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## Correspondence - L - 2. 1929-1960

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

[s.l.]: [s.n.], 1929-1960

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Prof. F. J. Thwaites,  
Dept. of Geology,  
University of Wisconsin,  
Madison,  
Wisconsin.

Lincoln, Nebraska

FEB 24 1936

Dear Prof. Thwaites:

The reprint of your recent paper on:

*E Strata of Wis.*

has been received and is greatly appreciated.

Please accept my thanks.

Respectfully yours,

*A. L. Lugn*

A. L. Lugn,

Associate Professor of Geology,  
University of Nebraska.

*I shall send you in a  
few days copies of  
my new bulletin on  
Pleistocene Geol. of Neb.  
now being bound. Shall  
also answer your  
letter. A. L. L.*

THIS SIDE OF CARD IS FOR ADDRESS



Prof. F. P. Thwaites  
(Route 4) Madison  
Wisconsin

Ann Arbor Mich. May 18/1935-

Your letter of the 17th is received. Since writing  
you I have written to Kay, Fossbridge and  
Leighton in regard to the area near Red Wing  
and suggested that this be given attention by  
those who are interested in the Pleistocene after  
the Conference winds up at Duluth, Sept. 1st.  
I told them I had written to you, and that I  
had suggested your visiting the place in ad-  
vance so as to know where the best exposures  
are now to be found. They will receive my letters  
today. I will report to you what I hear from  
them in reply. Yours truly  
Frank Leverett.



May 1, 1936

Prof. A. L. Lagn,  
Dept. of Geology,  
University of Nebraska,  
Lincoln, Nebraska

Dear Prof. Lagn:

Yours of April 10 and the package of reports came to hand just as I was preparing for the springs field trip to Devils Lake. That lasted eight days and since returning I have been so much occupied with liquidating its affairs that I have been unable to thank you. All were much appreciated and material from them will surely be incorporated in the revision of my text when ( or if, for funds are now scarce) it is revised.

I have as yet been unable to read Bull. 10 in enough detail to permit of any suggestions I might make in regard to the points raised but such study will soon follow.

With regard to correlation with the European succession the same idea has often occurred to me with regard to the correlation of the glacial deposits in the west of this country. The matter will have to be settled by means of the soil profiles developed in the several intervals. I doubt that existing reports are full enough on this point but have not read them for some years. If I ever get to printing my text will try to write up the European succession to the best of my ability and will then have to study the literature more thoroughly.

The new edition is to include a full page map of the Pleistocene from the Dakotas east to western New York showing moraines, outwash, and lake areas. It is now partly done but as I must finish my report on northeastern Wisconsin this summer will probably have to go over. On account of expense I cannot make all the changes I would like to in the text and illustrations. Orders have been so few recently that I am not sorry that the revision did not go through this winter.

Glad to have your reaction on Howell's map in the K. G. S. They also did some funny things to my St. Peter map without my knowing of the changes. At last they returned all borrowed materials a few days ago!

Thanking you again,

Sincerely,

F. W. Thwaites  
+



THE UNIVERSITY OF NEBRASKA  
LINCOLN

DEPARTMENT OF GEOLOGY  
NEBRASKA STATE MUSEUM

April 10, 1936

Prof. F. T. Thwaites,  
Dept. of Geology,  
University of Wisconsin,  
Madison, Wis.

My dear Dr. Thwaites:

I am sorry that I have had to delay so long to answer your letter, which I received in January. I really should have written sooner, even though the bulletin on the Pleistocene Geology of Nebraska was not yet ready for distribution. I have forwarded a copy of my new Bull. 10, Nebraska Geological Survey, also was able to "dig up" a copy of Bull. 41, Nebraska State Museum, and also some other papers, which you may be interested in. I trust that Bull. 10 will not be too late for use in connection with the revision of your book. It is the latest on our Pleistocene, and I hope you will find it interesting. I think that you will find pp. 81-91 - discussion on the Platte River - quite revolutionary and very different from the orthodox textbook understanding of it. I would also recommend the discussions on the loesses, pp. 128-167, and some topographic implications in pp. 175-183, for your consideration. I would appreciate hearing what your reaction is to some of these things.

I have another radical idea, which I did not dare to put in, but which I want to ask your indulgence on. In view of the accumulating evidence of Pleistocene Man in this country and other paleontological evidence here and in Europe, why is it not possible that the four stages generally recognized in Europe, - Günz, Mindel, Riss, and Würm - correlate in the same order with the, Iowan, and the lower, middle and upper Wisconsin; and not with Nebraskan, Kansan, etc.? Thus Europe would have no evidence of glaciation as old as Nebraskan, Kansan, and perhaps not even Illinoian. The more I study this thing from the evidence of paleontology and anthropology the more probable this interpretation seems. After all, there is no good reason why the European and American Pleistocene must be correlated from the bottom; in fact, as I understand the published evidence, most of the European till, etc. is more like our Iowan and Wisconsin materials than like the older deposits. I have mentioned this idea to at least one other Pleistocene geologist and also to a vertebrate paleontologist. The latter, also interested in ancient man, and he rather "fell" for the idea. I expect to try it out on Kay and Leighton soon.

I, too, am sorry we did not have more time to discuss a number of things on the K. G. S. trip, but it was a good trip. There is not enough "Red Clastics" to account for Howell's contours. The answer to that question is simply that either he did not have the data or ignored it. I think he drew his contours like he thought they should be.

Sincerely, A. L. Lugin



March 3, 1936.

Dear Dr. Thwaites

Thanks very much for the report on the geology of Vilas county you have just sent me. I am glad to have it to use on the map. It is some time now since I have been working on it, having been laid up with a bad cold, besides being ice and snow bound, out here in the country. Tomorrow I will get down to the postoffice and then take the opportunity to send you a money order, with I enclose, to cover the price of the Outline of Glacial Geology. I hope it will be convenient to you to send, or order to be sent, me a copy of the same.

Very truly yours

O. A. Ljungstedt  
*O. A. Ljungstedt*  
Beech Ave.  
Bethesda station

Washington, D. C.



March 22, 1936.

Dr. F. T. Thwaites  
Madison, Wisconsin

Dear Dr. Thwaites:

Thank you for sending me the Outline of Glacial Geology, which  
I received in due time.

It is a very valuable reference book, and I am mighty pleased  
to have it.

Very truly yours

Bethesda, Maryland



February 29, 1936

Mr. A. I. Levorsen,  
221 Woodward Boulevard,  
Tulsa, Oklahoma.

Dear Mr. Levorsen:

I wish to order the following of your photos, all contact prints at three cents each, all billed to me. I will divide them here. Others who intended to order lost their lists and as the book has now gone to Professor Ball, may have to send another order later. Sorry I can't get to the Tulsa meeting.

1	58	91	169
2	59...2	92	178...2
4	60...2	100...2	181
6	64	106	182
18	67	131	184
26	68	133...2	189
31	73	137	191
39	77	138	195
40	82	154	202
46	83	159	213
49	84...2	162	236...2

Yours very truly,

FTT-T



Jan. 18, 1936

Mr. A. I. Levorsen,  
221 Woodward Blvd.,  
Tulsa, Oklahoma

Dear Mr. Levorsen:

The pictures which you took on the recent  
K. G. S. trip reached me a few days ago.

I have received a request from Prof. J. R.  
Ball of Northwestern to see these. His name is not  
on your list of places to send the pictures and I  
am writing to see if it will be satisfactory to  
you to include it. Orders from here will be  
forwarded later.

We all enjoyed looking at the pictures and  
I will want several myself. Some wanted me to send  
my photos around and I had an extra set printed with  
this in mind but as I have never been able to hear  
from Anthony since the trip the project was dropped  
and most of the set has been sold locally.

I just sent back proof of my paper on field  
photography to the A. A. P. G. the other day.

With best regards,

I want to order the following of your photos  
all contact prints at 3 cents each. I will  
divide them here. Others who ordered lost  
their lists and as the book has now gone  
in to Prof. Ball may have to send another order  
later.  
Sorry I can't get to the Tulsa meeting



# THE AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS

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January 21, 1936

Dr. F. T. Thwaites  
R. F. D. 4  
Madison, Wisconsin

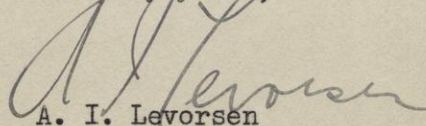
My dear Dr. Thwaites:

I should be glad to have Professor Ball of Northwestern see the pictures and it will be satisfactory for you to forward them to him. In forwarding them to Professor Ball, please ask him to send them to Minnesota.

I am looking forward to your paper on field photography which will appear in the February Bulletin. This should be of wide interest to the many geologists who do amateur photography and who are interested in improving their photographs.

I hope that you or some of the members from the department at Madison are planning to attend our annual convention here in Tulsa, March 19-21. As you know, Professor Twenhofel is to deliver his presidential address. We are looking forward with a great deal of interest to what he has to say. A number of schools will organize auto loads of students interested in petroleum geology and have them here to attend the meeting; such students of course will be very welcome and I believe will be repaid for the expense and time it takes to make the trip. It looks at present as though we will have an extraordinarily good geological program. With best wishes to yourself and the other members of the faculty at Wisconsin, I am

Sincerely yours,

  
A. I. Levorsen

AIL:R



Jan. 4, 1936

Prof. A. L. Lugin,  
Department of Geology,  
University of Nebraska,  
Lincoln, Nebraska

Dear Prof. Lugin:

In checking over references for a new edition of my book "Outline of Glacial Geology" I found a publication by you on the Pleistocene of Nebraska which is Bull. 41 of the Nebraska State Museum.

I was unable to find a copy of this either in our University Library or the library of the State Geological Survey.

Is it possible to obtain a copy of this for our library and another for myself?

I also noticed several papers on ground water conditions which had recently been published by your State Geological Survey, also a bulletin on Deep Wells of Nebraska. I wonder if I could obtain copies of these for my own collection. If there is any charge for the personal copies would be glad either to pay it or to exchange for a copy of the "outline of Glacial Geology" which sells for \$2.50

I was sorry not to be able to talk over some of these things with you while we were on the K. G. S. trip last summer but as soon as we reached Wisconsin was so busy I never got to it. Afterwards I wondered if the difference between Howell's map of the pre-Cambrian surface and yours is not that he placed the contact at the top of the Red Clastics and you did not. I have not checked this point as I have no logs of most of the wells in question. I understand that Stauffer has now changed his views on the Wauconia well and on the age of the fossils from it.

If Twenhofel has not already done so will send you a separate of our recent paper on the Cambrian of Wisconsin.

Very truly yours,

F. T. Thwaites



Jan. 2, 1936

Mr. O. A. Ljungstedt,  
Bethesda, Maryland

Dear Mr. Ljungstedt:

Reply to yours of Dec. 23 last has been delayed by the Holidays.

I have thought over the matter very thoroughly and can see no way that I could permit you to use my data in advance of publication by me. My contract with the Geological Society of America which financed a part of the work prevents this even if the State Geological Survey under which I started the work would permit it. This is primarily because the information is to be used commercially.

My principal objection, however, is that portions of the area need field checking before publication. The supposed Briarton Moraine of Shawano County could not be traced either to north or to south. Like some of the moraines mapped in northern Michigan it is very likely pitted outwash thinly covered by ground moraine. A similar perplexity strikes me about the so-called "interlobate" along the northwest side of the Green Bay lobe. It is high and striking from a distance but when you get a cleared spot it is always smooth and locally suggests Langlade lobe drumlins. Unless you have worked in the "green timber" you can hardly realize the difficulty of discriminating between drumlins and moraines.

All things considered, I prefer that you make no use of my data at present. Possibly in another year some of these problems will have been cleared up and I will be free to take up the matter with Mr. Bean, the State Geologist and with the Geological Society at New York.

Work is in progress on the revision of the book but it will not be published until the 1935 edition is sold out.

Very truly yours,



February 8, 1936

Lane Bryant,  
New York, New York.

Dear Madam:

Please send me your catalog of  
maternity garments.

Yours very truly,

February 19, 1936

Lane Bryant,  
New York, New York.

Dear Madam:

On February 8 I requested a  
catalog of maternity garments. If this  
has not been sent out, please send it  
at your earliest convenience.

Yours very truly,



Jan. 6, 1936

Dr. F. T. Thwaites

Madison, Wis.

Dear Dr. Thwaites

Sorry that I cannot use your data for my map, but of course I understand.

Shall I return the print you sent me or can I file it with the rest of my glacial data?

I am anxious to have a copy of the Outline of Glacial Geology, and think I had better get one of the 1935 edition. Washington bookstores carry very few but the ordinary books, and I doubt I will find it here. So will you please let me know how much it sells for and where to send for it, unless I can get it direct through you

Very truly yours

Beech Ave.  
Bethesda station  
Washington  
D. C.



Box 1110  
Tyler, Texas  
Jan. 26, 1936

Mr. F. T. Thwaites  
Science Hall  
Madison, Wis.:

Dear Mr. Thwaites,

Please accept my thanks and this small payment for the picture you sent some time ago. With it and the several Miss Posey sent and those I took I have a miset for the Kansas trip.

I am very sorry to hear that you are still having a depression up there. Things are very active down here and things look very good.

I am with Sinclair Prairie as assistant to the District Geologist for east Texas, north La. and south Ark. The work is very pleasant.

With best regards for the new year to you and all my friends in Madison,

Truly yours,  
Larry Lees.



Dec. 23, 1935

Dr. F. T. Thwaites

Madison, Wis.

Dear Dr. Thwaites:

Thank you very much for your letter of Dec. 19<sup>th</sup> and the enclosed map.

I am sorry that I did not make it plain that I indeed intend to publish my map as soon as I can find a publisher after it is finished, and I would greatly regret if this should prevent me from using the data you kindly sent me. But of course I would understand, should you not wish it used until it is published by yourself. Perhaps, however, since my scale is quite small — 1:2,500,000 —, and the data could be greatly generalized, that would make a difference. To be sure I am putting in as much detail as the scale will stand, nevertheless



a greatly generalized form of your data would fill up an ugly gap and help the map a lot.

It would of course be most interesting to me to see a photostat of your wall map of moraines etc., and I hope you will be able to send me a copy. My map, you may remember, is to show only the moraines and drift limits. Thus I hope to have a map that will at a glance show the direction and extent of the various stages of the glacial period. Most glacial maps are so intricate and lacking in definition that they are difficult to interpret.

If you will let me know when your new edition of the Outline of Glacial Geology is on the market I will want to have a copy of my own.

Please advise me of your wishes about the use of your map.

Very truly yours, O. A. Lindstedt  
Bethesda, Md.



Dec. 19, 1935

Mr. O. A. Ljungstedt,  
Bethesda, Maryland

Dear Sir:

I am afraid yours of Oct. 22 has been in my folder for too long a time but I was waiting to see if I could possibly get out a copy of my map farther north than that I am sending you. I was not able to so am sending you what I have available although my surveys extend clear up to the Michigan line.

The enclosed map was prepared for my 1928 manuscript report. In 1929 Mr. Bean discontinued the work. In 1931 I surveyed Waushara County at private expense and have added the data on moraines only in ink. I also added some data from Aldrich's map of Langlade County. This does not everywhere check with mine, mainly because we seem to have differed in that wooded country as to the discrimination of moraine and drumlins. To the south you will find that I do not close with Alden because of difference of opinion as to moraine and pitted outwash. The criteria which I used are explained in my text book, "Outline of Glacial Geology" of which I have a few copies left. I do not think they ever bought one at Washington but it is in the Library of Congress I suppose as it was copyrighted. You can secure the map of Langlade County from the Land Economics division of the Department of Agriculture and Markets, State Capitol, Madison, Wisconsin.

As I understood it you are making the map for your own use and not for publication. Much of my work needs checking both in office and field before it is ready for publication. This has not yet been started. It will be published by the Geological Society of America, I hope but as to when I will be able to finish the report is a question.

With regard to the Marshfield Moraine the area was resurveyed by parties of students under the direction of Mr. Bean some years ago. My impression is that he felt that much of the supposed moraine is really sandstone-cored hills. Certainly Weidman's original mapping is highly improbable to say the least. I think that Leverett has some later information which was used by Antevs.

We have here a wall map scale one inch to 16 miles of all the moraines, etc. in eastern U. S. which was compiled by a student in 1933. If I can get a photostat of this I will send you a copy.

I am going to get out a new edition of the glacial text soon and hope to include a small scale copy of this map or rather of the western part of it. This will include a revision of the pre-Wisconsin drifts for I have changed my views to agree with Leverett since writing the first edition in 1934.

Very truly yours,

F. T. Thwaites



Oct. 22, 1935

Dr. F. T. Thwaites

Madison, Wis.

Dear Sir:

Your kind letter of May 21, reached me after my return from a trip last spring. Since then I have been very much "under the weather" and have had to discontinue the work on my map altogether, so I trust you will forgive me for not acknowledging your letter at once.

Now, however, I am endeavoring to finish up the map and will be glad to use whatever data you may be willing to furnish me.

Dr. Alden has a rather sketchy copy of your unpublished work in eastern Wisconsin, which I could use, with your permission, but of course I would very much prefer to use your own data.



Will you also, please, tell me where I can find the best data on the course, and extent of the Marchfield and other moraines between the north boundary of the Driftless Area and the Wisconsin boundary.

At present I have on the map the course of the Marchfield moraine furnished me by Dr. Antevs, but it is merely a line and does not show its width.

I have of course the moraine as shown by Dr. Weidman in Bull. 16 of 1907, but I suppose it has been resurveyed since then.

Very truly yours

O. A. Lingstedt

Bethesda

Maryland



Nov. 27, 1935

Mr. Laurence Lees,  
Geology Dept.,  
University of Iowa,  
Iowa City, Iowa

Dear Mr. Lees:

Please pardon my long delay in forwarding you the photograph which you requested when on last summer's K. G. S. trip.

I was very sorry to learn after we returned that your father had died not long before.

When on the recent Tri State Conference Trow told me that you had a job in the oil fields which news I was very glad to learn.

We are all very busy here, enough so as to forget at times that with us the Depression is worse than ever! I am now trying to catch up a few loose ends.

Sincerely,



Aug. 16, 1935

Dr. A. C. Lane,  
Dept. of Geology and Mineralogy,  
Tufts College,  
Medford, Massachusetts.

Dear Dr. Lane:

In reply to yours of the 9th I will be very glad to get the copy of your paper when it comes.

With regard to analyses of salt waters the drillers and engineers have now almost all learned to avoid drilling into them and we get no more analyses. Last fall I wrote a report for the National Resources Board and mapped the areal distribution of mineralization of waters in the deeper formations. I found that the presence of highly mineralized waters from Milwaukee north is related to the lack of free circulation of fresh waters from the outcrop. In Illinois and Iowa we get potable waters down to depths over twice as great as in eastern Wisconsin. This I ascribe to the presence of outlets in Missouri which have drained the salt water while to the east the sandstones all pinch out against the granite somewhere under southern Michigan. This map with a page of description will appear in the guidebook of the Field Conference of the Kansas Geological Society which will be held the end of next week.

After the Conference ends at Ironwood, Michigan I plan on going to Limestone Mountain and the vicinity of Munising with one of our students, Mr. Bays and with G. O. Rausch who has done so much paleontological work on the Wisconsin Cambrian. Bays is specializing on the Ordovician. Between us I hope to get some definite results on the Paleozoic overlap on the Jacobsville sandstone. I hope that by striking at the most important spots we will get results in a minimum amount of time.

Sincerely,

F. T. Thwaites



# GEOLOGY AND MINERALOGY

ALFRED C. LANE  
ROBERT L. NICHOLS  
ARTHUR S. KNOX  
FREDERICK H. CRADTREE

BARNUM MUSEUM, TUFTS COLLEGE,  
MEDFORD, MASS.

Aug 9. 1935 -

Dear Theophile: -

I am going to send you a reprint of my paper with very shortly. I wonder if there is any other I should send?

I was looking over your March April 1934 p. 413 paper in Well logs, and it occurred to me that assuming the Bayfield-Jacobs wells to be non marine - I agree the <sup>concrete</sup> water shows to fresh and with a higher Na. ratio. That is true of a lot of wells from ? Potsdam ? St. Peter or even Clinton ss. Newcombe recently sent me a well water record that fits in better to my pretty shakily theory as to the change of the Na:Cl ratio. There was a shale gas water, too, which was marine.

I am wondering if you have any new water analyses coming in.

Down in Texas the theory of progressive Na:Cl has mighty little support and I have to assume that the waters have been affected by circulation from diseased formations, - which is possible except at Belton or Boss of theory.

Yours truly  
Alfred Lane



1724 Univ. Ave

Ann Arbor, Michigan, May 9 1935.

Prof. F. T. Thwaites,  
Univ. of Wisconsin,  
Madison, Wisconsin.

Dear Prof. Thwaites:-

A few weeks ago I received a circular in reference to a conference of geologists of the north central States in the near future, and notice that a guide book is being prepared for use by those participating in the conference, and obtainable by other geologists who may wish to have it. I think a copy or two have been ordered for the geology department of the University of Michigan.

It has occurred to me that this conference may <sup>properly</sup> have as one of its objects the clearing up of the question of the time relations of the Illinoian and Iowan drifts in the district that is to be studied. As you are conveniently located for doing some preliminary work that will be useful in preparing the guide book in its references to these drifts and also in acting as guide in the field, I am calling your attention to certain features that I hope will be given careful attention with a view to settling the question as to whether the Iowan drift is a close correlative of the Illinoian, or is instead a much later deposit to be included in the early part of the Wisconsin stage of glaciation.

The place I have in mind for special study is in the <sup>Goodhue and Dakota</sup> part of Minnesota immediately south and west of Lake Pepin, in Wabasha. <sup>6.5</sup> It is the place shown on Daly's Fig. 65 of the "Changing World of the Ice Age" at which the Illinoian drift and Iowan drift are made to meet. Just above this Figure, on p. 110 of his book, Daly makes the statement that "the Iowan ice spread over the drift of the Illinoian cap". When I wrote him that so far as I am aware there is no place yet known where the Iowan drift overlaps the Illinoian in Minnesota or Iowa he was quite chagrined because of this mis-statement and said he ought to have taken more pains to consult men who had done work in the region. Alden, Leighton and I are in agreement that the drift in northwestern Illinois that I classed as Iowan in Monograph 38 U.S.G.S. is likely to be of early Wisconsin age, and a probable correlative of the Shelbyville moraine. But there is no such agreement as to the reference of the Iowan of Minnesota and Iowa to the Wisconsin stage of glaciation.

At the time I was mapping the drifts in southeastern Minnesota, in 1907, Weidman was working in the neighboring part of Wisconsin, and we had a conference in the district south and west of Lake Pepin with a view to determine whether there is any place there where the Iowan drift overlaps the Illinoian. We covered the parts of Wabasha, Goodhue and Dakota counties that I am suggesting as the district to be given attention in the coming conference. On Pl. 2 of Prof. Paper 161 you will find the limits of the Illinoian drift shown from Eggleston past Welch and Cannon Falls to Hampton, Minnesota. It is covered by Wisconsin gravel farther west and north. The limits of the Iowan are not shown on this map, but are outlined in the text on pp. 25 and 26. Near the bottom of the first column on p. 26 you will find the description of a moraine of Iowan drift in the northwest Township of Wabasha County, which will be an important feature to examine, and the study should then be carried westward past Red Wing to Welch, one of the important places being four miles west of Red Wing, in Sec. 3 Featherstone Township, Goodhue County.



From Welch westward to Hampton the Illinoian drift can be seen to good advantage, and its degree of weathering compared with that of the Iowan drift. There is a very prominent Illinoian moraine near Hampton, and exposures of the drift are good in that vicinity. It seems to me that a day or two can be spent very profitably by the geologists who participate in this conference, in an examination of the features I have mentioned, and I trust it will lead to the settlement of the question as to whether the two drifts here are to be put in the same glacial stage, as Weidman and I have held, or are instead referable to different glacial stages. I do not think Kay or Leighton have either of them seen this critical district, so I am in hopes they will give it attention in this conference. I shall be interested in learning your opinion after you have given the drifts a careful inspection there.

It is doubtful if I will be able to participate in this conference for my bronchial disease is easily aggravated when I am on trips of this sort. It might, however, be possible for me to join the conference for a day or two when this area is under investigation.

It seems unfortunate that the interpretation by Kay and Leighton, that the Iowan is an early phase of the Wisconsin, should have been put into such text books as Moore's and Scott's as a settled matter when, as it seems to me, the matter is not definitely settled. In this connection I would remark that your outline in which the Iowan is called Stage 1 of the Wisconsin, while the Shelbyville is called Stage 2 is likely to be in error, for the early Wisconsin drift of northwestern Illinois, as I indicated above, seems to be a close correlative of the Shelbyville moraine. The Iowan drift west of the Mississippi has not been shown to be of Wisconsin age, and needs such a study as I am suggesting to clear up its age. You have the advantage of being somewhat familiar with the drift in Wisconsin which has been referred to the Illinoian, and which includes the Marshfield Moraine. You probably have already reached an opinion as to its age compared with the Wisconsin drift, and are ready to say whether or not it seems as old as the Illinoian of Illinois. This being the case you will be prepared to make a comparison of the Iowan and Illinoian drifts in Wabasha, Goodhue and Dakota Counties, Minnesota.

Very truly yours,

Frank Leverett



May 16, 1935

Dr. Frank Leverett,  
1724 S. University Ave.,  
Ann Arbor, Michigan

Dear Dr. Leverett:

I wish to thank you for yours of May 9.

