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1908.

In Memoriam.

HENRY CLIFTON SORBY.

1826-1908.

During the past year the Society has had to deplore the loss of one of its oldest members and Yorkshire perhaps the most brilliant original genius to which the county has given birth.

The son of a well-to-do tool manufacturer and colliery proprietor, Sorby received a liberal education, first in a private school and at the Grammar School of his native town, Sheffield; while later, by a most fortunate choice, he was placed under the tuition of the Rev. Walter Mitchell, a man whose wide attainments in mathematics, physical science, and anatomy fitted him in eminent degree to give such an insight into different aspects of natural science as would arouse and stimulate Sorby's inherent tastes and aptitudes.

The sympathetic biographical notices by Mr. Thomas Sheppard* and Professor J. W. Judd† render it unnecessary

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* "Naturalist," 1906, pp. 137-144, 194-197, and 225-230.

† Geol. Mag., May, 1908. Mineralogical Mag., Nov., 1908. Journ. R. Micr. Soc., 1908, pp. 431-5.

H. C. Sorby

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to review in detail Sorby's works. A nearly complete bibliography, in the compilation of which he himself assisted, is published in the "Naturalist," and it will be seen how versatile were his talents and how wide was the range of his interests. There is scarcely any department of science but owes to Sorby's genius some brilliant and fructifying idea or some beautiful and ingenious method of research. To chemistry he contributed his first paper and to geology his last, but physics, botany, zoology, sanitary science, forensic medicine, meteorology, metallurgy, mineralogy all received important contributions.

To geologists the name of Sorby will always stand associated with the foundation of the science of microscopic petrology.

Though the investigation of the optical properties of minerals by means of thin sections of crystals had been carried on long before his time, it was by Sorby that similar methods were applied to thin sections of rocks. The art of grinding sections of hard substances such as bones, teeth, fossil corals, and the like had long been practised, and having learned from the late Professor W. C. Williamson, who was an adept, the methods, Sorby applied them to the preparation of rock sections; but, for the successful study of his slices new optical appliances were required, and these he designed and adapted to the microscope. Sorby's first rock section, a photo-micrograph of which is appended hereto (Plate XXVII., Fig. 1, and Plate XXVIII., Fig. 1.), is little inferior to the work of the English professional section cutters of to-day.

The first product of his new method was a paper contributed to the Geological Society of London in 1850 on the Microscopical Structure of the Calcareous Grit of the Castle Rock at Scarborough, and it is interesting to us to note that in the Proceedings of the West Yorkshire Geological Society for the following year* an amplification of this paper was issued with the first illustrations of minute rock structures ever published. Sorby followed this up with detailed studies of sedimentary and other rocks and investigations of the mineralogical constitution of calcareous organic structures, a very important subject to which

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* Vol. III., pp. 197-206 and Plate IV.

Fig. 1.

Photographed by A. R. Derryhouse.

Fig. 2.

PHOTOGRAPHS OF SORBY SLIDES.

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Fig. 1.

Photographed by A. R. Derryhouse.

Fig. 2.

PHOTO-MICROGRAPHS OF SORBY SLIDES.

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little has been added since, whereas the study of microscopic petrology has attained to transcendent importance and a literature of vast extent.

It is difficult to select from Sorby's many other geological researches those most worthy of mention in this brief notice, but his discovery of the true cause of slaty cleavage is one that cannot be omitted. Prior to its publication various chemical, electrical, and other agents had been invoked, but Sorby's explanation that lateral pressure, by causing the rotation of inequiaxed particles of the rock materials, had imparted a tendency to cleave in planes perpendicular to the pressure, agreed so well with observation in the field and with the minute structure of slate, that nothing has since been seriously urged against it, though greater importance may now be assigned to "shear" than formerly.

The last paper emanating from Sorby's fertile mind appeared in the *Quarterly Journal of the Geological Society* after his death. It deals with the phenomena of the deposition of sands and clays, and is based upon observations and experiments extending over a period of nearly 60 years. Many of the experiments, of a delicate and refined character, were conducted during the last few months of his life, while the author was lying stricken with partial paralysis. This paper displays all those qualities of the ingenious experimenter and acute reasoner that we have been accustomed through so many years to associate with our ideas of Sorby and his work, and if in some instances the final demonstration seems not quite complete, we may well attribute the defect to the peculiar circumstances under which the paper was written, and the eagerness of the author to finish what he declared to the present writer to be the crowning work of his life.

Mention must be made of one other achievement of Sorby's, the discovery by means of polished and etched surfaces of metals of the true structure of iron and steel. The section (Plate XXVII., Fig. 2, and Plate XXVIII., Fig. 2) is inscribed with a diamond (Sorby's general custom with his microscopic preparations): "This is the first good object I made." These words are sufficient to invest the illustration with the utmost interest, not only to metallurgists, to whom his work has been

of inestimable value, but also to geologists and others, who see in the remarkable "Sorbitic" structures disclosed close and highly suggestive analogies with the structure both of terrestrial igneous rocks and still more with the structure of meteorites made known to us by Sorby's own researches.

Sorby lived a life of strenuous scientific work, harassed fortunately by no cares, and upheld constantly by an eager and sanguine enthusiasm. To the younger generation of geologists his example is full of inspiration, and no more profitable exercise could be commended than a careful perusal of his papers.

PERCY F. KENDALL.

[We have to thank the authorities of the University of Sheffield for kindly lending the slides from which Plates XXVII. and XXVIII. have been photographed.—ED.]