

**FOSSIL COLLECTING IN INDIANA:  
C. D. Walcott's Brief Account from 1877**

By Ellis L. Yochelson



C. D. Walcott

Indiana Geological Survey Open-File Study 06-02

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National Museum of Natural History

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Indiana University  
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## FOREWORD

Ellis Yochelson died on August 30, 2006, shortly before we had a chance to publish this paper. We had begun a delightful exchange with him a few months earlier, when he submitted a manuscript to the Indiana Geological Survey inquiring if we would be interested in publishing it. Of course we were! It provided a fascinating insight into the rigors of collecting in the field in Indiana in 1877, and of the dedication it took to be successful.

At the time of his death at age 77, Yochelson had become distinguished not only as a paleontologist, specializing in fossil gastropods (snails), but as a biographer of the renowned paleontologist Charles Doolittle Walcott. Yochelson was fascinated with Walcott's life, and he invested 40 years of his own in piecing Walcott's biography together. Various described as "quixotic" and "idiosyncratic," Yochelson was noted for taking great pleasure in conducting research on topics of little interest to others. As a paleontologist in the Paleontology and Stratigraphy Branch of the U.S. Geological Survey from 1952 to 1985, he had been headquartered at the National Museum of Natural History, one of the museums of the Smithsonian Institution. Following his retirement, he remained active in research and paleontology, and this paper is a reflection of his dedication to scholarship later in his life.

Charles Walcott joined the U.S. Geological Survey in 1879 and rose to become its director in 1894. He also became secretary of the Smithsonian Institution, a position he held for 20 years. Walcott, however, is most noted for his discovery of and work on the fossils of the Middle Cambrian Burgess Shale of British Columbia, one of the most important fossil finds ever made. Prior to all of this, Walcott was associated with the noted paleontologist James Hall, State Geologist and State Paleontologist of New York. While in the employ of Hall, Walcott undertook a short collecting trip to southern Indiana in 1877. Ellis Yochelson's contribution carefully documents the entire story.

John C. Steinmetz, Director and State Geologist

Deborah A. De Church, Editor

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## FOSSIL COLLECTING IN INDIANA: C. D. Walcott's Brief Account from 1877

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### ABSTRACT

During the fall of 1877, James Hall of Albany, New York, sent his special assistant Charles Doolittle Walcott to Indiana. For more than a month during October and November, Walcott, accompanied by C. Van Deloo, assembled a huge fossil collection from the Silurian beds at Waldron, often working under difficult conditions. Following this stint, he spent several more weeks collecting from younger beds elsewhere in the state. While he was in the field, Walcott wrote a brief account of the local Waldron stratigraphy and listed the fossils he had collected. For many years, this material was displayed in the New York State Museum.

### INTRODUCTION

Those who are aware of the geologic and paleontologic contributions of Charles Doolittle Walcott (1850–1927) (fig. 1) commonly associate him with either Cambrian trilobites or the Canadian Rockies. However, before the start of his career with U.S. Geological Survey in 1879 or the Smithsonian Institution in 1907, he spent two years headquartered in Albany, as a “special assistant” to James Hall, State Geologist and State Paleontologist of New York (Yochelson, 1987).

In an annual report of the New York State Museum, James Hall (1811–1898) (fig. 2) noted that “Mr C. D. Walcott with Mr. C. Vandeloo” had collected extensively in western New York. “For purposes of comparison with the New York forms, five barrels of corals were collected from the same horizon [corniferous limestone] in Southern Indiana. At Pendleton, Ind., a sandstone at the base of the corniferous limestone, bears a fauna which is characteristic of the Schoharie grit of New York: and from this formation were obtained three barrels of specimens. Besides these, an extensive collection was made from the Niagara group at Waldron, In., of about 7,000 pounds. This will be a very valuable addition to the Museum, since the beds of corresponding age at Lockport, N. Y. are now difficult of access.” (Hall, 1879, p. 10).

Walcott kept a small diary in which he summarized his daily activities. In the text of this paper his diary entries are italicized; the Sunday entries are marked with asterisks (to keep track of the days of the week). The diary documents travel and collecting as it was done in what were literal-

ly the “horse and buggy” days. A great deal of physical effort went into obtaining the fossils, and later generations, who see only the results in museum drawers, seldom appreciate the difficulties involved. Other tidbits concerning Walcott's developing career and further clarification of the entries are in comments following the diary entries.

### PRELUDE

James Hall had a long-standing interest in the strata at Waldron, Indiana, as indicated by a description of the fauna (Hall, 1876). Several of the official New York State Museum reports had a complex publication history (the 1876 date is taken from the Bibliography of North American Geology). Hall seemingly never hesitated in trying to claim priority for his efforts. For example, Hall (1879a) includes a map of the distribution of the Niagara and Lower Helderberg strata in the eastern United States that bears an 1874 date. The four introductory pages of that paper mention a short work by him published in 1863, though no such publication appears in the Bibliography, and Hall also indicates that an edition lacking illustrations was published in 1876.

“Since no copies of the [1876] report were ordered for the State museum until 1878, it has given an opportunity of revising the published matter of 1863, with additional knowledge derived from subsequent collections, and of adding descriptions of the Corals and Bryozoa not included in the original paper” (Hall, 1879, p. 99). This suggests that the collections of 1877 were included in this later paper, though it is not clear how much of a part they played. The 28<sup>th</sup> museum report was not

available until 1879, and determining the date at which names of fossils actually entered into the literature is a bibliographic tangle for others to resolve.

In Albany, Hall sometimes employed Walcott in the State Museum and sometimes in his private laboratory. He also had the young man lobbying the New York state legislature. Despite nearly constant movement from one chore to another, Walcott remained enthusiastic, treating his work as a valuable learning experience. On April 3, 1877, Walcott began his diary entry: "*At the State Museum during the day. Working at collection of Silurian fossils from England.*" (At that date "Silurian" included rocks now dated at Ordovician, so it is not clear what fossils were being examined).