The place you mention is certainly an important locality and I hope that some day I may be able to visit it.

The Field Conference which you have heard of is evidently the Ninth Annual Field Conference of the Kansas Geological Society of Wichita, Kansas. The men who are going on the trip are almost all engaged in the oil industry and are naturally more interested in Paleozoic than in Pleistocene geology. I am afraid few of them will be competent to pass upon matters of Pleistocene correlation. Besides, the locality lies in Minnesota and the schedule there is being arranged by the Minneapolis men. If we go near the spot you mention I will try to see it. But if not maybe I can get over there someday. Have been trying to arrange for a conference with Leighton on the Illinois-Wisconsin border problems ever since the International Congress of 1933 without making it yet so hopes appear slight.

I am indeed sorry to hear that your health prevents further field work. With this fact in mind I would not advise you to join the conference for I am afraid little attention can be spared for the Pleistocene.

Sincerely,

F. T. Thwaites



May 21, 1935

Mr. O. A. Ljungstedt,  
Bethesda, Maryland

Dear Sir:

Reply to yours of the first was delayed by reason of the numbers of field trips at this season of the year.

I only have at present a small part of the area I surveyed in such shape that you could make use of the data. A considerable portion is still in the field map stage. None of the maps made last summer are yet ready to blueprint. My plans are to complete the entire project for publication by the Geological Society of America at an early date but in these trying days one never knows what may happen. Unless you are in a hurry I would much prefer to wait a while to see if I get the map of the entire area up to the blueprint stage. If I can carry out my plans this would be best for your use. But if the matter must be indefinitely postponed again I will send you a print of part of the area from the map I now have. Please rest assured that I will be glad to furnish any information I have.

Very truly yours,

F. T. Thwaites, Lecturer in Geology



May 1, 1935

Dr. F. T. Thuwaites

University of Wisconsin  
Madison, Wis.

Dear Sir:

Since my retirement from the Geological Survey I have been compiling a map of the moraines and drift limits of the U. S. on the U. S. Survey base on the 40 miles to the inch scale.

Dr. Alden, who has given me a great deal of help and data, has suggested that you might be willing to let me use your unpublished data north of Dr. Alden's paper on the Quaternary of southeastern Wisconsin. It would be a great help to the map if you would.

Very truly yours

O. A. Ljungstedt  
Bethesda, Md.



Mrs. Charles R. Nutt

521 WESTERN AVE.

PLYMOUTH, WIS.

Dear Mrs. Thwaites:

Ever since I had your Christmas greeting I've been planning to write you but as I shall presently explain, I've had my hands pretty full and haven't had much time for correspondence.

I've often thought about you and wondered if you are at the San waiting for spring to come before going back to your dear home. I'm sure spring won't be long in coming now. Even as cold as it is today there's something in the air that makes me feel winter is being left behind. I haven't heard so far yet and I hope they'll have sense enough to stay in the Southland until all the real cold spells are over with.

Since before Christmas we have had Doctor's former mother-in-law



with us and it has kept us pretty  
close at home because she has  
been sick all of the time and most  
of the time very seriously so. First she  
had senile pneumonia which she  
was able to survive in spite of her  
age - she was 90 last month. But  
she hasn't made any real gain  
and we feel that she will never  
be able to do more than sit up  
an hour or so a day at the best  
and that she is failing steadily. How-  
ever she is planning on going back  
to her home soon and is not  
at all discouraged about her con-  
dition.

We haven't been in Madison since  
last fall. Usually we go down  
for the Road School in January  
but couldn't get away this year.  
We hoping to go before long for  
a day or less. As the days get  
longer we can make the trip  
in a day more easily and so  
don't have to wait until we can  
be away for more than a day.  
Doctor has had a hard time  
keeping busy this winter - shelling



now didn't use up enough of his time. He just devours the seed and fruit tree catalogs and reads every thing he can on fruit culture. When the snow was so deep the rabbits were able to reach above the wire protectors and get at his young orchard trees but now that worry is over. He has some choice trees and he hated to have them killed. One of his golden delicious apples planted in 1933 had apples lost gall - incidentally the neighbor's best youngsters got the enormous crop which consisted of two apples - but he is hoping for a more substantial crop this fall.

I heard from Mrs. Lobets in January and she spoke of Dr. L. going on a southern cruise. The family celebrated Christmas by an automobile trip to Florida.

I haven't seen your two grandsons in such a long time that I am sure I shall be surprised to see how they have grown up. Was so pleased to have the Christmas



card with their pictures. I think  
it's such a nice custom for people  
who have little children to have  
their snapshots on Christmas cards.  
Florence Whitbeck sent me of her  
baby that was very attractive.

Oh sure you must be longing  
to get into your garden and  
see things growing. I hope your  
stay in the sanitarium has your  
year in fine condition and that  
you'll be home for the spring if  
you're not already there. We'll  
make every effort to drive over to  
see you when we go to Madison,  
and I hope that will be soon.

Most cordially  
Genevra E. Mott



*Leonis*

April 13, 1935

Mr. George L. Smith, Sales Manager,  
Alamo Pump and Equipment Co.,  
3637 North 20th St.,  
Milwaukee, Wisconsin

Dear Sir:

In reply to yours of the 9th I have no detailed data on wells around Leonis, Wisconsin. I worked there last summer but not with state funds and attention was confined to surface phenomena.

The surface drift is the red clay but that is only a few feet thick. There is a considerable thickness of sand and gravel below this at most places. The bulk of the farms seem to have shallow drive wells and I did not spend time getting information on them. The country is so low and flat that in most places I am confident that water can be obtained with a suction pump. We noted, however, that some farms have drilled wells in the rock. The first rock appears to be limestone but that is not very thick and they find plenty of water in the underlying sandstone. I found that the only drillers who operate in that country live in Marinette or across the line in Michigan. Unfortunately, we never made contact with any of them. Without knowing exactly the site of the proposed development I am afraid I cannot offer any more information. I am confident that you can find enough water although I am not sure but that you may have to use a deep well pump to get it.

Very truly yours,

F. T. Thwaites, Incharge of well records,  
Wisconsin Geological Survey



Jan. Jan. 21, 1935

Prof. A. L. Lugin,  
Dept. of Geology,  
University of Nebraska,  
Lincoln, Nebraska

Dear Prof. Lugin:

I would greatly appreciate a reprint of your recent paper on "Pre-Pennsylvanian stratigraphy of Nebraska" which appeared in the A. A. P. G. Bulletin.

Under separate cover I am mailing you a blueprint of the map in my paper on "Buried pre-Cambrian of Wisconsin as revised a short time ago. Last summer I made a map of the pre-Cambrian surface in Wisconsin, Minnesota, Iowa and Illinois for the National Resources Board but the same has not yet been published.

Sincerely,

F. T. Thwaites,  
Science Hall,  
Madison, Wisconsin



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1029 W. WELLS STREET

**MILWAUKEE, WIS.**

January 31, 1933.

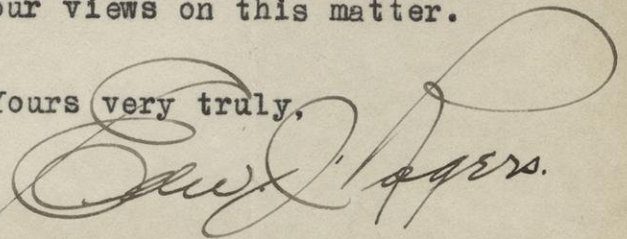
Mr. F. T. Thwaites,  
University of Wisconsin,  
Madison, Wisconsin.

Dear Mr. Thwaites:

We thank you for your letter of the 27th, with  
attached blueprints of the Burlington well.

We note that you have had some correspondence  
with Mr. Schweitzer, of our Company, in regard  
to the contemplated Minneapolis artesian water  
supply. We expect to have some very extensive  
controversy relative to this matter in the very  
near future and, the next time I see you, I am go-  
ing to try to obtain your views on this matter.

Yours very truly,



Vice-Pres. & Gen'l Mgr.,  
LAYNE-NORTHWEST COMPANY

EJR:E



Ann Arbor, Michigan, November 24, 1932

Messrs. Leith, Thwaites, and Trowbridge,  
Madison, Wis. and Iowa City, Iowa.

My dear associates:-

When Prof. D. W. Johnson was here last week in attendance on the meeting of the National Academy of Sciences, he raised some questions as to drainage and peneplanation in the Driftless Area that I will lay before you in the hope of getting some light on these matters. You are all much more familiar than I with the features in question.

Johnson holds the opinion that the abandoned channels of Kickapoo River in the north part of the Wauzeka quadrangle are the product of a stream of markedly greater volume than the present river, although the width of these channels is very narrow. He says that the size of the valley is not so good an index of the volume of a stream as the sweep of its meanders. The <sup>Valley</sup> meanders of the Citron and the Haney Valley do not in his opinion harmonize with the small meanders shown by the stream within its present valley. He has used this in the class room as a fine illustration of a change in the volume of a stream.

Since Johnson left I have examined carefully all the quadrangles within the drainage basin of the Kickapoo River to see if there is evidence that it once took in a larger drainage area. But I find that its headwaters all start in a high part of the Driftless Area, across which there seems to be no line of extension of this drainage area. I am therefore raising the question with you as to whether you think Johnson is justified in this interpretation and if so what gave the river the former larger volume.

*into outside territory. I can find no evidence of a greater drainage*

We noted that the peneplain in the Driftless Area has its greatest altitude in the Kendall, Tomah and Sparta quadrangles, and this seems to be the district from which the underlying strata have a dip to the east, the west, and the south. Johnson then raised the question as to what degree the decline in altitude in passing east, west, and south is a structural condition independent of peneplanation. Perhaps you can throw some light on this question.

Johnson also expressed skepticism as to the interpretation by Wisconsin geologists that there is a resurrected Pre-Cambrian peneplain in central and northern Wisconsin. He thinks it is more likely to be of Tertiary age. He did not make this interpretation clear to me, as we did not have maps at hand to use in illustration. I had supposed that there was no question that the granite had been peneplained before the Cambrian strata were laid down, and then reexposed when they were stripped off. Perhaps you can enlighten me on this matter. Weidman took me over part of the area back in 1906, and gave the interpretation that it is pre-Cambrian, and I understood him that Van Hise so interpreted it.

If you feel so inclined you might write direct to Johnson as well as to me as to your understanding of the matters in question. I shall appreciate a response from each of you.

Very truly yours,

(Signed) Frank Leverett



November 29, 1932

Dr. Frank Leverett,  
1724 S. University Ave.,  
Ann Arbor, Michigan

Dear Dr. Leverett:

Yours of the 24th addressed jointly to Drs. Leith and Trowbridge, as well as to me was given to me for reply.

It is hardly possible to summarize in a letter all the results of investigations carried on in the Driftless Area since 1906. In this work I was associated with Lawrence Martin, W. H. Twenhofel, E. C. Ulrich, and others. We all agreed that there is absolutely no positive evidence which demonstrates more than one cycle of erosion in any part of the Driftless Area. We could nowhere find any land surface which is residual from a previous cycle and not yet touched by the present cycle.

The original idea was that the uplands, most of which are underlain by dolomite, are such residual areas and that one peneplain beveled across the entire district. Later when maps had been made it became known, as the earlier geologists must have realized long ago, that EACH DOLOMITE has its own upland surface thus making a series of cuervas. Then Martin and I found two other similar uplands, one on the Franconia and the other on the Eau Claire. The two latter are unique in that the sandstones are protected by roofs of shale instead of dolomite. Where each upland a peneplain then we would have five such peneplains which is manifestly absurd.

Trowbridge then abandoned this primitive view in favor of two peneplains roughly 200 feet apart. Of those the upper just touches the crests of the highest cuervas and the level uplands of the Baraboo district, and the lower explains the vales between them. The portions of the cuervas which rise above the levels of the vales belong, under this explanation, to a previous cycle.

Now I was greatly disappointed when Martin failed to elaborate on his views in the "revised" edition of Bull. 36. Our manuscript on the Sparta and Tomah quadrangles was refused publication at Washington because we dared to doubt the evidence favoring peneplains. Campbell's pencil comments say that our description of the dolomite upland is a "good description of a peneplain." I strike right at the spot of the matter - (1) the famous Baraboo upland has no connection with the uplands on the dolomites and shales but is much more likely a plain of marine denudation formed during Black River time for there are other lower benches which seem clearly to be marine cut terraces, (2) the cuerva crests are no more dissected than are the vales and cannot be regarded as residuals, (3) the SAME KIND OF SURFACE extends without any break from their crests down the back slopes into the vales, (4) the "connecting ridge" west of Kickapoo River which bridges the vale between the Black River and Magnusian Cuervas is an illusion for the thickness of the St. Peter is small south of Viroqua and the surface is locally smoothed up by loess, (5) the slight bevel of the dolomites from vale to cuerva crest is NORMAL to the development of a cuerva by stripping back of overlying protecting formations in is mixed up in the case of the "Magnesian" by its extremely variable original thickness, (6) the same kind of dolomite surface is found on the same formations



where exposed in the bottoms of valleys.

To summarize, I can find no "topographic unconformity, but only the effect of different kinds of rocks on topography. The postulated Dodgeville and Lancaster Peneplains will in no way fit the Franconia and Eau Claire Uplands if projected beyond the area studied by Trowbridge. The subject of the relation of the Windrow gravels to the uplands was explained in the paper published jointly with Trenchard some years ago and I have nothing now to add except the discovery of a very few new localities. I tell my students that there is no use spending much time on the question of whether or not there is a Dodgeville Peneplain for in any case (when we omit the Baraboo area) it is over 99.9 percent eroded!

Turning to the Kickapoo question I described these incised bands, for they are not symmetrical meanders, in my paper on the Pre-Wisconsinan terraces some years ago. We have just been reading up on entrenched meanders in my course in Advanced Physiography. We found that the Kickapoo is a beautiful example of an "underfit river" where stream diversion cannot be invoked. Loss of volume to underflow in the alluvium as suggested by Davis is also out of the question for the deposits of the floodplain are silt, fine sand, and clay in which a large volume of underflow is impossible. I have studied the Kickapoo in detail in both the Trenchard and LeFarge quadrangles so know it well. You will notice that in its headwaters the valley is double and there are large bands incised in the rock terrace. In the lower part the valley is single and the band walls, which do not show marked slip-off slopes, extend up to the Magnessian upland. The bench is due to the Franconia formation and passes out of the picture because the dip of the strata is greater than the grade of the stream. I was puzzled for a time but evolved the following unique theory. The incised bands are inherited from irregularities of stream course at some ancient time, when the river flowed on the Magnessian Upland. It may or may not have then had a larger volume but as it cut down into the rock it was forced to hold its large curves because lateral sweep and side cutting were both minimized. Weathering back of the valley walls above the Franconia bench erased the upper parts of the incised bands in the upper part of the valley. Then came glaciation and blocking of the outlet by outwash in the Wisconsin valley. A floodplain was then formed in the bottom of the valley and the gradient of the Kickapoo was reduced. The stream meandered on this plain of soft material and was able to cut off its meanders before they became large. Thus we have an underfit stream as a result of valley filling. If this theory is worth anything I desire to claim priority.

Dr. Loith has already answered your question as to the pre-Cambrian peneplain. I can only add that reference should be made to my recent paper on the Buried pre-Cambrian of Wisconsin. The highest parts of the pre-Cambrian in Wisconsin are so thoroughly covered by drift that nothing is known of them.

Probably you will think I am unduly skeptical of orthodox views but simply wish that I had a chance to show you the facts in the field. If there is anything that needs elaboration I will be pleased to explain it more.

Very truly yours,

F. T. Thwaites, Lecturer in Geology



YALE UNIVERSITY  
DEPARTMENT OF GEOLOGICAL SCIENCES

NEW HAVEN, CONNECTICUT

September 26, 1932.

Dr. F. T. Thwaites,  
Department of Geology,  
University of Wisconsin,  
Madison, Wisconsin.

Dear Dr. Thwaites:

I am glad to have your note of September 22d, in which you mention your own experience with Keyes. I think that as a general policy it is best to ignore what Keyes writes, and certainly I would be the last to enter into any controversy with him. My note published in Science is not in any sense a "reply" to anything Keyes has written. I confine myself to pointing out that he is guilty of an ordinary falsehood. It is time, I think, that Keyes should be branded publicly for exactly what he is. Although practically all of the older geologists in this country know Keyes' character, the younger men in some parts of the country continue to send their contributions to his journal. We also have the spectacle of two reputable geologists allowing their names to be printed on the cover of Keyes' journal as associate editors and in this way giving their tacit support to what Keyes publishes.

When I first considered publishing a statement calling attention to Keyes' falsehoods, I intended to write what I said in a facetious vein. I changed the character of my article, however, and made it sound more serious, with a definite purpose in mind. I am not sure that this purpose will be accomplished, but if it is, I will write you again and try to convince you that there is some "method in my madness".

Very truly yours,

Chester R. Longwell



Columbia University  
in the City of New York

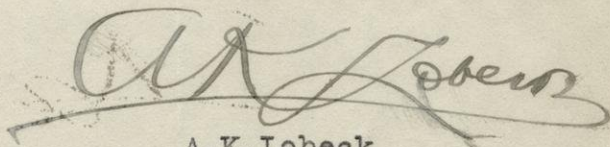
DEPARTMENT OF GEOLOGY AND MINERALOGY

Oct. 4, 1932

My dear Mr. Thwaites:

How did things go last summer at Allegany State Park? Did you know that Adams wants a study made of the soils there, from the geological rather than the agricultural standpoint? Who could do this? Do not pass this information around generally as he does not wish to have any people writing to him about it now. Just send me any suggestions you may have.

Very sincerely yours,

A handwritten signature in dark ink, appearing to read 'A.K. Lobeck', with a long horizontal flourish extending to the left.

A.K. Lobeck



Oct. 25, 1932

Dr. A. K. Lebeck,  
Department of Geology and Mineralogy,  
Columbia University,  
New York City

Dear Dr. Lebeck:

I was delayed in answering yours of the 4th by both field trips and by having to look around. The only man I have been able to find who could fill the bill is M. R. Isaacson. He comes from Ohio and was in my glacial class last spring. He spent the summer on the Land Economics Survey in Langlade County. We all liked him and I am sure he knows his stuff. However, if unable to pay the non-resident fee again he may have to go to Arizona and then would probably not care to come back. His address is care of the Department of Soils, New Soils Building.

My work at Allegany State Park was interesting and valuable to me although it was more in the line of sanitary engineering than geology. Everyone I came into contact with was most helpful and kind. Students in geology were very scarce and the School ran at just about half normal. I had three, all girls in "advanced" geology. We studied the terraces and decided that the highest terraces with associated lakes were probably Illinoian and certainly pre-Wisconsin. We found that the supposed till south of Warren is probably all outwash of an early glacier. I also spent an interesting two days with Floger of Syracuse in the Cattaraugus quadrangle and another two days with Floger and Holmes going around the Finger Lakes. I sold the hypothesis of interglacial stream erosion to Floger but he made me more favorable to glacial erosion in the Finger Lakes than I had been before. Nevertheless I recognize the probability that many spurs were truncated by glacial and interglacial streams. The whole matter is tied up with the origin of the rock basins of the Great Lakes. It seems to me.

At times the gloomy shade and dampness of life in the woods got on my nerves but take it all in all it was a fine summer.

The last illustrations for the glacial geology are now being blueprinted. My technique improved greatly with more practice and I also obtained some smaller lettering guides. I did over several of the early pages, also worked up a drawing from an airplane view of an esker. Most of the last illustrations you would not care for as they are maps but will try to send you some of the revised block diagrams.

What suggestions have you in regard to publication? Some here are so wrapped up in gloom over the Depression that I wonder they need to spend anything at all for winter clothes!

Meantime Tommy is growing and we are trying to keep cheerful.

With best regards from both of us to Mrs. Lebeck and yourself,

Sincerely,



Feb. 20, 1933

Dr. A. K. Lobeck,  
Department of Geology and Mineralogy,  
Columbia University,  
New York City

Dear Dr. Lobeck:

Your letter of Oct. 31 has been in my "require attention" folder for a long time. I could not answer it until this morning for Amy had not been able to finish typing my manuscript until last night. Before that it was in part double space and in part single space with so many deletions that an accurate estimate was impossible. I now find that she has done 110 of the Edwards Brothers pages which are supposed to average 975 words per page. This does not include all the sheets for description of illustrations which will increase it by four more pages or 114 in all. Illustrations are like those of which I sent you some preliminary blue-line prints last year and with projected reduction will make ten pages in all. This makes a grand total with a frontispiece of 125 pages  $8\frac{1}{2}$  by 11.

Now if printed the illustrations probably could not be reduced to 10 plates as books generally have so much smaller pages than those mentioned above. With promised severe salary cuts and the ever-present danger of being laid off entirely to protect someone else I simply do not dare lay out the large sum which even 100 copies by Edwards Brothers require. This year we are struggling along with copies in the library of the old edition plus a projected blue-line positive print edition of the illustrations after photostatic reduction. I can sell these sets with mimeographed description for 50 cents a copy and get them copyrighted too.

My glacial class numbers about 11 which is normal but other classes have fallen off badly. Physiography is only 9 and mapping only 8.

Leith is now away but Mead has promised to help in taking up the matter of publication. I have an order for 10 copies of the illustrations for the University of Wichita on my desk also a number of letters and verbal requests for the projected text.

With times getting worse so fast I have small hopes of getting it out soon but will greatly appreciate any help you could give me. Leith had written to McGraw-Hill a year ago and they promised to look over the manuscript. However, it still is not ready to send out although the outlook is now more encouraging.

My New York report goes in this week with drawings all finished and everything checked. Hope Dr. Adams likes it.

Thanking you for your offer, and with best regards from both of us,

Sincerely,



Sept. 22, 1932

Dr. Chester R. Longwell,  
Department of Geology,  
Yale University,  
New Haven, Connecticut

Dear Sir:

I wish to thank you for the separate of your reply to Keyes in Science which came yesterday.

I am much interested as I too have been the subject of two papers, one of them 14 pages in length, by the same author. I did not consider it worth while to reply to them although accused of dire crimes and misdemeanors!

Very truly yours,

Lecturer in Geology



Sept. 22, 1932

Mr. Frank Leverett,  
1724 South University Ave.,  
Ann Arbor, Michigan

Dear Mr. Leverett:

I wish to thank you for the copy of your report on Minnesota which just arrived and which I have been reading.

My proposed text of glacial geology is now well along. Illustrations are nearly done and all but a small part of the text has been typed in final form. I had intened to get it photomimeographed by Edwards Brothers but Dr. Leith wants me to have it printed. This may delay it for some time. Possibly you would like to look over a set of advance copies of the illustrations. You will not agree about a number of points, I expect but on the whole I think that I have been rather conservative. It is true that many of the maps showing extent of ice at different times are guesses but then my idea was to set up a concrete hypothesis for others to correct. If there is no mark to shoot at we will not make as much progress as otherwise!

Spent the summer working in western New York and northern Pennsylvania. My main job was underground waters but I was able to see some glacial geology between the Finger Lakes and Warren, Pa., and learned a lot of new things.

Very truly yours,

Lecturer in Geology



July 31, 1931.

Mr. James H. Lees,  
Assistant State Geologist,  
State Capitol,  
Des Moines, Iowa.

Dear Dr. Lees:

I am inclosing a blue print of the log of city  
well No. 3 at Fulton, Illinois. I thought this record  
would be of interest to you as it is just across the  
river from Clinton.

Yours very truly,

F.T. Thwaites, Geologist in charge of well records  
Wisconsin Geological Survey

FTT-T



State Street Branch

79-50  
7



No. 20

Madison, Wisconsin

Feb 2 1931

Pay to the  
order of

*H. C. Lacey*

\$ 5.80

*Five  $\frac{80}{100}$*

Dollars



~~*J. B. [unclear]*~~



\$ 5.80

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City or Town, Milwaukee, Wisconsin

Date 2-4-31

Received of F. T. Thwaites

Five

and 80 DOLLARS,

100

For samples from city well No. 5 at Neenah,

Wisconsin

\$5.80

(Signature)

(Title)

Well Driller



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..... City or Town, ..... Date .....

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1029 WELLS STREET

MILWAUKEE, WIS.

Feb. 4, 1931.

Mr. F. T. Thwaites,  
State Geological Survey,  
Science Hall,  
Madison, Wis.

Dear Sir:

We have just received your check in the amount of \$5.80, payable to H. C. Lacey covering samples for city well No. 3 at Neenah, Wis. Upon the request of Mr. Rogers we are returning this, and ask that you kindly make it payable to Layne-Northwest Co.

We thank you for this favor,

Very truly yours,

*H. C. Lory*  
Secretary,  
LAYNE-NORTHWEST COMPANY.

HCL:AH  
encl.



June 24, 1930.

Layne-Northwest Company,  
1023 Wells Street,  
Milwaukee, Wisconsin.

Gentlemen:

I am inclosing a check for \$4.85 in payment of the samples of the Farlin Street well at Green Bay, Wisconsin. Kindly have Mr. Lacey sign and return the inclosed voucher at his earliest convenience.

Yours very truly,

T

Geologist



# Chicago, Milwaukee, St. Paul and Pacific Railroad Company

C. F. LOWETH  
CHIEF ENGINEER

Office of Chief Engineer  
Chicago Union Station

Chicago, June 24, 1932.

