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Correspondence - E. O. Ulrich. 1914-1916

Thwaites, F. T. (Fredrik Turville), 1883-1961

[s.l.]: [s.n.], 1914-1916

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Mr. Thurston

October 21st, 1914.

Dr. E. O. Ulrich,
U. S. National Museum,
Washington, D. C.

My dear Mr. Ulrich:-

I was unable to find any trace of the fossils packed by you on August 19th. I have no doubt that they were lost in the mail although there is the possibility that they are buried somewhere in Mr. Hotchkiss' office. If you remember, I came over late in the rain, and we killed time until 11:30 so that you must have had plenty of opportunity to get them ready to mail.

I should like to have my first notebook back again for a few days as I need some of the glacial observations in it. I will also finish looking up exact localities. We expect to make a few short trips around here this fall and get a few fossils. Mr. Weidman is still proving that you are entirely wrong.

Very truly yours,

FTE/D

Washington, D.C.

Oct. 24, 1914.

Mr. F. T. Thwaites,

Geological and Natural History Survey,
Madison, Wis.

My dear Mr. Thwaites. -

I brought your notebook to the office this morning from my home where I have been spending some of my leisure evenings in transcribing notes into my own book. Had finished all but one section (which I did today) so was ready and about to return the book to you when your letter came to hand this P. M. Trust you will find it in good condition with this. I am through with it, and now desire to get the second book. Will run through it as rapidly as possible and return it in probably less than 2 weeks after its receipt here.

Regarding missing fossils I have to report additional lots that have failed to turn up here. All of these missing lots were carried to Madison and should have been - or were - ^{mailed} shipped from there. In addition to the lots collected Aug. 17 & 18 out from Madison, there is wanting

2) a small collection of graptolites from Little Chute
Likewise the trilobites found by you and
laboriously found from the rock pile on east
side of river at end of bridge.

The first Butte Des Morts Lake quarry
collection is here, but none of the ^{collections} ~~second~~
made on the second visit, Aug. 25th. As I
recall the matter these were not mailed from
Oshkosh but carried with us to Madison.

Regarding the 19th of Aug., it is true we did
not start till almost noon, but you will
remember that I did not go to the office that
morning and luckily met you and Stridman
on the way ^{down} near the Capitol. Hence I
could not have packed these collections at all.

I asked Weidman to inquire of you on
the bare possibility that some of the missing
material may have been removed out of the
car when you were overhauling it and accidentally
left in your garage.

Another possibility is that the material
was turned over to Stridman with
other packages really intended for him.

Am somewhat anxiously awaiting the result
of your trips this fall, especially since you warned
me of your intention to stray from the fold.
I am not afraid of Weidman proving anything
~~serious~~ on me. Nor shall I object to - on
the contrary I shall welcome any proof of error on
my part that either you or he may present. So to
it!

Sincerely yours,
E. Orin

Washington, D.C.

Sunday Oct. 25, 1914.

Dear Mr. Thwaites, -

I wrote you about 6 P.M. yesterday saying among other things that I am ready to receive your second note book on the summers work in Wisconsin.

Today, in running over the first of three files of 2nd class mail received for me in the office during my absence in the field, I find the desired notebook. As my letter would probably cause you some anxiety over the implied failure of your notebook to reach me I hasten to reassure you. It is safe and will take it home with me this evening to begin transcription of notes. Shall return it to you as soon as possible.

From the first page of this second notebook I learn that the "new quarry in Mendota on Sun Prairie road" was visited on the 18th Aug. I note also that the Onocota quarry, ^(Barber's) visited later on same day, and from which also the collections are missing, is on Lake Kegonsa and not Lake Monona as previously stated.

Hastily - Yours,

E. D. Coker

DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

WASHINGTON

Oct. 31, 1914.

Mr. F. T. Thwaites,
Madison Wisconsin.

Dear Mr. Thwaites:

Your Zeppelin bomb dropped on my devoted head out of a clear sky. On first sight, in which I noted with much satisfaction that the missing lots of fossils had been located, said bomb looked perfectly innocent. After the explosion, which came with the third paragraph, I began a systematic search for injuries. So far the investigation seems to indicate a case of "never touched me". I have found no broken bones, no abrasions, no new bumps - in short it seems that the bomb was altogether harmless, filled with light gas and nothing solid in the charge - a little noisy perhaps but otherwise ineffective.