Figure 1. A photograph of Walcott at age 27, taken in Albany, N.Y., in 1877, shortly after he became Hall's assistant (photo from Smithsonian Institution Archives).

The entry for Saturday, April 28, is more insightful and may not refer to work at the museum.

*April 28 Busy all day with Niagara fossils from Indiana. I like the work of identifying & labeling fossils as it affords me an opportunity to learn their names & characters that cannot be obtained in any other way. After tea wrote Grace Robinson and then fussed about my rooms until bedtime.*

The workload became tedious, but was broken up by short collecting trips to Saratoga, New York, and to the Helderberg Mountains in New York, followed by a vacation to Maine and collecting for himself in Nova Scotia and at Trenton Falls, New York. By mid-September, a reinvigorated Walcott was back in Albany.

*September 20 Maturing plans for western trip & working on bryozoans....*

Because of the eye strain, Walcott disliked studying bryozoans; fortunately Hall had him on this group for only a day or two more. He then left Albany to visit his late wife's family at Trenton Falls and finally started for western New York.

*September 24 Arrived Canandia 6.30.p.m. & stopped for the night. Rested comparatively well considering that a bedbug nibbled my face & hands.*

The next day he and Van Deloo collected near Caledonia, New York. They continued collecting and moving west across the state, ending up in Buffalo.

*October 11 ... Left for Cleveland 12.55. Prof. S. G. Williams met me at the station. Vanderloo goes on to Waldron....*

Walcott's comments on Vanderloo, caused Yochelson (1998) to assume that the person was Jacob Van Deloo, Hall's longtime clerk, consistently rendered by Walcott throughout his years in Albany as "Vanderloo," rather than C. Van Deloo, Hall's longtime collector. Beyond the name and the fact that he was the father of the clerk, almost nothing is known of Mr. C. Van Deloo.

*\*October 14 ... At 6.30 .p.m bid Prof. & Miss Flora adieu & at 7.30 left Cleveland for Cincinnati.*

Professor S. G. Williams had been a geologist in New York before moving to Ohio. Walcott kept encouraging him to move back and he eventually joined the faculty of Cornell University, where he

overlapped careers with H. S. Williams (no relation).

*October 15 Arrived in Cincinnati at 6.a.m. Took breakfast at 7 and then called on Mr. Paul Mohr, Dr. Byrnes & S. A. Miller. Accompanied the latter to his house & about the city. At 3 p.m met Mr. C. B. Dyer. Called to see Mr. Devenny. At 7.p.m. left for Greensburgh [sic]. Found letter from Prof. Hall & another at Cin.[cinnati]. Enjoyed the day at Cin meeting Miller, Dyer, etc.*

During this period, apart from Albany, Cincinnati was the most active site of paleontological investigations in North America, all being done by "amateurs." Walcott had exchanged fossils with Mohr and had published his first two small papers in a short-lived journal edited by S. A. Miller.

### WALDRON

*October 16 At 7.30. a.m. left Greensburgh [sic] & went in to Waldron. Called on Dr. Washburn who took me to the "diggings." Found Mr. Vanderloo hard at work on Niagara rocks. After dinner commenced work myself & continued until night. Received letter from Mother.*

Trivia buffs may be interested to know that currently only five places in the United States end in "gh," Pittsburgh being the most prominent. Walcott may have followed the convention of the day for Greensburg, Indiana, in this entry. Dinner is what today is commonly called lunch and the evening meal was called tea or supper.

At one time, a railroad line ran northwest through Greensburg to Indianapolis, and this train may have been taken by the two collectors. Waldron is about 5 miles south of Shelbyville, today completely bypassed by Interstate 74 to the east of the hamlet.

*October 17 Spent the day working on the Niagara outcrop. Mr. Vanderloo is now in his old locality & feels O.K. Have two men at work stripping. The weather is very warm. Hot as midsummer.*

As then used, "Niagara" approximates the current Upper Silurian. Walcott's wording implies that Van Deloo had collected earlier at Waldron, but one cannot be certain. The two local men were removing overburden with pick and shovel.

*October 18 Very warm. Worked all day taking up & stripping. Have three men at work. At 5. p.m. it commenced to rain and drove us to the house. Retired at 7.30. p.m.*

Walcott's use of a period after the hour of time was consistent in his diary for many years. Presumably it was to confirm that the time mentioned was accurate.

*October 19 Rainy all day. Walked to village 2 miles. Spent 2/3ds of the day with Dr. Washburn. Talked over fossils etc. Wrote Prof Cox. Letter from Jessie. Wrote to " [Jessie]. After tea talked with the family. Dr. Washburn was an enthusiastic collector and must have been delighted to share his local knowledge with a fellow enthusiast, but so far as can be determined from the Bibliography of North American Geology, he never published.*

The last sentence indicates that the two collectors were boarding quite near the outcrop itself. Jessie was Walcott's young sister-in-law who had a crush on the widower.

This was actually Walcott's second trip to Indiana. During November 1871, he clerked in the Indianapolis hardware store of Hildebrande and Fulgate; they were pleased, but he could not stand the work and returned to Trenton Falls. While in the city, he met E. T. Cox, who was Indiana State Geologist from 1869 to 1879.

*October 20 At 7. a.m. commenced work on the*



Figure 2. James Hall (photo from New York State Museum).

*McNeely claim. At 8. Dr. R. R. Washburn called & we went to lower localities. Spent the day there. Found a fine lot of small shells. Letter from Jessie & Ed. H. 28<sup>th</sup> Rpt from Ed. Thunder shower at night.*

Edward Hurlbut was a schoolmate of Walcott's who went on to become a lawyer in Utica, but remained a keen amateur collector.

*\*October 21 Wrote letters in the morning to Prof. Hall, Mother & Grace R. After dinner walked down to creek with Mr. Vanderloo & then called on Mr. Duty. Returned to tea & then fussed about generally until bedtime. Rain at intervals all day.*

Mr. Duty and the last two persons to whom Walcott wrote are unknown figures, although a year earlier Walcott met Miss Grace Robinson; he also mentions writing to her in the April 28 entry.