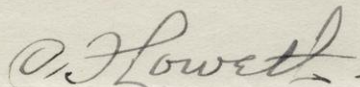
Prof. F. T. Thwaites,  
The University of Wisconsin,  
Madison, Wis.

Dear Sir:

I have yours of the 17th.

The position made vacant by the death of Dr. Koyl has not been filled and will not be. We do not have anything in the line you mention at this time but will gladly file your letter and bear you in mind whenever occasion requires.

Yours truly,



Chief Engineer

L



June 17, 1932

Mr. C. F. Loweth, Chief Engineer,  
Chicago, Milwaukee, St. Paul and Pacific R. R.,  
Union Station,  
Chicago, Illinois

Dear Sir:

I just learned of the recent death of Dr. Koyle who had charge of water supply work for your railroad. I at once wondered if my qualification are such that I could be considered for this vacancy.

My experience with water supplies started in 1904 when I was a member of a party of the U. S. Reclamation Service headed by Prof. Slichter. We tested wells and made maps of the underground water surface. Since then I have spent much of my time on study of underground waters not only the geology of water-bearing deposits but the chemical quality and industrial utility of the waters. This work has brought me more and more into contact with engineering problems. I also studied considerable engineering while in school although I changed to geology before the end of the course.

I have worked under the financial support of the University, the Wisconsin Geological Survey and the Illinois State Geological Survey. This work has brought me into contact with large numbers of consulting engineers, well drillers and users of water. In 1923 I had actual if not nominal charge of the testing and casing of the West Chicago well of the Chicago and Northwestern Railway. This summer I am to work on underground waters in southwestern New York State for the New York State Museum.

For references I can give Dr. G. K. Loith, head of the Geology Department here, Dr. M. M. Leighton, Chief, Illinois State Geological Survey, Urbana, Illinois, Mead and Seastone, Consulting Engineers, Madison, Wis., Mr. W. G. Kirchhoff, Consulting Engineer, Madison, Wis., Mr. Paul Clark, Consulting Engineer, Appleton, Wis. Mr. J. Albert M. Robinson, Consulting Engineer, Chicago, Mr. F. M. Gray, Jr., Gray-Milaeger Drilling Co., Milwaukee, Mr. Jos. Egorer, Well Drilling Contractor, Milwaukee, and many others into contact with whom my work has brought me.

If you have any opening in this line wither full or part time I would be glad to have my name considered.

Very truly yours,

F. T. Thwaites, Lecturer in Geology



June 10, 1932

Dr. A. K. Lobeck,  
Department of Geology,  
Columbia University,  
New York City

Dear Dr. Lobeck:

I wish to thank you for the remainder of the Atlas of American Geology received yesterday. I am sure that much of this information would be useful in my course but haven't decided as yet just how to use it.

This year's class was rather poorer than last as well as smaller. We did not find that Fenneman went over so well as a text book. He shies away from everything about which there is any difference of opinion at all which makes it rather hard to make any point. He is also terribly short on cross sections showing relation of topography to geology.

I start east on June 27. Hate to leave Amy and Tony alone but it cannot be helped. With best regards,

Sincerely,



May 31, 1932

Dr. M. M. Leighton, Chief,  
State Geological Survey,  
305 Ceramics Bldg.,  
Urbana, Illinois

Dear Dr. Leighton:

In reply to yours of the 26th I am enclosing herewith a statement with regard to my researches of the past year. Please note that this work has all been done in connection with the University as the State Geological Survey withdrew all support in 1929.

I suggest that you add the name of Dr. W. S. Cooper, Dept. of Botany, University of Minnesota, Minneapolis, Minnesota. Dr. Cooper has been doing a great deal of work on the glacial geology north of the Twin Cities in connection with botanical work. He is a keen observer and a good writer. He has a paper now ready for publication which advances some new ideas similar to my own although arrived at independently.

You might also add Father Henry Retzke, Motley, Minnesota. He is a Catholic priest who puts in his spare time in working on glacial problems. His English is terrible and his knowledge of general geology rather limited but his enthusiasm is unbounded and his observation very keen. He is also a good photographer.

I have a job for the summer with the New York State Museum so can stave off the Depression a bit longer!

I am making progress on my Glacial Geology. Dr. Leith urges me to have it printed instead of mimeographed. Sent you some of the illustrations a while back and trust that you got them.

Very truly yours,

Lecturer in Geology



R. F. D. 4,  
Madison, Wisconsin,  
May 2, 1932.

Miss Evelyn Lee,  
4104 East 27th Street,  
Minneapolis, Minnesota.

Dear Miss Lee:

I am inclosing a tracing of the silhouette  
which you recently made of Tommy. You will recall that  
you lost the copy I was to give my mother as an Easter  
remembrance and promised to make two for me.

Mother Thwaites greatly appreciated the copy  
I mailed her.

Yours very truly,

Mrs. F. T. Thwaites.



Feb. 20, 1933

Dr. A. L. Lugin,  
Department of Geology,  
University of Nebraska,  
Lincoln, Nebraska

Dear Sir:

I wish to thank you very much for your kind invitation contained in your letter of the 16th.

Conditions here are such that it is out of the question for me to attend the meetings in Lincoln. Between salary cuts both present and promised, the danger of losing one's job to protect someone else, lack of all outside employment, and heavy personal losses and the fact that this is the busiest part of the year in my teaching I just dare not leave here.

I did get off to attend the Wisconsin meeting at Fond du Lac but the University paid my expenses there. We found the drillers very much depressed with only a fifth of last years attendance.

But all we can do is to hope that things will improve-someday!

Thanking you again,

Sincerely,

F. T. Thwaites, Lecturer in Geology,  
Geologist in charge of well records,  
Wisconsin Geological Survey



THE UNIVERSITY OF NEBRASKA  
LINCOLN

DEPARTMENT OF GEOLOGY  
NEBRASKA STATE MUSEUM

Feb. 16, 1933

Dr. F. T. Shwartz, Dept of Geology,  
University of Wisconsin,  
Madison, Wis.

Dear Sir:-

The Geology Department here has arranged a luncheon for Wed. Feb. 22, 12:00 M. at the Grand Hotel and Doctor Bondra has suggested that we invite yourself and other visiting geologists to be our guests at that time. He feels that such a plan will be profitable for all concerned and that some of your men can be excused from the well drillers luncheon that day. I trust that you can be with us.

Since we have not met, I am anxious, personally, to get acquainted and I hope that I may have the opportunity to show you around the department and the museum; also, that some of our students, especially our graduate students, may have a chance to talk with you. I have several advanced men working on sedimentation and petrographic problems and they are anxious to learn more of the work in this line at Wisconsin. I hope to be able to get in touch with you Wednesday morning sometime. Sincerely yours,  
A. L. Logan,  
Asst. Prof. of Geology.



Columbia University  
in the City of New York

DEPARTMENT OF GEOLOGY AND MINERALOGY

Oct. 31, 1932

Dear Mr. Thwaites:

I was very glad to receive your last letter with the several blue prints. As to publishing your book, I agree with Leith that it ought to be printed if possible and handled by a regular publisher if that could be managed. Of course it is not the kind of book that would be expected to have a very wide sale, not nearly so extensive as the average text book because its range is no much narrower and I imagine therefore that publishers would be hard to interest. Could you tell me about how many pages and illustrations it would contain and let me look into the matter at this end? I am in touch with publishers all the time and would be glad to bring it to their attention and recommend it for publication.

Very sincerely,

A handwritten signature in dark ink, appearing to read "A. F. Robertson". The signature is written in a cursive style with a long horizontal line extending from the bottom of the name.



R. F. D. 4,  
Madison, Wisconsin,  
April 27, 1933.

*Same to Ryan Puffy*

Senator Robert LaFollette,  
Washington, D. C.

Dear Sirs:

We are informed that on April 20, 1933 the House of Representatives passed a bill (H.R. 5040) to provide for a transfer of the present special excise tax of 3% on domestic and commercial sales of electrical energy from the consumer to the seller. We are also informed that such a transfer will make it impossible for many companies to meet interest on outstanding bonds and stock.

As we have put some of our savings in small amounts of utility stocks and bonds and with drastic salary reductions would feel the loss of such interest and dividends very keenly and there are countless other families in the same predicament, we ask that you give this bill due consideration before voting for its passage in the Senate. Furthermore electric rates do not need reduction with commodity prices because they have been steadily declining over a period of many years.

It would seem that it would be a wise policy to start the "new era" with a few companies that in the past have used enough foresight in their management to enable them to endure the depression thus far rather than to force them into bankruptcy.

Yours very truly,

Mr. and Mrs. F. T. Thwaites

*Carbon to*

*L. H. Henke, V.P. and Treas.*

*105 West Adams St.,*

*Chicago, Ill.*



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## United States Senate

COMMITTEE ON MANUFACTURES

1 May 1933

Mr. and Mrs. F. T. Thwaites,

RFD 4,

Madison, Wisconsin.

Dear Mr. and Mrs. Thwaites:

The tax bill, H. R. 5040, is now before the Finance Committee of which I am a member, and you may be assured that your views will have my attention in connection with the measure.

Sincerely yours,

*Robert M. La Follette, Jr.*



STATE OF IOWA  
IOWA GEOLOGICAL SURVEY  
IOWA CITY

GEORGE F. KAY, DIRECTOR

JAMES H. LEES  
ASST. STATE GEOLOGIST

LUCILE MEREDITH  
SECRETARY

October 30, 1933.

Dr. F.T. Thwaites  
University of Wisconsin  
Madison, Wisconsin,  
Dear Dr. Thwaites,

As I mentioned to you at La Salle, I am attempting to work out the Stratigraphy of Red Cedar River Valley, Wisconsin. In your paper in Volume 42 of G.S.A. "Buried Pre-Cambrian of Wisconsin" you list wells at Barron, Menomonie, Meridean, and Rice Lake, which reach the PreCambrian. The logs of these wells would be of great importance to me and I am in hopes that you have them and will be willing to give them to me. I am especially interested in knowing the northern boundary of the Paleozoics in Barron County.

Our men were all very much pleased with the field conference and are looking forward to the conference in Wisconsin next year.

I will appreciate greatly any information which you can supply me and will hold myself very greatly indebted to you for it.

Very truly yours,

*Laurence Lees*



STATE OF IOWA  
**IOWA GEOLOGICAL SURVEY**

IOWA CITY

GEORGE F. KAY, DIRECTOR

JAMES H. LEES  
ASST. STATE GEOLOGIST

LUCILE MEREDITH  
SECRETARY

Dept. Geology  
Iowa City  
Nov. 20, 1933.

Prof. F.T.Thwaites  
Dept. Geology  
University of Wisconsin.

Dear Prof. Thwaites,

I have received your letter of Nov. 2 and have found the information very useful. Thank you very much for your trouble. Your paper on the Pre-Cambrian of Wisconsin is also proving very useful.

If I can be of aid to you at any time I trust you will call on me. I will send a photostat of my map and columnar section as early in the spring as possible. The text is not likely to contain anything you do

not know but will call on it



STATE OF IOWA  
**IOWA GEOLOGICAL SURVEY**

IOWA CITY

GEORGE F. KAY, DIRECTOR

**JAMES H. LEES**

ASST. STATE GEOLOGIST

**LUCILE MEREDITH**

SECRETARY

not know but I will gladly send it if you desire.

Very truly yours,

*Lamence Lees*



Nov. 2, 1933

Mr. Laurence Loos,  
Iowa Geological Survey,  
Iowa City, Iowa

Dear Mr. Loos:

In reply to yours of October 30 you are entirely welcome to any and all information that I have. If you can at any time reciprocate with advance copies of any maps or sections which you have they would be much appreciated and will be kept confidential until published. But if you cannot do this it is all right anyway.

Unfortunately, our knowledge of well logs in northwestern Wisconsin is sadly deficient. Weidman worked there in the old days when there were funds to do field work and he took little interest in getting samples as nobody did then in our state. However, here is what we have.

I recently sent blue print logs of the two wells at New Richmond and the village well at Baldwin to Mr. Eliot Powers in your department. Doubtless he will let you use these but if not convenient please let me know and I will send more blue prints which cost only two or three cents each.

Log of Barron city well, drilled by McCarthy Well Co., 1917

Gravel and stones	15 ft	15 ft.
Gravel	10	25
Sand	35	60
Clay, blue	10	70
Sandstone, soft	40	110
Sandstone, hard	65	175
Sandstone and shale	50	225
Shale	50	275
Sandstone	10	285
Shale	15	300
Sandstone	60	360
Shale, red to brownish pink	5	365
Sandstone, coarse to very coarse, gray	35	400
Shale, red and flint (quartzite pebble)	3	403
Sandstone	10	413
Rock (quartzite) hard, red, possibly a very pebbly conglomerate	14	427

Water stood at 15 feet and 375 g.p.m. lowered it 22 feet

I saw some samples from the bottom of this hole but have no regular set.

Log of Turtle Lake village well, drilled by McCarthy Well Co., 1913

Hardpan and boulders, red	87 ft.	87 ft
Mud	13	100
Sand and boulders, 10 in drive pipe to bottom	22	122
Dolomite, hard	65	187



Dolomite, soft	23	210
Sandstone, hard (Jordan)	22	232
Sandstone	35	267
Shale, green	3	270
Sandstone, green	170	440
Shale, green	3	443
Shale, sandy, gray	7	450
Sandstone (Dresbach in part)	170	620
Shale, gray	30	650
Sandstone, white	30	680
Sandstone, yellow	20	700
Sandstone, white (Mt. Simon)	39	739

## Log of well at Hudson, drilled by McCarthy well Co., 1917

Old hole, no record	357	357
Sandstone	7	364
Sandstone, hard, red	6	370
Red shale and streaks of hard rock (probably decomposed Keweenaw lavas)	125	495
Red rock	40	535
Red shale and rock (sample at 556 is a sandy red shale with calcite; 10 samples from 779 to 850 are all decomposed red amygdaloidal basalt containing much calcite and prehnite)	365	900
Rock and shale (sample from 900-912 is dense basalt; 4 samples from 930 to 1025 are amygdaloid with prehnite, calcite and jasper fillings)	130	1030

## Log of Golfax village well, drilled by McCarthy well Co., 1914

Sand and gravel	171	171
Sandstone	81	252

I have no information about any of the other wells you mention beyond that given by Weidman in Bull. 35.

With regard to the north limit of the Paleozoics in Barron County I once saw a small outcrop of sandstone a few miles south of Cumberland. No two logs of the old well at Cumberland agree and I think that Weidman's guess that it struck Red Clastics is about as near right as we can get. The Shell Lake well found a very coarse gray sandstone under several hundred feet of drift but the few samples do not agree with what Mr. Keys told me (he drilled this well but did not send in the samples). Beas regarded (Bull. 44) the Hayward well as in Cambrian but from the few samples provided by Mr. Keys from a later hole I am confident that the rocks are Red Clastics. A well several miles northeast of Luck strikes sandstone which looks like Cambrian. The creamery wells at Cameron are in sandstone at total depth of 427 feet. Doubtless I could dig up more records from Weidman's notes but it would take some time and we would still be in doubt as to correlation of some sandstones.

If there is anything else I can do to help you please do not hesitate to ask me.

The photographs taken on the conference all turned out well and if anyone wants some can supply them.



Oct. 28, 1931

Mr. R. H. Licking,  
Superintendent of Schools,  
Keweenaw, Wisconsin

Dear Licking:

In reply to yours of the 20th delayed on account of a series of field trips, the Forest Bed is most easily seen in Sections 11 and 13 of T. 21 N., R. 24 E. It has been described by Goldthwait in Bulletin 17, pages 61 and 62. His interpretation is not that now held. Mr. L. R. Wilson of the Botany department worked up the locality for his masters thesis and the results are now in press. To reach the locality drive south on 17 and instead of following the new pavement in Manitowoc county take the old gravel road south along the lakeshore until the ruins of some old buildings are found on the left. Here a lane runs down to the remains of an old dock. Park your car there and walk south on the beach. If landslides have not covered everything you should find logs and stumps within a half mile or so. Of course, the recent fall in lake level has prevented waves from reaching the cliff. The best time to go down is just after a big northeaster and we haven't had many of them recently. You will also see an interesting case of drainage change due to cliff recession. Mrs. Timaites has written this up in the Journal of Geology and I will send you a reprint soon. Will also send Wilsons report when that is out in the spring. Wilson is going ahead with more work for this Doctors thesis.

You can also find the Forest bed exposed just north of the Keweenaw County line. To reach this park your car at the first ravine crossed after you enter Manitowoc County. Cross the field to east (if you do not see exposures in the ravine itself), go down the cliff through a minor ravine and walk north. Here the underlying sediments are highly folded by ice shove but locally the Forest Bed is undisturbed and rests on sand. There may be other exposures to the north but the golden opportunity of the 1929 high water was let go because I had to work in Illinois and now two years of dry weather have put us back to where we were before. Let's hope for more rain and more northeasters!

Sincerely,

Lecturer in Geology



KEWAUNEE PUBLIC SCHOOLS

R. H. LICKING, SUPERINTENDENT  
KEWAUNEE, WISCONSIN

October 20th

1931

Prof. F. T. Thwaites,  
Science Hall  
University of Wisconsin  
Madison, Wisconsin

Dear Mr. Thwaites:--

I happened to mention to one of our local business men the other day the buried forest down in Two Creeks. He became very much interested and asked that I take him down there to show it to him.

The year I took Glacial, we did not go to Two Creeks and although I have searched for it a time or two since that time, I have never been able to locate it myself. Would you kindly give me the exact location of the ravine in which this is exposed. If you do not remember exactly, perhaps you can give me the approximate location. Anything that you can give me will be appreciated, I assure you.

Sincerely yours,

*R. H. Licking*

Superintendent

RHL:FEH



April 20, 1931

Mr. Harold Link,  
Well Driller,  
Clintonville, Wisconsin  
Dear Mr. Link:

I have been slow in thanking you for the record of the Flannagan well at Bear Creek. This is just the sort of record I need in that country. I would also appreciate records of any other wells you have drilled which are more than 25 feet deep or so. If you need some more blanks I will send them.

Very truly yours,

Geologist in charge of well records



Oct. 8, 1931

Dr. Alfred C. Lane,  
Tufts College, Massachusetts

Dear Dr. Lane:

I wish to thank you for the separates of your three recent papers which arrived this morning, namely "The philosophic classification of mineral structure", "The earth's age by sodium accumulation", and "Radioactive disintegration applied to the measurement of geologic time---".

I had an interesting summer, although it did not bring in any financial returns. I worked with the Kansas Geological Society on their cross section of the United States and then went on their field conference in the Wichitas, Arbuckle, and Ouachitas. After that I worked for two weeks in northern Wisconsin with some of my students.

Very truly yours,

Lecturer in Geology



May 16, 1930

Mr. M. H. Leighton,  
State Geological Survey,  
Urbana, Illinois  
Dear Mr. Leighton:

In reply to yours of the 13th the work on glacial geology in northern Wisconsin on which I spent three years was discontinued in 1929 when Mr. Bean was removed from the Highway Commission by a new law. Since then I have been able to contribute little to this branch of study. My work in Illinois was entirely in the region covered by Mr. MacClintock so cannot offer anything new. Information secured while on field trips with classes has been very slight. I have had some biology students work on the Forest Bed near Two Creeks, Wisconsin. They report determination of mosses, beetles as shown by marks on tree trunks under the bark, and tentative determination of cedar and tamarack trees. It is clear that a little more systematic work will give a good picture of climatic conditions at the time this forest grew which was presumably between the Middle and Late Wisconsin glaciations. Study of varved clay deposits at Manitowoc, New London, and Waupaca shows definitely that DeGeer's varve correlations do not check with the stratigraphic sequence and therefore much doubt is cast on the reliability of such correlations. A paper on these deposits is now in press; it is by E. W. Ellsworth, one of my students but work was directed by Mr. Twenhofel.

Very truly yours,

F. T. Thwaites, Geologist in charge of well records



STATE OF ILLINOIS  
STATE GEOLOGICAL SURVEY DIVISION

M. M. LEIGHTON, CHIEF  
305 CERAMICS BUILDING  
UNIVERSITY OF ILLINOIS CAMPUS

URBANA

May 13, 1930

Mr. F. T. Thwaites  
Wisconsin Natural History Survey  
Madison, Wisconsin

Dear Mr. Thwaites:

Professor W. H. Twenhofel, Chairman of the Committee on Sedimentation of the National Research Council, has again requested me to serve on his committee to report on the studies which have been carried on during the past year on glacial sediments in North America, regardless of age.

This includes either sediments made by the ice itself, by waters associated with the ice sheet, by ice-bergs, or other forms of ice, and by winds whose work is or was influenced by glacial conditions. Structures of deformation produced by glacial or quasi-glacial agencies and secondary changes made by weathering are also subjects to be included, but distinction should be drawn between glaciation and glacial sediments.

I am wondering if you would be good enough to write me regarding any such work that you have been carrying on during the past year. In case you are not ready to state your interpretations, I should appreciate a brief statement regarding your problem and any other information you desire to give. The report will probably be published sometime this year by the National Research Council and a complimentary copy will be sent to each contributor. If you can conveniently send this to me by May 28, I shall greatly appreciate it.

Thanking you and with best wishes, I am

Yours very truly,

*M. M. Leighton*



Memorandum

It is important that this report should include the results of every worker on glacial sediments in North America. Thinking that you will be able to help make this report complete, I am listing below for your review the names of those of whom inquiry has already been made.

Hoping that you will inform me of any persons whose names do not appear hereon, I am

Very truly yours,

M. M. Leighton

Alden, W. C., U. S. Geological Survey, Washington, D. C.  
Allen, Victor T., 221 N. Grand Blvd., St. Louis, Missouri  
Antevs, Ernst, 500 Riverside Drive, New York City  
Apfel, Earl, Syracuse University, Syracuse, New York  
Atwood, W. W., Clark University, Worcester, Massachusetts  
Bretz, J Harlan, University of Chicago, Illinois  
Brown, T. C. Fitchburg, Massachusetts  
Blackwelder, Eliot, Stanford University, California  
Burwash, E. M. J., Geological Survey, Toronto, Canada  
Carmen, J. Ernest, Ohio State University, Columbus, Ohio  
Chadwick, G. H., Catskill, New York  
Coleman, A. P., Royal Ontario Museum, Toronto, Canada  
Condra, G. E., University of Nebraska, Lincoln, Nebraska  
Flint, Richard Foster, Yale University, New Haven, Connecticut  
Gill, James E., Rochester New York  
Hobbs, W. H., University of Michigan, Ann Arbor, Michigan  
Kay, G. F., University of Iowa, Iowa City, Iowa  
Lane, Alfred C. Tufts College, Massachusetts  
MacClintock, Paul, Princeton University, Princeton, New Jersey  
Mallott, Clyde A., University of Indiana, Bloomington, Indiana  
Reeds, Chester A., American Museum of Natural History, New York City  
Rothrock, E. P., State Geologists, Vermillion, South Dakota  
Sardeson, F. P., University of Minnesota, Minneapolis, Minnesota  
Sayles, Robert W., Chestnut Hill, Massachusetts  
Schoewe, Walter, University of Kansas, Lawrence, Kansas  
Shipton, W. D., Washington University, St. Louis, Missouri  
Taber, Stephen, State Geologist, Columbia, South Carolina  
Theis, C. V., University of Cincinnati, Cincinnati, Ohio  
Thwaites, Wisconsin Natural History Survey, Madison Wisconsin  
Von Engel, O. D., Ithaca, New York  
Wentworth, C. K., Washington University, St. Louis, Missouri  
Westgate, Lewis G., Ohio Wesleyan University, Delaware, Ohio  
*Levere, Frank*



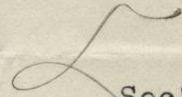
Columbia University  
in the City of New York  
DEPARTMENT OF GEOLOGY AND MINERALOGY

June 12th, 1931

Dear Sir:-

Your letter of June 8th has just been received  
and will be brought to the attention of Prof. Lobeck  
upon his return to New York in about three weeks.

Very truly yours,

  
Sec'y



Columbia University  
in the City of New York

DEPARTMENT OF GEOLOGY AND MINERALOGY

June 19, 1931

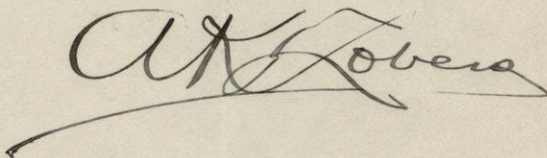
Dear Mr. Thwaites:

Replying to your letter of June 8, I have just looked up my class book for 1928-29 for the course on the Physiography of the United States and do not find Mr. Gaylord Owen listed as a member of that class. It seems to me that it is rather late now to be making up an incomplete acquired at that time.

Am glad to know you folks are all well. Have just returned from a marvelous trip to the Pacific Coast and back by airplane. It was a great experience, especially for one interested in the Physiography of the United States.

With best wishes, I am

Very sincerely,

A handwritten signature in dark ink, appearing to read "A. K. Lovers". The signature is fluid and cursive, with a long horizontal flourish extending from the bottom of the name.



June 8, 1931

Dr. A. K. Lobeck,  
Dept. of Geology and Geography,  
Columbia University,  
New York City

Dear Dr. Lobeck:

Mr. Gaylord Owen has handed in some summaries of the western provinces starting with the Interior Low Plateaus. These seem to be based wholly on reading rather than laboratory work. He desires me to remove an "Incomplete". On telephoning the office I find that no class card was filed for this course in 1928-29. Now I do not see just how I can make up any grade without knowing more about the matter. They say a card was issued but of course there may have been some slip. Could you please let me know about this as soon as possible? Otherwise I can only give him two credits.

