gregory and his work as editor of *NATURE* in securing increased recognition for scientific work and scientific workers in national life and in international affairs. The first of these research and development lectures will be given in May by Sir Harold Carpenter on "Metals in Industry".

Papal Observatory in Castel Gandolfo

HIS HOLINESS POPE PIUS XI has shown himself a frequent patron of science. On the occasion of the official opening of the new academic year at the Papal Academy of Science, in the presence of the Pope, Dr. Joh. Stein, S.J., who has succeeded the late Father Hagen as director of the Papal Observatory, announced, as reported in the *Osservatore Romano* of December 19-20, that the Papal Observatory is to be moved from the Vatican to Castel Gandolfo, where it is to be rebuilt on a much larger scale. Castel Gandolfo is an old summer residence of the Popes, which has been returned to them by the Italian Government according to the terms of the Lateran Treaty and is being thoroughly restored. Joined to this historic building, a new observatory with the most modern equipment is to be constructed at the Pope's instructions, with easy access from the State apartments for his convenience during his summer visits to Castel Gandolfo. The contract for the supply of the instruments has been placed with Messrs. Carl Zeiss, Jena. The equipment includes two domes of about 8½ m. diameter, a large double astrograph with a 400 mm. refracting and a 600 mm. reflecting camera, a