*October 22 Spent the entire day washing stone in the creek. Mr. Vanderloo worked on the ledge while the three men worked at stripping. We found a good lot of fossils principally trilobite remains. 28<sup>th</sup> report from Prof. Hall & paper from Mother. A clear bright day. Heavy frost at night.*

The pace of operations picked up as three men stripped off overburden.

*October 23 Work on the ledge & washed rock. We are getting along very nicely. I found that working in the water is very bad for me. It is too late in the fall for that work. Retired at 8. p.m. Very tired.*

Walcott seldom underlined words in his diary, so this must have been a particularly difficult day.

*October 24 Continued the work on the ledge. Found a good lot of fossils. Mr. Vanderloo & Richie work on taking up rock while I have another man to assist me in washing & breaking up stone. Attended a marriage in Waldron in the evening. Letter from Dr. A. S. Packard.*

A. S. Packard was the outstanding American specialist on living Crustacea. It would be extremely interesting to read the Packard-Walcott correspondence, if any still exists.

A preliminary note by Walcott (1876) announcing the discovery of trilobite appendages is only four pages long, but it created quite a stir as he was the first to document that these fossils had legs. This publication contains two sections, the first marked

as being from Trenton Falls and the second from Albany. All the later work on appendages (Walcott, 1877a) was done by Walcott on his own time (fig. 3). There is little question that Hall thought this should be published as Hall and Walcott. Walcott was not about to relinquish his discovery, and he is the only one of Hall's assistants who was never a junior co-author with Hall. In fact, Walcott had only one co-authored paper during his career.

*October 25 Wrote Dr. Packard after breakfast. Told him about my view of my working on the trilobite. Continued work on the fossil bed. Found a fine lot of bryozoans. Wrote Prof. Hall. Estimate of expenses \$310 if we return after work here. Letter from Prof. Hall.*

James Hall was a man of many roles, being the State Geologist of several states simultaneously. Whether the taxpayers of New York financed collecting in Indiana cannot be determined from Hall's tangled finances, but because some of the specimens were displayed later in the New York State Museum, it is probable that those taxpayers supported the out-of-state foray.

*October 26 Rain dismal day. Worked three quarters of the day and then returned to house cold & wet. Mr. Vanderloo went into town & brought a supply of mustard for stiff necks etc. etc.*

One gathers that the chill and the dampness were also affecting Van Deloo, though not to the extent they harmed Walcott's health.

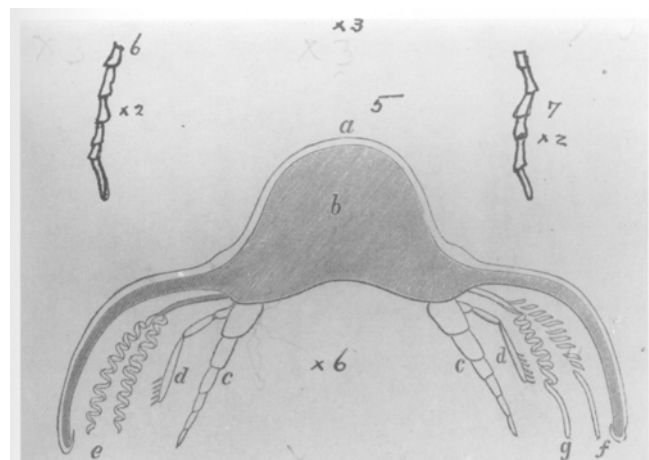


Figure 3. Walcott's drawing of "transverse section of the thorax of *Calymene serana* partially restored," in "Notes on some sections of trilobites from the Trenton limestone" (1877a).

*October 27 Cloudy in the morning & then cleared up. Worked on the ledge during the day. Dr. Washburn is working just below. Wrote Prof. Henry Woodward after tea. Also Clarence.*

Henry Woodward was the ranking British specialist on fossil arthropods and Walcott had corresponded with him earlier.

From 1871 until the fall of 1876, when he moved to Albany, Walcott lived on the William Rust farm at Trenton Falls, New York. Rust was both a farmer and fossil collector and preparator. Walcott was married for several years to Lura, one of William's sisters, until her death in January 1876. Clarence was another member of the Rust tribe at Trenton Falls.

*\*October 28 Went to Waldron and attended church with Dr. Washburn. Dined with him & visited until three o'clock. Then drove to St. Paul with the young ladies & return to boarding place. Wrote to mother proposing to live with she & Joise [sic] provided they could endure Albany. Letter from Mother.*

When Walcott was eight, the family moved from New York Mills to nearby Utica. For a time they lived in a house, but after the two older boys left the area and Walcott moved to the Rust farm, widow Walcott and sister Josie boarded in a hotel. This proposed change, which never occurred, was a gesture from a dutiful son. One gathers that Walcott was happy to be with Hall and planned to make his career in Albany.

The village of St. Paul still exists several miles southeast of Waldron.

*October 29 Washed rock in the creek all. Mr. Vanderloo Richie & Curtis at work on the ledge. Found a good lot of fossils. After tea played cards & passed away the time talking etc.*

Clearly Walcott was doing most of the detailed collecting while Van Deloo supervised the breaking out of fossiliferous rock.

*October 30 Spent the day in the creek washing rock. Had good success. Received a letter from Grace H. R.*

The handsome 27-year-old Walcott had been a widower for over a year and would be a good catch for any young woman. He wrote and saw several ladies over the years, but he did not remarry until 1888.

*October 31 Mr. Vanderloo washed rock & I worked on the rock with Mr. Richie. Letter from Lieut Vodges criticizing my species of Wis.[consin] trilobites. Letter from Jessie. She states that the old people are very feeble. Not liable to survive cold weather.*

The "old people" refers to the parents of William Rust at Trenton Falls and Walcott's former in-laws. The paper that aroused the ire of Vodges (Walcott, 1877b) contains six species, three of which are trilobites; as was common with many of the short papers from Hall's factory, there were no illustrations. Vodges was a longtime correspondent of Walcott's and ended his Army career as a general.