Classes are over now. I had only a dozen in physiography but all except two were good students, most of them geography majors. Glacial was small also, 10 but most were good. All are writing field reports.

I will be home most of the summer. Am tempted to go on the Fifth Field Conference of the Kansas Geological Society in the first week of September. May also take some students to work for a few weeks in Waushara County joining my work to Alden's.

We are both very well. With best regards from both of us to Mrs. Lobeck and you,

Sincerely,



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MANILA, P. I.

*New York,* April 7th, 1931  
HES/SW  
REF. \_\_\_\_\_

B. R. #295

Professor F. T. Thwaites  
Department of Geology  
University of Wisconsin  
Madison, Wisconsin

Dear Professor:-

We are in receipt of a report from our Chicago Branch Manager, Mr. A. I. Buehler, who recently had the pleasure of calling upon you, and we wish to thank you for the courtesies extended to him on that visit.

We note from Mr. Buehler's report, your interest in the Leica Camera, and we take pleasure in complying with his request by forwarding herewith:

COPY OF CATALOGUE #1174  
PAMPHLET #1179  
PAMPHLET #1181  
PAMPHLET #1188

We trust you will find this literature of interest, and hope to have the pleasure of serving you in the near future.

Very truly yours,

E. LEITZ, INC.,  
*[Signature]*  
MGR. PHOTO-OPT. DEPT.

ENC:-4



R. F. D. 4,  
Madison, Wisconsin,  
March 12, 1931.

Dr. A. K. Lobeck,  
Department of Geology,  
Columbia University,  
New York, New York.

Dear Dr. Lobeck:

I wish to thank you for having McGraw Hill send me a complimentary copy of Fenneman. I could not make it the text book for the second semester because some new students had already purchased Bowman; nevertheless 9 out of the 13 students bought copies. All seem to like it although they would like to see more cross sections.

I have 15 in mapping and 11 in glacial so that I am being kept as busy as usual; however I have no definite promise of a job for the summer, that is if I can go.

I also want to thank you for recommending me for the American Geographical Society for reviewing Fenneman. Did you know that I studied elementary geology under Fenneman in 1905?

Best regards from the both of us,





DEPARTMENT OF  
REGISTRATION AND EDUCATION  
M. F. WALSH, DIRECTOR  
SPRINGFIELD

STATE OF ILLINOIS  
STATE GEOLOGICAL SURVEY DIVISION

M.M. LEIGHTON, CHIEF  
305 CERAMICS BUILDING  
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BOARD OF NATURAL RESOURCES  
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CHEMISTRY - WILLIAM A. NOYES  
STATE UNIVERSITY  
DEAN CHARLES M. THOMPSON

URBANA March 11, 1931

Mr. F. T. Thwaites  
University of Wisconsin  
Madison, Wisconsin

Dear Mr. Thwaites:

In the absence of Dr. Leighton I am sending  
you under separate cover a copy of his paper on the  
Peorian Loess, which appeared in the recent issue of the  
Journal of Geology.

Yours very truly,

*E. J. Nyberg*

Chief Clerk



March 10, 1931

Mr. M. M. Leighton, Chief,  
State Geological Survey,  
Urbana, Illinois

Dear Mr. Leighton:

I hope my name has not been omitted from your list for copies of your recent paper on the Peorian which appeared in the last Journal of Geology. I hope to revise my Outline of Glacial Geology soon and will then make use of all the latest information. Things are so up in the air on account of the legislature that I am not at all sure that I may have all next summer on my hands at home to do this! We expect our legislature to remain in session until October at least.

Very truly yours,



# GEOLOGY AND MINERALOGY

ALFRED C. LANE  
KIRKLEY F. MATHER  
ROBERT L. NICHOLS

BARNUM MUSEUM, TUFTS COLLEGE  
BOSTON POSTAL DIST. NO. 57, MASS.

February 17, 1931

Professor F. T. Thwaites  
University of Wisconsin  
Madison, Wisconsin.

My dear Thwaites:

I have just looked over your paper as censor and sent it back to Berkey with a strong recommendation for its publication. The relatively high relief of the pre-Cambrian surface (which, by the way, fits very well with work done by Hussey and Mrs. Wasson, as perhaps you know), is, it seems to me, of very wide importance. I would, however, suggest that if they were pressed for space, the economics notes might very well be left to the Survey publication.

You will find a few penciled comments and especially in regard to the figures, I had better write you, because they may not be very legible.

Is not the distinction of pattern, both sandstone and quartzite, rather mixed up and indistinct in one of the figures? Also, in the Stillwater section, might it not be well to indicate in some way the somewhat hypothetical position and hade of the fault, if they are so? Also, the dip of the Keweenawan is uncertain.

I have no fault to find with what you say in the text, but I am referring to the figure. It must be remembered and possibly might be made a little clearer, that with so high a relief in the Huronian surface there is going to be a good deal of variation, and gradual overlap up it and to fill it up with inclined beds of Keweenawan as the figure rather suggests, is not strengthening your main argument.

*in the thickness  
of the following  
(Cenozoic) beds*

It is very interesting that we have this sudden change in salt water as we get into those lower red beds. I hope somewhere you will put the facts on record with



## GEOLOGY AND MINERALOGY

ALFRED C. LANE  
KIRTLEY F. MATHER  
ROBERT L. NICHOLS

BARNUM MUSEUM, TUFTS COLLEGE  
BOSTON POSTAL DIST. NO. 57, MASS.

- 2 -

regard to this. It is one of the things which might suggest a very distinct gap between the upper Cambrian and the upper Keweenawan, of which, we you know, I am quite skeptical, but we live and learn. I want to thank you personally for this addition to our knowledge of a gap which has always been of considerable interest to me and I am glad they picked me out to look over your paper.

Very truly yours,

*Alfred C. Lane*  
Alfred C. Lane



Dec. 20, 1931

Dear Mr. and Mrs. Lobeck:

I thought we would put in a few lines and as I was using the machine would typewrite it for otherwise you might not be able to read what I had written.

The first news is that my mother is in the hospital at Rochester, Minnesota. She had a serious operation for a tumor on the seventh. She is now out of bed and feeling fine. We hope to see her back here soon. Isn't it wonderful what they can do now; a few years ago such an operation at her age would have been absurd to try.

The card shows how Hunter Tommy appeared a week ago. He now has three teeth. We have upon suet up for him in the living room but so far he hasn't started to crawl much. However, we want to get him used to captivity before he does.

My physiography class fell off to 12 this year on account of the slump in the other department. However, most of them are fair to good students. We hear all kinds of rumors of salary cuts and of course "Phil" is trying to raise income taxes tremendously. So I gave up going to Tulsa and will sit tight here and try to get out my new illustrated glacial geology text. So far final copy hasn't started.

Tommy is now parked on the walk outside the dining room. Soon we will all go in to the Post Office to mail out out of town cards and some letters.

Wishing you all a Merry Christmas and a Happy  
New Year,



March 12, 1931.

Dr. M. M. Leighton, Chief,  
Illinois Geological Survey,  
Urbana, Illinois.

Dear Dr. Leighton:

I wish to thank you for your separate on the  
"Peorian loess".

Yours very truly,

FTT-T

Lecturer in geology



Columbia University  
in the City of New York

DEPARTMENT OF GEOLOGY AND MINERALOGY

February 10, 1931

Dear Mr. Thwaites:

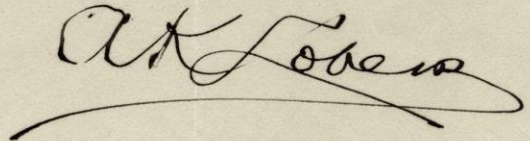
Thank you very much for the last batch of material on the United States. I do not seem to remember Mr. Ellsworth very well but perhaps I will after I see him again. However, I shall put in a good word for him with Dr. Berkey.

The volume on the Physiography of the United States by Fenneman has just been issued by McGraw-Hill. I received a copy. I am sure you will find it very useful.

The flu left me rather weak but I am recovering some every day. My work here continues to be very pleasant and interesting. This semester I have three courses: the general course in Geology with some 80 students; elementary structural geology with 15; and another general physiography course with 28.

Bertha is always pleased to hear from Amy and we both extend to you our best wishes.

Very sincerely,

A handwritten signature in dark ink, appearing to read "A. K. Love", with a long, sweeping horizontal flourish underneath.



Feb. 6, 1931

Dr. A. K. Lobeck,  
Dept. of Geology,  
Columbia University,  
New York City

Dear Dr. Lobeck:

Enclosed please find some of this years material for Physiography of the U. S. Hope you will note an improvement over last year.

Was sorry to learn in Mrs. Lobeck's letter to Amy that you had been ill. Hope you are all right now. I have been fine this winter. Amy is also well, since Christmas, that is.

Advanced Physiography dwindled to only 4 by Christmas but they were not bad. I tried to avoid a simple review of elementary physiography by first taking up a field problem. Then we drew a cooperative cross section from Charleston, S. C. to Nashville showing a five mile strip plus geology. Next we studied the Rocky Mountain peneplanes and last faulting and mountain forms in arid climates. Perhaps scattered subjects but one student remarked that I had ruined all his faith in peneplanes! Strange that nobody ever seems to have paid any attention to the place where the Appalachians pass below the Coastal Plain. Anyhow I can find nothing on this critical area!

Physiography of the U. S. turned out well, however, although I failed one. He was or rather is a psychopathic case pure and simple. Most of the students were geography assistants. They averaged much better than last year. I am hoping for Fenneman's book on western U. S. which he claimed would be ready in January. Have you seen anything of it?

I got roped in to help Martin revise Bull. 36. This leaves me in a dilemma as where I know of several new interpretations of phenomena I do not exactly like to give away things on which I should like to publish later. For instance, I have a new theory of the upland on the Baraboo Range. I announced this in my paper at Toronto but am not ready to publish as I have not finished the field work. Meantime I feel reluctant to let Martin publish about the matter. I think I have been too free in helping others in the past.

"Lefty" Ellsworth wants to go to Columbia next year and asked me to write to Dr. Berkey about it. So far I have not been able to do so but expect to when I send in my paper for publication. If you knew Lefty you might be able to put in a good word for him.

With best wishes from both of us,

Very truly yours,



THE AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS  
(INCORPORATED)

OFFICE OF THE THIRD VICE PRESIDENT  
FREDERIC H. LAHEE  
POST OFFICE BOX 953  
DALLAS, TEXAS

Box 2880.

January 24, 1931.

Mr. F. T. Thwaites,  
Science Hall,  
University of Wisconsin,  
Madison, Wisconsin.

Dear Mr. Thwaites:-

I must apologize for having overlooked our correspondence of May 19, 26, 31, and June 5, which was in a file different from the one in which I found the first reference to the matter under discussion. In the hundreds or even thousands of letters which I have received since we were discussing this, I had forgotten exactly how this matter stood between you and me. I have read these four letters again and I certainly do not think that from their tone there was any suggestion that this matter of your offering a paper before our Association should be dropped. Possibly the wording of my letter of June 5 was not quite clear. I did not mean to imply that every subject which we publish must refer directly to petroleum and its occurrence. In oil geology we have a great deal to do with structures which have been formed as a consequence of irregularities in the basement rock, and for this reason I felt that your subject, which referred to the topography of the buried Pre-Cambrian would be quite appropriate. However, the matter is apparently settled now by reason of the fact that you have already presented your paper before the G.S.A. at Toronto. I shall look forward to reading it when it is published. I am sorry that there was any misunderstanding. In my file of subjects for our San Antonio meeting I had you listed as one of those who would probably present a paper. Hence my letter to you of January 14.

Yours very truly,

*F. H. Lahee.*

F. H. Lahee.

FHL-cc



Jan. 21, 1931

Dr. F. H. Lahee,

Box 2880,

Dallas, Texas

Dear Dr. Lahee:

In reply to yours of the 14th you have evidently overlooked later letters on the same subject dated May 19, May 26, May 31, and June 5. In these the matter was taken up fully and it was decided that no material I could offer would be suitable for publication by the American Association of Petroleum Geologists. I therefore dropped the matter and presented my paper at Toronto.

Very truly yours,

Lecturer in Geology



THE AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS  
(INCORPORATED)

OFFICE OF THE THIRD VICE PRESIDENT  
FREDERIC H. LAHEE  
POST OFFICE BOX 953 Box 2880.  
DALLAS, TEXAS

January 14, 1931.

Mr. F. T. Thwaites,  
Science Hall,  
Madison, Wisconsin.

Dear Mr. Thwaites:-

On May 14, 1930 I wrote you the following  
letter:

"Dr. Sidney Powers informs me that you have some very interesting data on buried granite hills, presumably in Wisconsin or in adjoining states. Would you be willing to give us a paper on this subject for the next annual meeting of the American Association of Petroleum Geologists at San Antonio in March, 1931? This is a very interesting subject and one of particular importance to petroleum geologists.

"Hoping to hear from you soon, I am "...

Will you kindly reply to it. We would like very much to have a paper from you for our San Antonio meeting on this subject.

Yours truly,

*F. H. Lahee.*

F. H. Lahee.

FHL-cc



THE AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS  
(INCORPORATED)

OFFICE OF THE THIRD VICE PRESIDENT  
FREDERIC H. LAHEE  
POST OFFICE BOX 953  
DALLAS, TEXAS

June 5, 1930.

Mr. F. T. Thwaites,  
Science Hall,  
University of Wisconsin,  
Madison, Wisconsin.

Dear Mr. Thwaites:-

From your letter of May 31 it would seem to me that possibly your proposed paper does not touch very closely upon petroleum geology, although undoubtedly features which you mention in it are comparable with similar features in the oil territory. Especially is this true of compaction of sediments and the settling of sediments about buried hills. May I make the suggestion either that you write your paper in full and submit it to me so that I may decide whether it would be suitable for our Bulletin, which supposedly bears entirely on matters pertaining to petroleum geology, or that you write a "Geological Note" on the subject, similar to the notes which you will find in almost every number of our Bulletin, taking up in this briefer article especially the subject of compaction and settling over the buried pre-Cambrian Hills. Personally, I would like very much to have a paper from you on this phase of the subject, but I am sure you will understand that we must be careful not to accept papers which do not bear fairly definitely on petroleum geology, since otherwise we might be open to criticism from the membership. I shall be only too happy to look over your article if you will give me this privilege.

Yours truly,

*F. H. Lahee.*

F. H. Lahee.

FHL-cc



Science Hall

May 31, 1930

Dr. F. H. Lahee,

American Assoc. Petroleum Geologists,

P. O. Box 953, Dallas, Texas

Dear Dr. Lahee:

In reply to yours of the 26th I read over the manuscript I started last year and find that much of the material contained therein would not be suitable for publication in your Bulletin. I found that the title was "The buried pre-Cambrian of Wisconsin" and that most emphasis had been placed on the nature and structure of the pre-Cambrian and that the effect of buried hills on the structure of the overlying rocks was mentioned only incidentally. I have a number of such instances which differ from the phenomena in the Mid-Continent field in that the covering sediments are sandstone and dolomite instead of mainly shale. I can mention among others where data is less convincing, the Fond du Lac anticline and the large Two Rivers anticline. Of these the latter is the only region in Wisconsin which offers any appreciable chance of ever finding any oil (its existence was not known to Twenhofel as my work in northeastern Wisconsin was private). None of these has been thoroughly drilled so that in no instance is all the desirable data available. If you think that a revision of the paper to the title "The effect of the topography of the buried pre-Cambrian on the structure of the Paleozoic rocks of Wisconsin" will be of interest I will revise accordingly and try to do a little more field work. I think that the private survey of northeastern Wisconsin can now be released for publication. Incidentally the structure of eastern Wisconsin may have an important bearing on that of western Michigan where so much exploration has been done.

Very truly yours,



THE AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS  
(INCORPORATED)

OFFICE OF THE THIRD VICE PRESIDENT  
FREDERIC H. LAHEE  
POST OFFICE BOX 953  
DALLAS, TEXAS

May 26, 1930.

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

Dear Mr. Thwaites:-

I wish to thank you for your letter of May 19 in reference to your paper on the topography of the buried surface of the pre-Cambrian in Wisconsin. I cannot be quite sure from your description whether your paper will in any way bear upon petroleum geology, even indirectly. It would seem to me, however, that since it includes a subject which refers to buried hills, and since, in the Mid-Continent territory there are structural problems which involve this same subject of buried hills, your paper would fit nicely into our Bulletin. Since there is a little objection from a few members to the publication, in our Bulletin, of papers which do not have a fairly definite bearing on petroleum geology, I would appreciate your giving me first rights to publish your paper, forwarding the manuscript and maps to me when they are ready so that I may look them over. Personally I think that it would be an excellent subject for us to publish if you are willing.

I am glad to know that you have found some little use for my description of the use of the aneroid barometer.

Hoping that my suggestion concerning your paper will meet with your approval, I am

Yours very truly,

*F. H. Lahee.*

F. H. Lahee.

FHL-cc

CC-Dr. Sidney Powers.



May 19, 1930

Dr. F. H. Lahee,  
American Association of Petroleum Geologists,  
Post Office Box 953,  
Dallas, Texas

Dear Dr. Lahee:

In reply to yours of the 14th I have been writing a paper on the topography of the buried surface of the pre-Cambrian in Wisconsin which included a discussion of its effect on the structure of the overlying Paleozoics. This paper I hope to finish in a short time. It is planned to include a contour map of this horizon as well as suggestions as to the location of buried monadnocks as yet untouched by the drill and as to the structure of the concealed Huronian ranges. I could also include some structure maps of the Paleozoics. I had not decided where to publish this paper but if it will be of interest to oil geologists I would be most pleased to give it for your next meeting.

You may be interested to know that I have used your method of adjusting aneroid reading which you described some years ago in Economic Geology. It gave good satisfaction although I feel that there is a considerable personal equation in all such work. I used it daily for three summers and once to map an oil structure or rather to prove the absence of one.

Very truly yours,

F. T. Thwaites, Geologist in charge of  
well records



**THE AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS**  
(INCORPORATED)

OFFICE OF THE THIRD VICE PRESIDENT  
**FREDERIC H. LAHEE**  
POST OFFICE BOX 953  
DALLAS, TEXAS

May 14, 1930.

Mr. F. T. Thwaites,  
Science Hall,  
Madison, Wisconsin.

Dear Mr. Thwaites:-

Dr. Sidney Powers informs me that you have some very interesting data on buried granite hills, presumably in Wisconsin or in adjoining states. Would you be willing to give us a paper on this subject for the next annual meeting of the American Association of Petroleum Geologists at San Antonio in March, 1931? This is a very interesting subject and one of particular importance to petroleum geologists.

Hoping to hear from you soon, I am

Yours truly,

*F. H. Lahee.*

F. H. Lahee.

FHL-cc



Columbia University  
in the City of New York

DEPARTMENT OF GEOLOGY AND MINERALOGY

Sept. 18, 1930

Dear Mr. Thwaites:

Regarding Advanced Physiography, my experience at Wisconsin was that very few were interested in the technical aspects of physiographic problems. However, I had a splendid response to the course in Advanced Physiography of the United States, especially among the Geology Group. What they liked best was my summaries of the Physiographic characteristics of the different provinces. In one lecture for each province I tried to give them in a nutshell a picture of the structure and topography of that region. They had nothing to do but absorb the facts, no problems to work out or arguments to evaluate. Not that I particularly approve of this method but nevertheless it was evident that this was what the geology men wanted. I have no fear about your doing the right thing in the proper manner.

We are all very well. Don't you think Amy deserves a vacation from you? Better send her east for a little rest. Bertha would be awfully glad to see her.

Very sincerely,

*AK Love*



Sept. 16, 1930

Dr. J. E. Lamar,  
State Geological Survey,  
Urbana, Illinois

Dear Dr. Lamar:

I wish to thank you for the separate of your recent paper on the Cretaceous and Tertiary sediments of Kentucky, Illinois, and Missouri which will be of help to me in my physiography courses.

We reached home safely last Thursday about 8:30 after visiting Starved Rock and the Rock River valley from Dixon north. I shall always look back on my association with the Illinois Survey with the greatest pleasure.

Very truly yours,



Sept. 16, 1930

Mr. Frank Leverett,  
U. S. Geological Survey,  
1724 S. University Ave.,  
Ann Arbor, Michigan

Dear Mr. Leverett:

I wish to thank you for the separates recently received.

I have just returned from work in south-central Illinois. I found some interesting things including a range of morainal hills in southeastern Wayne County and some large gravel deposits in the Illinoian near Effingham. Also worked on the meander scars produced by floods from the melting Wisconsin ice beyond the limits of real outwash deposits.

So far as I can tell the work in northern Wisconsin will never be resumed.

Very truly yours,



Sept. 15, 1930

Dr. A. K. Lobeck,  
Dept. of Geology,  
Columbia University,  
New York City

Dear Dr. Lobeck:

Enclosed are last sheets for 1929-1930 Physiography of the U. S. I intend to modify things some this coming year. May type some consensed reading lists and some summaries of the provinces most poorly treated by Bowman. Will also redo some of the poorer full lists. I heard once that Fennomen had completed a book on the physiography of the western U. S. but if so have not seen it announced.

Have had two ask about advanced physiography. If I am able to give it thought of taking up first the field problem of the peneplain on the quartzite at Devils Lake, then reading on some selected areas. How does this strike you?

With best regards to both of you from both of us,

Sincerely,



DEPARTMENT OF  
REGISTRATION AND EDUCATION  
M. F. WALSH, DIRECTOR  
SPRINGFIELD

STATE OF ILLINOIS  
STATE GEOLOGICAL SURVEY DIVISION

M.M. LEIGHTON, CHIEF  
305 CERAMICS BUILDING  
UNIVERSITY OF ILLINOIS CAMPUS

URBANA

January 23, 1930

Mr. F. T. Thwaites  
Wisconsin Geological Survey  
Madison, Wisconsin

Dear Mr. Thwaites:

I wish to acknowledge receipt of the following  
publication:

"Glacial Geology of part of Vilas  
County, Wisconsin"

Thank you for sending this publication to  
me.

Yours very truly,

*M.M. Leighton*

Chief

1-27-30.  
BOARD OF NATURAL RESOURCES  
AND CONSERVATION  
M. F. WALSH, CHAIRMAN  
GEOLOGY - EDSON S. BASTIN  
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ENGINEERING - JOHN W. ALVORD  
CHEMISTRY - WILLIAM A. NOYES  
STATE UNIVERSITY  
DEAN CHARLES M. THOMPSON



Ann Arbor Mich Oct 18 1929

Dear Prof. Shwaites:

I am in receipt of your favor of Oct 16 and shall be much obliged, if you will send me a tracing that will show where corrections are to be made in the boundary of the red drift as set forth in the maps in Prof. Paper 154A. I can then correct the copies that I send out hereafter.

I am sorry your work in Wisconsin was interrupted, and hope provision will be made for carrying it on.

Very truly yours,

Frank Leverett,

1724 S. University Ave.  
Ann Arbor, Mich



Dec. 26, 1929

Dr. Frank Leverett,  
1724 S. University Ave.,  
Ann Arbor, Michigan

Dear Mr. Leverett: I am very sorry that I have been so long delayed in answering yours of Oct. 18 but my university work has kept me so rushed that I just could not seem to get around to making the tracing which you requested. I am sending a rough tracing herewith. You will understand that the border of the Late Wisconsin is a hard one to trace for the marginal deposits are so thin that weathering and erosion have obliterated all remnants of them in many localities. I have generalized what I regard as the true border. The moraines of Middle Wisconsin age are indicated in a still more general manner. I see little hope for immediate resumption of the work now that the State Geologist has been removed from the Highway Commission and intend to go back to Illinois next summer. However, I still have some hope that some work will be done to smooth up the outlines of the area and clear up a few loose ends so that I can publish something. I have been much puzzled by the phenomena of the glacial lakes in the Fox-Wolf Basin as I get shore lines at 900 feet down as far as Berlin while there is pitted outwash near Portage at 830. Is it tilting? If so the later beaches do not show any at all.

Very truly yours,

F. T. T.

Geologist



Columbia University  
in the City of New York

DEPARTMENT OF GEOLOGY AND MINERALOGY

Feb. 25, 1930

Dear Mr. Thwaites;

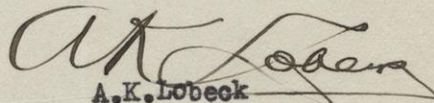
Thank you again for the batch of mimeograph sheets of the United States just received. You are making a real course out of that. I appreciate your notes very much.

I saw Corbett and Wanamacher yesterday. They were up here for a special lecture Donald Barton is giving on salt domes and on Geophysical Methods, five lectures in all as a matter of fact.

We are having fearfully hot weather this week. All windows open and we are just sweltering.

Trust you are all well. Kindest regards from

Yours truly,

  
A.K. Lobeck



Jan. 16, 1930

Dr. A. K. Lobeck,  
Dept. of Geography,  
Columbia University,  
New York City

Dear Dr. Lobeck: Enclosed please find some more of my material. The lists of references are not all I could have wished but I have checked them against Bowman now. The one on the Folded Appalachians was especially poor. I was obliged to change the laboratory maps because you had only one copy of each and work would be held up if someone carried away a copy. The review questions will show what I have tried to bring out.

My side has given way again and I am going to the hospital Sunday night to have it repaired by Rudge Jackson. Let's hope he does a better job than I had before.

