My dear Prof. Marsh,

Enclose for you a New Year's present in which I think you will be interested. I think it confirms your views on the origin of the peculiar structure of 'cone in cone'. The specimen is a fact of thin veins or rather intercalated layers of calcareous substance from the upper coal measures of W. Iowa between layers of argillaceous coal measure shale. Although entirely crystalline you will detect the cone-like grouping of the crystal forming, and at one or two points on the thicker piece you will see that the introduction of a very small amount of clayey matter has caused the characteristic slipping of cone in cone with its graded steps & c. If it had contained more clay it would have all been cone in cone.

I am confident your views are right that cone in cone is the crystallization of carbonatice lime in that peculiar prismatic form, with the entanglement of clayey matter in the mass which is caused to slip on the clay-greased surfaces by pressure caused by molecular accumulation as the fragments of a claystone are separated by an similar accumulation in its cracks, making it take the character of septaria. I regret that I have none of the specimens you mentioned as desiring in your last letter. Next season I may perhaps collect some.

Yours as ever,

C. A. White
Iowa State University,

Iowa City, Iowa, Jan. 26th 1871

Prof. C. C. Marsh

Dear Sir,

Yours of the 21st inst. is just received. You seem to suppose that the Iowa Geol. Survey is still in progress. Such is not the case, it having been suspended a year ago, since which time I have been performing the full duties of my professorship at the University and superintending the publication of my report. I don't know that I shall ever visit the Cretaceous rocks of W. Iowa again. The facts of that formation are here in the University, but I have no authority to do anything with them. I shall try to get such authority from the board of regents. When they meet next June, but at present a stupid executive committee are acting without regard to fitness or reason. I shall try to get you and Prof. Merrill each a copy of my report, but it will depend on the action of the Governor and I have a first class quarrel with him now about the stone proposed to build our State House of. He is a hearty old ass. The legislature gave me only 25 copies.

Very truly yours,

C. J. White
Iowa State University,

Iowa City, Iowa, Feb 13th 1871

Prof. A. G. March

Dear Sir,

I send a package by express today to your address containing two sets of my geological reports—one for you and one for Prof. Ferry. I send both in one package.

I have written to Captain and Mr. T. to hear of important results of your explorations in the West. I am preparing a memoir on the shell heaps of Iowa for the world's congress of archaeologists that meets in Bologna next October.

Please let me hear from you when you get time.

Very truly yours,

C. H. White
IOWA STATE UNIVERSITY.
CHAIR OF GEOLOGY AND ZOOLOGY,
CHAS. A. WHITE, PROFESSOR.

Iowa City, Iowa, June 30th 1873

Dear Prof. Marsh,

Some gentlemen are now exhibiting here the skeleton of what is evidently a large Pleiosaurus from the Cretaceous rocks about 15 miles above Sioux City, on the Nebraska bank of the Missouri. The head is gone, but about 55 feet; they have nearly all the vertical column and part of the appendages. The animal was probably about 88 feet long.

You may obtain any information you desire by addressing Messrs. Sawyer & Leach, Corington, Dakota County (P.O. Box 43) Nebraska.

Very truly yours,

C. F. White

Prof. O. C. Marsh
New Haven, Conn.
Washington, D.C., May 29th. 1884.

Dear Professor Marsh;

I herewith send you the notes on the Laramie of the Upper Missouri, which I promised you. The only notes I made on my observations along the southern side of the Uintas are contained in Hayden's Annual report for 1877. The reference to my finding there what I supposed is the Bridger Group, you will find on page 230. I refer you to that rather than copy it, so that you may perhaps get other hints from the notes connected with those referred to.

I shall be glad to furnish you with any other notes of my observations which you may desire. I start next week for California, but any letters directed to the Washington Survey office will be promptly forwarded to me.

Remembering my pleasant sojourn with you at your home, I am very truly yours,

C. A. White
THE LARAMIE GROUP IN THE VICINITY OF THE MOUTH OF JUDITH RIVER, MONTANA; AND IN THE VALLEYS OF THE MISSOURI AND YELLOWSTONE RIVERS.

Probably the best way to reach the mouth of Judith river is to go from Fort Benton in a boat. Judith river and Dog creek come into the south side of the Missouri within a mile or two of each other. Above the mouth of Judith, in the Missouri valley, you will find little or no Laramie. Also very little on Judith river. There are however, full and extensive exposures of the Laramie on Dog creek from its mouth to a dozen miles or more up the creek. Opposite the mouth of Dog creek, up Birch creek, are full and extensive exposures of the Laramie. The Laramie here and in all this neighborhood, is seen to rest upon the Fox-Hill marine Cretaceous, the latter showing a thickness above the level of the river of from 100, to 300 feet. The Laramie above this is there from 400, to 600 feet more, as the bluffs are very high there.