*November 1 Worked until 4. p.m. when we stopped on account of the rain. Changed clothing and went into town. Called on Dr. R. R. Washburn & then at his house spent the evening there and remained overnight. Letter from Prof. Hall. He writes to continue work & go to Clark. Co.*

Subsequent events suggest that Walcott may have discussed with Dr. Washburn arrangements to remain away for a few days.

*November 2 Remained with Dr. Washburn until after dinner & then returned to work on the creek. The day has been dark, cold & windy. Letter from Josie. She & Mother are well & preparing to go to New York for the winter. Wrote to Josie.*

It was quite out of character for Walcott to have stayed at Dr. Washburn's during the morning while Van Deloo continued to work.

*November 3 Continued to work on the fossil bed. Found a good lot of specimens. The day has been a good clear autumn day but cold for washing rock as the frosty nights cool the water.*

To observe the fossils, it was necessary to remove adhering soil from the limestone pieces pried up from the outcrop. A reasonable presumption is that Walcott's comment about the water being cool was an understatement.

*\*November 4 Circumstances decided me to work today so I did so until 3.p.m & then took a walk of 7 miles to end off with. Very tired at night. Wrote Prof. Hall and Josie after tea.*

There were no obvious circumstances to require work on Sunday unless, perhaps Van Deloo complained about Walcott's absence earlier in the

week. It would be interesting to know the reasons for the long walk.

*November 5 Cold rainy day. Made to [sic] sieves for sifting out small shells & picked out shells until 3:p.m. Wrote Prof. S. G. Williams. Walked to town & mailed my letter. Called on Doc Washburn returned to tea. Wrote Prof. J. A. Lintner & after played cards etc until bedtime.*

Lintner, an entomologist at the New York State Museum, was an older friend who was also in charge of museum publications; he had already helped Walcott with several papers.

*November 6 Heavy frost last night. Found tools frozen in the mud. Worked all day as the sun came out bright. Found a few good fossils getting ready to take up tomorrow if pleasant.*

Presumably the last sentence means that more rock was to be broken from the outcrop.

*November 7 Worked on the stream all day. Very cold & severe day. Letter from Prof. Hall, Mrs Bowers, Mother. P.[ost] C.[ard] from Prof. Hyatt & J. S. Kingley. Wrote Mother & Mrs. Bowers & P. C. to Prof, Hyatt, J. S. Kingley & Betty & Reussening.*

Mrs. Bowers was Walcott's landlady at 184 Swan Street in Albany, and Alpheus Hyatt was the paleontologist in Boston. Two decades later, a J. S. Kingley published several papers on arthropods.

*November 8 Heavy rain all night continued until noon. After picked up a lot of shells washed out by the rain. Walked to town 4. p.m. Letters Prof. Hall & Clarence.*

Collecting fossils that had washed out during a rain provides some indication of their abundance at Waldron.

*November 9 Worked on the bank all day despite occasional dashes of rain & cold N.W. wind. Letter from Josie & Prof. H. Played cards in the evening.*

To point out the obvious, these were less than ideal weather conditions for collecting,

## INTERLUDE

*November 10 At 7.30 left Waldron for Indianapolis. Called on Prof. Cox. Took dinner with Cousin Asa Cos. Ben. Addie, Libbie & Uncle W &*

*Aunt H were at the table. Spent the afternoon with Prof Cox. At 5.p.m. left for Danville Ill. S. Ja's McKee met me at the cars in Danville. Accompanied him to his home.*

It was about 25 miles from Waldron to Indianapolis. If Walcott had rented a good horse and buggy in Waldron, he could easily have arrived before lunch, or he may have taken the train. During his earlier year of clerking in an Indianapolis hardware store, the owners were quite pleased with his work, but rare visits to his relatives were the only relief in a most dreary period of his life.

The "cars" he mentions could refer to a horse-drawn trolley or railway, which were a popular means of transportation in cities at the time.

Pasted in Walcott's diary for the following day is a small clipping, source and date unknown. "Charles D. Wolcott [sic], Esq. is visiting his friends in this city and at the same time following up his favorite scientific pursuits with characteristic energy. Mr. Wolcott, who is a former resident of Indianapolis, is now assistant to Professor Hall, State Geologist of New York, and has attained eminence in the study of paleontology." Walcott was able, though hardly eminent.

*\*November 11 Called on Dr. Winslow & then attended church with Mr. McKee. After lunch walked about town. Called again to see Dr. Winslow & after at W<sup>m</sup> Gurley's. He has a fine lot of fossils. Spent the evening conversing with Mr. & Mrs. McKee Mr. Cole & Holmes.*

While living at Trenton Falls, Walcott had exchanged fossils with McKee and, therefore, had a slight acquaintance with the local Pennsylvanian fossils. The year after Walcott's visit, Gurley published his first paper on paleontology and continued to publish for the next two decades.

It is possible that Hall directed Walcott to contact local collectors to see if he could obtain some collections. On the other hand, in his financial accounts for the year, Walcott lists Danville costs as \$7.00. This suggests the trip may have been a private affair. Danville is less than 100 miles west from Indianapolis, about three hours by train. Walcott simply may have taken the opportunity to broaden his experience and his contacts for future exchanges of collections. There was no certainty that he would have an opportunity to return to the Midwest.

In 1879, Walcott and his brother-in-law William Rust sold their fossil collections to Louis Agassiz.

No material from Danville is listed, but one locality is Waldron, Indiana. These might have been fossils that Walcott obtained by exchange earlier with Dr. Winslow, or could have been additional specimens Walcott picked up on the outcrop.

*November 12 Left Danville at 7.25 a.m. Stopped over at Crawfordsville [Indiana] until 4. p.m. Met young Mr. Beckwith & Prof. Bassett. Examined crinoid localities & several collections. Returned to Indianapolis at 6. p.m. Stopped at Bates House. Sick at night.*

It is a bit odd that Walcott did not stay with relatives, though when one is ill, company is not prescribed. The last entry is in red, but that has no significance as several following pages are in the same color.

