

A great American Geologist of the last Century.¹

PROFESSOR JAMES HALL (1811-98).

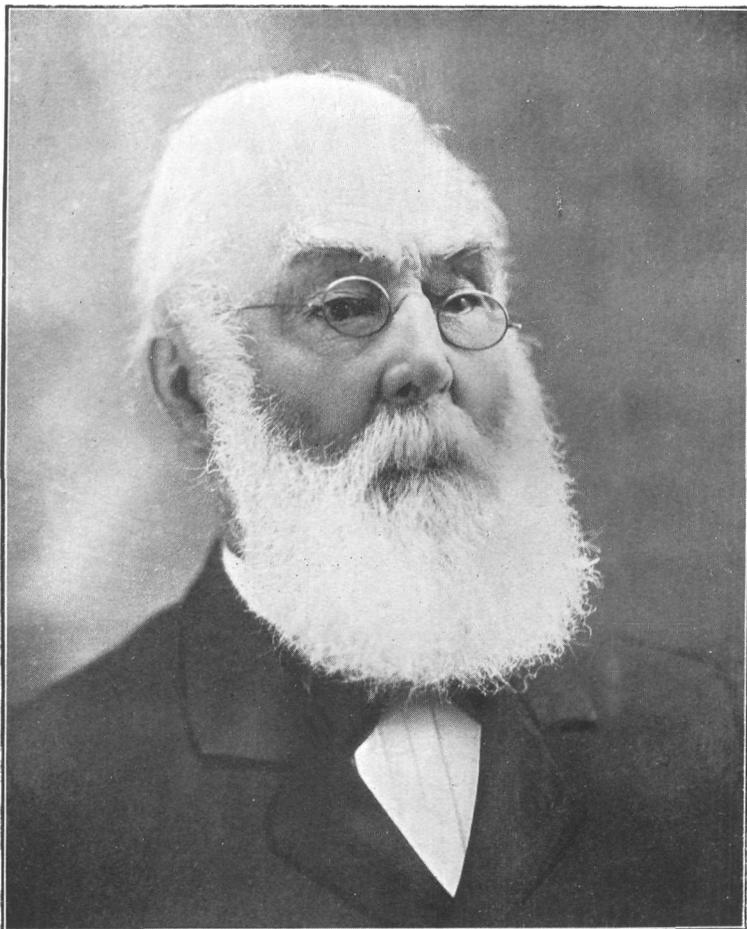
(PLATE X.)

JAMES HALL'S active career in American geology extended over sixty-two years of uninterrupted official connexion with the State of New York, a record which stands unsurpassed in the history of official science. At the age of 25 Hall entered the geological service of New York upon the organization of the Natural History Survey in 1836, and his service was terminated by death in 1898, at the age of 87 years. So great was the span of his life that it not only covered but formed in itself a large share of the evolution of geological science in America. James Hall's enthusiasm for his work never diminished. His death was but the incident of a day, and his life, even to that day, was inspired by the undivided purpose to develop and advance his science. Such a life could not fail to be immensely productive, and his was rich in its output from the publication of his first great quarto report on the Geology of the Fourth District of New York (1843) to the last of the thirteen quarto volumes of the Palæontology of New York.

When the Natural History Survey was organized Hall entered upon it for the first field season in 1837, as an assistant to Dr. Ebenezer Emmons, in the crystalline rock region of the Adirondack Mountains. The second year found him in charge of the "Fourth District" of western New York, then a sparsely settled and still heavily timbered region. Here he gradually unfolded the beautifully ordered succession of the Palæozoic rocks with their wealth of fossil life, and it was their richness in fossils that gave birth to his desire and purpose to describe and figure them, and with them to verify and establish the classification of the "New York Formations" as set forth by the conclusions of his colleagues on the State Survey.

No provision had been made for such a study of the fossils in the original plans of the Survey; when, therefore, the time arrived that the work was officially concluded in 1843, Hall succeeded in obtaining the sanction of the State, and was himself commissioned to prosecute this work and prepare a report on the Palæontology of New York, which was to be in one volume and to be completed in one year. The volume actually occupied three years, and was followed by twelve more volumes, under the title of *The Palæontology of New York* (which appeared successively in a period of more than half a century). The work is still going on vigorously. The "New

¹ A brief obituary of Professor James Hall, For. Memb. Geol. Soc. Lond. 1848, appeared in the *GEOL. MAG.* for September, 1898, pp. 341-2. By the kindness of his successor, Professor John M. Clarke, LL.D., For. Corr. Geol. Soc. Lond., we are enabled this month to publish some additional notes of our old friend and fellow-worker, together with an excellent portrait.



James Hall

York Series of Geological Formations”, as set forth by the four State Geologists, elicited Hall’s ardent support in all his descriptive work upon the fossils of these formations. Some of its terms antedated those now in common acceptance; thus, “Champlain” was an earlier and better defined name than Ordovician or Lower Silurian; Erian an earlier and more clearly defined term than Devonian; and on the basis of priority of fossil evidence the term “Taconic”, of Emmons (though this was fought over for two generations and not highly regarded by the New York geologists), has on the basis of its fossils a chronologic right of way over the name Cambrian. It was only very slowly and with obvious reluctance that Hall yielded to the personal arguments of Murchison in adopting the term Silurian for the terms in the series that are now commonly or provisionally grouped under the name Ordovician, and it is very interesting to a student of the development of geological ideas in America to see how these now commonly accepted divisions of the lower rocks had to struggle for recognition in this part of the Western Hemisphere.