Old Fort Claggett is between the mouths of the Judith and Dog creek. There is now only a store there. You will probably find there a man who was Cope's guide in 1876, and who helped him make his collections. I have forgotten his name, but you can easily learn it.
Below Judith, on the Missouri, you will find the Laramie exposed without interruption all the way to some ten miles below Cow Island, the bad-land high bluffs being near the river all the way.

The country on each side of the Missouri being so deeply and abundantly cut by bad-land canons and ravines that I think it would be impracticable to traverse it except by a pack-train. Perhaps the most effective plan would be to have a few pack animals to work in connection with a flat-boat on the river.

From a few miles below Cow Island the marine Cretaceous only appears near the river, but occasionally the Laramie appears at the tops of the distant hills. Some 15 miles below old Fort Peck however, (123 miles above the mouth of the Yellowstone) the Laramie strata form the valley sides again, and continue to do so all the way to Bismarck, and below, a distance of more than 700 miles continuously. This long stretch includes the Fort Union group of Meek & Hayden. It also extends continuously up the valley of the Yellowstone for more than 200 miles, forming bad-land bluffs on both sides of the valley. Similar bad-lands are also on all the small creeks which come into the Yellowstone, as well as the Missouri.
At only one place, 10 miles above Glendive, does the Fox Hill Cretaceous come to view in all the near 200 miles referred to.

You are likely to find vertebrate fossils at any point in these Yellowstone bluffs, which bluffs are plain in sight on both sides of the valley. I observed many fragments in the lower portion of the bluffs on the west side of the valley at several points 3 to 7 miles below Glendive. Also some in the bluffs at that town.

Glendive is a convenient place to outfit to operate in the Yellowstone valley. It is on the Northern Pacific Railroad. You can obtain horses and a wagon there. Don't go to Raymond if you can help it. He is crooked. Mr. Ward got his outfit last year from Parsons, and found him correct. If you want a cook, get Melvin S. Wade, of Glendive. He has been with me two seasons. He is a fairly good cook, thoroughly honest, knows all that region, and has been over a large part of it with me. He will take watchful care of the camp and is constantly good-natured. I gave him 60 dollars a month and his subsistence; and also returned him to his home at Glendive.
Dear Dr. Marsh:

I stopped at Como (stone), as I intended, on my way here. Kennedy took much pains to show me all he could, and evidently knew well what he was talking about. Rock creek was so high that I could not cross it without swimming my horses, or taking a full day and I thought it did not see us.

Dove around by a bridge. Kennedy showed me No 9 especially, which he seemed to be working industriously. My examination confirmed my previous impressions entirely, and there is no chance for any misunderstanding whatever, that your Jurassic is exactly the Jurassic of all the various American geologists who have written upon it—except Whitmore. It is precisely what I have always called Jurassic, and I make precisely the same limitations that you do, that is, from the base of the Dakota group sandstone above to the red beds beneath your Baptanodon beds.

Kennedy asked me when you were coming, and I told him, as you told me, that you expected to lecture.
before long, but that you had not decided when. 
I find that of the two trains which leave Omaha 
daily, the one which leaves there in the evening only, 
stops regularly at Lincoln. I was on the train which left 
Omaha in the morning, but I induced the conductor 
to stop there for me to get off. The agent T. E. Bird keeps 
his house at the station, and I got there an excellent lunch, and his 
wife served meals of clean eatable food, far above the 
average domestic grade. The charge was 50 cents a meal 
and the same for a night lodging. Bird said I should 
write you that if you should come, he would get up any 
night to let you in, and would try to please you. 

Mr. Wadley showed me some impressions of shells in the beds 
he is now working, and I think they indicate, as you told 
me, a fresh-water deposit. I asked him to save some 
of these specimens and send them to you; and that I should ask 
you to allow me to study them.

Very truly yours,

E. H. White
Dear Professor Marsh:

While I was in Oregon last September I procured from Condor, the North Fork of the Deschutes River, Oregon, a small molluscan fauna. They are evidently from the John Day Group. There is one Unio and four Helicoidea. The latter are all so nearly like living West Coast species that I shall hardly venture to separate them. Condor says he found Condor with them. Don't tell him I am right in this. I beg you will write me, which you can do better do from memory, the leading vertebrate genera found in that group. I am preparing a little bulletin on those, and some other fresh water forms, and I want to get the information from you.