Crawfordsville is yet another place bypassed by Interstate 74, but at least there is an exit to reach the town. Any paleontologist in the world who works on echinoderms has probably heard of the famous Mississippian (Lower Carboniferous) crinoids at Crawfordsville (Van Sant and Lane, 1964). Those authors note that in 1857 Christian Van Deloo collected in the area for James Hall, returning in 1867 and at least once more in 1886. This lends support to the idea that Van Deloo may have been to Waldron earlier than 1876.

Large slabs of crinoids from Crawfordsville grace the walls of many natural history museums. A number of these slabs were collected and spectacularly prepared by D. A. Bassett of Wabash College. Bassett published only a single short article on the Crawfordsville crinoids (Bassett, 1885), but apparently ran a thriving business in selling these fossils.

*November 13 In the morning called on Prof. Cox. Met Dr. Levette, M[essieurs] Stein & Rolf. Attended to errands. Called at bank to see Cousin Asa. Met Ben and then returned to Waldron. Worked on the creek during the afternoon. Mr. V & men have done well since I left. Letters from S. A. Miller & Prof. Hall. Wrote Prof. Hall.*

The remark on the quantity of work done in Walcott's absence reinforces the view that he was, at least nominally, the party chief.

## WALDRON AGAIN

*November 14 Mr. V. is off the hooks. I worked on the ledge all day. Had good success getting crinoids. After 4. p.m. rain commenced falling.*

*Letter from Mother & Ed. H. Letter from Jessie at 8. p.m.*

The first sentence is rather enigmatic, but probably means that Van Deloo had the day off to compensate for the time when Walcott was not working.

*November 15 Washed rock in creek all day. Had very good success. American Naturalist came with notice of my article on the trilobite [Walcott, 1877a]. It says very little about it. After tea wrote Mother, Jessie & Prof. James Safford of Tenn.*

Walcott was correct in his assessment, for the words in the *American Naturalist* are essentially an announcement of publication with no positive or negative comments on the research itself. Safford was the State Geologist of Tennessee from 1854 until 1899 and among his many accomplishments, he described fossils of the state.

*November 16 A pleasant but cloudy day. Worked very hard all day on the ledge. Hope to get the rock all out if pleasant.*

At least an end to all the hard work was in sight.

*November 17 Nearly completed our work on the bank. One blast more & I hope to see the end of it. Two days washing rock & good by to our claim on the McNeely place. After 5 pm walked to town & took tea with Dr. Washburn. Expected Prof. Cox. P.C. stated he would not come until Monday.*

This is the first indication that they blasted to collect from the rocks. When Walcott lived on the Rust farm, he learned a great deal about farm chores. Rust had a small limestone quarry and a kiln to burn the rock for agricultural lime. Among other activities, Walcott learned to use black powder. Dealing with lime was not as grim as cleaning manure out of the barn, but only because it was done once a year, rather than perpetually.

*\*November 18 At 8 a.m. went into town & at 9 a.m. started with Dr. Washburn for quarries near St. Omer on Flatrock creek. Thence drove to Moscow Ripley Co. Examined quarries there & then returned. Attended church after tea. Very tired at night. Clear beautiful fall day.*

St. Omer is a few miles down the road from Waldron and just off Interstate 74. Moscow is on State Road 244, east of the Interstate and about 5 miles from St. Omer. Over the years, the Flatrock waters have been promoted from Creek to River.

*November 19 Put in a parting blast on the bank in ledge & then washed rock until 2. pm when Doc W & Prof. Cox came down. Went to village with them after looking about & talked with Prof. C. He left at 5. p.m. Supped with Doc W & returned to McNeeley's at 8. p.m. Letter from Josie.*

It was professional courtesy to let the State Geologist of Indiana, E. T. Cox, see what had been collected. Walcott may have had a hidden agenda because he wanted to be certain Cox knew just how hard he had worked.

*November 20 V & I washed rock in the morning & after dinner carried specimens to the house until 6. p.m. We have finished work on the creek. May pick up after a rain. Have several days work yet about here. Letter from Prof. Hall. Wrote " [Prof. Hall]. " [Wrote] W. P. Rust.*

It must have been a relief to put an end to the heavy collecting; picking up any fossils that washed out later would be child's play.

*November 21 Letter & pkg [package] from S. Jas. McKee. Wrote P.C. to S. G. W[illiams] & Dr. Byrnes. Drove down to the Lewis farm 4 miles below here and worked until 2. p.m. Rained all day. Read up on the geology of Lawrence Co. Wrote Josie after tea.*

One can only speculate, but it may be that Mr. McKee had sent some Danville fossils in exchange for some Waldron fossils.

*November 22 Picking up & packing up all day. Washed the last rock on the creek & carried all to the house. At 6.p.m. all is ready for a move. Went into to [sic] town after supper.*

One can imagine just how cold the creek water was when the last slab was washed.

*November 23 Loaded up & started at 7.a.m. 7000# of fossils are on one wagon. 3 horses & two mules motive power. V[an Deloo] to Shelbyville with the load. I went with Dr. Washburn to Flat Rock creek Decatur Co. after fossils. Found a few & returned to Waldron at 5. p.m. Remained with Dr Washburn.*

Shelbyville was a few miles northeast of Waldron and was the closest place where the 3½ tons of fossiliferous slabs could be loaded on a freight car.

*November 24 Packed up odds & ends at store, Dr. W's & then went up to Shelbyville. Saw Mr. V*

*& about freight. Returned to Waldron & settled up things. Wrote Prof. Hall. Borrowed money of Dr. Washburn to get up to Indianapolis. Stopped with Prof. Cox. Left Waldron at 5. p.m.*

That Walcott borrowed train fare for Van Deloo and himself is revealing as to how little financing Walcott was given by Hall.

## MOVING ON IN INDIANA

*\*November 25 Listened to Prof Cox conversation after breakfast & then went to his office. Wrote Prof. Hall, Mother, Jessie & Grace H. R. Called on Cousin Libbie & family after dinner & remained to tea. Attended church with Miss Cox at Dr. Bartlett's. He is a preacher of the sensational order.*

Some years later, the sensational Dr. Bartlett would move to Washington. So far as one can interpret Walcott family genealogy, Cousin Libbie was Mrs. Bartlett.

