

BIOGRAPHICAL MEMOIR OF ROBERT PARR WHITFIELD

BY L. P. GRATACAP

Professor R. P. Whitfield was born at Willowvale, New Hartford Township, Oneida Co., New York, on May 27, 1828. His parents came from England, where his father had been engaged at spindle-making for himself. His father possessed very considerable mechanical ability, and from him Professor Whitfield inherited his own marked manipulative skill. His early life was not accompanied by those incentives to the study of nature with which so many naturalists begin their careers, nor did he have any advantages of encouragement either in books or in personal intercourse. In fact, the temperament of his father opposed his occasional indulgence in study and exercised a most unfortunate repressive influence upon the child's natural tastes.

By a lucky chance, such as often determines the tenor of a life, when a very small child, scarcely four years old, a nurse girl ministered in an extraordinary way to the impulses of his nature. This untutored, untrained companion, who filled a humble domestic rôle, frequently took the young Whitfield and the other children out into the fields and woods at Willowvale, a pleasant mill-site five miles southwest of Utica, and turned their attention to the life and habits of wild animals, plants and insects. This girl, as I have heard Professor Whitfield himself designate her, was a "born naturalist": she was utterly innocent of any book learning, but possessed an intuitive faculty of observation. Every field, each stretch of wood, the fence posts and the quarry stones, the common gravel walk and the flowering wayside were full of delight and wonders to this woman. In the absence of any erudition or any terminology, she supplied both from the flow of her own invention and the stores of her own experience and study. It was a wholesome delighted interest, naïve and spontaneous, and she touched a responsive chord in Whitfield's nature. She knew the various caterpillars, had her own names for them, watched their development into butterflies and taught the children the steps of the wonderful change. The decaying logs of the wood gave up their secrets to her prying and watchful curiosity, the flowers were mentally catalogued and the course of the seasons marked by their unbroken succession from spring to autumn. How deeply this illiterate instruction

impressed the young naturalist can be partly inferred from the keen recollection of her tuition in Professor Whitfield's mind seventy years afterwards. It is indeed interesting to note that among other objects of nature which his young instructor brought to the attention of the future paleontologist were the fossil inclosures of the Clinton and Hudson River slates.

When Whitfield was about seven years of age, in the fall of 1835, the family moved to England. Here again the instincts of the naturalist were nourished by the charm and flowering beauty of English lanes and fields. Employed at a place four miles distant from his home, his daily morning and evening walk brought him, at that impressionable age, at the two loveliest periods of the day, into new relations with plants, birds and insects. I have often heard him recall these quiet walks so full of pleasure, the hastening footsteps to work in the morning and the lingering and delayed return at night. Whitfield, at that tender age, was wont to hunt for fossils in a clay bank near his home, where clay for luting retorts was quarried.

The Whitfields returned to America in November of 1841. They went first to Paterson, N. J., thence to central New York to Whitestown, adjoining Utica. It may again be recalled that the efforts of the young Whitfield to make collections and to study animal life were discouraged, sometimes with an unkind violence. The collecting instincts of a naturalist defy repression, and many collections, almost surreptitiously gathered, were preserved in odd bottles and jars in white whiskey, while insects in boxes, impaled on the domestic pin, gave comfort, in stolen moments, to the eager young observer. These collections often met with violent eviction, while from their perishable nature they were more frequently abandoned from necessity. The family later moved to a farm at Osceola, Lewis Co., New York, and the young man became engaged with a Mr. Chubbock in the making of philosophical instruments at Utica. The business of spindle-making was broken up by new inventions, and it was found necessary to abandon it.

Young Whitfield was employed nine years in his new vocation, in the manufacture of philosophical instruments, and his leisure time was devoted to the acquisition of knowledge. He enjoyed, in comparison with most men who attain eminence in science, but slender educational opportunities. His reading had been, in England, limited to the miscellaneous contents of a Sunday School library at Stockport, in which also pedagogical instruction was vouchsafed. This interesting institution was an experiment of some importance. It contained 6210 scholars and over 500 teachers, was non-sectarian and formed practically for a

great number of men their only access to the rudiments of education. Here were taught reading, writing, arithmetic and grammar. There were services in the morning and afternoon, and the rest of the day was given up to study. This huge aggregate of scholars was divided up into eight divisions and about sixty classes. From its library, old works on ancient history, the Holy Land and Egypt were obtained by Whitfield, and he reveled in the twice-told tales of departed empires, the sacred land of biblical tradition and the land of the Pharaohs. He often confessed to the thrill of enthusiasm these works awoke in him and his lifelong desire to visit the land of Judea.