The John Day molluscan fauna is quite different from that of the Truckee Group, on Snake river.
As far as the modulca of each are concerned, the two deposits may have synchronous. The Tuckee types have not survived. The Johnsey types have.

Very truly yours,

C. A. White
Dear Professor Marsh:

I wrote you a few days ago asking for the names of the leading genera of vertebrates which characterize your Triassic Group, but have had no reply. Please, you are addressed, send card, to lessen the trouble of replying. Please write on it those names, together with reference to the place of publication of your Triassic material, and drop it in the mail for me. I have my manuscript ready for a Bulletin, and am only waiting for the information I ask you for.

Very truly yours,

[Signature]
Dear Professor March:

Many thanks for your letter of the 12th inst. Thank you also for the correction of my error in relation to the existence of invertebrates in the Adirondack beds. Some I think have ever been published from these beds, and it shall be glad of the data you will give me when we meet, and I will publish the same either in the Journal or the Bulletin of the Survey. I hope you can place the material in my hands, and I will try to illustrate it. Condon told me he found the landshells associated with the invertebrates which Leidy described, and I spoke in conversation with me, confirmed the statement of such association, and gave me the same species of shells which Condon gave me. It is not strange that these landshells should prove fossil some of them have. It is difficult
To say how some of the Laramie land and fresh water shells differ from living forms.

Whiteaves writes me in a friendly way that he is preparing a reply to my article in the Journal. I think it will be difficult to convince American geologists that these shells are Cretaceous.

Very truly yours,

C. A. White
Dear Professor Marsh:

In your last letter, and also previously in conversation, you kindly proposed to place in my hands for study the insectivorous fossils which your parties have collected from the Jurassic strata of the West.

I wish very much to investigate these, and, if you are willing, to publish them in a Bulletin of the Survey. The condition of my work is such that I can take them up for study now to better advantage to my plans than to wait longer. If you find it at all practicable, I beg you will do me the favor to forward them at once.

Very respectfully,
T. A. White
Dear Professor Marsh:

I got the package of shells from Mr. Hague today which you left with him for me. These specimens are of extraordinary interest. They comprise two, and perhaps three species of Unio—of simple types, like many now living.

This little collection makes me exceedingly hungry for more. There should be gastropods associated with them, or in the same formation. I shall wait with all the patience I can command for whatever other invertebrate forms you may be able to place in my hands for study from the Districts of the West.

Very truly yours,

C. T. White
Dear Mr. Marsh:

I have received the package of fresh water shells from the Frasctic Stream which you sent me. I am almost fully of the opinion that the two species which they represent are identical with two of the fresh water forms that were described from the Frasctic of the Black Hills.

Moreover, I think the little gastropod is a Carinifera, and not Valvata as Black described it. If so, it shows the former group to be a very old one, for it is now living in the Pacific Slope only; and in Lake Baikal in Siberia. I am sure I shall bring out some very interesting points in connection with the shells which you
Have sent me, and those which I hope yet to receive from you.

Very truly yours,

C. A. White
DEPARTMENT OF THE INTERIOR  

United States Geological Survey  

Maroni Utah August 17th, 1885  

Dear Mr. Marsh:  

I am doing some work here in Utah which will employ me for the remainder of the month, and about Sept 1st I shall turn my steps eastward. I shall go by the Denver & Rio Grande R.R. to Denver, and shall necessarily pass through Canon City. I should like very much to see the strata from which the fresh water Jurassic shells were obtained. Will you kindly write me to Canon City giving me directions to the locality, and a note to your principal collector there. I will write the Postmaster at Canon City to hold letters for me until I come; so you may write as soon as you are disposed. I expect to be there not later than the end of the first week of September.  

Very truly yours,  

[Signature]

T.W. White
Dear Prof. Marsh:

Early in this month I visited Canon City and found Mr. Felch. With his help as a guide I succeeded in getting a fine collection of freshwater fossils from the Atlanticosaurus bed, which now numbers 8 or 9 species in all. Perhaps more will appear when I have investigated the collections. I was, as you may well know, greatly delighted with this additional discovery. Just before I went away you sent me a few additional Jurassic fossils — after the sending of the Unions. These have the label "No. 9, A. Lakes." Are they from Canon or Canon City? I suppose the former, but I am not sure. Please inform me.