*November 26 Went to Prof C's office in the morning. Saw Vanderloo & sent him off to Bedford. After dinner visited with Dr. Levette & Dr. Smith. At 4.25 went out [sic] Pendleton Madison Co. After tea wrote Ed H. & W. P. R. Saw a few fossils from here. Sandstone. Passage beds between Upper Silurian & Devonian.*

Van Deloo's assignment to Bedford in southern Indiana explains why Walcott was reading earlier about the geology of Lawrence County. Tiny fossils abound in the oolitic Mississippian limestone beds, quarried extensively around Bedford, and in a few places yielded larger specimens.

The concept of "passage beds" is a long-forgotten phase of stratigraphy and geologic mapping. Unconformities separating distinct packages of strata were mapped with the underlying assumption that each such package represented a distinct period of the geologic column. In some areas, however, obvious unconformities did not separate rocks of one age from those of another, but rather, in going up the rock section, the associated fossils "passed" from one age to another.

*November 27 At 8 .a.m. Mr. Rogers accompanies me to the quarries. Dr. Brownbeck came after a short time. I worked steadily all day & gathered a good lot of specimens, the gentlemen assisting me. Dined with Dr. B. & remained at his house at night. Cold cloudy rain & fine snow.  
Bing Rogers  
Orlando Brownbeck.*

Pendleton is about 15 miles northeast of the center of Indianapolis just off Interstate 69. Walcott wrote the names of both gentlemen on separate lines of his diary, probably to ensure that he them spelled correctly.

*November 28 Worked until noon at the quarries when Prof Cox came up. We examined quarries & exposures along Fall creek. Dr. B. took me to Huntsville where I saw Dr. [a blank in diary] & sent (3) barrels of fossils to Prof. H. 965#. Returned to Indianapolis with Prof. Cox Cold. Snow flying.*

The term "barrel," when used in connection with shipping fossils, occurs occasionally in Walcott's diary. Although it could be an elastic term for a container, it also may be a fairly definite measure. Flour was sold in barrels, generally containing 200 pounds, and these must have been a relatively common item during the last quarter of the nineteenth century. Rocks are denser than flour, even allowing for space between pieces and an empty flour barrel could well hold about 300 pounds of rock.

*November 29 Very cold. Left on the 9. a.m. train. Stopped for dinner at Gosport Owen Co. Went on to Bedford Lawrence Co at 1.10. Arrived at 3.20 p.m. Saw Dr. Gardiner & looked after Vanderloo. He has gone up the road to another locality. Wrote Prof. Hall & P.C. to Mother.*

Gosport is about 55 miles southwest of Indianapolis, and may still have a train line. At Gosport, Walcott would then likely have transferred to another line.

*November 30 Spent the morning with Dr. Gardner [sic] After dinner went up to Guthrie to look after Mr. Vanderloo. Could not find any trace of him. Returned & examined locality on spider creek. After tea wrote Jessie & sister Sarah.*

Guthrie actually still exists, about 4 miles north of Bedford. Sister Sarah is another little unsolved mystery, except that she was not a blood relative.

*December 1 Worked on spider creek until 11.a.m. Collected & packed a barrel of rock containing a few Spergen Hill fossils. Went in to New Albany at 1.o'clock. Arrived 6.50. p.m. Found Vanderloo at the depot. He has been resting for a week. Went over to Louisville [Kentucky] & spent the night.*

Walcott was understandably upset, having been collecting under terrible conditions, but Van De-loo had hardly been resting for a week. When the field season is too long, tempers tend to get short.

*\*December 2 Called on Dr. Knopp 9.a.m. & looked over his collection. After dinner he took me to various quarries about the town & after tea we conversed on divers subjects. Cold clear day. Wrote Mother & Prof. Hall. Letters S. A. Miller, Sister Sarah, Ellis, Jessie & Mother.*

The day was certainly not hard field work, but even so, it was not keeping the Sabbath. Ellis was an older brother living in Wisconsin, who found Utica too oppressive after his service in the Civil War. S. A. Miller was one of the prime movers among the Cincinnati amateurs; a contemporary paleontologist, J. S. Newberry, characterized him as a second-rate lawyer and a first-rate trouble-maker.

To change the subject, a loose clipping in the diary concerns a new formulation for India ink. For one whose business is writing museum labels, this was important information.

*December 3 Dr. Knopp drove over to Jeffersonville [Indiana] with me & then down on the rocks. We found a few fossils & returned to dinner. I was very glad to have the opportunity of observing the famous locality of the Falls of the Ohio. After dinner looked about the city. Called on Dr. Yandell and at Library. Met Mr. Green (collector) Left at 3.50 for Charleston [sic] Ind. Met Mr. Daly there. Letters from Prof. H. Mother & Josie.*

One of the persons who made the Falls of the Ohio so important a Devonian locality was the professional collector John Green. According to legend, he would soak the fossil corals in old pickle barrels, which contained just enough acid to clean the specimens and sharpen their details (Lane, 1987).

*December 4 Rain fell all day. Looked over Prof. A. C. Goodwin's collection & Mr. Phil Daly's. Saw many interesting fossils. After tea wrote on occurrence of fossils at Waldron, read papers, etc. Wrote letter to Ed. H. & P.C. to Dr. Knopp.*

The writing on the occurrence of fossils at Waldron mentioned above is given in Appendix 1.

*December 5 Mr. V. & myself spent the day collecting fossils. Obtained a fair lot of corals & tentaculites. After tea I wrote Prof. Hall about his personal enemies & their work in defaming him.*

*Also about work in Albany I wish either to be his assistant at his work or else a museum assistant.*

In Albany, the New York State Museum was on State Street, downhill from the State Capitol, and Hall's private laboratory was uptown in what is now a city park. Walcott boarded halfway between the two places and went either downhill or uphill. The difficulty was that Hall kept him moving back and forth so that he seldom knew from one day to the next what his duties were or where he was to report.

