



EBENEZER EMMONS.

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1799-1863.

AUTHORITIES differ as to the year in which Ebenezer Emmons was born. The first General Catalogue of Williams College, published in 1880, puts "*at. 65,*" after the year of his death. In Durfee's Williams Biographical Annals the year of his birth is given as 1799, while, according to Prof. Jules Marcou, in Science, Prof. Emmons always stated to his children that he was born in 1800. His sister has informed the writer that 1799 is the correct year. The month and day were May 16th, and the place was Middlefield, Mass. He was an only son, but had two sisters older and two younger than he. Prof. Emmons's father, who also bore the name of Ebenezer, was a farmer. His mother's maiden name was Mary Mack. The Rev. Dr. Nathaniel Emmons, who was quite a noted preacher in his day, was an uncle. The first ancestor in America of this branch of the family came from England, and settled at East Haddam on the Connecticut River. A brother who came with him settled in Boston.

Young Eben's interest in nature appeared at an early age. The doors in his room were covered with bugs and butterflies pinned on when he was a small boy. His mother often used to say: "Eb, why do you always have your pockets filled with stones? I have to mend them every week." His birthplace and the adjoining town of Chester were noted for rare minerals. When he came home for a vacation from school or college he generally brought some fellow-student with him. He and his friend would set off for the mineral localities and be gone all day, coming back tired and hungry, but were always ready to go again the next morning.

He was fitted for college under the instruction of the Rev. Moses Halleck, of Plainfield, Mass., a well known educator of

his time, and was graduated from Williams College in due course. Prof. Marcou gives 1820 as the year of his graduation, but the General Catalogue has him in the class of 1818, which seems to be conclusive. As a college student his interest in the sciences was quickened by the instruction of Professors Amos Eaton and Chester Dewey, and he subsequently had a large share in introducing the study of these subjects among the young men of the country. After completing his college course Mr. Emmons continued his favourite studies at the Rensselaer School, graduating there with the class of 1826. In the same year he published his *Manual of Mineralogy and Geology* for the use of the students of that institution. He also studied medicine at the Berkshire Medical School, and established himself as a practising physician in Chester, Mass.

In 1818, at the age of nineteen, Mr. Emmons married Miss Maria Cone, of Williamstown, and at the age of thirty-seven became a grandfather by the birth of a son to his eldest daughter.

In 1828 Dr. Emmons removed to Williamstown, where he continued to practise medicine, and in the same year was appointed lecturer on chemistry in Williams College. A cabinet of mineralogical and geological specimens which he began to collect here was presented by him to the college after it had received the valuable accretions of twenty years. He resided in Williamstown until 1838, becoming the most eminent practitioner in Berkshire County. In 1830 he was appointed junior professor in the Rensselaer School and held the position till 1839. He was also a lecturer in the Medical School of Castleton in the days of its renown. His chair in Williams College was enlarged in 1833* to a professorship of Natural History, which he held till 1859, when the department was divided, he retaining the mineralogy and geology till his death.

Having been appointed upon the Geological Survey of New York in 1836 and Professor of Chemistry in the Albany Medical College in 1838, Dr. Emmons removed in the latter year to Al-

* The History of Williams College, another book by the Rev. Calvin Durfee, D. D., above quoted, gives 1848 as the year of his election to the professorship of Natural History.

bany. He was afterward transferred to the professorship of Obstetrics, and remained on the faculty of the Medical College till 1852. During this period he used to go to Williamstown each year to deliver the course of lectures belonging to his professorship there. His position on the New York survey enabled him to make the valuable present of a suite of the minerals of that State to his *alma mater* in 1842. One of his Williams College students—now himself a venerable though young-hearted professor—well remembers the strong face and beetling brows of Dr. Emmons, and his manner of giving instruction. His disposition was kindly. Being a non-resident, not much was seen of him by the students; he would appear at the lecture room, give his lecture, and disappear. There was not much of the pedagogue about him. Students who had a special liking and capacity for his subject profited much from his instruction; but his enthusiasm in telling the wonders of the rocks carried him along at a rate which left the indifferent student far behind. If only a fraction of his class appeared at the lecture, or if he projected a question at Brown and a response came from Jones or Robinson, he seemed not to notice the difference. Williamstown is in the heart of the Berkshire Hills. One of the summits of East Mountain, a neighbouring eminence, is the only place in that region where gneiss crops out, and here Prof. Emmons used to bring his students to display to them as best he could the relations of his much disputed Taconic System to the other and then better known geological formations. Very likely only a couple of the class would reach the summit with him, yet he would discourse just as earnestly to these as to the whole party that set out with him. This height, says Prof. Arthur L. Perry, in his *Origins in Williamstown*, “has been justly designated Mount Emmons, by one who was once a pupil and later a colleague and always an admirer of the distinguished Professor of Natural History in the college, Ebenezer Emmons.”

It is related of Prof. Emmons, as illustrating his enthusiasm, that once when on a journey with President Hopkins, of Williams, and the president's brother, he asked his friends to turn aside with him to visit a certain cave. They consented to the delay, although the brother was on his way to be married, and waited just within the entrance of the cavern while Emmons penetrated to its inmost depths. After a time they

heard the excited cry, "I've got it! I've got it!" and out rushed the geologist, bearing triumphantly a muddy fragment of rock. He had secured a piece of evidence in support of his Taconic System.