At Utica, under broader and more genial auspices, his reading was continued, and he came in contact with scientific men, collectors and learned societies. Here was the Utica Society of Naturalists, which met once a week, and whose members in papers, conferences and through the exhibition of specimens, stimulated each other in a friendly rivalry to explore the natural resources of the adjacent counties.

Professor Whitfield was very successful in his new business. He studied geometrical drawing, read philosophical works, passed from stage to stage in the work, until after eight months he was able to take charge of the entire office and remained practically the foreman until his removal to Albany. He obtained a microscope about this time, and its revelations gave him a new interest in natural history. He became especially interested in entomology, raised broods of larvæ, studied their habits and began a collection of insects. This impulse was strengthened by the advice and encouragement of an uncle who came to America in 1845. He had been a student of insect life in England and belonged to a group of entomological societies known as "fly clubs." This unexpected sympathy renewed and deepened Whitfield's predilection for natural study.

During these years, he became acquainted with Colonel Jewett and thus came in contact with a more representative collection of fossils and shells than any he had previously met, as well as with a larger group of geological books. Then, it seems likely, were laid the beginnings of his interest in paleontology, which finally excluded all other branches of scientific activity. Whitfield worked in Colonel Jewett's cabinet, repaired and labeled his shells, worked over, mounted and arranged his fossils.

Colonel Jewett later became curator of the State Cabinet at Albany, and through this avenue of approach Whitfield met James Hall. Professor Hall was much pleased with Whitfield's perception and intuition with fossils and examined Whitfield's private cabinet. He suggested that Whitfield should work over the Hall cabinet, and for three months

Professor Whitfield was engaged in this work, which resulted in his permanent engagement in July, 1850.

The immediate occasion leading to this radical change of life was the serious illness which Professor Whitfield incurred from metallic poisoning. The constant employment of copper wire in an atmosphere more or less surcharged with floating particles of metal induced a chronic intestinal trouble, which, throughout his life, attacked him periodically with severity. In Albany, the scientific influences were deepened and strengthened, educational facilities increased, and a continuous intercourse with workers and leaders in science began. Nothing could have been more helpful. Meek, Hunt, Logan, Billings, Leslie, Safford, Agassiz, Conrad and Hayden were a few names among the crowd of visitors to Professor Hall's home, and in this multifarious circle, Whitfield's acquaintance with men, facts and literature was greatly extended. Among his new acquaintances, none so beneficently influenced his subsequent career as Professor Newcomb. This well known conchologist took an evident interest in the young student, opened up to him his cabinet of shells, explained the characters of the genera, the limits of species, and distinctly started him on the path of original investigation.

Professor Whitfield soon gave evidence of his morphological instinct. His keen appreciation of form, together with his increasing skill in drawing, made him a most valuable adjunct to the Paleontological Survey of the State and the varied work outside of the State, then engaging the attention of Professor Hall. One of the first drawings, if not the first, made by Professor Whitfield which secured publication was a diagram of *Actinocrinus longirostris* Hall, in the *Geology of Iowa*, Vol. I, Pt. 2, p. 590. This drawing had some significance. In this drawing, Professor Whitfield elucidated the structure of the crinoid upon a different scheme than any previously employed by Hall, and although De Koninck had made use of the same plan, his interpretation was unknown to Whitfield. He showed the radial construction of a crinoid and corrected the misunderstanding of the symmetry of the plates, based on a concentric scheme. Hall adopted this device at once.

Professor Whitfield was now continuously engaged in drawing, the preparations of specimens, comparison of species and the making of critical notes. Meek had preceded Whitfield in this work, and the plates of the *Iowa Paleontology* and also a large number of those of the third volume of the *Survey of New York* were his. With him was associated F. J. Swinton. Beyond the Tenth Annual Report of the Regents of the University, the figures appearing in the subsequent reports were almost exclusively Whitfield's, while, with the exception of three plates, all the

figures of the Fourth volume of the Paleontology of New York were drawn by his hand.

It is not too much to claim that in a certain indefinable delicacy and perfection of form and shading, these drawings of Professor Whitfield's were unexcelled. Fossils had not previously been treated with such fine discrimination. They almost created a new standard of comparison in fossil portraiture.