*December 6 Went to Lexington, Scott Co. at 8.a.m. called on Dr. Powers & examined his collection. Returned to Charlestown at 11.a.m. After dinner called on Mr. Daly, Prof. Goodwin & Mr. Washburn. Mr. Runyon gave me a few trilobites. Packed up & settled after tea. Letter from Ed H. & P.C. from S. A. M.[iller] & C.P. D.[yer].*

Walcott finally got the name of the town Charlestown correctly spelled. In all likelihood, the few trilobites given him were Devonian.

*December 7 At 8.am. left Charlston [sic]. Spent the day working the Albany slate at Lexington, Mr. V. & Dr. Powers assisting. Packed a barrel of good to fair material. At 4.50 left for Cincinnati. Mr. V. went home at 9.30 p.m. & I remained at the Grand Hotel. Finest day in three weeks.*

The Albany slate was the black shale at the Devonian-Mississippian boundary, a tongue of the Chattanooga Shale.

## HEADING HOME

Walcott stayed in Cincinnati from December 8 through December 12. He thoroughly enjoyed collecting and examining the fossils of the local paleontologists. Nearly four decades later, Walcott would be named president of the American Association for the Advancement of Science.

Walcott arrived in Columbus, Ohio, at 10:00 p.m. on December 12. He spent part of the day with Edward Orton who, in addition to teaching at Ohio State University was the Ohio State Geologist from 1882 to 1899. Late on December 13, Walcott took the train to Cleveland and spent the night with Professor S. G. Williams. Leaving Cleveland at 9 o'clock the following evening, he arrived in Utica, New York, on December 15.

Friend Hurlbut had him to dinner and he visited his grandmother before moving northeast to the Rust farm at Trenton Falls. Three days passed, devoted to catching up on gossip, visiting, and a tiny bit of fossil collecting. In addition, Walcott and William Rust talked about land Walcott had purchased in the area and how it should be improved and farmed. Although William was working the land, there was a strong possibility that after a year in Albany, Walcott would return and reside there. That visit concluded, he went back to Utica.

*December 19 At 2.50 left for Albany. Found my old rooms at Ms Bowers ready for me....*

*December 20 Reported at the Prof's museum at 8. a.m. & commenced work. Engaged at various odd jobs until 4. p.m. Called on the Professor after tea & talked with him about various matters.*

It had been a most productive but very long field season.

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## APPENDIX I

Box 32, folder 6 of the Walcott papers in the Smithsonian Institution Archives includes a folded sheet written in faded purple ink on all four surfaces in Walcott's handwriting, and labeled on the side "Waldron." It is a description of the lithology, a listing of fossils, and their distribution within the rocks. Few cross-outs and insertions are present and none are significant enough to be noted. The manuscript is continuous, but for ease of reading, paragraphing has been added. At the end is a sketch, reproduced on page 14 (fig. A1).

According to the diary entry, the manuscript was started on December 4 and may have been completed at one sitting. There are some differences in the use of generic and specific names between the list mentioned in Appendix II and Walcott's remarks, reinforcing that this document was written before he consulted literature in Albany.

**Mode of Occurrence of fossils in the  
Argillaceous [sic] Niagara bed at  
Waldron, Ind.**

The base of the bed generally consists of a layer of greenish clay 5 to 8 in thick which passes into shale in places. It is characterized by the presence of fine large specimens of Favosites forbesi, Rhodocrinus melissa and Rhynchonella tenneseensis in its upper part.

The succeeding layer is the true bryozoan deposit of the bed & the most fossiliferous, being made up of the remains of corals, crinoids, bryozoans, brachiopods, and trilobites. Beautiful slabs were obtained holding Astoyospongia peracmaea, Favosites forbesi, F. niagarensis, Streptolasma minimum, S. radicans, numerous bryozoans, Lichenalia concentrica, Chaetetes, Trematopora, Callopora, Thamniscus, Fenestella, Leyathocrinus carleyi, Macroslytocrinus striatus, Rhodocrinus melissa, Eucalyptocrinus crassus, E. caelatus, Orthis elegantula, O. hybrida, Streporhynchus subplana, S. tenuis, Strophomena (S.) semifasciata, Stophodonta striata, Spirifera crispa, S. eurora, S. radiata, Meristina nitida, M. maria, Retzia evax, Rhynchonella cuneata, Coelospira disparilis, Atrypa reticularis, Rhynchonella neglecta, R. acinius, R. indianiensis, R. whitei, R. tenneseensis, Pterinea brisca, Platyostoma niagarensis, Cornulites proprius, Leyphaspiis christyi, Calymene niagarensis, Sphenexrus romingeri, Lichas breviceps, L. boltoni var. occidentalis.

This layer is from two to six inches in thickness this rests two layers of greenish gray color which crumbles on exposure to the weather. Fine Eucalyptocrinus crassus and Rhynchonella tenneseensis occur here. Above this there is four feet of thick argillaceous shale with clayey partings. The fossils are irregularly distributed through this. The finest trilobites are found well up while an occasional colony of crinoids is met with at intervals. Sacoocrinus chrystyi occurs well up in the bed. Groups of allied species are generally found in this portion. Rhynchonella Whiti, R. neglecta, R. indianiensis.

Above this level there is three feet of the bed which contains few fossils Platyostoma niagarensis, a few crinoids, brachiopods, etc. This portion was more rapidly deposited. Such is the general character of the bed when in its usual condition of evenly deposited layers and undisturbed sediments.

Another condition which is one that is a prize to the collector is best described by a description of the manner in which it was formed. A cluster of animal life probably belonging to low forms Lichenalia Zoophytes, etc. occupying a space on the even seabed attracted by its decomposition the iron in the water and formed the common iron pyrites. Also the salts of lime sand formed limestone. The two elements pyrites & limestone with the addition of the stony structures of the Lichenalia corals, etc. commenced the formation of a lump or nodule around and on which the numerous forms of animal life corals, crinoids & shells flourished & died. The deposit of argillaceous mud not keeping space with the growth of the mass it spread out and grew up above the surrounding level sometimes only reaching a size of three or four inches in diameter and at other places in the bed occupying the entire thickness & spreading many feet each way.