But I am sweating blood over the possibilities which lurk in the efforts of your conspiring band of four and , perhaps, now six, enemies of my classification of the Cambrian and Ozarkian! Wont you please put me out of my misery by telling me what you fellows are kicking about? It must be something awful that can justify an alliance between such naturally diverging persons as yourself, him of the "desert-blackened-hand", and my friend Weidman! The required properties that might even temporarily combine these ill-assorted ingredients into a harmonious body must lie in the fourth, fifth, and sixth parties to this hexian offensive alliance. It seems the very basal

conglomerate of a base conspiracy against the peace and happiness of an innocent and honorable seeker of the truth. Fie on you!

Regarding the "large collection of trilobites, etc., from the true Madison" I can say nothing less than that I am charmed to hear it. If you have anybody in Madison capable of giving an authoritative opinion on the composition and age relations of this fauna, I shall be glad to learn it when you are ready to so favor me.

But what adverse effect this Madison fauna can have on the validity of my classification is quite beyond me. Whatever it may be like it is an Ozarkian fauna. As I have had occasion to point out in a paper that I am sending under separate cover to my appreciative Madison friends, a "Cambrian" fauna is of Cambrian age only so long as it occurs in Cambrian rocks. In recent years I have shown that many occurrences of "Cambrian" faunas are truly post-Cambrian in age, in most instances Ozarkian, in others Canadian.

And as to its "finishing off all of my ideas on this subject", it must be of a kind entirely distinct from anything now known in the way of Eopaleozoic faunas to do that. Remember, I am an enthusiastic exponent of the multiple-hypothesis method. Don't deceive yourselves, and above all don't underrate the resources of your opponent. Take my advice and practise running this winter. You will have lots of it to do next spring on those proposed long trips.

Dunn Town, I suppose, is the place where the Mendota rests on the St. Lawrence. It did not rain hard enough on August 18 to cause us to fail in

Mr. Thwaites, Oct. 31, 14

recognizing the sameness of the sequence here and the one in Maple Bluff. But it will take the light of more than one sun to see the Mendota in the section about Prairie du Sac. And it will be a dark night indeed when you fail to discriminate between the Jordan of that area and the Madison. If I should ever fail in this I would swear my blindness was due to somnolence caused by the smoother running of your new car. The old Reo would never permit me to sleep while on the job.

Am about to take my night cap: So here's confusion to the conspirators and best wishes to you all as individuals.

Sincerely yours,

E. Orlich

November 4th, 1914.

Mr. E. O. Ulrich,
U. S. Geological Survey,
Washington, D. C.

My dear Mr. Ulrich:-

Yours of the 31st was received, and we have been too busy working in the field to answer before. Our first attack was of course only a blind, and we did not expect to do very much to you. The time we will show you what the real facts are will be about December.

The ill-assorted conspirators are also united in the search for the truth, and with regard to the fossils, we are also to have the help of a well-known paleontologist from outside Madison. You have incidentally furnished us with some information which may be used against you in this matter and we have not underrated your resources.

I have not yet finished the section in the town of Dunn but will do so shortly. I am sending you one from that vicinity, also a number of copies of well records, with my interpretation of the strata. I have not re-examined the samples to do this, but will do so for any which you consider ^{especially} really important.

With regard to the Jordan and the Madison, I don't think it will take very many suns before we will be able to show you something in that regard. We don't go to sleep much with the new car, and hope to use it a lot in the course of our conspiracy.

Very truly yours,

DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

WASHINGTON

November 14, 1914.

Mr. F. T. Thwaites,

University of Wisconsin, Madison, Wis.

My dear Mr. Thwaites:

Yours of the 4th with inclosures, and the later one with additional sections, duly received. Many thanks. Though the prime mover in the "conspiracy", hence an arch "inimy", you are doing loyal work for the science. Together we will get the truth if we can; and let it turn out as it may - I shall not "holler" if the tide turns against me. I have had too many hards bumps in my time to ever believe myself past the chance of another. Besides I like a hard fighter. All I ask is that the scrap be fair, and that we keep our tempers.

When you and the "well-known paleontologist from outside Madison" are ready to shoot, just go to it. It is your move. As for myself, there is nothing to do but stand pat ^{until} ~~while~~ you reveal your position.

Am returning your second notebook under separate cover.

Sincerely yours,

E. Ulrich

November 16th, 1914.

