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BIOGRAPHICAL MEMOIR

OF

ALPHEUS HYATT.

1838—1902.

BY

WILLIAM KEITH BROOKS.



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READ BEFORE THE NATIONAL ACADEMY OF SCIENCES  
APRIL 23, 1908

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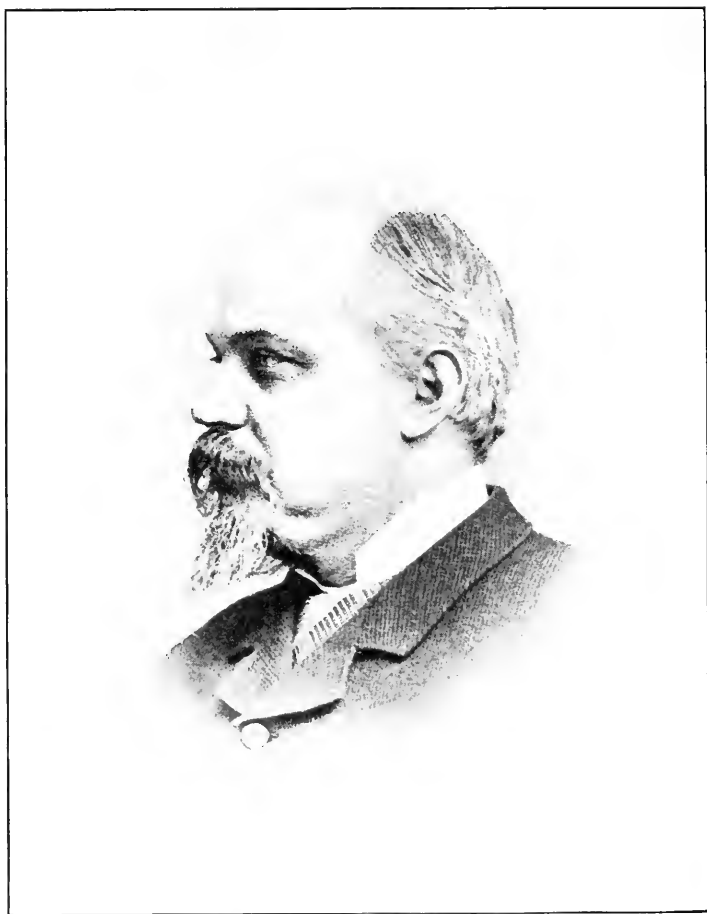
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ALPHEUS HYATT was born in Washington, D. C., on the 5th of April, 1838, and he died in Cambridge, Massachusetts, on the 15th of January, 1902, in his sixty-fourth year. His death was sudden, taking place while he was on his way to a meeting of the Boston Society of Natural History, of which he had been for thirty-two years an officer.

While he was born in Washington, Baltimore was the home of his childhood. It was then and is still the residence of other members of the family. His father's home, an estate known as Wansbeck, was then outside the city, but it is now the Child's Nursery and Hospital of Baltimore, on the corner of Franklin and Shroeder streets.

When eight years old he was sent away to school, spending only his vacations at home. He soon entered the Maryland Military Academy, remaining there until, at the age of eighteen, he entered the class of 1860 at Yale. At the end of his first year he was called home to accompany his invalid mother abroad. While at Rome, on this journey, strong influence was brought to bear by his Roman Catholic mother and her spiritual advisers to induce him to devote himself to an ecclesiastical life; but his mind was fixed upon a scientific career, and at the end of the year abroad he entered the Lawrence Scientific School of Harvard University to study engineering. He soon fell under the influence of Agassiz, whose enthusiastic inspiration and illustrious example, together with the encouragement of the devoted young men whom he had drawn about him and the attraction of the museums of Cambridge and Boston, soon stimulated the zeal of Hyatt for pure science, and he abandoned the study of

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\*The preparation of this sketch of the life of Alpheus Hyatt has been a labor of love, but I regret that it has fallen to me, for I did not know I was to undertake it until the summer of 1907, and in the meantime, more than five years after his death, three biographies of Hyatt have been written and published by three members of the National Academy whose acquaintance with him was much older and closer than my own.

engineering to devote his life to zoölogy. Among his young companions and fellow-students under Agassiz were eight who became eminent as investigators and teachers of zoölogy and were in good time elected to the National Academy, one of them becoming its President. In 1860 they organized a zoölogical society, which met for reporting the progress of their work and discussing the researches they were carrying on and subjects of general interest to zoölogists. This society they named after the teacher, who attended the meetings and gave inspiring reminiscences of Humboldt, Cuvier, Dollinger, and other eminent men. Hyatt attended the meetings and took an active part in the discussion, every new conception calling forth a response from him and opening to him new avenues of thought. So eloquently did Agassiz set forth the embryological system of von Baer that it made a profound and permanent impression upon Hyatt. The physico-philosophical system of Oken and the high praise accorded to him by Agassiz also influenced Hyatt and led him to consider his work from points of view induced by these great men. We are told that he also learned by heart Agassiz's Essay on Classification.