Somewhere about 1858, the graptolites of Canada had been put into Professor Hall's hands, and the preparations of the drawings and preliminary studies had been entrusted to Professor Whitfield. This difficult and trying work caused an impairment of vision. Dr. Noyes was consulted, and the hopeless prediction of a loss of eyesight was confidently made. Fortunately this did not occur. At this time, while in consultation as to the condition of his eyes in New York City, Professor Whitfield studied the crustacea to be obtained along the shores of Long and Staten Islands and prepared comparative studies which were usefully incorporated in the diagnosis of *Eurypterus*.

Professor Whitfield at this time studied the Troost crinoids which were placed at Hall's disposal by Agassiz. The results of this study were never published. When the threatened collapse of Professor Whitfield's eyes interrupted his work in Albany, attempts were made to secure provisional draughtsmen, but they seemed unsuccessful.

The Devonian Lamellibranchs came into view, and their separation and preparation for study was the last important work done by Professor Whitfield in connection with the New York Survey. Drawings were made up to *Limopteria*, when Professor Hall proposed a joint authorship. At this time, it was apprehended that Professor Marsh was about to do this work. To forestall this and to secure the results, already important, obtained by Professor Whitfield's examinations, the work was hastened, and Professor Whitfield, almost unaided, completed the outlines and contents of a report to be embodied in the Regents' reports. His time from spring to the fall of 1874 was occupied in this, and it was quite independent work. Professor Hall reviewed the manuscript, shortened and revised it. Then took place the regrettable episode which permanently separated Professor Whitfield from the work of Professor Hall and which in a measure embittered their subsequent relations.

The work on the Lamellibranchs appeared as a pamphlet entitled "Preparatory to New York Geological Survey." It was anonymous, but invited the inevitable inference that Professor Hall had written it. Its distribution ceased upon Professor Whitfield's protest. It is perhaps a difficult question to determine the exact limits of discretion in speaking

of such a matter, but this statement is intended to have a significant value in protecting Professor Whitfield's claim to the original work on these fossils and the justice of an association of his name with Professor Hall's in their authorship. Later, as is well known, the Lamellibranchs of the New York Survey appeared as a separate volume. The genera were greatly increased and the species in many instances renamed, but Professor Whitfield's drawings were used and, substantially, his delimitations of many genera and species.

Professor Whitfield, for a few years before his separation from the New York Survey, had been engaged in lecturing at the Troy Polytechnical Institute, in the chair of Applied Geology. The classes were taken on field excursions every spring, and in this way examinations were made of the geology of Northern New York and Northern New Jersey.

In March, 1876, Professor Whitfield resigned his position in Albany and came to the American Museum of Natural History, where he received and installed, with the writer's assistance, the Hall Collection of Fossils and remained the Curator of the Department of Geology until about four months before his death, when he was made Curator Emeritus.

Professor Whitfield's scientific work has been entirely confined to paleontological studies. He possessed a very remarkable memory of form and names and was quick to discover analogies in organic function. His love for nature was very great, and he exhibited to the last day of his life enthusiasm in collecting.

Besides the work on the New York Survey, Professor Whitfield was engaged in work for the Ohio, Wisconsin, New Jersey and the Black Hills Surveys, while papers furnished to journals of science and the series of special studies published in the Bulletin of the American Museum of Natural History complete his life of scientific activity. Before Professor Whitfield left Albany, the plans for a revision of Brachiopoda had been outlined, and a number of preliminary studies completed. In this work, Professor Whitfield made a number of preparations of the brachiopoda, an occupation that led Davidson once to say of him that he and the Rev. Mr. Glass "had probably revealed more of these structures than any other paleontologists." It was Davidson who, in this connection, created the genus *Whitfieldia* from *Meristella tumida* Dalm., a genus which completes the developmental phases of the loop in these brachiopods.

In his convictions relative to the development of life, Professor Whitfield was an evolutionist, though he never emphasized any special views; he believed in the mutability of a species, the inheritance of acquired characters and the modifying influences of environment. His work was.

for the most part, systematic. He described a great number of new species, genera and families. His insight into relationships of animal forms was rapid, and his apprehension of generic references usually accurate. The determination of genera from partial, fragmentary remains and internal casts, especially as shown in his work on the Cretaceous and Tertiary formations of New Jersey, was remarkable. Among contributions to science which merit the distinction of being classed as discoveries were his detection of the muscular impressions in "true *Lingula*" in the Trenton Limestone, his observations on the internal appendages of *Atrypa*, his reference of the fossil forms *Dictyophyton* and *Uphantenia* to sponges, his description of a fossil scorpion from the Silurian rocks of America (afterwards made by Scudder the type of the family *Eoscorpionidæ*), his notice of new forms of marine algæ in the Trenton Limestone and description of the occurrence of a *Balanus* from the Marcellus Shale. The long series of papers on systematic paleontology, in which many new genera and species, observations in morphology and correlation, are given, have firmly identified Professor Whitfield's name with American paleontology.

