OBITUARY.

James Dwight Dana.

PROFESSOR James Dana, one of the original corresponding members of this Society, died on the 14th April, 1895, in the 83rd year of his age.

The great loss which his death has inflicted upon science in general has been so widely acknowledged, his eminence as a geologist, a zoologist, and a mineralogist has been so universally commemorated, and the history of his life has already been so well recorded in scientific journals, that it will be sufficient in this brief notice merely to attempt some estimate of the work which this great man effected in the sphere of mineralogical science.

For a full account of his life and labours the reader may be referred to the excellent obituary notice published in the *American Journal of Science*, of which he was an editor for no less than 50 years.

James Dana was attracted to the study of minerals early in life, and in 1833 was working under Professor Silliman at Yale College.

In 1836 he was Silliman's assistant in chemistry, and in 1837 he published the first edition of his *System of Mineralogy*, which afterwards became so well known. At that date the book failed to find a publisher, and was printed at the expense of the author. The system of classification at first adopted was to a certain extent modelled on the Natural History System of Mohs, which classified minerals by their external characters alone. As is well known, the adherents of that system attached absolutely no importance to the chemical characters for purposes of classification, and but little for purposes of identification. But already in Dana's second edition, which was published in 1844, a footnote in the introduction (p. 18) shows that the young author was dissatisfied with the methods of that school. He there says of the chemical characters: "They require for their determination a destruction of the individual, and have therefore been rejected by many distinguished mineralogists who would confine themselves to natural history, or external, characters. After much examination, with prejudices at the time in favour of the above views, I am fully convinced that these alone are insufficient for the determination of many mineral species, often so Protean in so many of their characters."

This was the first protest on the part of the author against the prevailing views; but in the third edition (1850) the revolution was complete; in the preface to that edition occur the following memorable words, which are so characteristic of Dana's mental attitude towards scientific problems that we quote them in full. "To change is always seeming fickleness. But not to change with the advance of Science is worse; it is persistence in error; and, therefore, notwithstanding the former adoption of what has been called the Natural History System, and the pledge to its support given by the author in supplying it with a Latin nomenclature, the whole system, its classes, orders, genera, and Latin names, have been rejected; and even the trace of it which the synonymy might perhaps rightly bear has been discarded."

It must be remembered that this was written two years before the publication of Rose's Krystallo-chemisches System, which also adopted the chemical composition and the crystalline form as the basis of classification.

Here was in fact an instance of Dana's chief strength; unlike those lesser workers who lose themselves amongst details, or blindly follow other leaders, he was quick to master the details, however great their complexity, to take a wide survey of the subject, and relying on his own judgment to select promptly what was right and essential.

His System rapidly became recognised as the standard Treatise on Mineralogy, and through successive editions has retained its pre-eminence. It is to be regretted that the introductory chapters on Crystallography, Crystallogeny, Chemical and Determinative Mineralogy, &c., which formed so important a part of the earlier editions, were subsequently omitted when the book assumed larger dimensions, for they were filled with useful information and speculations of great interest. Some of these were treated in separate memoirs published at various dates between 1835 and 1874, chiefly in the *American Journal of Science*.

Comparatively few discoveries or original investigations in mineralogical science are associated with the name of James Dana; his mineralogical work was mainly systematic, but it came at a time when, if ever, system was needed, and has done much to raise mineralogy to a position of dignity among the sciences.

It is highly improbable that any individual in the future will achieve such pre-eminence in the three sciences of geology, zoology and mineralogy; it is doubtful whether any individual since the time of Haüy has rendered more substantial and enduring services to the study of minerals.

H. A. Miers.