Mr. E. O. Ulrich,
U. S. Geological Survey,
Washington, D. C.

Dear Mr. Ulrich:-

Your letter of the 14th is at hand, also the notebook. I was very anxious to get the last in order to use it in stating our case. We have not yet finished our field work because the more we find out the more we want to see. We are quite sure that you will have to hang by your toes in order to see the strata the right way up. I expect you will have to be the well-known paleontologist and examine some of our fossils for us, because we have not had time to work them up or to take advantage of offers of assistance which have even come from some of your closest friends in Washington. We have many volunteers to our conspiracy, and are quite confident that before many days we will have finished off a lot of your ideas. When I get them properly finished I will write a short statement on them and send it to you, and also my third notebook.

Very truly yours,

FTT/D

DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY
WASHINGTON

December 3, 1914.

Mr. F. T. Thwaites,

University of Wisconsin, Madison, Wis.

Dear Mr. Thwaites:

Thanks for your warning to beware. I am; and to fit myself for the ordeal of seeing things as others see them - meaning the conspirators by others - I have been practising hanging my my toes. Have found the unusual exercise somewhat trying but am hoping that I may finally succeed in bringing myself to specifications. But I am particularly pleased to note your admission that the normally upright must reverse their attitudes to see Wisconsin strata as they now appear to you and, presumably, your associates. Never fear, I shall do the best I can to accommodate myself to the limitations of the blind and the halt if only to get your viewpoint. Thusly prepared I hope to be on hand when you get the water all so beautifully stirred up that you cant tell the land from the sea. Then - well, then you will be glad that I learned through long and varied experience to keep my balance under nearly all circumstances. I may wobble a bit now and then, and even seem to go under for a while, but in the end you will find that I have only dived to bob up serenely in some other unguarded place.

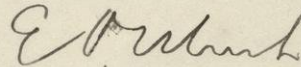
And as to having any of "my ideas finished off", you may be sure that I shall gratefully acknowledge and appreciate all of your efforts to give them the finish that I am continually striving to give them. I fully recognize

Mr.Thwaites,Dec.3,14

their crudeness and the crying need of the finish that comes only with an abundance of such detailed information as is now being supplied by yourself and allies. More power to you; and may the time never come when I shall no longer subscribe to your statement that "the more we find out the more we want to see!"

Therefore, I am hopefully looking forward to the early date when you will make good on your promise to send the "short statement" and your third notebook.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "E. P. White".

December 14th, 1914.

Dr. E. O. Ulrich,
U. S. Geological Survey,
Washington, D. C.

My dear Mr. Ulrich:-

Our high explosive bomb was discharged at you last Friday and I expect by now that the Ozarkian period at least has been destroyed. We are sending you today two boxes of fossils which we also expect to have the effect of destroying some of your opinions, that is, if you survive the shock of the short statement of our objections to your views, which has been so long promised. If we do finish off one or two periods you will at least have the satisfaction of knowing that we had to work very long and hard to accomplish this result and strange to relate, all members of the conspiracy exactly agreed about the results.

By no means should you fail to underrate our resources. This is not our last ^{shot} ~~point~~ by any means. When spring comes we have a number of other things about which there will be a heated argument before we decide that we were wrong in our former studies. We guarantee that we have seen all of the outcrops while standing on our feet, and further that we have paid no attention to how they may look in Missouri.

Hoping that you will be able to survive these two violent explosives ^{one} in order for us to have some more excitement in the spring.

I am

Very truly yours,

DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

WASHINGTON

January 2, 1915.

Mr. F. T. Thwaites,

Geological and Natural History Survey, Madison, Wis.

Dear Mr. Thwaites:

On my return to the office this morning from the meeting of the Geological Society at Philadelphia I find your letters of the 28th and one from Hotchkiss of the following day. In one way I am very sorry that my unavoidable neglect to immediately acknowledge the receipt of your "long-promised statement" regarding the matters at issue between us should have caused either of you any uneasiness as to the effect of your statement on my temper. On the other hand, I am rather glad that I delayed because it further assured me of my previous belief that the tone of your "statement" was not intentionally offensive but wholly in the spirit of facetious levity that I myself have used from the beginning of this discussion. Others unacquainted with the facts in the case might have been misled regarding your intentions, but as for myself, I trust I am too good a sport to take offense where none is intended. I take chaff as readily as I give it. Indeed, my willingness and ability to stand good-natured chaffing is proverbial here on the Survey. So much of it comes my way that if I could not easily stand for it my life would be embittered. That it has never so affected me - that I am patient under wordy chastisement, and in fact thrive on it - must be evident to all of my friends.