One of his fellow-students saw that, as a young man, Hyatt was contemplative, taking life seriously. Despite this sober attitude, he was brimming over with good nature, laughing heartily at a joke, even when he was the victim of it. He was devoted to his work and was among the few who found more delight in keeping steadily at work at their studies when the college was deserted in summer than in taking a vacation. We are told that his concentration upon his work gave him the appearance of an absent-minded man. His attention was indeed absent from his immediate surroundings, but it was by no means wandering in other directions. So absorbed would he become at times that he appeared to be in a dream, from which he could be aroused only by a slap or a shout.

This pleasant student life came to an end, for the time, when he was graduated from the Scientific School, in 1862; for he believed it his duty to give to his country, which was then at war, the benefit of his military training. He did not hesitate to act upon his conviction, although he knew he should thus estrange himself from those who were nearest and dearest to



him, for his relatives in Maryland sympathized with the South. He gave efficient aid in raising and instructing a company in Cambridge, and he was commissioned a lieutenant, although he was soon promoted to the rank of captain in the 47th Massachusetts regiment. He enlisted a second time at the end of his first term of service, and he was mustered out at the end of the war, in 1865. It was not until nearly thirty years after that his relatives became reconciled to their Union veteran; but we who knew him as a man of science will regard as some compensation the military bearing that contributed to the impressive dignity of his presence.

He returned to Cambridge in 1865 to renew his researches under the guidance of Agassiz, devoting himself to the study of the fossil cephalopods. The same year he was made honorary curator of the Museum of Comparative Zoölogy and put in charge of the fossil cephalopods. He continued to hold this position to the end of his life. During the thirty-nine years that remained to him the study of these fossils held the foremost place in his thoughts. His first important memoir, which was published in 1866, gives some of the results of six years of interest in them. Another memoir on the same subject followed in the next year, and others in succeeding years, the last being published in 1901, only a few months before his death.

In 1867 he married Ardella Beeby, of New York; and she, with three children, survives him.

The same year he moved to Salem, Massachusetts, and, with three friends who had been his fellow-students at Cambridge, continued scientific researches at the Essex Institute, of which he and his three friends were made curators, and at the Peabody Academy, which they coöperated in organizing in 1869. They also founded and were the first editors of and contributors to the *American Naturalist*, the first successful and permanent journal of general zoölogy, as it is still the leading one. The three friends who were so closely associated with Hyatt in these early undertakings remained his life-long friends and collaborators. They are our colleagues, Prof. E. S. Morse and F. W. Putnam, and our late colleague, A. S. Packard.

While at Salem in 1869, Hyatt was elected a fellow of the American Academy of Arts and Sciences, of which he was one of the vice-presidents at the time of his death.

He remained at Salem until 1870, when, on May 4, he was elected custodian of the Boston Society of Natural History. By yearly choice he remained the scientific head of the society until his death, near the end of his thirty-second year of service. An officer of the society who was associated with him for many years speaks of his service to it in the following words:

“For the head of a museum of natural history, Professor Hyatt had many and marked qualifications; his knowledge of zoölogy, of paleozoölogy, and of geology was extensive; he was skillful in manipulation, suggestive in council, enthusiastic, and approachable.

“His plan, that a natural history museum should be arranged so that a visitor on entering should pass from the simpler groups to those more specialized, and that the specimens in each case should be similarly classified, though opposed as impracticable, is both sound and feasible. Somewhat disposed in late years to a too great use of diagrams and models in place of the actual material, his recognition of the value of these, of descriptive labels, and of a personal guide was early, important, and helpful.

“It is true that the full realization of much of his best museum work and thought is left for appreciative successors, as Professor Hyatt was too apt to be content with initiative, the results of which he clearly apprehended, and did not always give attention to the actual carrying out of details that in many cases require continuous interest through successive years.”