Unostentatious, of a reserved, almost severe demeanor, animated by an intense love of his science, his life was passed peacefully and pleasantly, amid unruffled domestic relations, in unbroken association with the objects of his conscientious and unremitting study.

Professor Whitfield was married at Utica, N. Y., in his twentieth year. His wife died in New York in 1887. Four children were born of this marriage, of whom one, a son, died in youth, and three, two sons and a daughter, survive.

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Note on the principal type specimen of *Mosasaurus maximus* Cope, with illustrations. *Ibid.*, XIII, pp. 25-29, pll. 4, 5.

1901

Assisted by E. O. HOVEY: Catalogue of types and figured specimens. Part IV. *Ibid.*, XI, pp. 357-488; Index [to entire volume], pp. 489-500.

Notice of a new sponge from Bermuda and of some other forms from the Bahamas. *Ibid.*, XIV, pp. 47-50, pll. 1-5.

Note on a very fine example of *Helicoceras stevensoni* preserving the outer chamber. *Ibid.*, XIV, p. 219, pll. 29, 30.

Notice of a remarkable case of combination between two different genera of living corals. *Ibid.*, XIV, pp. 221-222, pll. 31, 32.

Some observations on corals from the Bahamas, with description of a new species. *Ibid.*, XIV, pp. 223-224, pll. 33, 34.

1902

Description of a new form of *Myalina* from the Coal Measures of Texas. *Bull. Amer. Mus. Nat. Hist.*, XVI, pp. 63-66, 2 figs.

Observations on and emended description of *Heteroceras simplicostatum* Whitfield. *Ibid.*, XVI, pp. 67-72, pll. 23-27.

Description of a new Tereido-like shell from the Laramie group. *Ibid.*, XVI, pp. 73-76, pll. 28, 29, 1 text fig.

Notice of a new genus of marine algæ fossil in the Niagara shale. *Ibid.*, XVI, pp. 399-400, pl. 53.

1903

Notice of six new species of Unios from the Laramie group. *Bull. Amer. Mus. Nat. Hist.*, XIX, pp. 483-487, pll. 38-40.

Observations on a remarkable specimen of *Halysites* and description of a new species of the genus. *Ibid.*, XIX, pp. 489-490, pll. 41, 42.

1904

Notice of a new genus and species of lower Carboniferous bryozoan. *Bull. Amer. Mus. Nat. Hist.*, XX, p. 469, pl. 11.

Notice of a remarkable case of reproduction of lost parts shown on a fossil crinoid. *Ibid.*, XX, pp. 471-472, pll. 12, 13.

Note on some worm (?) burrows in rocks of the Chemung group of New York. *Ibid.*, XX, pp. 473-474, pl. 14.

1905

Notice of a new crinoid and a new mollusk from the Portage rocks of New York. *Bull. Amer. Mus. Nat. Hist.*, XXI, pp. 17-20, pl. 1-4.

Descriptions of new fossil sponges from the Hamilton group of Indiana. *Ibid.*, XXI, pp. 297-300, pll. 9-11.

Notice of a new species of *Fasciolaria* from the Eocene green marls at Shark River, N. J. *Ibid.*, XXI, pp. 301-303, 2 figs.

1906

Notes on some Jurassic fossils from Franz Josef Land, brought by a member of the Ziegler Exploring Expedition. *Bull. Amer. Mus. Nat. Hist.*, XXII, pp. 131-134, pll. 18, 19.

With E. O. Hovey: Remarks on and descriptions of Jurassic fossils of the Black Hills. *Ibid.*, XXII, pp. 389-402, pll. 42-62.

1907

Notice of an American species of the genus *Hoploparia* McCoy, from the Cretaceous of Montana. *Bull. Amer. Mus. Nat. Hist.*, XXIII, pp. 459-461, pl. 36.

Remarks on and descriptions of new fossil Unionidæ from the Laramie clays of Montana. *Ibid.*, XXIII, pp. 623-628, pll. 38-42.

1908

Notes and observations on Carboniferous fossils and semi-fossil shells, brought home by members of the Peary expedition of 1905-1906. *Bull. Amer. Mus. Nat. Hist.*, XXIV, pp. 51-58, pll. 1-4.