The one the writer examined was of medium size & offered a very fine example of its class. A section N & S gave 15 in length by three feet in height [sic] at its highest point. In E & W 7 feet. It was irregular in form presenting hollows & projections on all sides above its level bed. The solid limestone was filled with corals shells etc which were covered with a growth of Lichenalia & Bryozoans all cemented with the iron pyrite into a solid mass. The light colored argillaceous layers of the bed are colored by the mass of shells etc which had lived on the mass and not been

imbedded in its iron grasp. It was on the outskirts that the great deposit of workable fossils was found.

[Numbers refer to the sketch (Fig. A1), which was found on a separate small sheet.]

At 1. the smaller brachiopods and crinoids predominate. At 2 the large B & C. At 3. small B. At 4 Gasteropods. As the successive layers of the bed were deposited a .a. they were filled with the animal remains & from these, slabs loaded with bryozoans, corals, crinoids & shells were obtained. At 4 individual *Platyostoma* & *Strophostylus* lay resting against each other & in the layer they were imbedded in profusion. On the west side of the mass over 100 individuals of the genus *Eucalyptocrinus* were obtained. Numerous crinoid roots were attached to the sides & summit of the mass.

In conclusion it may be said that the original nucleus formed a center around which the small shells, corals & Bryozoans flourished. The crinoids gradually grew upon it & the larger shells assembled upon it. The remains falling on it (crinoidal) were buried in it while those falling on the sides were imbedded bedded in the mud with the dead shells washed from it. The gasteropods came on later & form the last circle of life the summit of the bedded layers a .a. had reached to 4.

## APPENDIX II

Some idea of the size and importance of the Walcott collection may be gathered from the Annual Report of the New York State Museum, "The largest addition to the arranged collections [of the New York State Museum] during the year is from the Niagara group of Waldron, Indiana. The specimens were selected from many thousand examples, and the whole arranged series represents a most complete exhibition of the Niagara fauna of Indiana" (Hall 1883, p. 13). A few pages further is a "List of Niagara fossils from Waldron, Indiana, arranged in table cases in the State Museum of Natural History, September, 1882" (Hall, 1883, p. 21-25.)

Hall then listed 138 specimens or fossiliferous slabs "Making altogether eighty-two species which are represented in more than six hundred and twenty examples." The last page reads "The Bryozoans not arranged in the cases at the Museum occupy fifteen drawers. This collection includes the type specimens of all the new species described in volume X of the *Transactions of the Albany Institute*, and also the specimens used in describing the species figured in the documentary edition of the Twenty-eighth report."

"The following [unnumbered] list includes specimens mostly from other classes which have been selected and prepared for the collections, but for which there is no space to arrange them in the cases at the museum." This list contains 33 names, half identified to species, totaling 399 specimens. "The entire collection is represented by more than 1,019 examples."

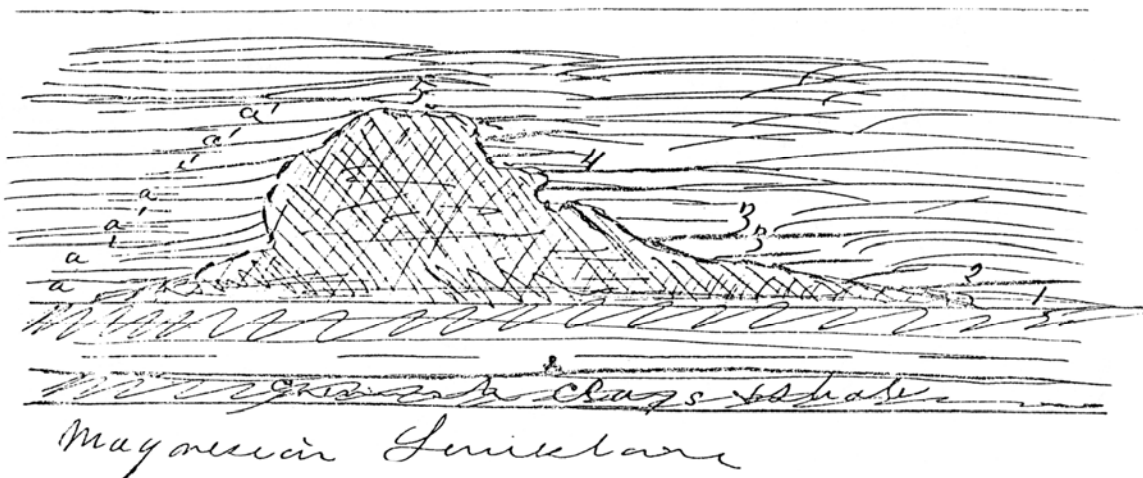


Figure A1. A sketch drawn by Walcott of a Waldron mound, details of which are given in the last two paragraphs of Appendix 1. Because the text has so few changes, it is reasonable to assume that the sketch was prepared at, or before, the time the text was written.

### APPENDIX III

In the back of Walcott's diary are six groups of names and addresses which may be helpful to anyone further pursuing the history of fossil collecting in Indiana.

Items in each group are separated here by commas:

Charlestown, (A.C. Goodwin), Phillip M. Daley, N. C. Washburn, Down near the Sick (or Lick) Creek, Mile from Village NE south farmer beyond first locality – Lexington Scott Co., Dr. James Powers, Black Slate (corniferous) – Canton Washington Co., Dr. S. H. Harrod - Madison, Ch'a R. Barnes – Hanover near Madison – Prof John M. Coulter, Spirifer at Diepaert – Waldron, Shelby Co., Conns Creek, Flat Rock Creek.

Following these, Walcott listed three generic names neither italicized nor underlined. They are unrelated forms, but do have in common a more or less tubular shape and can be confused by the unwary. They are: Tentaculites, Coelprion (now Coleolus), and Hyolithes.