So cheer up; and please look forward to the continuance of the, I trust, mutually pleasant relations begun between us last summer. And don't forget that I count on your aid in the settlement of the really difficult problems on which we have so far failed to agree. I shall certainly try to see things from your viewpoint, and if I can see the validity of your arguments I shall most willingly and thankfully abide by them. If not, then I shall hope to convince you; and if that is impossible then we may agree to disagree. Perhaps, after all, the truth lies somewhere between us. Wherever it may be, let us search for it open-mindedly and without animosity of any kind. So, auf Wiedersehen!

Regarding the "statement". I have read it carefully but am not prepared either to deny or to accept your conclusions. Perhaps neither course is desirable before we can look at some of the field evidence together. In any event I desire to be wholly just to your contention - even more so than to mine, for the latter is always in my mind and thus has the advantage of more persistent advocacy.

The collections accompanying the "statement" unfortunately arrived too late. I had another, even more difficult, controversy on my hands, with opponents including Dr. Stanton, David White, Keith, Kindle, Girty, Prosser, and several others, all of whom were on hand last Wednesday at Philadelphia to combat my views. To be properly prepared for their attack - they failed to touch me - I had to submerge myself in my problem and put aside everything else beginning with December 17. It was a beautiful fight and - well, I did not lose a friend. It will most likely be some time in February before I can

Mr. Thwaites, Jan.2,15

return to the study of the Wisconsin problems. Between now and then my time will be fully occupied by another task the completion of which also is being looked for by certain "friends of the truth" who think they are loaded for bear. But they will find that I am not the bear they were looking for.

January 5, 1915.

The above was written on the 2d, right after enjoying a small noonday celebration of victories by some of my friends at Philadelphia. But even such occasions may have a "back-fire". This one had, for the ensuing night proved as disagreeable for me as a ptomained oyster could make it. Have only this P.M. ventured a return to my office - a little peaked, and peeved perhaps, but much chastened in spirit.

With best wishes for the new year, also the hope that our future relations may never be less pleasant than I have found them hitherto, I remain,

Sincerely yours,

E. O. Ulrich

*If you see our mutual friends Hotchkiss and Weidman please tell them that I shall endeavor to write one or both tomorrow or as soon thereafter as circumstances will permit,
E. O. U.*

DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

WASHINGTON

April 10, 1915.

Mr. F. T. Thwaites,

Geological and Natural History Survey, Madison, Wis.

Dear Mr. Thwaites:

Yours of the 2d inst. contained more surprises than one. First, I learned that your notebook had not been returned to you. This delinquency, however, was unintentional. In fact it must be quite six weeks ago when I passed it over to one of my assistants with instructions to mail it to you. This assistant happens to be sick in a hospital just now so I can not say how the slip came about. On searching his desk a package addressed to you, and which proved to contain the notebook, was found. It would have been sent on its way yesterday if you had not asked that the "diagrammatic sections" also be returned to you. Under the circumstances the mailing of both in a single registered package is delayed until today. The delay is occasioned by my desire to copy such of the diagrams as seemed important or necessary to explain your interpretation of the stratigraphic problems on which we have differed.

The second surprise is furnished by your remark that you "judge from my last letter to Mr. Weidman that I do not care to make use of any of your data"; and by your intimation that I "seem to think the questions closed". I resent such unfairness. I never said anything even suggesting that new data are unwelcome, whether these data come from you or any one else; and I deny most emphatically any statement on my part indicating that

I regarded the questions as settled or that I was unwilling to consider your evidence impartially. I have made too many mistakes in my life to regard my judgment infallible. I am after the truth, and in seeking this my previous opinions are maintained only so long as they are in accord with the balance of evidence attainable. As my stock of data increases my inferences are continually modified to accord with the newer facts. Have I not encouraged you to get all the facts you can? And in our controversy have I not shown myself eminently just to my opponents and ready to consider whatever data I am favored with? This attitude is clearly expressed in my last letter to Dr. Weidman in which I say "should this proposed study show we wrong on the whole proposition, or on certain phases of it, you will find me ready to abide by the evidence". But the evidence must be conclusive and not susceptible to different interpretations. Appearances are often very deceptive; and in stratigraphy one is often forced to go elsewhere to get the data required to explain the false appearances in another area. Therefore, New York, Missouri, and Appalachian Valley sections can not be ignored, as you are inclined to do, in settling a Wisconsin problem. We are dealing with marine deposits and the seas that invaded the continent to Wisconsin had to transgress other areas before they could reach your State.