Am enclosing some photos of the intercision of one of the Twin Creeks at Two Creeks, Wisconsin north of Two Rivers. Hope you may find them interesting. I may write up the locality if you think others would be interested.

With best regards from both of us,

Sincerely,



Columbia University  
in the City of New York  
DEPARTMENT OF GEOLOGY AND MINERALOGY

October 9.

Dear Mr. Shwaites :

I was very much pleased to receive your letter and trust you will find it possible to send me all of your class instructions and reading lists from time to time. I am now making use of the mimeographed material you used in your mapping course. It seems rather anomalous that I should be teaching mapping and you the Physics of the U.S.

kindest regards to Amy -  
Sincerely - AK Loomis



Columbia University  
in the City of New York  
DEPARTMENT OF GEOLOGY AND MINERALOGY

Oct. 28.

Dear Mr. Shwantes:

Upon my return from a week in the field I find your letter. Unfortunately time does not now permit printing of the diagram I made - I am sending you, however, a few <sup>(25 or 30)</sup> of them with that horrible representation of the Baraboo Sygne resting on the Paleozoics. This might possibly be blacked in as I have done on the enclosed copy to suggest an intrusion - I leave the best solution to you. You are making a splendid job of this course - which pleases me greatly -

Very sincerely - AK Loren



Dec. 13, 1929

Dr. A. K. Lobeck,  
Columbia University,  
New York City

Dear Dr. Lobeck: In reply to yours of the 9th I am enclosing list of references on ice ramparts. I might add Fenneman, N. M., Lakes of Southeastern Wisconsin: Wisconsin Geol. and Nat. Hist. Survey, Bull. 8, pp. 33-34, 1910. I have no doubt that there are many incidental notices in reports on northern regions but I think that Buckley was one of the first to study the matter in some detail.

Just gave another exam, a memory one this time but grades ran from 57 to 98. I havnt typed any more reading lists but will do so soon. Wish I had time to do more thorough work on them.

I will not be able to go to any of the meetings this year. Very few are going to Washington and that is the only one I would get anything out of.

Sincerely,



Columbia University  
in the City of New York  
DEPARTMENT OF GEOLOGY AND MINERALOGY

Dec. 9, 1929.

My dear Shwartz:

I just received the enclosed letter from Mr. M.R. Campbell of the U.S.G.S., and it occurred to me immediately that you might be the person who could answer it for me. If you can give me any kind of an answer, I shall be very grateful.

Thanks for the last batch of your notes.

Sincerely -

A. K. Love



Mr. R. C. Lentz,  
Occidental Hotel, Muskegon, Mich.  
Dear Bob:

Dec. 14, 1929

I was glad to get yours of the 6th and to hear that things were going well with you. The well drilling business is very quiet here and I know of nothing in the line of new work. With regard to Illinois I looked over the list of publications, and found that they have available Bulletins 20, 28, 35, 40, 43, 44B, and 45, total cost \$5.75. Report of investigations No. 16 for 50 cents would also help. I worked down there last summer and visited some of the oil fields. Production may be hoped for in the Mississippian sandstones and less commonly in the Niagara and Trenton. The St. Peter is full of water wherever tested. The area is nearly all covered with thick drift except along the Mississippi where the Trenton is the only formation with possibilities. There are a number of small pools but as little work is being done now I judge that experienced oil men do not look on the district as worth much expenditure. The expense of finding structure is so great that profits would be much reduced. The work of the Illinois Survey has mainly been based on structure deduced from coal borings and has been fairly thorough. I am advising writing them for an opinion.

With best regards,

Sincerely,



# Occidental Hotel

EDWARD R. SWETT, MANAGER.



FIREPROOF CONSTRUCTION

MUSKEGON, MICH.

Dec. 6, 1929

Mr. F. T. Shwaites  
224 Science Hall,  
Madison, Wis.

Dear Fred:

It sure is an age  
since I last heard from  
you, but I expect they keep  
you pretty busy these days  
and there isn't much chance  
to write.

Well, lots of things  
have happened since they  
opened up here and since I



# Occidental Hotel

EDWARD R. SWETT, MANAGER.



FIREPROOF CONSTRUCTION

MUSKEGON, MICH.

Started in business. We have<sup>2</sup>  
drilled more wells than three  
or four contractors put together,  
had 6 outfits going for  
a long time and had wonder-  
ful completions and success.

I am interested with a couple  
of others on several pieces  
of producing properties here  
and they make around  
three to four hundred bbls  
daily. Of course the flush was



# Occidental Hotel

EDWARD R. SWETT, MANAGER.



FIREPROOF CONSTRUCTION

MUSKEGON, MICH.

3,

Considerable more, one of the wells made at the rate of 6000 bbls when first brought in.

We are also operating in the Mt. Pleasant field and in Canada (Near Bothwell Ont.)

If you know of any more good places to go and if you happen to know of anyone who wants wells drilled, I'd be glad to have you refer them to me. I can also furnish



# Occidental Hotel

EDWARD R. SWETT, MANAGER.



FIREPROOF CONSTRUCTION

MUSKEGON, MICH.

Then very good <sup>4.</sup> references if necessary. You know, I am always out for more business.

I am enclosing a rough sketch of an area in south western Ill. that I am working on, and find I lack considerable information in regard to it. I am <sup>wondering</sup> if you could send me all the Geological information, well logs if any, that is available on the interior of the Territory outlined, especially



# Occidental Hotel

EDWARD R. SWETT, MANAGER.



FIREPROOF CONSTRUCTION

MUSKEGON, MICH.

5

The area between Hannibal, Mo. and Springfield, Ill. Any expense connected with this Fred, please let me know, as I am just supposing you may not have a publication on hand on the Territory and the Ill. survey may have them and may not be free. I know you are better acquainted with the Ill men than I am.



# Occidental Hotel

EDWARD R. SWETT, MANAGER.



FIREPROOF CONSTRUCTION

MUSKEGON, MICH.  
6.

I'd be very glad to have you write me occasionally as to what you are doing and what is going on in general.

With kindest regards to all of you from all of us, and many thanks, I am

Sincerely,  
Bob.



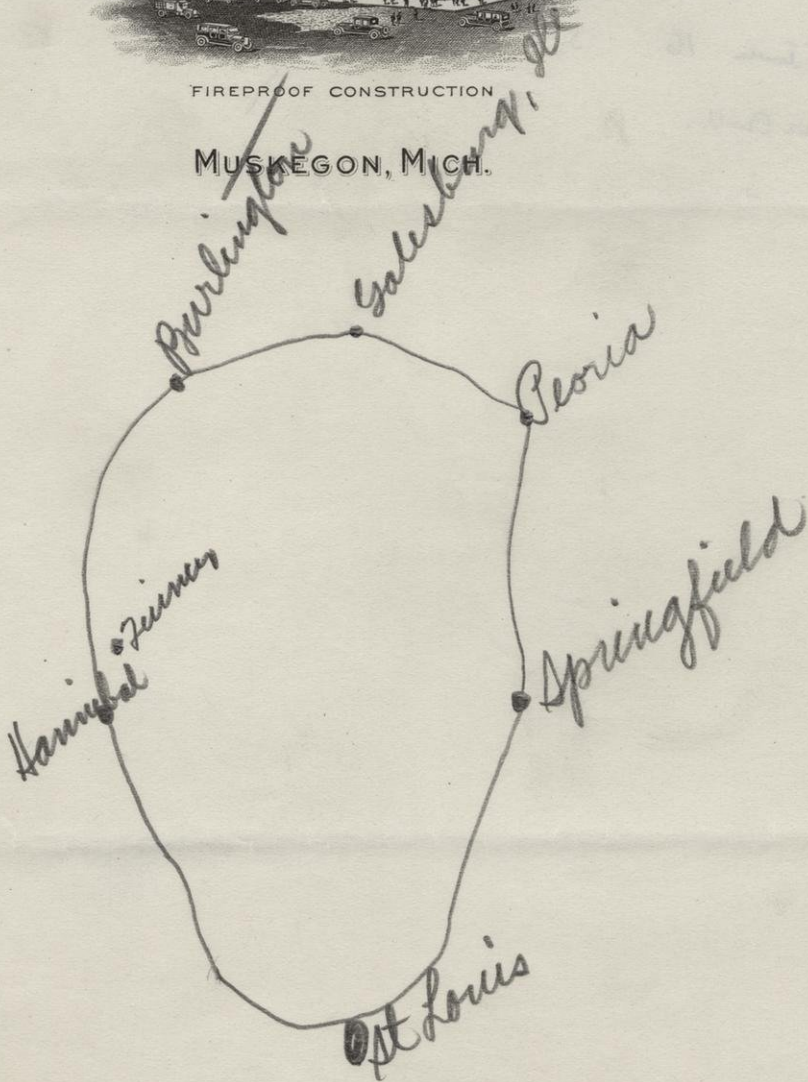
# Occidental Hotel

EDWARD R. SWETT, MANAGER.



FIREPROOF CONSTRUCTION

MUSKEGON, MICH.



South Western  
Ill.



Nov. 5, 1929

Dr. A. K. Lobeck,  
Dept. of Geology and Geography,  
Columbia University,  
New York City

Dear Dr. Lobeck:

I wish to thank you for your letter of Oct. 23 and the block diagrams. We made the trip last Sunday and I am still a bit sleepy as a result. It was 188 miles and I got in at 7:30 P. M. although some other cars with less power and poorer luck did not arrive until nearly 10. We had a snow squall but not so bad as when I travelled in "Sauntering Gally"!

I have made another block diagram of the area which I did not get finished in time to use on the trip. I am getting Van Dyke prints made and will send you one later. I'm afraid it will not look as well as yours but I worked in more detail. When they write up the trips I will have them use one of the diagrams to show the route and the different escarpments. I have a good class although some did not do very well on the first exam. I had to cancel the announcement of Advanced Physiography of the U. S. for next semester. Think you could never have had many take it and then my hands will be full anyhow. I have the good intention of writing 3 or 4 page summaries of each province and having them mimeographed for the entire class but so far none have been done.

The house is much warmer this winter and I can work in the Study even with a gale off the lake. Celotex, new plaster, another attic floor and storm doors and windows have done this. I work home when I have no classes.

With best wishes from both of us on our first anniversary,

Sincerely



Oct. 4, 1929

Prof. A. K. Lobeck,  
Dept. of Geology, Columbia University,  
New York City

Dear Mr. Lobeck: Enclosed is a card from the Registrar which I can not fill out. Will you please look after it? I am also sending some of the revised reading list and laboratory outlines. Hope you will not think I have ruined them. I tried to shorten the list so left out lots of older publications some of which ought really to have been included.

There are 25 in the class 10 of them taking laboratory. They are keeping me busy but Amy's and Raymond Murphy's notes are a great help. Revision of the Interior Lowland list is now nearly done. I plan trips to Wausau (two days) and to the west end of the Baraboo range (one day). I am trying to keep things much as you had them but omitted the preliminary work intending to work this in as needed. I expect to give three (3) exams during the first semester.

Have you heard of Glen's engagement to Sarita? They are to be married on the 16th, we hear. Loyal is to be married at Christmass time. Andy Anderson was married last Saturday. You must have had a notice of Florence Burkman's wedding.

We are digging in for the winter and hope to keep warmer than formerly.

With best wished from both of us to Mrs. Lobeck and yourself,

Sincerely,



Oct. 18, 1929

Dr. A. K. Lobeck,  
Dept. of Geology,  
Columbiz University,  
New York City

Dear Mr. Lobeck: Thank you for your recent letter which I was very glad to get. I am enclosing more of my direction sheets and reading lists, also an exam which I gave today. Amy has looked at some of the books and says that most of them didnt know much. That is the trouble with having no good text. The trip to Wausau was good but without a text they do not get much. I will review the Interior Lowland part after we make the second trip. We were wondering about the block diagram which you prepared four years or so ago. The supply here has been exhausted. Do you have the cut or if not who has it? I would like to get a supply if possible. The trip will be two weeks from Sunday. We have to make trips on that day on account of football games and several student assistants who have Saturday classes.

My work in northern Wisconsin is definitely off forever so far as I can see. The alleged cause, economy of the new Highway Comission, fails to convince me of the true reason.

With best regards to both Mrs. Lobeck and yourself  
from both of us,

Sincerely,



Columbia University  
in the City of New York

DEPARTMENT OF GEOLOGY AND MINERALOGY

January 21, 1930

Dear Mr. Thwaites:

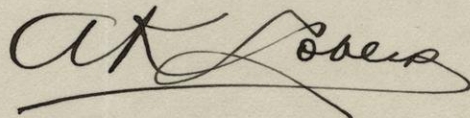
Thank you again for your letter and the big batch of material. Your list of Review Questions is splendid.

I am sorry to learn that you had to go to the hospital again and I hope everything goes well. We certainly have missed Wisconsin this winter. As for New York weather, or climate, we have hardly had a touch of winter. The coldest it has been is 12 above. We have had virtually no snow at all. In fact it is rather ideal.

Yes, I should think a short note on Twin Creeks with a map or drawing, and especially with data on the time involved in the changes, would be of interest.

Best regards to Amy from all of us.

Very sincerely,

A handwritten signature in dark ink, appearing to read 'A. K. Lober', with a long, sweeping underline that extends to the right.



Ann Arbor, Mich Dec. 18 1932.

Dear Mr. Thwaites:

I am inclosing two copies of a letter received from Prof Frowbridge, one of which you may hand to Prof. Leitch. It seems Frowbridge is confident that you have the Pre-Cambrian and not a Tertiary peneplane in north central Wisconsin and he seems to make clear that it is much too low in altitude to be a continuation of the Lancaster or Dodgeville plains.

I think Frowbridge shows remarkable fairness of attitude in suggesting that Lawrence Martin be brought in if the discussion is to go forward. For he recognizes that Martin is very familiar with the region and also implies that he may be right. I have re-read what Martin says in his Physical Geography of Wisconsin (First Edition) pp 63-70, and 349-373, I do not have access to the revised edition. This together with what you wrote in your letter of Nov. 29 gives me a pretty clear idea of the situation. If southeastern Wisconsin had strata with as steep a pitch as those of eastern Wisconsin it is doubtful if anyone would have interpreted the ~~fact~~ region to be peneplaned. It is the gentleness of the slope that suggested peneplanation.

The interpretation of the Kickapoo drainage doesn't seem to be easy of solution. Frowbridge's suggestion that some of its drainage may have been lost by the draining & eastward and north by new systems initiated during or following the uplift may be applicable, but it would seem necessary for these allusions to have taken place before the stream had become deeply entrenched, as it was when it completed the trenching of Citron and Honey valleys. Johnson seems to think it remained a large stream until it had completed the cutting of these valleys. I have just written Johnson to learn whether I have correctly understood his view.

With the Holiday greetings and best wishes for the New Year. Very truly yours,

Frank Leverett.



1724 S Union Ave  
Ann Arbor, Mich. Dec. 4 1932

Dear Mr. Shwaites:

I am greatly obliged to you for answering so fully the questions raised by Johnson and stated to you and Dr. Leith in my letter. I shall be interested in Johnson's reaction to your interpretations. I presume he will write to me as well as to you and Dr. Leith. I have sent him a copy of my letter to you, so he will know how I stated the questions. I hope he will express himself fully on the Kickapoo matter.

It seemed to both of us that the dropping off in altitude to the east west & south from the Kendall Fork and Sparta quadrangles was due to some degree to the dip in the strata, so we were prepared to be hospitable to the idea that it is not dominantly due to peneplanation. From your letter I infer that peneplanation of any sort is not demonstrable.

I have not heard from Frowbridge yet. I wonder if he is ready to give up the peneplain interpretation after having been so ardent an advocate of it. In case I hear from him I will let you know the results.

Please thank Dr. Leith for his prompt and clear statement on the Pre-Cambrian peneplains.

Very truly yours,

Frank Leverett.



May 31, 1932

Dr. A. E. Lobeck,  
Department of Geology,  
Columbia University,  
New York City

Dear Dr. Lobeck:

I have been a long time thanking you for your letter of March 21 with suggestions and corrections of my illustrations. I will have to redraw some of the first diagrams for they were decidedly crude and do not match well with the later ones in technique for instance the sides of the blocks are ruled whereas later experience showed that some dot pattern looks better. Of course, you realize that the coarseness of lines is needed for reduction. The illustrations seem to have taken well with students and proved a great help in class discussion. I have concentrated more on sedimentary conditions rather than on topographic forms in my new text. I will fix some of the things you suggest; the mistakes were the result of the haste with which I finished the mimeographed edition for temporary use.

Am is now typing Part III and I have nearly completed the illustrations which are mainly maps of each stage of glaciation plus several substages of the Wisconsin stage. As you probably have not followed these in detail will not send you any blueprints unless you desire them. The book appears to have made quite a hit with Dr. Leith and he wants me to have it printed if possible rather than mimeographed by Edwards Bros. Have you any suggestions on this point?

Thank you for the copy of the Atlas of American Geology. Is it mainly Physiography? I venture some suggestions. On Sheet two why is the word Cretacic with some names of the older style such as Tertiary? On Sheet 4 I could have furnished you with a much better drawing for B. On Sheet 5 would not addition of kind of rock have improved the New York column? On Sheet 6 why use the now abandoned classification of the Lake Superior sandstone as Cambrian. I also doubt that well-known northshore fault. On the sections it looks to me like an impossible structural relation. The Keweenaw fault is a thrust and the dips of the fault planes seem to be reversed or rather interchanged. On Sheet 40 why show an escarpment at the edge of the Lexington Plain? I cannot find on maps nor does theory demand one. On Sheet 44 the boundary of the Superior Upland needs revision particularly in Minnesota.

I will greatly appreciate the remainder of the Atlas and will consider its use for my classes.

Meantime I am pegging along on the Glacial Geology despite the depression not to mention many interruptions for well record work and family cares. Not having heard from Mrs. Lobeck we assume she is not coming out. Amy and Tommy are both well and join me in sending best regard to both you and your family.

Sincerely,



August 27, 1933

Dear Mrs. Lobeck:

Beth and Guy-Harold were here for dinner and I learned of Dr. Lobeck's illness. I do hope he is up and about by this time.

Had hoped to invite you and Dr. Lobeck and the children here for a visit when you attended the Fair, but up to the present have been unable to do so. If it is not too late, should like to extend that invitation now.

The first week in August Fred earned his way on the glacial excursion of the Geological Congress by driving a car. Next Friday he leaves for a trip through the Ozarks with the Kansas Geological Society.

I sincerely hope that you are not having the salary cuts we are now experiencing.

Tommy is through with his eczema for the present at least, but now has hives whenever he eats a protein to which he is sensitive. One day I gave him a taste of peanut butter and instantly he was a very sick child. We had to rush him right in to Dr. Weston's office where he gave him a dose of medicine immediately. The hives disappeared in the course of a few days, but Tommy did not eat for a day or two. Though I have a bottle of the medicine at home, I am being very negligent in trying to find out the proteins to which he is sensitive!



To date Billie has not developed any eczema and I live in fear that he might. He is a much bigger baby than Tommy and has a hearty appetite. At present he takes 24 ounces of milk a day, more than Tommy ever took. On July 10 he weighed 9 pounds 15 1/2 ounces and on August 17 12 pounds 5 ounces.

I hope you will pardon this late invitation for a visit - I had good intentions, but did not get my strength back until now.

Sincerely,

P.S. Have not seen Lefty since last spring.

*Reference given to the author's letter of the 11th January and Mr. Aldrich for the use of unpublished material in the book of the 11th January and a full note and photographs and to E. H. Brown and suggestions. I have for the right kind of material for the illustrations to the book for his information. The author gratefully acknowledges that*



Sept. 7, 1934,

Dear Amy,

I'm just back from  
Maine this evening. I'm sorry  
to be so very late answering  
your letter, but we hadn't  
our mail till just now.

I haven't Mrs. Downer's  
address exactly, but it was  
between 52nd and 53rd street



on Blackstone Ave. rates \$1.00  
per night, per person. I think you  
can reach her that way.

If you can't, Armin's cousin's name  
is Mrs. W. H. Watson 3943 Ellis Ave,  
and she is a very good friend of  
Mrs. Wowners.

Hastily

Bentley -



Oct. 9, 1934

Mrs. Ludvik,  
Box 98A, R. F. D. 2,  
Lake Geneva, Wisconsin

Dear Madam:

Your letter of Oct. 1 and the box of specimens were placed in my hands today.

The specimens of rock are a very hard kind of limestone and the material in the cracks is the mineral dolomite. From fossil shells in the limestone we discovered that it is the same kind of rock as that found near Thionville, Wisconsin. The fragments are scratched in a way which makes me think that it is not a ledge but was moved to its present position by glacial action. Many cracks in this rock contain asphalt. This is also common where it is known in the ledge. Asphalt is a sign that the rock once contained oil but that this has now almost all escaped or dried up.

The specimens of clay and peat are material which is common in marshes and I attach no special significance to them. If any oil was found and I saw no indication of any it was certainly taken there by the work of man or else a mistake. Many people mistake the iron scum on stagnant marsh water for oil. However, a simple test with a stick shows the difference. The iron scum breaks up when stirred whereas oil runs after the stick in long streamers. You can easily try this with some oil on a pail of water.

One of the bags contained ordinary soft coal. No matter where this was found in Wisconsin it was first taken there by man.

From extensive study of the underground geology of this region I can say with certainty that there is no possibility of finding oil or gas in your vicinity in quantity sufficient to be of value.

Very truly yours,

F. T. Thwaites, In charge of well records,  
Wisconsin Geological Survey



October 25, 1934

Dr. M. M. Leighton  
Chief, Geological Survey  
Urbana, Illinois

Dear Dr. Leighton:

Your letter of October 23 to Professor Twenhofel was given to me. The hammer is his, but I left it in your car. I had already written to Wanless about it. If he has not already mailed it to me, I would be much obliged if you will and I will refund the postage after it arrives.

Very truly yours,

ftt:n

F. T. Thwaites



DEPARTMENT OF  
REGISTRATION AND EDUCATION  
JOHN J. HALLIHAN, DIRECTOR  
SPRINGFIELD

STATE OF ILLINOIS  
STATE GEOLOGICAL SURVEY DIVISION

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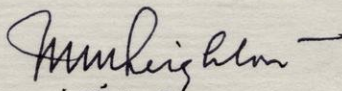
October 22, 1934

Dr. W. H. Twenhofel  
Department of Geology  
University of Wisconsin  
Madison, Wisconsin

Dear Dr. Twenhofel:

During the Tri-State Field Conference last Saturday and Sunday, someone left a hammer with pick point in my car. The pick-hammer handle is 15 inches long and the head is 7 inches long. If you will let me know when you have an inquiry regarding this, I shall be glad to forward the hammer to you or direct to its owner.

Very truly yours,

  
Chief.



October 31, 1934

Dr. M. M. Leighton, Chief  
State Geological Survey  
Urbana, Illinois

Dear Dr. Leighton:

The hammer arrived safely and I wish to thank you very much for sending it. Enclosed please find eleven cents in stamps to cover postage.

Very truly yours,

FTT:H

F. T. Thwaites



DEPARTMENT OF  
REGISTRATION AND EDUCATION  
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STATE UNIVERSITY  
DEAN CHARLES M. THOMPSON

October 24, 1934

Professor F. T. Thwaites  
Department of Geology  
University of Wisconsin  
Madison, Wisconsin

Dear Professor Thwaites:

Dr. Wanless just telephoned me that the geologic  
hammer found in my Survey car belongs to you. It is being  
forwarded to you under separate cover today.

Yours very truly,

*M. M. Leighton*  
Chief.



MRS ARMIN K. LOBECK  
251 SUNSET AVENUE  
ENGLEWOOD, NEW JERSEY

June 13, 1934.

Dear Amy,

Your nice note came  
several days ago. Our plans  
are still indefinite, but we  
expect to be in Madison  
family early in July. Will  
call you up when we ar-  
rive, and we can make  
plans. I don't expect to make  
a very long visit, as I won't



want to leave Armin too long, but I want Elvire to feel satisfied that she has seen everyone, and everything. I plan to go to Loftips for a few days, but I know the Adkins will expect us to make our headquarters with them. It remains to be seen how interested the children are in each other after five years, but I know it is looked forward to with keenest anticipation.

I hope your Brother is better and that your own family is well - Hoping to see you soon  
Cordially yours  
Butler.





Mrs. Fred T. Thwaites  
Madison  
Wisconsin

Turville Farm -



August 9. 1934.

Dear Amy,

Wire home again  
and busy entertaining  
Armin's brothers family from  
Florida. As there are six  
children, we manage to  
keep busy.

We had such a nice  
visit in Madison, and it  
was so nice to see you and  
your family again. I enjoyed  
the luncheon you gave for  
me so much. It is so nice  
to see everyone again.

We leave for Maine the  
18th, so I won't be home long.  
Many thanks & best wishes,  
Bertha.



Department of  
Geology  
Iowa City,  
Iowa  
May 29, 1934.

Dear Mr. Thwaites,

As I promised, I am sending to you a copy of my thesis on the valley of Red Cedar River. I shall be very pleased if it will be of any use to you. It will not be published and I hope you will feel free to use any part of it if the occasion ever arises for it.

I am counting on seeing you and the rest of the Wisconsin men next fall at Baraboo. Our trip into Illinois last fall was very much worth while and I am counting on another good one this year.

The written exams for the masters are over and I am in the agonies of waiting for orals on Thursday. Each day adds about one extra year that has to be checked off.