In 1836 a law was passed providing for a geological survey of the State of New York, and in the organization of the staff for carrying on that work Dr. Emmons was appointed by Governor Marcy to the charge of the second district, which included the northeastern counties of the State. This district was chosen by Dr. Emmons as a field more especially interesting to him on account of its mineral localities and minerals, and giving him a field more congenial to his tastes and experience. He made the public acquainted with the Adirondack region and named its principal mountains. In 1837 he named, described, and classified the celebrated Potsdam sandstone. Among the other rocks and divisions to which he gave a name or a place in geology are the Chazy limestone, black marble of Isle la Motte, Lorrain shales, Champlain group, Ontario group, Helderberg series, and Erie group. During the progress of this survey, also, he made the important discovery that is most closely associated with his name. In 1842 he pointed out a great system of stratified rocks under the Potsdam, which he called the Taconic System. This announcement brought upon him a storm of contradiction and ridicule, and for a time he was scientifically ostracized. Subsequent discoveries by the Canada survey, and by Barrande, in Bohemia, however, as well as the investigations of later eminent geologists, have completely sustained him. In propounding the term Taconic * System Prof. Emmons was following the instruction and views of his teacher, Prof. Amos Eaton, who promulgated his opinions regarding the age of these rocks in his lectures at Williams College from 1817 onward; and subsequently in his lectures at the Rensselaer School to the end of his life, although never having published any satisfactory account of the relations of these rocks to the formations above or below them.

Two years later Dr. Emmons described the primordial fauna, thus preceding the celebrated discoveries of Barrande,

* From the Taghkanic Mountains.

who recognised the priority of Emmons in the following courteous language :

“ In comparing these dates it is clear that Dr. Emmons was the first to announce the existence of a fauna anterior to that which had been established in the Silurian System as characterizing the Lower Silurian Division, and which I have named the Second Fauna. It is, then, just to recognise the priority, and I think it all the more fitting to state it at this time, that it has not hitherto been claimed.”

Prof. Emmons's Report on the Second District of the New York Geological Survey was published in 1842. In the autumn of that year his colleagues presented his name to Governor Seward as a proper person to act as custodian of the collections of the geological survey, then arranged, and in progress of arrangement, in the old State Hall on State Street, which building had been assigned for that purpose by the Legislature of 1840. He was appointed to this position by Governor Seward and assumed charge of the collections the latter part of 1842. On the same occasion on which this recommendation was made it was also recommended by the staff that the work in agriculture and in paleontology which had been left unfinished should be assigned to Dr. Emmons and Prof. Hall.

In the spring of 1843 Governor Bouck directed Dr. Emmons to investigate the agricultural resources of the State; and the paleontology was placed under the charge of Prof. Hall, while Dr. Emmons still retained his position as custodian of the collections of the survey until 1845. The five volumes of his report on the Agriculture of New York appeared in 1846, 1849, 1851, and 1854. The first was devoted to a “topographical sketch of the State, climate, and temperature; agricultural geology, the Taconic System, and the soils of New York”; the second to analyses of grains and other vegetable products; the third and fourth, one consisting of text, the other of plates, to cultivated fruits; and the fifth to injurious insects. This fifth volume has been severely criticised, but it should be remembered that the writer to whom its preparation was intrusted not being versed in entomology, could only compile from the best sources at his command, at a time when the science was in its infancy and comparatively little was known of the insects of the State. The many illustrations, which are well coloured in the larger portion of the edition, were mainly

drawn from nature, and in some of the orders, as in Coleoptera and Hemiptera, have a degree of excellence which is rarely surpassed even at the present day.

About the time the third volume came from the press he was appointed State geologist of North Carolina. In his new field he made further important contributions to the advance of American geology. In the coal measures of the Deep and Dan rivers he discovered a grand Triassic flora, and a fauna that included among many ancient vertebrates the *Dromatherium sylvestre*, the oldest mammal yet found anywhere in the world. His description of the new red sandstone flora of North Carolina proved so valuable that twenty years after his death the United States Geological Survey reproduced all the plates and descriptions given by him in the sixth part of his American Geology. Three volumes of North Carolina reports were published by him. One on the Geology of the Midland Counties was issued in 1856; a volume devoted to the Agriculture of the Eastern Counties, with descriptions of the fossils of the marl beds, in 1858; and a second part of his report on the agriculture of the State, "containing a statement of the principles of the science upon which the practices of agriculture as an art are founded," appeared in 1860. The Civil War interrupted his labours. The anxieties and separation from friends occasioned by it probably hastened his death, which took place at his residence in Brunswick County, N. C., October 1, 1863. His wife, a son, and two daughters, survived him.

Besides the works already mentioned, Prof. Emmons published an account of the Taconic System (Albany, 1844). Having been commissioned by Governor Edward Everett to report upon the Zoölogy of Massachusetts, he prepared a volume, devoted to the quadrupeds, which was printed at Cambridge in 1840. His American Geology, which appeared in 1855, was supplemented by a Manual of Geology in 1859.

A clear-sighted and energetic worker, Dr. Emmons was a living force for the advancement of his chosen science. The Rev. Mark Hopkins, President of Williams College from 1836 to 1872, said of him: "Emmons was a man of remarkable power and great accuracy of observation. He seemed to have an intuitive perception of the differences in natural objects. He possessed an intense enthusiasm in his work, but in his

manner was remarkably quiet. I have never seen the two things combined to the same extent. His perseverance knew no limit. It ought to be added, that, in connection with his science, he was deeply religious. Williams College is greatly indebted to him for its collections in natural history."