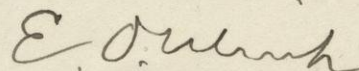
As to the questions being closed, that may be so in your own mind but not in mine. If you will look over our correspondence regarding the relations of the Madison and Mendota to the Jordan and St. Lawrence you will see that the definite statements - those controverting mine - have come entirely

from you and Weidman. My replies, on the contrary, have always recognized the possibility of error on my part and clearly indicated a willingness to abide by the results of the new evidence. In consequence of this attitude I have no fixed opinion on this matter at present. Nor shall I have any until I have had an opportunity to go over your last collections and your statement of "your case", and verified the stratigraphic facts in the field in June. If these investigations show conclusively that my interpretation of the relations of the mentioned formations is wrong, then, but only then, I shall be ready to discard it in favor of some other view. In the meantime my report is shelved.

You need have no fear that your data will not find a prominent place in my report. The work of the "conspirators" brought out some important information which I would not, and could not if I would, disregard. It has bearings that you do not appreciate at all, since they are aside from the purely local problem. I shall make the most of them you may rest assured. And they are valuable also in pointing the way to the proper solution of the local phases of the problem. Oh yes, the data themselves will be used even if I find myself unable to accept your deductions from them.

The third surprise has to do with your statement regarding your being out of the question for the present. What or who put you out? Surely I have neither said, written, nor done anything that could justify sulking in your tent. Be a sport and stay in the game.

Sincerely yours,





102
102

3

DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY
WASHINGTON

April 28, 1915.

Mr. F. T. Thwaites,

Geological and Natural History Survey, Madison, Wis.

Dear Mr. Thwaites:

There are two, or perhaps three, objectionable features about your determination to retire entirely from our interesting and profitable discussion of Wisconsin stratigraphy. First, you owe it to science to do your utmost to keep me from fastening erroneous conceptions on the geological literature of your State. Published errors are always hard to eradicate; and in this case they are likely to be more widely harmful and harder to down than usual because of the wide scope and authoritative character of the volume that I am preparing. You see an example of this in the work of the old Wisconsin Survey. Despite the numerous errors in it, despite the diverging views published shortly after in Minnesota and Iowa, the work of Chamberlin and his associates remains the standard for the State to this day. Its value and longevity is due chiefly to its comprehensiveness. My revision of the stratigraphy of the upper Mississippi Valley will not last as long as their work because science is moving faster in these days. But it will be founded on new principles that are just coming into their own, so that even truth, if tinctured with the old, as your and Weidman's views are, will have a hard time in upsetting any of its essential features. Therefore, as I see it, you should not permit a fancied - no, not even a real grievance to interfere

with your plain duty.

Next, you owe it to me, if not personally then as a scientist who is trying to produce a work that will be a credit to your State. I wish to make this work as correct as I can and you as a friend of mine should wish the same no less. However correct and thorough I may succeed in making it, there is no reason to even suggest that I am seeking to hog all the credit. At its best the proposed work can be no more than a good basis for the future detailed work that you and the others must do before the task we have set will be done. Holding back on each other will hurt the work and benefit none. A united and harmonious beginning, on the contrary, will help all around.

The foregoing two reasons caused me to write the last paragraph of my preceding letter. The third point required a conference with Mr. Hotchkiss before I would permit myself to be fully convinced of its validity.

It seems that you have somehow reached the conclusion that Mr. Hotchkiss has adopted an unfriendly attitude toward you. When your letter in which this "attitude" is referred to arrived, I simply could not believe that there was any real warrant for your belief. You were the subject of discussion between Mr. H. and myself too often last summer to make it possible that I had not fully understood his attitude then toward you. Invariably he defended and made allowances for you. And this continued through the fall and early winter when he feared that the facetiousness of our correspondence might finally get under my hide enough to offend me. No, there was nothing to suggest that he had in anywise changed his attitude toward you. I learned of this first from you.