In his first year of service at the Natural History Society he was appointed Professor of Zoölogy and Paleontology at the Institute of Technology—a position which he filled for eighteen years. In the same year he organized the Teachers' School of Science, which during the thirty years that he continued to direct the work gave practical instruction in science to more than twelve hundred teachers, who diffused and are still diffusing among the young the inspiration of Hyatt's example and that of Agassiz, his own teacher. In good time and after long struggles against opposition and lack of means the school became permanently established upon a sound educational basis, with adequate financial support and with an efficient staff of assistants and colleagues, who were able and willing to conduct exercises in the laboratory and excursions in the field with big

classes of critical teachers. While the inception of this undertaking was a sign of the times and part of an educational reform that was in progress in many lands, its influence for good and its long career of usefulness should place the name of Hyatt with those of Agassiz and Huxley as teachers of the aims and methods of science and their importance in general elementary education. In 1882 the school was opened to all teachers in the State. As the general audience gradually decreased, it became clear that it had accomplished its original purpose, and it was reorganized into specific courses of study extending over four years, with regular examinations and diplomas, thus giving to busy teachers opportunities for a scientific education equal to that which is afforded by the ordinary colleges and scientific schools. Hyatt's spirit and example have pervaded the whole history of the school, which has had a notable and wholesome influence upon elementary education.

Hyatt also organized, as an adjunct to the school, and took personal charge of, the seaside laboratory at Annisquam, Massachusetts, which was established under the auspices of the Woman's Educational Association of Boston. When this example led to the establishment of an educational laboratory at Woods Holl, he was elected the first president of its board of trustees.

The year 1875, in which he was elected to the National Academy of Sciences, he spent abroad for the purpose of studying in the museums of Europe the collections of shells of *Planorbis* from the quarries at Steinheim, near Stuttgart, as he wished to learn how far these fresh-water mollusks, which are confined to a limited area and restricted to a short period of time, confirm the conclusions as to the origin of species which he had reached through the study of the Jurassic ammonites, which cover an immeasurable period of time. Not content with studying the collections of these shells that he found in museums at home and abroad, he visited Steinheim and spent five weeks in excavating the quarries himself, making new and extensive collections of the shells, which supplied the material for a memoir on the subject, which he published in 1880.

In 1877 he was made Professor of Biology in the College of Liberal Arts in Boston University. He organized the courses of

instruction, secured able assistants, and continued to supervise and direct the work until his death, after twenty-five years of service.

In 1883 he took a prominent part in organizing the American Society of Naturalists. He was chosen its first president, and was afterwards made an honorary member in recognition of his services.

In 1888 he was offered the position of United States Commissioner of Fish and Fisheries, but he declined it.

In 1889 and years following he was in charge, as paleontologist of the United States Geological Survey, of the Lower Mesozoic of Texas and California. He also carried on from time to time researches in paleontology in Labrador, Newfoundland, Canada, New England, and New York, and zoological explorations of the waters of the coast from Labrador to Connecticut.

In 1895 he was elected to the American Philosophical Society, and in 1897 he was made a corresponding member of the Geological Society of London.

In 1898 Brown University conferred upon him the degree of Doctor of Laws.

The last years of Hyatt's life were almost completely devoted to the study of the relation between the geographical distribution of the Achatinellidæ of the Hawaiian Islands and the endless variety of color-patterns presented by these mollusks, as he believed that this study would throw important light upon the general problem of the origin of species. He obtained great numbers of the shells of these mollusks, and, making a plaster model of Oahu, with each mountain range and valley in relief, and representing the probable lines of migration by colored threads, he devoted several years to the task of tracing out the origin of new color-patterns. At the time of his death, in January, 1902, he had perfected his plans for a visit to the islands in the following March for the purpose of studying the subject in the field.

The titles of some of his more important memoirs are these: Observations on Polyzoa (1866-68); On the Parallelism between the Different Stages of the Life of the Individual and those of the Entire Group of the Molluscous Order Tetricbranchiata (1867); Fossil Cephalopods of the Museum of Comparative

Zoölogy; Embryology (1867); Revision of the North American Porifera (1875-77); The Genesis of the Tertiary Species of Planorbis at Steinheim (1880); Genera of Fossil Cephalopods (1883-84); Larval Theory of the Origin of Cellular Tissue (1884-85); Genesis of the Arietidæ (1889); Bioplastology and the Related Branches of Biological Research (1893); Phylogeny of an Acquired Character (1894); Cephalopoda (1900).

Most of the memoirs are beautifully illustrated by the author, whose artistic and accurate pencil adds greatly to their value.