Hoping that you will have a pleasant field season, I remain,

Very sincerely yours,

*Laurence Leek*



June 5, 1934

Mr. Laurence Loos,  
Dept. of Geology,  
University of Iowa,  
Iowa City, Iowa

Dear Mr. Loos:

I wish to thank you very much for yours of May 29 with enclosed carbon copy of your thesis. This is a very valuable addition to my personal files. I expect to soon be in that region logging the 1935 trip of the Kansas Geological Society.

Progress is being made on laying out the Baraboo trip for October and about all that remains to be settled is where to eat lunch on the first day.

I expect to leave for the field in northern Wisconsin in about two weeks. I have a grant from the Penrose Fund which will enable me to finish up a report on the three years work done in that district some time ago.

Thanking you again and hoping to see you at Baraboo,

Sincerely,

F. T. Thwaites



June 4, 1934

Mr. E. J. Rogers, Vice-President and General Manager,  
Layne-Northwest Company,  
1029 West Wells St.,  
Milwaukee, Wisconsin

Dear Mr. Rogers:

I wish to thank you for the log of the Winnebago County Asylum well enclosed with yours of the first. This will be of great value in our studies of the rock formations. Oshkosh is a city where I have never been able to get any logs based on samples and the only deep well log I have is confidential and cannot be published!

I greatly regret the loss of information on Dodgeville as that is another city with absolutely no information on the deeper formations. Hope you will be able to give me some sometime.

With regard to Manitowoc I expect sandstone (probably with salt water) at a depth of 525 feet below the bottom of the Niagara. This I surmise to be at around 900 making probable depth to top of St. Peter not less than 1400. I would greatly appreciate samples from this well and with that idea had 200 bags and tags mailed to you at Milwaukee at once. As this is a private well the log will be held confidential and only general information derived from it be published. By this I mean regional studies on thickness of formations and so forth, not detailed information on character of strata, etc.

I have completed the study of the samples from your well at Hartford drilled last year. These cover only the lower part of the well and I have held up completion of a blueprint to see if I would not hear further about the matter. Could you please furnish me with more information on the upper part of the well so I can finish my report?

Thanking you again,

Very truly yours,

F. T. Thwaites, In charge of well records,  
Wisconsin Geological Survey



June 4, 1934

Dear Bertha:

Just a note to let you know that I shall be glad to see you and Elmore. Just let me know when you will arrive and I'll meet you. Sorry Dr. Lobeck and Merrill cannot come.

Fred will be in Marinette County on a G.S.A. grant.

My brother has had a nervous breakdown and has taken up a great deal of my time.

Mrs. Paul wants me to let her know when you arrive.

Sincerely,



June 2, 1934

Layne-Northwest Co.,  
1029 West Wells St.,  
Milwaukee, Wisconsin

Gentlemen:

In accordance with your request of May 31 I am sending enclosed  
the log of the deep well at Cedarburg, Wisconsin

Very truly yours,

F. T. Thwaites, In charge of well records,  
Wisconsin Geological Survey



DEPARTMENT OF  
REGISTRATION AND EDUCATION  
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May 8, 1934

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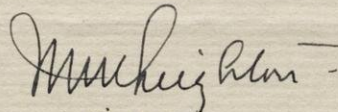
Mr. F. T. Thwaites  
Department of Geology  
University of Wisconsin  
Madison, Wisconsin

My dear Thwaites:

I am enclosing herewith a copy of the statement of your work on glacial sedimentation as it appeared in the final report to the Committee. You will note that I did not include that section of your statement which dealt with the origin of the glaciated "oversteepened" valleys. This seemed to me more in the nature of a discussion of the origin of land forms than a study of sediments or sedimentation processes and as such scarcely seemed pertinent to a report of this type.

I appreciate your regular cooperation in compiling these data both in respect to your own contributions and to your suggestion of names of other interested workers.

Very truly yours,

  
Chief

Encl.



"The field season of 1932 was spent at the Allegany School of Natural History, Allegany State Park, New York. Studies of the outwash terraces of Allegheny (note two spellings of same word) River were made with the aid of some students. The uneroded main terrace is of Cary (Middle Wisconsin) age as is the wide terminal moraine north-west of the river in New York. For the most part the conclusions reached by the writer checked those of investigators in Pennsylvania. However, comparison of soil profiles seems to indicate that the highest terraces in New York are no older than Iowan. It is probable that the higher levels in Pennsylvania are much older but none has been proved to antedate the formation of the rock floors of the valleys. A report has been written for record but not for publication.

"Studies of the reentrant angle in the drift margin met with no success in the limited time available but the impression was gained that the marginal drift east of the angle is decidedly older than that to the west. Several of the features mapped by others as terminal moraine of Wisconsin age were found to be remnants of old eroded outwash terraces.

"The Cattaraugus quadrangle was visited with Prof. L. W. Ploger of Syracuse University and his interpretations of the glacial phenomena were reviewed from the standpoint of a geologist used to similar deposits in the west.

"A text book entitled "Outline of Glacial Geology" has been published in lithoprinted form by Edwards Brothers, Ann Arbor, Michigan. The book consists of 116 pages and contains a series of



block diagrams which illustrate the origin of topographic land forms due to continental glaciation and historical maps showing drifts deposited at different times are used to illustrate the section on the Pleistocene glacial succession in North America. From the standpoint of sedimentation the description of glacial, glacio-fluvial, glacio-lacustrine and glacial-marine deposits first as sediments and second as land forms is the most marked advance in the present edition of a work which was started in 1922. The internal criteria by which such deposits may be differentiated are explained so far as they are now known."



# GEOLOGY AND MINERALOGY

ARTHUR S. KNOX  
ALFRED C. LANE  
KIRKLEY F. MATHER  
ROBERT L. NICHOLS  
LOUIS RISEMAN

BARNUM MUSEUM  
TUFTS COLLEGE, MASS.

Dear Theodor: —

I Acute for definition! ..

Also for very pretty example of use of insoluble  
residues. I believe in them too! I wonder if this  
time will ever come when we can take the zincs  
and show that the grains are not old than  $x$ .  
∴ the sediments holding their grains. I have seen  
residues in oil well samples this not as successful  
as you younger people. Have you seen  
this Hengstenberg's Ph.L. from at  
Michigan?

I hope you will be able to get in there, and study  
the relations, not only Bayfield to Freda, but  
around Huron Ulf. and Ulfening.

And if possible study the Huron shale &  
the Copper Harbor conglomerates (Great & Outer)  
as to the sources and degree of alteration of the  
pebbles before they were made pebbles.

My is getting ahead on the helium sales,  
and I have sample of (Hewes?) like  
1975' feet down in the Noranda mine and  
pieces of similar things from the  
Gogebi & Sudbury which should



Let us know where we are - how much originality means

I heartily agree with you that "all things  
come to him who waits" and as to the origin of  
the copper from delaware waters things are  
coming my way. I hope to see long enough  
to write one more paper!

As ever

Alfred Leitch

Request to Aldrich and others.



MRS ARMIN K. LOBECK  
251 SUNSET AVENUE  
ENGLEWOOD, NEW JERSEY

April 19, 1934.

Dear Amy.

I just had a letter from  
Lofty and in it she mentioned  
your mother's death. We were  
both awfully sorry to hear  
of it, and extend our sym-  
pathy to you.

I have become so involved  
in so many things that I don't  
do any of the things I want to  
and should. Your nice letter  
and invitation to visit you has  
been waiting for an answer so  
long that I am ashamed. Our.



plans for the summer, as usual, are indefinite, but it may be that Elvire and I shall get to Madison for a little visit.

I'm program chairman for the club next year, and I don't know how well I can shape things before June. I hope I can manage to get things pretty well in shape before people get away on vacations. but it's hard when so many people are involved.

I still doing Social Service work, and I've taken on a job on the Girl Scout Council. So you see I'm not idle.

The Lobecks have all been in pretty good health since Xmas time, and I feel that is quite an accomplishment.

I hope the children are both well, and I know I shall see great changes when I next see them.

Greetings to you both -  
Sincerely, Russ. Bertha Lobeck



April 16, 1934

Mr. E. J. Rogers, Vice president and General Manager,  
Layne-Northwest Co.,  
1029 West Wells St.,  
Milwaukee, Wisconsin

Dear Mr. Rogers:

Copy of your letter of the 3th to Mr. Hartt of this city as well as a telephone message from his assistant to me in regard to the Oconto wells are at hand.

I would be most pleased to receive any information you can give me on both Oconto and the Winnebago County Asylum wells. If you have samples would be pleased to get a split of them or for that matter a driller's log is not to be despised. I have never been able to get any detailed information on these localities.

I might also add that seeing as the samples at Dodgeville were lost a driller's log would be of great value in checking up on structure maps. I hope soon to get started on a series of cross sections of the state. The first to be started will be part of a section from Rib Mountain Wisconsin to the St. Francis Mountains, Missouri. These sections will make our correlations much more definite and certain. I also hope to revise the structure contour maps soon.

Very truly yours,

F. T. Timmitos, In charge of well records,  
Wisconsin Geological Survey



## GEOLOGY AND MINERALOGY

ARTHUR S. KNOX  
ALFRED C. LANE  
KIRTLEY F. MATHER  
ROBERT L. NICHOLS  
LOUIS RISEMAN

BARNUM MUSEUM  
TUFTS COLLEGE, MASS.

April 3, 1934

Dr. F. T. Thwaites  
Department of Geology  
University of Wisconsin  
Madison, Wisconsin

Dear Dr. Thwaites:

Thank you for remembering me with your paper on the "Well Logs in the Northern Peninsula". You saved me quite a search by telling me what "dolocastic" means, I am quite interested in your revision of the Marinette and Menominee wells, and by the way, we had some reports which you will find on page 41 of the report for 1908. That is when we had "calciferous" as a geographic name!

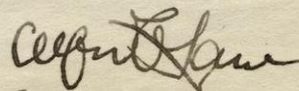
*may*  
*a nice ref.*

I am quite interested to see that the St. Peter's is gone. There was always trouble in placing it. With regard to the perennial Keweenaw question, I am interested to notice that you agree that the Jacobsville and Bayfield are probably equivalent in age, with which I entirely agree, and also that they are non-marine. You will notice on page 32 and 33 from my italicizing that they occur "at a date when land animals are not known", and comparing them with the Scotch old red sandstone I also was at that time inclined to believe that they were non-marine.

It may interest you to know, though it is not for publication at the moment, that Dr. Urry's tests for the age of the Keweenaw around the Calumet mine would indicate an age not widely separated from what might be expected in the Cambrian when we allow that the Upper Cambrian is 420 million years old, and remember that above the Calumet something like 19 thousand feet of strata in the Keweenaw occurs, of which about one-half is sedimentary.

If by any chance you should happen to know of any nice, fresh drill cores in the Lake Shore traps or extreme Upper Keweenaw, I might give Dr. Urry one of those samples to test.

Yours very truly,



Alfred C. Lane

ACL:GK



April 16, 1934

Dr. A. C. Lane,  
Dept. of Geology and Mineralogy,  
Tufts College, Massachusetts

Dear Dr. Lane:

In reply to yours of April 3 the term "dolocastic" is defined by H. S. McQueen in "Insoluble residues as a guide in stratigraphic studies", Missouri Bureau of Geology and Mines, 56th Bism. Rept., 1931, appendix I. It means the finely divided chert which either lay between or replaced crystals of dolomite.

Since the paper I sent you was written the Northwestern Railroad drilled a well at Powers. When it was about 500 feet deep I received a log from the Michigan Survey which indicated that they were drilling in the Trempealeau. Later the Division Engineer sent me samples. They were in the same dolomite at 900 then. At once I dissolved a sample in HCl and got tale. I wrote at once to shut down which they did. They had penetrated the Randville dolomite from 403 to somewhat over 950! That is an example of the practical use of insoluble residues.

I still have hopes of getting into northern Michigan to study the relations of the Cambrian and Lake Superior sandstones. The long argument with Ulrich over some of the Paleozoic formations here which after 20 years ended in his complete surrender to my views has been the major factor in keeping me from following up this matter. He has done a little work on the problem but his experience in problems of non-marine sedimentation has not been such as to permit him to reach a decision which all could subscribe to. We know now where to go and how to go at the problem. After the lapse of a quarter of a century since I went to Lake Superior for Hotchkiss with so little experience I am happy to say that none has overthrown any of the major points of my report of 1912! Add to that the fact that my correlation of the Cambrian sandstones at Chicago arrived at in 1919 has now been confirmed by use of heavy minerals and by other methods despite its conflict with the previously accepted ideas, and I can say that "all things come to him who waits." Anyway, I have never put immediate advantage ahead of what I thought was correct. I tell these things to show you why I have to date never gone any farther with problems of the Lake Superior sandstone.

I regret that I have no contacts with drillers in the Copper Range as all my work has been with water wells. Possibly Dr. Aldrich might be able to supply you with some material.

Very truly yours,

F. T. Thwaites



DEPARTMENT OF  
REGISTRATION AND EDUCATION  
JOHN J. HALLIHAN, DIRECTOR  
SPRINGFIELD

BOARD OF NATURAL RESOURCES  
AND CONSERVATION  
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STATE UNIVERSITY  
DEAN CHARLES M. THOMPSON

STATE OF ILLINOIS  
STATE GEOLOGICAL SURVEY DIVISION

M. M. LEIGHTON, CHIEF

305 CERAMICS BUILDING  
UNIVERSITY OF ILLINOIS CAMPUS

URBANA

April 4, 1934

Professor F. T. Thwaites  
Department of Geology  
University of Wisconsin  
Madison, Wisconsin

Dear Professor Thwaites:

I have received your reprint entitled, "Well  
Logs in the Northern Peninsula of Michigan showing the  
Cambrian Section" and wish to thank you for sending it.

The subject matter is very interesting and is  
a valuable and worthwhile contribution to its field.

Yours very truly,

*M. M. Leighton*

Chief.



21 East Gorham Street,  
Madison, Wisconsin,  
March 26, 1934.

Lane Bryant,  
39th Street at Fifth Avenue,  
New York City.

Dear Madame:

On March 11 I wrote you as follows:

"Mrs. Mueller ordered a dress recently. As she passed away very suddenly, I am asking you to return the money.

"Thanking you for your attention to this matter, I am"

On March 15 my son wrote as follows:

"As Mrs. Mueller has expired, we are returning the ordered dress. Will you kindly refund money! We wrote to you cancelling our order though unfortunately too late."

This morning I received a check made out to the Estate of Mrs. G. F. Mueller. As it is impossible to cash the check, I am returning it herewith and asking you to make one payable to me,

Mr. Oscar Mueller,  
21 East Gorham Street,  
Madison, Wisconsin.

As it was my personal check that went with the original order, there is nothing unreasonable in this request.

Thanking you for your early attention to this matter, I am

Yours very truly,

Oscar Mueller,  
21 East Gorham Street,  
Madison, Wisconsin.



CHICAGO

PHILADELPHIA

DETROIT

BROOKLYN

ST. LOUIS

BALTIMORE



# Lane Bryant

SLENDERIZING APPAREL FOR WOMEN OF ALL SIZES

THIRTY-NINTH STREET AT FIFTH AVENUE

NEW YORK

March 24, 1934

Mr. Carl F. Mueller  
21 E Gorham St  
Madison  
Wisc

Dear Sir:

We regret to learn of your bereavement and extend our sincere sympathy.

Complying with your request, we are enclosing our check of \$9.99 due for the goods returned. This check has been made payable to the Estate of Mrs. C.F. Mueller which we trust will be satisfactory to you.

Yours very truly,

MM encl.

LANE BRYANT



21 East Gorham Street,  
Madison, Wisconsin,  
March 11, 1934.

Lane Bryant,  
39th Street at Fifth Avenue,  
New York City.

Dear Madame:

Mrs. Mueller ordered a dress recently. As  
she passed away very suddenly, I am asking you to  
return the money.

Thanking you for your attention to this  
matter, I am

Yours very truly,

Oscar Mueller  
21 East Gorham Street,  
Madison, Wisconsin.

AMT

March 15, 1934

Gentlemen:

As Mrs. Mueller has expired, we are returni the ordered dress.  
Will you indly refund money? We wrote to you cancelling our order though  
unfortunately too late.

Very truly yours,

Carl F. Mueller



January 19, 1934

## Sangamon Loess

The Sangamon peat (loess) from seven miles east of Peoria Illinois secured from Mr. F. T. Thwaites from the mineral collections of the University Wisconsin (No. G214) has been examined microscopically for fossil pollens, spores and other organic tissues by the usual methods employed in paleoecology. As in other loess material pollens and spores are extremely rare, probably due to the nature of the accumulation of the deposit and the subsequent oxidation and biological activity in the loess before being covered by a younger deposit.

Pollen of balsam fir and spruce are present in the loess but the frequency is so small that it is impossible to state the true proportion of each, also many of the pollens observed were broken and others appeared to be modified by some chemical solvent. This brings in an element of doubt as to whether the actual abundance represents the initial abundance. There might be different specific qualities of preservation in these two forms. The actual occurrence of the pollen of balsam fir 55 percent and spruce 45 percent. The frequency is zero, but one pollen to about every five square centimeters.

Fibers and parenchyma were observed but these are too fragmentary to have any diagnostic value.

## Peorian loess

The Peorian loess secured from Mr. F. T. Thwaites which he collected south of Malden, Illinois has been examined microscopically but no identifiable plant or animal tissues were found. This material has been too greatly changed by oxidation or biological agents before being covered by till or collected to allow pollen to persist.

The wood collected at the same place by Mr. F. T. Thwaites is probably Larix and not Picea as suggested by the presence of resin cells in the outermost rows of the summer or autumn wood.

Mr. John Voss has kindly allowed me to examine some leaf tissues which he had collected from deposits of Sangamon and Peorian loess and published as pond weeds, Potamogeton, (Bot. Gaz. 94: 808-814, 1933) These tissues have been examined and it is certain that they are not of Potamogeton, but probably of grass or sedge.

L. R. Wilson

## Notes on above by F. T. Thwaites

Specimen G214 was collected in 1924 from a bed of peat containing spruce branches, about 10 feet thick. This lay just above the Illinoian gumbotil and had its bottom not over 20 feet above the level of Farm Creek. This layer cannot now be found and later surveys show that the top of the gumbotil is really much higher above the creek (about 45 feet). The older survey makes the total thickness exposed in the bank the same, however. Location SW $\frac{1}{4}$ SW $\frac{1}{4}$  Sec. 29, T. 26 N., R. 3 W. according to notes but probably south line of SE $\frac{1}{4}$ .

The second specimen described above was collected on the Tri-State Field Conference in 1933. The location as fixed from the topographic map is GL610.08f4 according to my system.



March 24, 1934

Dr. M. M. Leighton, Chief,  
State Geological Survey,  
Urbana, Illinois

Dear Dr. Leighton:

Thank you for the copy of your recent paper on "Evaluation of boundaries in the mapping of glaciated areas."

A day or so ago I mailed copies of my recent paper on northern Michigan to you and to others on your staff. If I had written it a year later I would have used "Franconia" instead of Mazomanie and would have known that Ulrich has now given up on both the Mendota and the Devils Lake recognizing what I urged 20 years ago in regard to both! But I claim no credit for that for my opinion in regard to the Mendota is simply that of Irving and the fact that the Devils Lake formation consisted only of one fauna of the Upper Franconia has also been known for many years. And now, Twenhofel and Raasch announce the close relationship of the Madison to the Trempealeau, a fact I had deduced in 1914! So after all this time my opinions have been accepted.

Enclosed please find copy of a report by L. R. Wilson on organic remains found in the drift near Peoria, Illinois and near Malden, Illinois. I have omitted his drawings.

Had I told you that the Outline of Glacial Geology is now published? If not will say now that copies are for sale by Edwards Brothers of Ann Arbor, Michigan. Although my class is very small this year I have already sold nearly 20 copies in this town alone. As I only had 100 printed they should soon be all sold.

Very truly yours,

F. T. Thwaites



February 2, 1934

Dear Bertha:

Intended to answer your last letter when I sent the Christmas greeting but simply did not have time. Did not learn you had returned to Englewood until I met Dorothy at the League Luncheon. Fred reports that Dr. Lobeck was all right at Christmas.

Why don't you bring the whole family the next time you come to Madison!!!. Then you will have only the house to worry about. When we can use the sleeping porch, we have ample room to accommodate you.

Saw Dorothy up town today. She reports that Philip who arrived on December 24 now weighs 10 pounds. Randy looked well and healthy.

A couple of weeks ago Billy weighed 21 pounds. He now sits up in his buggy and plays with the toys Santa brought him. Tommy occasionally shows him pictures of trains and cars. The other day he became quite disgusted when Billy was content to scratch the pages and said, "Sit up and see the krain." At the time you were here Tommy was wearing a three-year suit; at present the four-year size is just a bit too small.

Failed to receive a Christmas greeting from Lofty - she always writes a short note - but was glad to hear that Mother Thwaites received a note from her.



The dog knocked Mother Thwaites down and she spent the week before Christmas in the Madison General. Her hip was very sore for some time but now she seems to use her cane less and less.

Mother Thwaites is not certain whether she will go south or not. She has joined a circle of the Congregational Church - a circle which contains all her old friends from the Unitarian Church - and dislikes very much to leave. Besides she also has the Monday reading circle and the Woman's Club.

The family spent Christmas with me. We were at Mother's for Christmas Eve as usual and Betty and Tommy cried when Santa Claus came.

I note that Prof. H. Q. Morgan of the German Department is going to California. Everyone seems to leave the minute he gets a chance.

If we are still in Madison next summer, be sure to give my invitation serious consideration!

Sincerely,



March 2, 1938

Dr. O. A. Ljungstedt,  
R. F. D. 1,  
Rockland, Maine

Dear Dr. Ljungstedt:

I delayed answering yours of Feb. 12 while I finished a revised edition of my map of the glacial geology of the central United States. Last night I mailed you a copy in a tube so that it will not be folded.

With regard to your troubles I can fully realize them. I did not make a map from which to trace but used for almost all the area a tracing made over a standard U. S. G. S. map of the U. S. I had to generalize the features greatly and on account of poor visibility may have locally distorted the features more than I intended to. If need be I could send you the tracing but hardly feel that this would meet your needs.

I used Leveretts maps where there were any. For southern Michigan he sent me a revised copy of the map on the back of the Camp Guster sheet published some time ago. On this he made several changes which I neglected to include in the 1936 edition which is published in my book. Now I have made them. I also made changes in Illinois to correct an error. In northern Wisconsin I made some changes on the basis of field work last summer by one of my students. I have tentatively recognized Weidmans Third Drift as probably Iowan or earliest Wisconsin although this needs checking further. Other changes were minor in correcting errors in drafting.

In respect to western New York I quite share your perplexity. I have seen some "honest to goodness" moraines there which were made by moving ice. However, some of the valley head moraines and in fact all of them, may very well be merely pitted outwash formed south of stagnant ice masses in the valleys. They do not carry across the divides. On the basis of personal work I suggested the northeastward extension of the moraine on the west side of the reentrant angle as shown in Fig. 68. There I suggest correlation with Fairchild's Stage 3 but am not sure. In the 1937 edition the legend was left off this map. The fine lining should be Third Wisconsin and older. But I will not swear to anything in this region! I would like to do more work first. I got more out of Fairchild than from Antevy who ignored topography. I have no detailed maps in New York as my work was slight in amount.