When Mr. H. was here last week I fished around for a while and finally asked point blank what had happened between you and him. He confessed at once that when he read your statement he was alarmed over its possible consequences and probably spoke his mind more strongly than the occasion warranted. But he insisted that his motives throughout were more friendly than antagonistic and that he has not consciously changed his attitude. This is as it has always been. And he assured me of his regret that he had unintentionally caused you to feel as though you had "been forced to retire from the discussion".

Get together! When I come to Madison on or about June 1, I shall not feel welcome if you are not on hand ready to steer us to the places where we may see what is and what is not.

In the meantime I want very much to get some more material from the Madison sandstone in ^{or is it Stearns's} ~~Pannack's~~ quarry. That which was sent me contained only a single satisfactory trilobite head - a Calvinella that I have from two other places in Wisconsin and from the Hoyt limestone in New York. It suggests some important modifications of preceding views, but its suggestion may not stick without corroborating evidence. Can any considerable quantity - say some 30-50 pounds of promising rock - be readily gotten? To do any good before I get to Wisconsin it should reach me not later than May 10. I expect to leave for the southern Appalachian field on May 15 or 16.

Sincerely yours,

E. O. Ulrich

When Mr. K. was here last week I played around for a while and finally
 asked joint blank what had happened between you and him. He confessed at
 once that when he read your statement he was alarmed over its possible con-
 sequences and probably spoke his mind more strongly than the occasion war-
 ranted. He has not consciously changed his attitude. This is
 as it has always been. And he assured me of his regret that he had written
 it. I think you had been forced to retire from
 the discussion."

Get together! When I come to Madison on or about June 1, I shall not
 feel welcome if you are not on hand ready to steer us to the places where
 we may see what is and what is not.
 In the meantime I want very much to get some more material from the
 Madison sandstone in the quarry. That which was sent me contained only
 a single satisfactory trilobite head - a Calymene that I have from two other
 sources. ~~It is a very fine specimen and I have it in my collection.~~
 some important modifications of preceding views, but its suggestion may not
 stick without corroborating evidence. Can any considerable quantity - say
 some 20-30 pounds - be readily gotten? To do my good
 before I get to Wisconsin it should reach me not later than May 10. I ex-
 pect to leave for the northern Appalachian field on May 15 or 16.

Sincerely yours,

E. D. Cope

DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

WASHINGTON

May 14, 1915.

Mr. F. T. Thwaites,
Geological and Natural History Survey,
Madison, Wis.

Dear Mr. Thwaites:

I am greatly pleased to learn that the "bumps" have been smoothed down between you and Mr. Hotchkiss; and that I may again look forward to riding behind you and to functioning, for a brief time at least, as the chief "shock absorber" of your new car. I don't care how fast you drive so long as you do not run by the good exposures. As to doing "a lot of collecting", I trust that will not often be necessary. So far as I am concerned collecting shall, as a rule, be determined by what is required to identify the bed.

Yes, let us go to Plain: it is the unusual that we need now rather than the usual. When I arrive in Madison, which I plan to do on June 2, we can quickly decide on a route. In the meantime you might do some planning. I shall be on the job two weeks, and if necessary a few days longer. Let me say here that I fully appreciate your viewpoint with respect to remuneration for use of car in visiting your localities. Also that I shall be glad to have Mr. Mehl join us.

Mr. Weidman's specimens came to hand a few days ago. I broke most of them up day before yesterday but found nothing good except four heads

Mr. Thwaites, May 14, 15

of the Calvinella noted in the first lot and two tails of some which I had not seen before. There was also an imperfect valve of a brachiopod and three very poor gastropods. Hope your lot contains more kinds. Am to leave Washington for the South next Monday.

Sincerely yours,

E. O. Ulrich

November 9th, 1915.

Dr. E. O. Ulrich,
U. S. National Museum,
Washington, D. C.

Dear Mr. Ulrich:-

I wish to thank you for the two volumes of the bibliography of Ordovician and Silurian fossils, received from Mr. Bassler, I presume being sent at your request.

I am doing some work on the structure of the Wisconsin Paleozoic rocks and have made contour maps of the base of the Niagara, Trenton, Lower Magnesian and Potsdam, as well as mapping the thickness of several horizons by means of contours, and limiting so far as possible the area where the Lower Magnesian dolomite is absent and the area occupied by the Clinton formation. If you care for blue prints of these, I have no doubt Mr. Hotchkiss will get them made. They are as yet subject to correction as I am getting in information right along. You see that we are still using the old names, and that the battle against the new classification is still going forward.