Hyatt's researches on the Polyzoa of fresh water, on the sponges of North America, and upon the Mollusca of fresh water and of the land are worthy of notice, but his most important works are those that treat of the fossil cephalopods. These organisms held the foremost place in his mind throughout the whole period of his scientific activity, and they afforded the material for most of his published memoirs. These memoirs won for him distinction among zoölogists and paleontologists, and upon them his fame must rest. It is estimated that there are some twenty-five hundred species of Nautiloids and some five thousand species of Ammonoids, and Hyatt became familiar with most of those that are contained in the museums of Europe and North America. He discarded much of the established classification and established many new genera, which were more accurately defined than had been customary. This reformation excited opposition, but he lived to see it prevail. The brilliant work of a younger generation of paleontologists who acknowledge him as one of their great masters and leaders is the best proof of his success.

If this catalogue of his works conveys the impression that they lack unity, and that they were not inspired by any broad central principle, I regret this exceedingly. Few naturalists who have carried on researches in many fields for many years have been actuated, as Hyatt was from beginning to end, by a single motive, which has inspired and directed all they have undertaken and has never been absent from their minds for an instant of their working hours. Hyatt was accustomed to speak of his own guiding motive as the "old-age theory." No account of his life is complete without a statement regarding this doctrine, which exercised a great influence over all his work: yet I must admit that I do not understand it.



A life-long friend, who was his fellow-student in the early days at Cambridge, gives this account of its inception: "I have always believed," he says, "that Hyatt's studies of the features attending old age, and ultimately his theory of acceleration and retardation, received its first impulse from a graphic lecture given by Agassiz on the ammonites of the Jura.

"In the upper beds of the Jura, as is well known, the ammonites assume bizarre forms, the whorls becoming uncoiled, free, and variously turned. In this lecture Agassiz, by way of metaphor, compared the appearance of these ammonites to the contortions and death-struggles preceding the extinction of the group. In referring to these curious forms, 'It is,' said he, 'as if the contortions of death were an idea on which the forms of life were built.'"

As is well known, Agassiz regarded a species as an idea in the creative mind, independent of and superior to its manifestation in material beings. The conception of the mutability of species was demanding the consideration of thoughtful men at this time, and the publication of Darwin's *Origin of Species* was almost simultaneous with the publication of Agassiz's *Essay on Classification*, which we are told that Hyatt learned by heart.

Hyatt was influenced, as were his companions, by the new view, and he seems to have sought a compromise in the conception that, while species change, a long series of species has a life cycle like that of an individual organism, passing from the infancy of its first appearance through childhood and adolescence to perfect manhood, to lapse into senility, ending in death or the end of the long series of species, which is no longer represented by fossils in later formations.

Hyatt believed that we have in the old-age theory an explanation of the way in which species arise and pass away—an account of the origin of species.

In the case of the ammonites the well-known facts are these: The earliest forms are unornamented and their septa are simple. They are followed in geological succession by forms that are ornamented with spines and tubercles, with their septa folded and frilled in a way that gives to us a keen sense of their elegance and grace. In still more recent forms all these graceful and elegant features reach their highest perfection. In still

later forms the spines and tubercles and ornaments gradually disappear, the frills and folds in the septa become reduced, and there is a return to the primitive simplicity of the group, together with loss of symmetry and the appearance of abnormality and distortion.

Hyatt interpreted this remarkable history as a life cycle, consisting of infancy, childhood, manhood, and old age, ending in death or the extermination of the group of ammonites. It was in no figurative way that Hyatt illustrated the history of the ammonites by the life of an individual organism. He regarded it as an illustration of the great law according to which new species of living beings come into existence. As modern views of organic evolution prevailed, Hyatt made many modifications of the old-age theory in order to bring it into harmony with the progress of knowledge. I have studied his more recent writings upon the subject with all the diligence that my great respect and admiration for him demanded. I have listened attentively when he has discussed his views in public, and I have had many private talks with him about them, but I do not understand them.

As a man, Hyatt was dignified, courteous, kindly, and approachable, making no distinction of persons. He retained to the end the love and admiration of the companions of his student days. His patience and persistency in overcoming opposition and in scientific research were as great as they well could be. He met adverse criticism with unruffled calmness and good nature. Incivility and discourtesy he met with astonishment, but without rancor. He gave just cause of offense to no one. Naturally gentle, he yet stood firmly for justice and right, in peace as well as in war, and he was always ready to do battle in a righteous cause when friendship called for action.

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