With best regards, Sincerely,

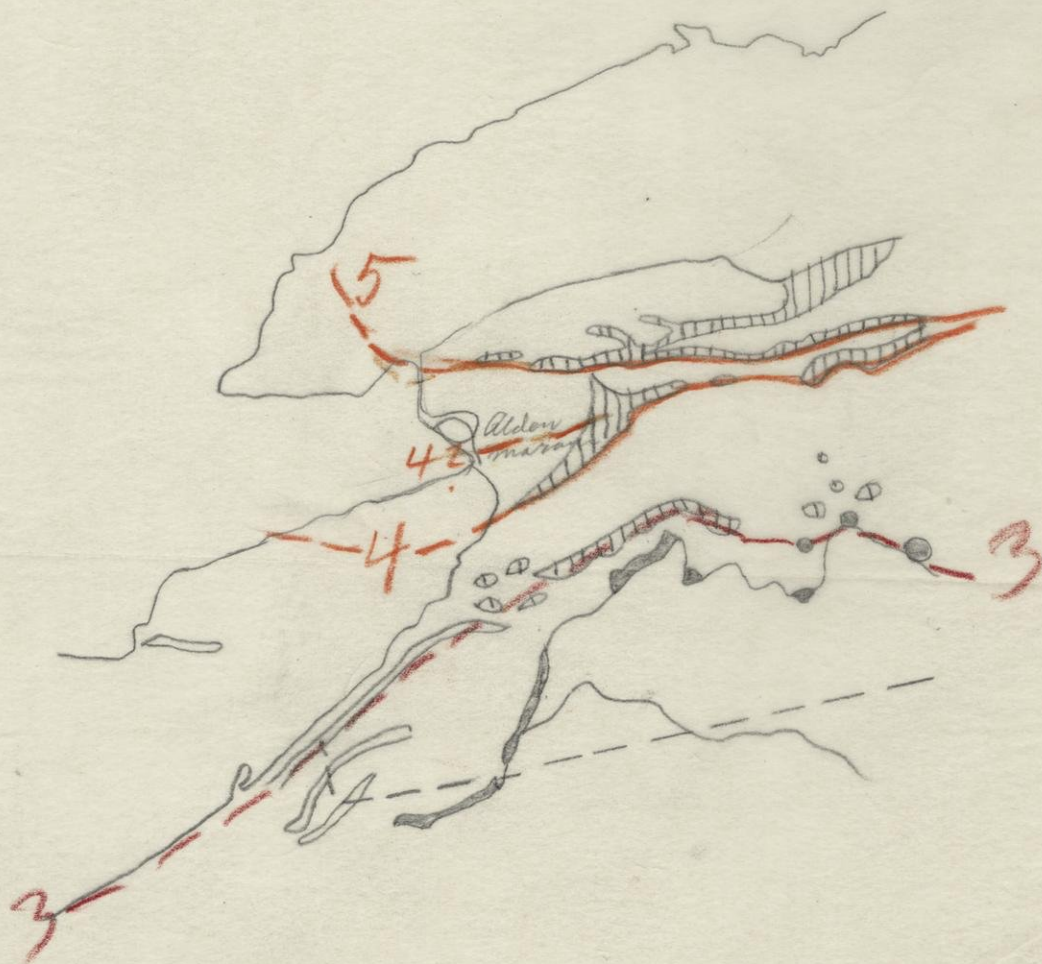


Feb. 12, 1938  
R. F. D., route 1  
Rockland, Maine

Dear Dr. Thwaites:

I hope I wrote and thanked you for sending me the blueprint of the Glacial Geology of the Central States. I have just taken up again the work on my map, after an intermission of two years, due to repeated serious illnesses in the family and pulling up stakes at my Washington home and settling in Maine. In transferring your Wisconsin work to my map, I find that I cannot make a satisfactory job of it, owing to the difference in the size of the two bases, and the lack of tiepoints on the blueprint. Thus I cannot tell whether I have a moraine in proper position with reference to some town or other feature. I suppose that the tracing, from which the blueprint was made, did not keep its shape. After all the kind interest you have taken in my work, I dislike to bother you with this, but would be grateful if you could help me out. I am very pleased to have the reentrant of the late Wisconsin into the lower peninsula of Michigan solved for me by your map. I had been working over it a lot, with text and maps, but had been unable to settle it to my satisfaction. Am I right in assuming that you have correlated the Valley Heads moraine in New York with the endmoraines of the Middle Wisconsin substage? On the map in prof. Fairchild's paper on the moraines of western New York, in vol. 43 of the G. S. A., he tentatively marked correlations for me. I have indicated lines 3, 4, and 5 on the enclosed tracing, made from your blueprint. Thus he correlates the Valley Heads moraine with the moraines on the south shore of Lake Erie. In his letter he also says: "For example nos. 4 and 5 are not distinguished east of Seneca Lake, and yet between the times of their deposition







occurred the only interval of deglaciation yet recognized in New York." Prof. Leverett correlates the Alden moraine in western New York with the Port Uron moraine of the West, does he not? Line 4 of Fairchild, running east from the Alden moraine, would then be the end-moraine of the Late Wisconsin substage. Thus in in western New York we would have the three substages of the Wisconsin. I wish I could get New York and the New England states worked out to some satisfaction. It is very confusing. Unfortunately the literature did not afford the data represented in your figure 68 of the Outline of Glacial Geology. I wonder whether you would be willing to give me these data on a base from which I could transfer them to my map?

If I am asking too much, just tell me, and I will perfectly understand.

Very truly yours

*O. A. Ljungstedt*



R. F. S. route 1  
Rockland, Me.  
March 15, 1938

Dear Dr. Thwaites

It was very kind of you to send me the new blueprint, and I have incorporated the correction to the recutment of the Early Wisconsin into the Lower Michigan. Leverett's work on the lower Peninsula has been the most perplexing of any section of the map. There has been so many interpretations! Of course, that is not meant as any criticism. We all know that there is no better worker in his field than he, and no more kind and helpful. It is just the inherent difficulty of glacial geology I take it.

I think the tracing you mention would be a great help, but I don't see how I can put you to any more trouble after all the interest you have already taken in my work.

Very Sincerely  
O. A. Ljungstedt



MAINE  
AGRICULTURAL EXPERIMENT  
STATION  
ORONO, MAINE

May 24, 1938

Professor F. T. Thwaites  
Department of Geology  
University of Wisconsin

Dear professor Thwaites:

My report of the 1937 field trips  
in Glacial Geology has been forwarded to you under  
separate cover.

Returning from the University last June prior  
to the end of the semester, I found myself too over-  
whelmed with soil survey work to undertake the task of  
preparing a report of the recently completed trips,  
a situation which I should have made more allow-  
ance for. Time for concentrating on the work was  
not available until late in December and again  
in the latter part of April.

The field notes seemed to be fairly complete  
and were in general accord with the data in  
the literature except where more recent interpreta-  
tions were brought to the attention of the class.  
Sketches and diagrams were taken freely but I



June 9, 1938

May 24, 1938

Mr. Delmar B. Lovejoy  
Agricultural Experiment Station  
Orono, Maine

Dear Mr. Lovejoy:

Yours of May 24th and the report arrived. I am returning  
the report by express collect as such material cannot be sent by  
parcel post and the cost for first class mail would have been 45 cents.

The report was quite satisfactory.

Best wishes.

Very truly yours,

PTT:N

H. T. Thwaites



MAINE  
AGRICULTURAL EXPERIMENT  
STATION

ORONO, MAINE

EXPERIMENT FARMS  
HIGHMOOR FARM, MONMOUTH  
AROOSTOOK FARM  
PRESQUE ISLE

did not feel qualified to make good inked copies to include in the report. The third draft of the work was corrected by a capable clerk in the Experiment Station and myself, only one copy being made. If the report is not to be kept on file in your department or else where in the University would you kindly return it, liberally corrected if you care to do so.

The work of the whole course is of ever increasing usefulness in the field where our Soil Survey constantly requires the interpretation of the glacial geologist not only in determining the origin and nature of many soil forming materials but also to give the field man maximum range of estimation for the delineation of the conditions on which those soil series and types are mapped.

It is hoped that the report is a satisfactory completion of the course in Glacial Geology.

Very sincerely yours  
Delmar B. Lovejoy



Jan. 8, 1938

Mr. A. I. Levorsen,  
221 Woodward Blvd.,  
Tulsa, Oklahoma

Dear Mr. Levorsen:

I wish to thank you greatly for the fine photograph taken as I was talking to the K. G. S. group on West Bluff, Devils Lake in 1935.

Neither of the K. G. S. trips has appealed to me since, besides I have been too busy with well records to get away. We had a good Tri-State Conference last fall with 154 present. Bays took charge of traffic policing and did a good job. He is now with the Sun.

With best regards and hopes for good luck in the hunt for "elephant pools",

Sincerely,



Plymouth, Wisconsin  
August 11, 1937.

Dear Amy.

I'm sitting out on  
Lofly's screened porch, with  
a delicious breeze blowing  
through. The flowers are  
lovely, and it's so restful  
here.



I had a wonderful visit in Madison, and it was so nice to see all of my old friends again.

Thank you so much for the delightful party you gave for me. I was so glad to see all of the Geology people again - But I was especially glad to see your fine family. You certainly have three fine little boys.

Please tell Mrs. Thwaites how much we all enjoyed her bouquet. We used the vase for several other bouquets but I didn't leave it for Mrs. Adams. I'm taking it home



and everytime I use it  
I shall be reminded of  
your pleasant porch, the gar-  
den, the children, and the  
nice afternoon I spent with  
you.

Please remember me to  
your family, and many thanks  
for a lovely party.

Cordially yours.

Bertie M. Locke

Plymouth, Wisconsin

August 11, 1937.

Dear Amy.

I'm sitting out on  
Lofly's screened porch, with  
a delicious breeze blowing  
through. The flowers are  
lovely, and it's so restful  
here.



Mar. 24, 1937  
R. F. D. route 1  
Rockland, Maine

Dr. F. T. Thwaites:  
Madison, Wis.

Dear Dr. Thwaites:

Thank you very much for your kind letter received some days ago and also for the snap just received after having been forwarded from Bethesda, Md.

As you will notice, from the above address, I have moved up to Maine, last spring. I am very glad to have your late work in Wisconsin as there is quite a bare spot in the otherwise almost complete map of mine.

I have put in somewhat more detail in my map than you have shown in yours, I notice.

I will no doubt take advantage of your kind offer for further help as



there will be some points on my map that need to be cleared up.

I am now within reach of Dr. Antons at Auburn, Me, who has given me a lot of help, and with whom I expect to take up the map before I offer it for publication.

I have not touched the map for over a year owing to three serious illnesses of Mrs. Ljungstedt, one before we moved and two since we have been up here. Also the work of building a new home has taken all the time I could spare from nursing Mrs. Ljungstedt.

Thanking you again

Very Sincerely

O. A. Ljungstedt



GREETINGS

Dear Friends:

Undoubtedly your ever  
forgotten you wanted That  
their son to be a girl -  
But just in case you still  
want to discard him let  
us know!

I had a little visit  
with The Munchelos in  
Minneapolis when he was in  
Shelbygan for the A.A. U. W.  
lecture which he gave. She told  
me of your new baby.

We wanted to go down  
this fall when Miss Sell  
was convalescing but didn't  
manage it. She has been  
back at work for a while and I  
hope is getting along all right.





Had a little visit with Ella  
most this fall. She and her mother  
came over one afternoon while she  
was on vacation. Hadn't seen her  
for three years.

We had a short trip this fall,  
just when the fall colors were at their  
best, to the Lake Superior region beyond  
Duluth. I had never realized how lovely  
that section is.

We did a little remodeling of our  
house this fall and hope to continue  
next spring or summer with a porch  
replacing the "shed" at the back. We  
gave in a new bitumen entrance and  
cut off a small part of the bitumen  
without decreasing the useful space  
any. Had it done before the cold  
weather came and now it seems  
as if it had always been as it is  
now.



Helen and Ruth didn't get here  
for their usual fall pilgrimage.  
Helen was here in the summer  
for a day or so.

I've been staying home most  
lovely since Mrs. Lee left for there,  
isn't any one to answer the phone  
and take care of the mail now  
when mine both away. Mrs. Lee  
went to her sisters in Auburn, N.Y.  
in October. It's nice to be by one-  
self even if I am tied at home  
a little near than before.

I'm sure you're having a Merry  
Christmas at your house. You couldn't  
keep it very well with three boys to  
make it that way.

Best wishes for The New Year -

CRW. and Logie.



March 15, 1937

Dear Lofty:

I am just beginning to answer my Christmas letters. Before Tommy came I used to write letters with the Christmas cards, but now there is just too much of a rush. After the holidays this year I had to clean the house a bit and wash all the curtains. After that we mounted the pictures that had been accumulating for over a year. Now the decks are clear for letters.

Robert Gerald is a large baby like Billy but seems to look more like me although he too has dark eyes. I am afraid that he is going to be a live wire, for he has learned to make Dorothy hustle whenever I leave, spits or rather blows out his good, and refuses to take noon naps. He just beams when Tommy and Billy talk to him and enjoys sitting on my lap on the couch while I read to the boys.

I suppose you have heard that my father started on a trip around the world on December 26. At present he is on the Bay of Bengal and has been to Honolulu, New Zealand, Australia, and Hong Kong. He will return to Madison via London and New York on April 26. Our last word was an airplane letter from Manila and he was still feeling all right.

I have heard about the trip along the north shore of Lake Superior and have wanted to take it, but I guess that is several years in the future. Fred expects to go in the field for a while this summer and may take Tommy with him.

Gertrude Rehl Hansell had a son on August 26 in San Antonio and Florence Burkman Rasmussen had one on September 15 in East Lansing, Michigan. Mother Thwaites just told me that the Harbaughs had a fifth child recently in

Sincerely,

Cleveland. The Wittakers had a daughter in the Madison General about a week before Bobby arrived. Mrs. Wittaker called on me when she left. Hope the Lobecks get out this way this summer. Come down and see us soon.



March 13, 1937

Dear Mrs. Lobeck:

No, we had no better luck with the third than we had with the first two, for Robert Gerald arrived on October 2, weight  $2 \frac{1}{2}$  pounds 2 1/2 ounces. He could not be any nicer without being just what we wanted. Like the others he has dark brown eyes and dark hair and seems to be a regular rascal, for he is very naughty whenever I leave and blows his food all over whenever I try to feed him. At present he must weight in the neighborhood of 20 pounds and has two teeth. I contracted a bad cold, probably the flu, two weeks before he arrived and was not sure just what the outcome would be. The cold did not leave me for a week after the baby was born. Except for a choking spell he had immediately after he was born, the baby suffered no ill effects.

I certainly would like to hear about your trip. Father left here December 26, has visited Honolulu, New Zealand, Australia, HongKong, and Singapore, and is at present on the way to Rangoon. He expects to be back here April 26 via London and New York.

We were up to see Lofty on August 14 and had a pleasant visit. At Christmas she wrote that they had made considerable alterations in the house.

Fred plans to go in the field for a while this summer, but I think I shall stay at home, for it costs so much whenever I leave. Hope you come this way soon.

Sincerely,



March 6, 1937

Dr. O. A. Ljungstedt,  
Booth Ave., Bethesda Sta.,  
Washington, D. C.

Dear Dr. Ljungstedt:

I am sending you under separate cover a blue-line print of the glacial geology of central United States which I prepared for the 1937 edition of the "Outline of Glacial Geology" which is just out. In this the map was reduced to about half size. I found that the Geological Society had no objection to the use of the data gathered at their expense. As I see it there can now be no objection to your use of the same data.

Several doubtful points were cleared up in a month of field work last summer. The questionable "Briarton" moraine is now recognized as of Middle (Third) Wisconsin age overridden by later ground moraine. A large number of similar moraines are recognized in eastern Wisconsin. The lack of an interlobate between the Green Bay and Langlade lobes is now seen to be the result of a readvance of the Green Bay across this line. I now follow Loverett in the mapping in northern Wisconsin with the difference that I term many of his endmoraines overridden older moraines, and I question the Labradorian origin of the late (Fourth) Wisconsin near Superior and Duluth.

If there is anything else I can do to help you please advise me.

Sincerely,



UNION POSTALE UNIVERSELLE  
HONG KONG

POST CARD



THE ADDRESS ONLY TO BE WRITTEN ON THIS SIDE.



Mr. Frederik T. Thwaites,

Science Hall

MADISON, WISCONSIN.

U.S.A.





Flight of bats from Monte  
Alban caves near Manila.  
About 6<sup>30</sup> P.M. Preyed  
upon by three hawks,

Best regards from

A. K. Lobeck

July 31, 1936.



Dear Amy:

I haven't anything to report in the way of locating a maid for you so I hope you've already found one that is satisfactory.

One girl who is now employed in Shelbygan was looking for another location but she wanted a place here in Plymouth so that let her out. Times must be picking up considerably or there would be more girls available.

I thought surely I'd be in Madison some time this summer long enough for me to have a chance to make a few calls anyway; but so far that hasn't been possible. We were there about three weeks ago but had only a very limited time and didn't get away from the downtown section at all. I can't predict when will



be going again but hope it  
will be fairly soon.

This has certainly been  
a hectic summer, and I'm  
hoping there won't be another  
like it in my experience.

Prior to the last war we were  
pretty much upset because  
of an accident at our plant  
which caused the death of one  
of our men. It wasn't anything

which we or any of the men  
were to blame for, but you can  
imagine how badly we felt  
about it, just the same. This was  
the first fatal or even serious  
accident that has happened to

any of Doctor's men in all the  
years he has been in the business.

We managed to endure the  
last some way or another but  
it certainly does take the  
starch out of any man.



And the effect on our garden  
was pretty bad. We still have  
a few things that are doing  
fairly well but a part of it  
was a complete failure. And  
the flowers are the pickiest looking  
outfit I ever had.

Am glad to hear that Mrs. Thailer  
is feeling so well this summer.  
The extreme heat was so  
hard on people who were  
at all frail that she must  
be in pretty good shape to  
have been able to live thro  
it.. even.

I haven't seen Ella Lucille  
in about three years now.  
Last year we called at her  
home one morning but she  
wasn't there at the time.

Isn't the Labachs having the  
grandest trip! Had a card from  
Japan the other day. Of their  
original plans hold they'll be  
going thro' Madras in September



I'll certainly manage to go  
down to see them even if they  
wait there for any length  
of time. Haven't seen Dr. L.  
and Menie for several years.  
That means a change in  
Menie that I can't even  
imagine.

Haven't heard from Helen  
lately but I presume she's back  
from Mexico by this time. If she  
goes to Sturgeon Bay a/c - she  
comes back to Wisconsin  
she'll probably stop in Plymouth  
to see us.

Can't you all take a day  
off and drive up a/c - Fred  
gets this with his field work?  
We'd love to have you come. Can  
imagine the boys has changed  
a lot since last year.

Remember me to Mrs. Thrailes and tell  
her we'll try to see her next time we  
down.  
Most cordially,  
Logan



June 22, 1936

Dr. A. L. Lugin,  
Dept. of Geology,  
University of Nebraska,  
Lincoln, Nebraska

Dear Dr. Lugin:

Yours of the 6th is at hand and I wish to thank you for your invitation to come to a field conference on the Pleistocene of your state.

I am very sorry that conditions this summer will not permit me to accept at this time. I have a Penrose grant project to finish before the first of October and will be hard put to it to make good. Even the new edition of the Outline must wait until this job is done.

I read all of the Bulletin on the Pleistocene. So far as I now recall, the only point on which I differed is the duration of the Iowan. I have been over the original Iowan area very thoroughly and I am positive that the uplands are a young constructional topography and not erosion surfaces. One must recall that the gap between the Iowan and the Des Moines lobe includes all of Tazewell and Cary time as well as Peorian, the unnamed subinterval between Tazewell and Cary and the Forest Bed subinterval of northeastern Wisconsin. It seems to me that this fact may answer your doubts.

I have also been reading up on the Alpine glacial succession and found that they have distinct soil profiles and warm climate deposits formed during the ice recessions. This seems to excluded correlation with the substages and subintervals of the Wisconsin. However, the data is not satisfactory. I have visited our older drifts in company with Antevy, Wassund, and Foldstedt and they all seem to agree with Leverett's correlation with Europe. Nevertheless, I want to keep your suggestion in mind. I feel that a similar error is quite probable with the correlation of some of the drifts of the western mountains with the Mississippi succession.

With best regards,

Sincerely,



THE UNIVERSITY OF NEBRASKA  
LINCOLN

DEPARTMENT OF GEOLOGY  
NEBRASKA STATE MUSEUM

June 6, 1936

Dr. F. T. Thwaites,  
Department of Geology,  
University of Wisconsin,  
Madison, Wis.

My dear Dr. Thwaites:

I want first of all to say that I appreciated your fine letter of May 1st. very much. Your reaction to my idea about the European Pleistocene succession is gratifying. I expect to try it out on MacClintock when he gets out here this summer.

In this same connection, we are expecting to have several visiting geologist and anthropologists, especially those interested in Ancient Man, visit us and see some of our Pleistocene geology sometime this season. There will be MacClintock, H. de Terra, probably Sellards, Smith (of Kansas), perhaps Kay and may be Trowbridge also from Iowa, Rothrock, Jenks, and possibly others. It may be possible to arrange for a little "run around" on some of the most important outcrops with several of these men together. Would you be interested to come out here and see some of this too? I am sorry that I can not offer you even expenses, but if you have the time and care to see some of our Pleistocene you may consider this a standing invitation to come at any time that we can arrange to get together. I would like very much for you to see some of the critical exposures. If you will just drop me a line, I shall be glad to let you know of future developments and if any kind of informal field conference can be arranged. It is too early yet to be very sure of any ones plans. I think that it can not be before sometime in July or early August. By that time, perhaps you will have figured out a lot of questions to raise from the bulletin.

With kindest personal regards, I am,

Sincerely yours,

*A. L. Lugn*

A. L. Lugn



THE UNIVERSITY OF WISCONSIN  
MADISON

DEPARTMENT OF HYDRAULIC AND  
SANITARY ENGINEERING

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G. WALTON  
E. R. DODGE

December 9  
1 9 3 8

Mrs. F. T. Thwaites  
Route No. 4  
Madison, Wisconsin

Dear Mrs. Thwaites:

Enclosed you will find three  
photographs which I took of Professor Thwaites  
and Billy on the Physiology Inspection Trip in  
October. I thought you might enjoy having  
these.

Mr. Mason reports that Professor  
Thwaites is getting along well, and I sincerely  
hope that he recovers in a very short time.

Sincerely yours,

*Arno Lenz*

ATL:vm  
Encl.



Feb. 8, 1939

Mr. Lefloy Luberg, Principal,  
Junior High School,  
West Side High School,  
Madison, Wisconsin

Dear Mr. Luberg:

I would like you to send me application blanks  
for the Summer Laboratory School so that I can enter  
the names of my two sons, Thomas and William for the  
next summer's session.

Very truly yours



Feb. 12, 1939

Mr. and Mrs. A. K. Lobeck,  
251 Sunset Ave.,  
Englewood, New Jersey

Dear Mr. and Mrs. Lobeck:

At last we seem to have time to answer the note on your Christmas card. Besides, we thought that you would be interested in our recent change in address and the reasons for it.

Before my mother passed away after a six months illness on August 14 last she had expressed a desire to have us stay on and take care of the old place. But little over a month after that we accidentally discovered that secret moves were being made to deprive us of any voice in control of the estate. At once we saw that conditions had become intolerable and proceeded with our original plan of moving to a location more convenient to both schools and my work. It ended in Harry Turvill buying us out for enough to enable us to finish paying for this house by now.

During October Tommy was in bed three weeks with bronchial trouble. The day we started to move, Nov. 6, I came down with the same thing. First I was in bed two weeks at home (10 days in the town house), then four weeks in the hospital and then had to stay in my room for two weeks more. I could not return to work until Jan. 4.

over



In fact it is only the last few days that I have felt like myself.

Classes seem to be larger than ever, I have 23 in mapping equalling the record, 23 in glacial, an all-time record, and 37 in physiography, an all-time record for the second semester. Well samples have been very few until recently, a lucky thing when I was gone so long.

We like the new house very much better than the old one. It has tile walls with stone around the doors and windows. Heating is by gas which we do not like partly because it kills plants and partly because it is an "off and on" arrangement which makes temperature irregular. We hope to change to oil next winter, with a continuous flame burner like we had at the old place. Now we are painting the walls and putting in a new dressing room off our bedroom. We will build a sleeping porch in the spring.

The old house has been rented to some people who have painted over the nice woodwork and installed a bar off the dining room. I certainly am glad I am now longer responsible for water and light service after 28 years of nothing but complaints! We are going to get rid of one car and use the other very little as taxis and busses are so much cheaper and more convenient.

We just had a bad ice storm so that the streets shine under the lights. But no longer do we have to worry about getting to town! We certainly do have much more time and energy than we ever had in the country.

With best regards from both of us,

Sincerely,





THIS SIDE OF CARD IS FOR ADDRESS

MRS FRED THWAITES  
41 ROBY RD  
MADISON WIS  
FEB 44

07  
61  
14  
59  
MA



THE SATURDAY EVENING POST  
COUNTRY GENTLEMAN

✓ LADIES' HOME JOURNAL  
JACK and JILL

We regret to learn that your copies of our publication were not addressed properly.

The necessary correction has been made on our mailing list, so that beginning soon your copies should be addressed exactly as you request. Meanwhile we are sending you additional copies in specially addressed wrappers to avoid any possible break in your subscription. If, therefore, you should temporarily receive duplicate copies, perhaps you will pass the duplicates to friends who are not now readers.

Very truly yours,

701  
Su 663 E

CURTIS PUBLISHING COMPANY  
Independence Square, Philadelphia, Pa.



16 St. Luke's Place  
New York, N.Y.

April 18, 1939

Dear Mr. Thwaites,

It isn't enough that I was one of the very worst students that ever tried to "guess rocks" in your laboratory, but I now come back years later to pester you again - this time, however, on a matter closer to my natural inclinations (no pun intended).

Among the papers which William Ellery Leonard has turned over to me for possible use in preparing the biography of him that he has authorized me to write, I find letters from both you and your father, and I want to ask whether by any chance Mr. Leonard's own letters to either or both of you have been preserved. If they have, would you be so good as to let me borrow them? I am trying very hard to gather in as many of Mr. Leonard's letters as possible. And I promise really prompt return.

I don't suppose there is much point in apologies from a former student whom you wouldn't possibly remember as to either face or name, but my conscience has always bothered me about various disturbances I caused in my Geology Laboratory hours.

Very sincerely yours,

*Clara Keiser*

Professor Frederick C. Thwaites  
Department of Geology  
University of Wisconsin  
Madison, Wisconsin



April 24, 1939

Miss Clara Loiser,  
16 St. Luke's Place,  
New York, New York

Dear Miss Loiser:

In reply to yours of the 18th I have no recollection of any correspondence with Mr. Leonard. If I had any it could have been of no importance and I prefer that it NOT be mentioned. You may do as you like in regard to letters from my father. When my mother passed away last summer she had destroyed almost all of the personal letters which had been saved. I hardly feel like bothering anyone at the Historical Society to hunt through old files there. When we had to move suddenly last fall my old personal letters were put in storage and have not yet been taken out. But again I want to make it clear that I DO NOT authorize the use of my name in connection with anything about Mr. William Ellery Leonard.

I still remember your name but with the hundreds of students I have had that is just about all, I'm afraid. I am out of Geography now and the two departments are separated. It was Geography you took and not Geology although carried under that title then.