Very truly yours,

FTT/D

DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

WASHINGTON

November 17, 1915.

Mr. F. T. Thwaites,

University of Wisconsin, Madison, Wisconsin.

Dear Mr. Thwaites:

Yes, the two volumes of Dr. Bassler's Bibliography were sent you at my request. I thought you would find them not altogether useless or without value, particularly in the future, for I have not yet lost all hope of living to see the germ of the paleontologist in you sprout and finally bear fruit. Also, it seemed worth while to give you an opportunity of observing by published evidence how my "theories" are progressing toward general adoption. The "battle" against the new classification that you say is "still going forward" reminds of the censored British reports of their "drives". The resistance to the "new classification" still observable is not properly designatable as a "battle". I would call its occasional manifestation mere "rear-guard engagements".

I am glad to learn that you are doing such desirable work in mapping the contours of the bases of formations mentioned by you. I expect to find your results both interesting and useful in my work because your surface and well data, however much "subject to correction", will serve as a graphic check on my theories respecting the location and trend of Paleozoic downwarps. Of course, then, I desire a set of blue prints, and would esteem it a favor if you will transmit my desire to Mr. Hotchkiss's notice.

Very truly yours,

E. O. Ulrich

DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY
WASHINGTON

February 2, 1916.

Mr. F. T. Thwaites,

University of Wisconsin, Madison, Wisconsin.

My dear Thwaites:

The underground contour maps came duly to hand. Have glanced them over and found some things that I do not understand. Will write you about these later on when I shall have come back to the consideration of Wisconsin stratigraphy.

The immediate purpose of this note is to draw your attention to a paper just published in the American Journal of Science (Feb., 1916) by Savage and Ross on the age of the Wisconsin "Clinton iron ore". If you will look this up you will find that they put this ore bed into the Richmond. Further, they claim to have found Richmond fossils in it at Cascade Falls, about 5 miles east of De Pere. The fossils are said to have been found in a layer 1 to $1\frac{1}{2}$ feet above the base of the ore.

Are these the falls visited by us year before last? If they are, how came we to miss the fossiliferous layer. If they are not, then it is doubtless one of the exposures studied by you on another occasion. Did you observe any fossils in the ore here or anywhere else?

Sincerely yours,

E. Ulrich

March 15th, 1916.

Dr. E. O. Ulrich,
U. S. National Museum,
Washington, D. C.

Dear Mr. Ulrich:-

I have obtained a large slab showing fossil tracks in the lower portion of the Cambrian sandstone. These are ^{like} the tracks described in Volume 1 of the Geology of Wisconsin, altho^{gh} this specimen is from another locality. Before labeling this specimen, I should like to know what idea you have as to the animal that made these impressions. I have read some articles on the subject, but nothing very recent, and thought you could probably point out very quickly what was the latest on this subject.

I have just been collecting samples from a well drilled about midway between Pheasant Branch quarry and the Madison quarries. It shows very distinctly that the yellow St. Lawrence beds overlie about 10 or 12 feet of hard gray dolomite. I am inclined to think that this very strongly supports my view on the relation of the formations. If you come out here in the summer, as I hear that you are going to, I can show you these specimens, or as I have some surplus I could send you some now if you wish. We are not ready to give in on this question yet.

Very truly yours,

FTT/D

February 7th, 1916.

Dr. E. O. Ulrich,
U. S. National Museum,
Washington, D. C.

Dear Mr. Ulrich:-

Your letter of the 2nd is at hand. With regard to the contour maps, they were sent without my having a chance to look them over and put on the colors which should be there. Some have abbreviations which are those in use by the Wisconsin Survey.

I wish to thank you for calling my attention to the article in the American Journal of Science. I have just read it and find from the photograph that the locality they visited is clearly the same as the one we did. Unfortunately, the usual careless habit of so many observers has resulted in their not giving the exact location, but the photograph makes the matter sure. Their observations do not tally exactly with ours, but if they found fossils undoubtedly they have slipped one over on us. If you remember how the water was coming down over the falls, you will recall how it was that we did not spend any more time digging around there than we did. Their photograph shows a much lower stage of water, and it was therefore easier for them to work. I have never observed any fossils in the ore and have seen a great quantity of it. The place where they found fossils is more shale than ore. A detrital origin of the fossils is therefore quite possible. I don't get what they say about the residual nature of the top of the ore on account of its containing pyrite or rather marcasite. At Iron Ridge they have recently found a large deposit of marcasite overlying or perhaps interbedded with the top of the ore. This mineral has clearly been unaffected by weathering, since ~~the~~ it decomposes as soon as broken out of the ground. A heap of it left in the drift is reported to have been too hot to shovel inside of a few days. It was therefore obvious that it was not formed under conditions where oxygen was present.

