

to him that Mr. Plummer's ability has been recognized by the Royal Astronomical Society in their selection of him for a seat on their Council.

JOHN PERCY, M.D., F.R.S.

BY the death of Dr. Percy, on the 19th inst., this country has lost a distinguished man, who has greatly influenced its metallurgical progress.

He was born in 1817, and at an early age entered the Medical School of the University of Edinburgh, where, at twenty-one, he took the degree of M.D. He subsequently became Physician to the Queen's Hospital at Birmingham, and the few papers he published on medical subjects show that he would probably have risen to eminence in medicine had it not been for the fact that in the great metallurgical centre of the Midlands his studies were soon diverted to the particular line of work to which his life was ultimately devoted. This is not perhaps surprising when it is remembered that the connection between therapeutics and metallurgy has been traditional since the days of Paracelsus and Agricola.

When we look back at Dr. Percy's career, the remarkable fact stands out that notwithstanding the great importance of metallurgy to this country, with its vast industrial interests, there was no metallurgical treatise worthy of the name until he wrote one; and, what is stranger still, up to the time when he accepted the chair in the Royal School of Mines, in 1851, there was no systematic teaching of metallurgy. Dr. Percy found it practised mainly as an empirical art. Sir Henry de la Beche indicated the direction the teaching had to take, and in his inaugural discourse as Director of the School of Mines, he said, "We still too frequently hear of practical knowledge as if, in a certain sense, it were opposed to a scientific method of accounting for it, and as if experience without scientific knowledge were more trustworthy than the like experience with it." Reference to the pages of the Journal of the Iron and Steel Institute will show that this, the most practical body of men in the world, not only thoroughly recognizes that mere empiricism would be fatal to industrial success, but constantly appeals to science for guidance. This is in great measure owing to Dr. Percy's teaching, and is not the least important of its results.

Ten years after he began to teach, he published the first volume of his treatise on "Metallurgy," which he dedicated with "sincere respect and affectionate regard" to Faraday. This work, which he calls the "task of his life," has developed into a series of volumes containing 3500 octavo pages. One remarkable feature of these books is that almost every woodcut may be regarded as an accurate, though small, mechanical drawing, and it is only measurable drawings of this kind which are of real utility in practice. Treatises such as his naturally embody descriptions of processes furnished by those actually engaged in conducting the operations—aid which was always most fully acknowledged. The thoroughness of his own research is well shown by the careful digests of monographs, which were gathered from all kinds of sources; and it is evident that immense pains were bestowed upon the work. Some years ago a foreign friend, himself a laborious and conscientious author, forcibly expressed to the writer his appreciation of Dr. Percy's labours, looking up from one of the volumes and exclaiming, "*C'est énorme ce qu'il a compilé.*"

It may perhaps be admitted that his intolerance of inaccuracy at times led him to magnify points which now seem to be somewhat trivial, and he sometimes withholds the expression of his own opinion when the reader has fairly a right to expect it, and would be grateful for the support of his authority.

With the notable exception of a process for the extraction of silver from argentiferous ores and residues, he can

hardly be said to have originated any important metallurgical process; but his works teem with suggestions, and many improvements in metallurgical practice can be directly traced to his teaching. Such is the case with the practical application of the basic process for eliminating phosphorus in the Bessemer converter—a process of truly national importance, and one which has been widely adopted in other countries. It may fairly be claimed that during the thirty years he held his chair he trained a body of scientific workers in whose hands the immediate future of metallurgy to a great extent rests.

Remarkable evidence as to the strength of his individuality is afforded by the fact that those who were admitted to his friendship, and even his students who only saw him in the lecture-room or laboratory, were all singularly attracted to him, notwithstanding the occasional ruggedness of his manner. The purity of his style and the quaintness of his illustration recall the writings of another doctor, Sir Thomas Browne, making, of course, due allowance for the difference of the periods at which they wrote. The subjects he dealt with were very diverse, and it would be interesting to collect his trenchant letters, which appeared in the *Times*, usually over the signature Y. One especially occurs to the writer. Dr. Percy was charged with the superintendence of the ventilation of the Houses of Parliament, and amusingly describes his difficulties in meeting the varied and often contradictory requirements of the members, as to the temperature best suited to their work. He was an honorary member of the Institution of Civil Engineers, and held the office of President of the Iron and Steel Institute in 1885, having received the Bessemer Medal of that Institute in 1877. His artistic skill was considerable, and he possessed a fine collection of water-colour drawings.

Two days before his death the Prince of Wales awarded him, on the nomination of the Council, the Albert Medal of the Society of Arts. Dr. Percy was still able to appreciate the honour which had been done him, and received the intimation with the characteristic words, almost his last, "My work is done."

W. C. ROBERTS-AUSTEN.

HENRY WILLIAM BRISTOW, F.R.S.

MR. BRISTOW'S death, which we briefly chronicled last week, requires a fuller notice. With him passes away one of the gentlest and most courteous of English geologists—one whose associations connected him with the magnates of geology in the early decades of this century, and whose death breaks another of the links that unite us personally with that heroic time. Born in 1817, he was the only son of Major-General H. Bristow, a distinguished officer, who devoted himself to the cause of Spain, where he died, and received the honours of a public funeral. Mr. Bristow suffered from an inveterate deafness. An old school-fellow, speaking of his boyish days not long ago, remarked that he was as deaf then as he was even late in life. This ailment was undoubtedly a life-long hindrance to him, for it kept him from mingling as freely among his associates, and taking so public a part, as his tastes and abilities would have prompted and fitted him to do.

When twenty-five years of age, he joined the Geological Survey under Sir Henry De la Beche, and he remained in that department of the public service for the long space of forty-six years. Most of his scientific work was done for the Survey, and is to be found in the official maps, sections, and memoirs. It is thus, perhaps, less generally known than that of some of his colleagues who have published communications in the more widely circulated scientific journals. To those, however, who can appreciate accurate and artistic mapping, the work which he did, more particularly among the Secondary rocks of