Yours truly,

C. A. White
Dear Prof. Marsh,

I herewith send you a set of photographs of four plates which I have prepared for a bulletin illustrating all the fresh water Jurassic invertebrates at present known. By notes in red ink on the margin of each, you will see that much the greater part of them are new, and that they came from your Afton specimens. On my way home from Utah I stopped at Canon City locality, and found several new species myself besides those that had been found by young Fitch.

Very truly yours,

C. D. White
Prof. Asaph Hall:

Dear Sir:—I see by the list of members of the National Academy of Sciences that a biographical sketch of the late other A. R. Hotchkiss has not yet been presented to the Academy. By request of his family I a few months ago prepared a brief sketch of his scientific work to be incorporated in his last volume on the geology of Illinois, now passing through the press. These therefore the data from which a sketch for the Academy may be written, and which are at the service of the Academy, or, if desired I will write the sketch myself.

Please inform me what is the custom of the Academy in such cases as this.

Very respectfully,

C. S. White

Refused to Prof. Marsh
1889, Sept 19.
A. H.
CA Mule. May 1890
Wau to send Col. Cololves
with Hatcher.
April 22, 1890 that request was not proceeded
at present.

In my studies of the Cre-
taceous formations I of course give most
attention to invertebrates, and I often do not
know the relation of formations which I am
studying to those which furnish you with
vertebrate forms. If agreeable to you and
approved by the Director, I should like to send
my assistant, Mr. Stanton, to the localities
which Mr. Hatcher is working for you this
season in the Rocky Mountain region that
he may collect invertebrates there. He will
of course not incur any expense to you or
to your division of the Survey. Please write
me whether or not you approve of this.

Very respectfully,
C. T. White.
Prof. O. C. Marsh:

Dear sir:

In my studies of the Cascade formations I of course give most attention to invertebrates and I often do not know the relation of formations which I am studying to those which furnish you with vertebrate forms. If agreeable to you and approved by the Director, I should like to send my assistant, Mr. Hanton, to the localities which Mr. Hatcher is working for you this season in the Rocky Mountain region that he may collect invertebrates there. He will of course not incur any expense to you or to your division of the Survey. Please write me whether or not you approve of this.

Very respectfully,

[Signature]
Sir:

I herewith transmit to you a memorandum concerning fossil invertebrates which Prof. O.C. Marsh sent to me through your office on Dec. 31st 1890.

They are mostly imperfect, but they are sufficient to indicate that they came from the Laramie formation.

Very respectfully,

Geologist.

To the Director of the

White, Dr. C.P.

Frauds, mean, congo, and frauds incident to the survey in December 1890.

Oct. 24/91.

Respectfully referred to Prof. O. C. Marsh.

By order:

P. C. Warman
Act. Chief Clerk
Laramie fossils received from Prof. O.C. Marsh, Dec. 31, 1890.

1. 5 casts and some fragments of Unio danae M & H.
   "West of Lance Creek, Converse Co. Triceratops beds"

2. Indeterminate casts of Unio and other fragmentary freshwater shells in mass of rock containing fragment of bone
   "Bird Rapids, M.T."

3. Two rock fragments containing Viviparus trochiformis M.
   & H. Viviparus leidyi M. & H? and fragmentary specimens of Unio, Corbicula etc. with pieces of bone.
   "Left bank of Big Lightning Cr. one half mile above mouth, Converse Co. Wye. Triceratops".

4. Crushed cast of Viviparus leidyi M. & H?.
   "Cow Island, Montana"
Washington, April 25, 1894

Dear Professor Marsh:

I enclose a note from Mr. Sherrin, who has acted as our reading secretary so long, which says that it was Seidz and not Sedley, whom you appointed to write Hayden's centenary memoir. I do not desire it, but if you do, I will undertake to write a memoir for Hayden. If I undertake it I should be glad to have word from you at once, and I will try to have it ready for the next fall's meeting at New Haven.

Very truly yours,

T. A. White
Memorandum:

To Dr. C. A. White.

Dear Sir:

The death of Prof. F. V. Hayden was announced during the April meeting, 1888, and Dr. Joseph Leidy appointed to prepare the biographical memoir.

Very respectfully,

G. W. Shoemaker
Dear Professor Marsh:

My memoir of Dr. Hayden for the Academy is printed in pamphlet form, having 18 pages and portrait. I have sent others. Hayden 50 of the copies given me by Prof. Hall, and have distributed all the others before thinking of sending you a copy. Of course Prof. Hall has a lot of them and will send you one if you wish.

I shall try to be at New Haven next November to read it, if desired.

I believe that now all the “old times,” in whom I had any special interest, have been written up.

Very truly yours,

C. A. White