I hope in the spring to be able to get down there and see this place again. We only had a few minutes to look at it last year.

Very truly yours,

FTT/D

April 11th, 1916.

Dr. E. O. Ulrich,
U. S. National Museum,
Washington, D. C

Dear Mr. Ulrich:-

At the request of Mr. Hotchkiss I am sending under separate cover a set of blue prints of well sections in southern Wisconsin and a few in Illinois and Iowa. I have marked on in red pencil my present idea as to the correlation. You will see that I differ quite considerably, not only from my former correlations but from those which you gave to the Illinois Survey. This work was gotten out for Mr. Anderson of the Illinois Survey, with an endeavor to follow up the strata they find in their deep wells to the outcrop. We have not been wholly successful in this endeavor, for reason of the lack of knowledge of the rocks in central Wisconsin. I am enclosing a copy of a statement regarding this matter which I sent to Mr. Anderson. I hope you will not think it was too hard on you.

Very truly yours,

FTT/D

Curator, Geological Museum.

April 15th, 1916.

Dr. E. O. Ulrich,
U. S. National Museum,
Washington, D. C.

Dear Mr. Ulrich:-

I wish to thank you for your letter of the 12th. The specimen which we have of fossil tracks is said by Mr. Blackwelder to be superior to that in the National Museum, but I understand they have better ones at Beloit College. I hope to get down and see these some time, *also the new horizon locality*

In regard to the Mendota problem, the well in question is one of those of which I sent you a blue print entitled Well at Moraine. The importance of the record is not that it shows a different section than that at Pheasant Branch, but that it brings the Pheasant Branch ^{section} so close to the Madison quarry section that the correlation appears to be almost indisputable. I trust that when we get our new paleontologist here that we will be able to gather some more data along this line. They have made some excavations in the Mendota near here which I hope will show up a number of fossils.

Very truly yours,

DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY
WASHINGTON

April 12, 1916.

Mr. F. T. Thwaites,

University of Wisconsin, Madison, Wis.

Dear Mr. Thwaites:

Yours of the 15th ult. duly received. Investigations required to answer your inquiry concerning Cambrian tracks were made on the day of receipt. It happened, however, that my stenographer was absent on that day and worse still, your letter was pushed aside with other papers and forgotten by the time of her return on the following Monday. As I am about to leave for the field we had our usual spring cleaning somewhat earlier this year. Your letter, together with a dozen other epistolary delinquencies, turned up in this next-to-godliness process. This is the result - I trust not too late to be of service.

The last, so far as I know, on those tracks is by Walcott, who figures and discusses ~~two~~ Wisconsin species in a paper on the "New York Potsdam-Hoyt fauna", published by the U. S. National Museum (Smithsonian Miscellaneous Collections, vol. 57, No. 9, pp. ²⁵⁹⁻²⁶² ~~275-279~~, pls. 46-49) in 1912. Presumably a copy of this work is in the library of your university. His interpretation of the impressions looks good to me.

Regarding the question at issue between us let me say that I hope you will continue to gather all the evidence that may have any possible bearing on its true solution. But how the presence of "about 10 or 12 feet of hard gray dolomite" under "the yellow St. Lawrence beds" in the new well throws any new light on the problem of helps your view of the relations of

the formations is not clear to me. As I recall it, precisely the same sequence occurs at Pheasant Branch quarry. Under the dolomite there should be some soft shale and greensand and then the rough-surfaced sandstone that outcrops on the west and south shores of the lake and contains a small Hyolithes with trilobite remains. All of these beds seem easily correlated with beds in the Mazomanie section.

Should you get to the "Richmond" iron ore locality before I come to Wisconsin, kindly write me the result of your investigations. At present I can not accept either the contemporaneity of the fossils and the ore, or Savage's explanation of the meaning of the presence of marcasite in the top of the ore.

Sincerely yours,

E. Orin