The adoption, on *palæontological* grounds, by the late James Hall and other American geologists of the common English (and European) names for the divisions of the Palæozoic rocks, has been already attended with the most splendid results, and if carried out (internationally) by the authors of our textbooks and the professors in our colleges will enable us to synchronize all the great geological formations of the globe.

Hall was born and spent his boyhood along the coast of Eastern Massachusetts, and acquainted himself with the marine life of those shores as well as a boy could do who had no books or teachers. He walked from his home at Hingham, Mass., a distance of 200 miles, to attend the Rensselaer School at Troy, not far from Albany, N.Y., and his knowledge of the common life of the sea and his wide acquaintance with botany were always put to their ultimate service in his reconstruction of the extinct life of the Palæozoic rocks. His work was of necessity largely descriptive, as he was engaged in the portrayal of the succession of fossil faunas as a pioneer in a virtually unknown field. All students of his books will bear testimony to the accuracy and fidelity of his work, and the volumes of his early years are still as essential to the study of the Palæozoic faunas of America as the works of Murchison to a knowledge of the “Silurian System”. Through his impressive personality, his unrestrained vigour, and his ability to convince persons in authority that he was in dead earnest, Hall was enabled to keep his palæontological work generously supported by the State of New York, even when other departments of science were languishing for public support. But he did all this much as St. Paul carried on his missionary endeavours; he was often in trouble, and not infrequently had to fight the wild beasts at court who thought his preaching foolishness.

Incidentally to his other work, Hall did many fine pieces of closely

analytical morphology, which were in large measure the product of his own studies. He had also a keen appreciation of the necessity of making his work intelligible to students by the excellence and accuracy of his illustrations; to secure this he drew his draughtsmen and illustrators, his lithographers and pressmen, from various quarters of the world, and carried out the printing under his own eye and within easy reach of his own laboratory. A word is appropriate in regard to Hall's laboratory. In the early fifties he established himself and his collections in a building that he had specially arranged for the prosecution of his work, and then began to gather about him men who were to assist him in the working out of the ever-accumulating materials for his great undertaking. In this laboratory there entered, and in due time emerged, a long line of assistants who afterwards acquired an established place in American geological science. Among these were Fielding B. Meek, Robert P. Whitfield, Ferdinand V. Hayden, Charles A. White, Charles D. Walcott, Charles E. Beecher, John M. Clarke, Charles Schuchert, and a number of others. The old laboratory still stands and has happily been set aside by the city of Albany as a place not to be effaced, and it bears upon it a commemorative tablet attached thereto by the Association of American Geologists.

Mr. Hall was naturally not content with activities confined to the State of New York. He had a colossal capacity for work, and was at one and the same time during the later fifties State Geologist of Iowa, State Geologist of Wisconsin, in active association with Sir William Logan on the Canadian Survey, and also prosecuting the work in New York. It was in these busy years that, as President of the American Association for the Advancement of Science, he prepared and delivered his most philosophical discussion on a geological theme, "The Origin of the North American Continent." In this he set forth an entirely new explanation of mountain building, which is still highly regarded, especially by the French geologists, under the designation of the Law of James Hall. While very seriously engaged in these undertakings, almost every State in the Union, as it proceeded towards the organization of a geological survey, made proposals for his services. Hall, however, really cared for this outside work only in so far as he could touch its fossils, and it is because he ignored reports and turned all his efforts to an exposition of the fossils that the support of Iowa and Wisconsin was finally withdrawn. Naturally, in his later years, though with many imperative interests, he became more and more dependent upon his assistants for the preparation of his great volumes.

There are few left who still remember the singular combination of traits that this remarkable man presented. He was gentle, affectionate, and confiding; on the other hand, he was suspicious, irascible, and imperious, and such a contradictory combination of qualities required patience and careful adjustment on the part of his associates. For fifteen or twenty years Hall was much engaged

with the organization of the International Congress of Geologists, which originated from a convocation of geologists held in Buffalo, N.Y., in 1876. Hall was chairman of the organizing committee and was chairman of the first congress that met in Paris under the presidency of Professor Hebert. He followed the congresses eagerly at their subsequent sessions, and at the age of 86 he went with his daughter to Europe, passing through England and visiting the British Museum (Natural History) on his way to St. Petersburg to attend the session of that year, and going even so far afield as the Caucasus Mountains. This last great experience in his life was something of a triumphal progress, for he was venerable not only in years but in experience, and carried with him a most impressive personality. His strong vigorous body, his head adorned by snow-white hair and flowing beard, and his cheeks, even at that age, bearing the ruddy tints of vigorous health, did not fail to attract attention wherever he went, and his tour through Russia and the states of Europe commanded wide attention.

James Hall has left an indelible stamp upon the history of American geology. The time will never come when his work can be laid aside as no longer of service or needed in aid of the progress of geological knowledge. What he did was fundamental, and the superstructure which his successors have laboured to raise can rest securely upon his foundations. Hall was naturally much honoured by scientific societies and by the bestowal of many orders and decorations. He became a Foreign Member of the Geological Society of London in 1848.

* * * * *

Encouraged by such early pioneers as James Hall and his contemporaries, a host of modern palæontologists have boldly sailed into those little-known seas of past geologic time, and have discovered new lands and new faunas and floras, adding vastly to our knowledge of the buried past, furnishing at the same time reliable landmarks for the stratigraphical worker, and thus transforming geology from a dead into a living science.