I am married now and have three young boys of my own to keep me busy!

Very truly yours,



Ann Arbor, Mich Sept. 24 1939.

Dear Prof. Thwaites:

Your letter of the 20<sup>th</sup> is received, and I am much pleased with the fair and open minded attitude you are taking in further study of the Iowan Drift problem. I wish Kay and Leighton were as fair and open-minded. We might hope then to reach a better understanding and perhaps clear up the matter.

I hope Mr. Mathieson will include the Hampton moraine in Dakota County Minn., and the Kame areas of Iowan Drift in Goodhue County, and moraine of Iowan Drift in the north west township of Wabasha County in his studies and determine how their soil profiles compare with that of the Marshfield moraine.

If Dr. Kay will visit Nebraska and see the features of the Loveland loess and great erosion it has suffered by Platte River as indicated by Dr. Lugin in his report on the Pleistocene of Nebraska. I think he will at least feel doubt as to his interpretation in articles in Science and Amer. Jour. of Science that it is post Illinoian, and may perhaps agree with me that it correlates with the pre Illinoian loess on the borders of the Mississippi near Moline and near Muscatine which I discussed in Monograph 38. He seems to think all these features can be settled in Iowa, but I think he might feel differently if he extended his studies into Nebraska, S.E. Minnesota and northern Wisconsin.

The Illinoian drift has some remarkably fresh looking pebbles in western Pennsylvania, and also as reported by E.H. Williams in eastern Pennsylvania. I note Ashley recently that it seems likely that it is somewhat younger than the Illinoian of southern western Illinois. It may thus parallel the conditions found in the Wisconsin. The outer part of the Wisconsin being of Middle Wisconsin age - The Illinoian of western Pennsylvania as measured by erosion on the Allegheny and Ohio Rivers must be much older than the Early Wisconsin for the rivers have been deepened over 200 feet in rock since it



was deposited. The rock surfaces under the Illinoian outwash  
gravel have that altitude above the present streams. So Middle  
Illinoian drift seems to be much older than early Wisconsin

It may also be somewhat older than the Iowan drift. As you  
know I am inclined to make the Iowan a late Illinoian  
deposit, just as I make the Des Moines lobe and the Dakota  
lobe of the Wisconsin a late Wisconsin, of about the  
age of the red drift of eastern Wisconsin, and the Port Huron  
Moraine system of Michigan, Ontario and New York.

I feel there is need for a systematic study of the  
soil profiles of the Illinoian in all its extent. From  
Iowa and Wisconsin to New Jersey. This will probably  
come in the near future. With this should go a study  
of the Iowan, and of the drifts of the several substages  
of the Wisconsin.

I shall be much interested in learning the results  
of Mr. Mathieson's studies and of your own further  
studies.

Very truly yours,  
Frank Leavitt



Sept. 18, 1939

Dr. Frank Loverott,  
1734 S. University Ave.,  
Ann Arbor, Michigan

Dear Dr. Loverott:

Yours of July 27, also a letter from Dr. Kay of Aug. 15 with copies of letters from and to you have been in my "Acquire attention" folder pending a trip to Minnesota. This trip which was primarily for business, is now over. I was able to drive over the area of "old red drift" west of Red Wing but could not afford time for any detailed examination of soil profiles. I also spent two days in examining profiles in the vicinity of Marshfield, Wisconsin. I have an excellent student, Mr. John Mathieson of Chetek, Wisconsin, working in this area. The soils men at the State Experiment station in Marshfield helped us very much. I feel that despite the slight examination in Minnesota I now have the background to discuss the problem and at least make some constructive suggestions.

In central Wisconsin we have found several distinct zones going outward from what Weidman regarded as Wisconsin drift. First, there is a marked terminal which on the basis of work in northeastern Wisconsin is the endmoraine of the Gary or Middle Wisconsin. Second, there is a belt with marked constructional features, pitted outwash, ockers, etc. in large part recognized as Wisconsin by you. Third, there is erosional topography, in large part drift-mantled rock hills with a shallow A horizon with the B horizon not well developed or at least not easily seen because of the primary red or pink color of the till. In all this country the A horizon is gray silt, a semi-podsol profile because of the former coniferous forest. Fourth, there are sandstone hills with very little drift, too thin to show a profile in itself.

Just south of the Marshfield Moraine we saw a typical gambetill profile but it is less than four feet to the bottom of the B horizon. A deep test pit at the Experiment Station shows a buried profile at about 16 feet from the surface. A cut of the samples was promised but Mr. Muebach who was in charge was killed in an automobile accident a few days ago and so we will have to make arrangements again. Apparently there are two distinct drifts south of Marshfield, either Illinoian and Kansan or Kansan and Nebraskan. The shallow profile suggests the former correlation. The Kansan soil of the Marshfield Moraine seems to be a siltill profile. North of the moraine the soil is much lighter than to the south and the conditions of the third zone appear to hold. The light subsoil is a primary rather than a secondary feature. It is not nearly as well developed on sandstone as on crystallines which probably explains the west end of the moraine. At the east Weidman's mapping appears essentially correct.

Mr. Bean has questioned the reality of the Marshfield Moraine. He examined the west end near Heilsville and found it simply a sandstone divide. My personal impression at Marshfield, however, was much more favorable to Weidman's interpretation.

Mr. Mathieson is still at work, however, and seems to be getting definite results which should settle the matter in the near future.

Turning to Minnesota, my general impression of the supposed Illinoian



of eastern Minnesota, my general impression is one of a shallow soil profile and of relatively fresh constructional features. In fact, I venture to suggest that this drift may correspond to the third zone in Wisconsin and not be as old as Illinoian. I do not recall finding any clear-cut discussion of the age of this drift. In fact, to my mind the similarities you note to the Iowan drift might be used just as well to show that this northern-derived crystalline drift is Iowan rather than Illinoian. In this case the evidence for equivalence of Iowan and Illinoian would still be left open. Of course, the matter is confused by differences in both material and topography from the original Illinoian area. The fact remains, however, that the locality is close to the original Iowan and a long way from the original Illinoian. You will recall that in giving impressions I put in two field seasons in Illinois a few years ago. On this basis I venture to think that the weathering in Minnesota of a fairly loose till with good subsoil drainage is nowhere near comparable to that shown in the hill districts of southern Illinois.

With regard to the suggestion that stagnation immediately after a glacial maximum is more characteristic of a readvance during the decline of a glacial stage than near its start my feeling is that whatever theoretical likelihood this has we simply do not have the data to prove that it does occur that way. I might point to the fact that the Late Wisconsin Des Moines Lobe has no terminal at its southern tip but has very well-developed ones on the flanks. The tip of the salient could not be held long by the invading ice whereas the flanks were. With this reasoning I fail to see why a marked salient like the original Iowan area of northeastern Iowa might not be immediately lost even in the early stages of a glacial invasion. I also point out that little of either the Kansan or Illinoian maxima are bordered by large moraines, yet they represent the product of extremely active glaciers far larger than later ones.

I might add that the weathering of Woldman's Arnett Moraine in eastern Wisconsin and for that matter of most of the supposed Illinoian gravels in southern Wisconsin is distinctly more than I saw in any of the cuts in the old red drift of Minnesota. In fact, the contrast is very striking. You will note that I pay little attention to disintegration of pebbles and boulders because that depends mainly on the kind of rock and is locally very striking in quite young drifts. We saw a pebble zone as on the Iowan one place in Minnesota.

The separates came all right and I wish to thank you again for them.

In closing I will repeat that my examination is incomplete and that much must wait until Mathieson has done more work in Woldman's old stamping ground.

With best regards,

Sincerely,



Ann Arbor Mich July 27 1989,

Dear Prof. Thwaites:

Your letter of July 24 is received.

You seem to be less impressed with evidence of stagnation of the Loman ice sheet than absence of a terminal moraine. Four of the men here in the geology department with whom I have discussed the matter, Hobbs, Case, Scott, and Lovering, express a strong conviction that a stagnant ice sheet is more consistent with the dying phase of a glacial stage, than with an opening phase. They all favor my view that the Loman falls more naturally in the closing part of the Illinoian than in the beginning of the Wisconsin glacial stage. I think the evidence of stagnation is clear and I aimed to set it forth clearly in the paper on "The place of the Loman drift".

Your statement that the soil profile of the Marshfield moraine indicates a moderate age is interesting and suggestive. The matter of correlations and relative ages may be cleared up by careful study of soil profiles. I shall be interested in learning how the soil profile of the Marshfield moraine compares with that of the Illinoian drift of Green and Rock Counties, Wisconsin, and also how it checks with that of the Loman moraine in the NW part of Wabasha <sup>County, Minnesota</sup> ~~Wisconsin~~, and the Hampton moraine in Dakota County, Minnesota.

The Illinoian of Green and Rock Counties Wisconsin appears to date from an early part of the Illinoian glaciation while the Marshfield and Hampton are perhaps referable to a late part. Suppose the Illinoian stage to have had a length of 75000 years, the Illinoian in Green and Rock Counties may come in the first 15000-20000 years, while the Marshfield and Hampton might come about 15000-20000 years from the end of that glacial stage. They might thus be 30000-40000 years younger, and this difference may be recognizable in the soil profile.



I hope you will not fail to give careful attention  
to the Iowan moraine of Wabasha County, as to its soil profile  
and state of weathering, compared <sup>with</sup> the Marshfield and  
Hampton moraines. I shall be much interested in what  
you determine. I shall also be interested in  
learning whether you find any evidence that the Iowan  
overrides the Illinoian. Dr. Weidenman and I could  
not find any, and so correlated the Iowan of Wabasha  
and Goodhue counties with the Illinoian of Dakota County,  
Minnesota.

Very truly yours,

Frank Leventt,

My reports were sent to the University of Wisconsin  
so you probably have received them by this time. If not I  
will mail you another set - F. L.



XXXXXXX 41 Roby Road,

December 16, 1939

Dear Mrs. Lobeck:

Was sorry not to have seen Dr. Lobeck when you were here this spring. We painted the green room immediately after your departure and had it ready in case you decided to return this way.

About a month ago I saw Mrs. Atkins at school and failed to speak to her because I did not recognize her. She certainly is thin! Roger seems to be in Tommy's room at school and from the snatches of conversation I heard I would judge he is about as good a student as Tommy.

Had a telephone conversation with Eller when she was in town during the summer but was up town when she called here.

We failed in our attempt to visit Lofly this summer. In September we went as far west as Detroit Lakes, Minnesota and then up to Port William and Port Arthur. We were in Canada when war was declared.



We now have the house all redecorated  
and are enjoying it.

The children have had sort of an  
intermittent cold all fall. At present Tommy  
and Billy are all right and Bobby is slowly  
getting better.

Sincerely,



HARVARD UNIVERSITY  
DEPARTMENT OF GEOLOGY AND GEOGRAPHY  
GEOLOGICAL MUSEUM

OXFORD STREET  
CAMBRIDGE, MASSACHUSETTS

February 16, 1940

Mr. F. T. Thwaites  
The University of Wisconsin  
Dept. of Geology  
Madison, Wisconsin

Dear Mr. Thwaites:

It is good to have your letter recommending  
Mr. Carlton J. Leith, who is applying for a scholarship  
at Harvard. Your remarks will be of assistance to us  
when awards are made in March.

Yours very sincerely,

*Donald McLaughlin*

Chairman.

DHMcL/M



Mr. Carlton J. Leith was in two of my classes last year. He was a student far above the average. His personality is very good and showed to advantage in the eight days spent in camp at Devils Lake last April when conditions for work are far from ideal. I have not tried him on original work but from what I do know I have no hesitation in recommending him highly.

Lecturer in Geology

Science Hall, Univ. of Wis.

Madison, Wisconsin

Jan. 18, 1940

Madison, Wisconsin



Mr. Carlton J. Leith was in two of my classes last year. His record was away above average and was definitely in the first ten percent. His personality is good and showed to advantage in the trying weather conditions of our eight days in camp at Devils Lake last April. I feel that he promises very well and have no hesitation in recommending him highly.

Lecturer in Geology

Science Hall, University of Wisconsin  
Madison, Wisconsin

Jan. 18, 1940



Dear Mr. Thwaites,

If it is not asking too much of you, will you please write letters of reference for me to the following: Dean of the Graduate School, Columbia University; Dean of the Graduate School, Princeton University; Prof. D. H. McLaughlin, Rotch Building, Cambridge, Mass. (~~Harvard~~); Dean of the Graduate School, Yale University (on the enclosed form); the Dean of the Graduate Division, University of California, Berkeley (on the enclosed form); and the Dean of the Graduate School, the University of Minnesota. ✓

I will greatly appreciate any assistance you can give me in securing a position for next year.

Thank you,

Carlton Leitch



~~XXXXXXXX~~ 41 Roby Road,

Jan. 20, 1940

Prof. Robert F. Legget,  
Dept. of Civil Engineering,  
University of Toronto,  
Toronto, Canada

Dear Prof. Legget:

Yours of the 15th is at hand. In reply I possibly have not made a thorough search of literature on mechanical analyses of till for sometimes the soils men do make analyses of material far enough below the surface to be of value. Generally, however, their C horizon is considerably weathered.

Besides the paper by Crosby I have noted one by Kruger in Am. Jour. Sci., vol. 234, pp. 345-363, 1937 another by Krumbein in Jour. Geology vol. 41, pp. 383-408, 1933 and a third by Washer and Winter in Am. Jour. Sci., vol. 235, pp. 14-21, 1938.

I venture to suggest that you write Prof. W. C. Krumbein, Department of Geology, Rosenwald Hall, University of Chicago, Chicago, Illinois as he has made a specialty of mechanical analyses and so forth and may have other references.

Sincerely,



University of Toronto

TORONTO 5, CANADA

DEPARTMENT OF CIVIL ENGINEERING  
MUNICIPAL AND STRUCTURAL

15th January, 1940.

Professor F. T. Thwaites,  
Department of Geology,  
University of Wisconsin,  
MADISON, Wisc.

Dear Professor Thwaites:

Some time ago you were kind enough to be of much assistance to me in connection with a section on glacial geology in my recent book on Geology and Engineering. Your kind co-operation at that time leads me now to take the liberty of making of you another request.

During the past summer we have been engaged in making a thorough study of glacial till from a dam site in Ontario. This has involved the analysis of about 200 samples and a close study of the mechanical properties of the till. In view of the dearth of published information regarding the characteristics of glacial till, I am now engaged in putting the results of this investigation into shape for publication.

Before completing this work I am endeavouring to check up on what papers have previously been published on the same subject. The only one I have yet come across is that by Professor W. O. Crosby, published many years ago in the Proceedings of the Boston Society of Natural History. I write now to ask if in your researches you have ever come across any comparable paper to Professor Crosby's. Your advice will be greatly appreciated.

Yours faithfully,



Assistant Professor of Civil Engineering.



University of Toronto

TORONTO 5, CANADA

DEPARTMENT OF CIVIL ENGINEERING  
MUNICIPAL AND STRUCTURAL

Am. Jour. Sci., vol 234, 345-363, 1937

Krumbein W.C. - Jour. geol. 41, 383-408, 1933

Wentworth and Wentworth, ATG 235, 14-21, 1938

Professor F. T. Wentworth,  
Department of Geology,  
University of Wisconsin,  
MADISON, Wisc.

Dear Professor Wentworth:

Some time ago you were kind enough to be of  
much assistance to me in connection with a section on glacial  
geology in my recent book on Geology and Engineering. Your  
kind co-operation at that time leads me now to take the liberty  
of making of you another request.

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characteristics of glacial till, I am now engaged in putting  
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Before completing this work I am endeavouring  
to check up on what papers have previously been published on  
the same subject. The only one I have yet come across is that  
by Professor W. O. Crosby, published many years ago in the  
Proceedings of the Boston Society of Natural History. I write  
now to ask if in your researches you have ever come across any  
comparable paper to Professor Crosby's. Your advice will be  
greatly appreciated.

Yours faithfully,

Assistant Professor of Civil Engineering.



University of Toronto

TORONTO 5, CANADA

DEPARTMENT OF CIVIL ENGINEERING  
MUNICIPAL AND STRUCTURAL

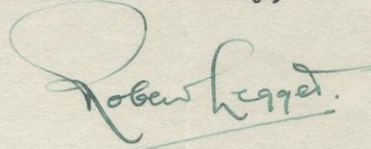
23rd January, 1940.

Professor F. T. Thwaites,  
41 Roby Road,  
MADISON, Wisconsin.

Dear Professor Thwaites:

Thank you very much for your letter of the 20th of January and for the information you have so kindly given to me regarding references on the character of glacial till. I shall follow up the suggestions you make and am grateful for your help.

Yours sincerely,

Robert Legget.



xxxxxxx 41 Roby Road,

Jan. 29, 1941

Mr. William Freeman Vilas Leicht,  
National Park Service,  
Boulder City, Nevada

Dear Bill:

A package of aerial photographs came from you as per your promise last fall a few days ago. I have been laid up with flu so did not get around to thanking you for them until tonight.

There seem to be two sets one with printed serial numbers which can be used in the stereoscope and another on which numbers have been lettered and which do not seem so far as I could tell to overlap.

Would you kindly write me and tell as closely as possible where each series was taken so I can look them up on maps and check on the geology. There seems to be a lot of interesting features on the photos but I sure would like to check on the geology.

It is between semesters here and I am finishing up a lot of well records. It is an interesting proof of the "law of diminishing returns" that with over 10 times the amount of data we had in 1923 no new correlations have been proved and as a matter of fact the conclusions reached as early as 1919 have simply been elaborated! Of course I am vastly surer of my ground when any problem comes up but there has been no change in interpretation whatever.

The report on northeastern Wisconsin is ready for final typing but Amy simply does not get time to start. Just now we are mounting the photos taken on our trip last summer. We all had the flu after Billy brought it home from school

Any sends regards,

Sincerely,



March 6, 1941

Mr. LeRoy Laberg, Principal,  
West Junior High School,  
30 Ash Street,  
Madison, Wisconsin

Dear Mr. Laberg:

When you send out application blanks for the  
Summer Laboratory School could you kindly send me some  
for my three boys.

Sincerely,



UNIVERSITY OF WISCONSIN  
School of Education  
1941 Summer Laboratory School

May 24, 1941

Mr. Fredrick T. Thwaites  
41 Roby Road  
Madison, Wisconsin

Dear Mr. Thwaites:

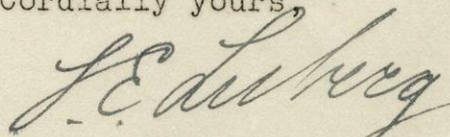
We are happy to inform you that the application  
for your three sons in the Summer  
Laboratory School has been accepted.

A payment of \$22.50 by June 16 will assure you  
a reservation for them in the school.

If there is further information you would like  
about the school we will be happy to inform you.

The school will be open Monday, June 30, at 8 o'clock  
and classes will start at 8:30.

Cordially yours,



L. E. Luberg, Principal

Summer Laboratory School

Sent  
6-2-41



Aug. 1, 1941

Dr. Frank Leverett,  
1734 S. University Ave.,  
Ann Arbor, Michigan

Dear Dr. Leverett:

I have been assigned the job of drawing the glacial geology of Minnesota, Wisconsin and Michigan for the glacial map of North America now being prepared. Last winter Flint told me that a new map of Michigan was almost ready. Just now I have some time available for this job having sent in my report on northeastern Wisconsin. I would greatly appreciate a copy of this map if such can possibly be obtained. If you do not have it could you please let me know where to apply?

I hope that Mr. Hole will be able to follow up his studies of the entire morainic drift in central Wisconsin but it seems as if there is some trouble with deferment in the draft. He is a Quaker so faces being sent to some sort of concentration camp and not the army.

With best regards,  
Sincerely,



Aug. 11, 1941

Dr. Frank Leverett,  
1724 S. University Ave.,  
Ann Arbor, Michigan

Dear Dr. Leverett:

Thank you for yours of the 5th with map enclosed. This will clear up some points both for the Flint map and for a revision of Fig. 1 for my northeastern Wisconsin report. I have sent in a preliminary copy of this figure and will complete another version with larger letters to permit of publication on a smaller scale when or if the report is finally ready for publication. I will make the correction indicated for the border of the Late Wisconsin in Michigan.

In regard to nomenclature I got the idea of numbering the substages of the Wisconsin stage for your figure 5 on p. 19 of Prof. Paper 154. I now realize that numbering, however convenient for the student, is too inflexible. One may easily find that the order of some of the substages has not been correctly interpreted and needs revision. For instance in eastern Wisconsin the interval between the Gray gray drift or Middle Wisconsin and the Red Drift or Late Wisconsin was enough for the development of the Forest Bed. But in Minnesota and northwestern Wisconsin the time lapse seems less. Cooper finds unfilled kettles in the path of glacial drainage from the gray till area. And in Lake Grantsburg pitted outwash enters into the lake area postulated by Hansell. Even if the outwash were not pitted it certainly filled much of the lake basin and seems to indicate that the red ice was not far distant when the gray was at its maximum. Then too, we all fail to find any evidence of a readvance at the Winegar Moraine in northern Wisconsin (see my paper on Vilas County).

I will try to send you a photostat of the Flint map when I get it done. Just now I am almost ready to start on Michigan. I will also send you a complimentary copy of the 1941 edition of the Outline of Glacial Geology. In that you will find that a number of errors of the earlier editions have been corrected. I am proposing the name Valdora for the Red Till of northeastern Wisconsin. Although that locality is not at the maximum extent of the drift it is not far from its edge and is famous for the wonderful crossing striae which puzzled all of us for so long (see Guide Book 26 of the 1933 International Congress). This is because I am not at all sure of correlations across northern Michigan and Wisconsin. I am coloring drift as "Undifferentiated" Wisconsin on the Flint map across the gap of the Green Bay Lobe west to the Gray Drift of Minnesota. One thing which has caused much confusion in the past has been the assumption that glacial advances are bordered by endmoraines for such is undoubtedly an error.

I am hoping to go on a field conference with Gould and Hole on relations of the Iowan and Illinoian in Dakota County, Minnesota. I hope the latter may escape the "concentration camp" to which members of his denomination are to be sent.

Thank you again, I am,

Sincerely,



Ann Arbor, Mich. August 5 1941.

Dear Prof. Thwaites;

I am mailing you a copy of my 1924 map of the Southern Peninsula of Michigan, which is essentially the same as the new map I have been making. The new map brings the contouring up to date, but has few changes in the moraines, or other glacial features.

As the readvance to the Tekonsha Moraine marks the limit of the middle Wisconsin substage I have marked this limit by a heavy line. I have also shown how the Lake Michigan ice lobe became shifted eastward so as to override some Saginaw moraines of greater strength than its moraines. The Lake Michigan lobe brought the Lake Superior sandstones into this overriding area, so where morainic features are weak these sandstones were made the identifying feature.

The readvance may have been considerable, but there seems no way to determine how far back the ice border had shrunk. In the early Wisconsin substage the Saginaw lobe had a great protrusion down into Indiana, to the Maxinkuckee moraine. It was so strong an ice movement that it seems to have forced the Lake Michigan lobe to make a turn to the southwest in northern Illinois, from the southward trend that it has in Wisconsin. It became free to move directly southward after the Saginaw lobe had melted away, so its middle Wisconsin moraines have a more nearly concentric course around the south end of the Lake Michigan Basin. They fill the district north from the Kankakee River. Whether they include the Minooka Moraine I am not certain. Perhaps you have data on that subject.

The way in which the Saginaw and Lake Michigan lobes are related to the north of the Middle Wisconsin limit is shown pretty clearly in Pl. xxxii of Monograph 53, U.S.G.S. I have also drawn arrows to aid in making this relation clear on the map I am sending.

One of the new features not yet brought out in print is the way in which Lake Chicago was encroached upon to a much lower latitude on the Wisconsin side than on the Michigan. On the Wisconsin side the encroachment reached about to Milwaukee in Late Wisconsin time, when the red drift of eastern Wisconsin was deposited. But on the Michigan side it reached only to the vicinity of Manistee or about 70 miles farther north. The Port Huron Moraine which marks the limit of the Late Wisconsin goes into Lake Michigan near that city. I have drawn a line on the map I am sending you to show my conception of the position of the ice border within the east part of the Lake Michigan Basin. I have also shown where the Lake Chicago shore has its most northerly exposures. My map in Prof. Paper 154 A, Plate I, needs to be corrected a little in that vicinity. The line marking the limit of this drift should follow the north side of the Manistee River westward from the mouth of the South Branch about to Manistee city.

I now think it probable that the recession of the ice prior to the readvance to the Port Huron Morainic system was so extensive as to nearly disappear from the Southern Peninsula of Michigan. Evidence in support of this view is found in the occurrence of lake clay beneath the Late Wisconsin drift as far north as the borders of Burt and Mullet lakes in Cheboygan County. It is present up to a level about 200 feet above the level of Lakes Michigan and Huron in Cheboygan County. This seems likely to be none too high to fit into the tilt of the Glenwood beach of Lake Chicago. That beach reaches a level of 100 feet above Lake Michigan in the vicinity of Muskegon. This is 150 miles south from the exposures in Cheboygan County. The rise of 40 feet is made in about 50 miles from the untilted area.



As to the Northern Peninsula of Michigan, the maps in Prof. Paper 154 A are my latest ones. The Late Wisconsin border seems to have a reentrant area in Iron County. The rest of the northern peninsula was covered by Late Wisconsin drift. As you have worked in the adjacent part of Wisconsin you should be able to bring the maps into agreement at the State  $\neq$  line.

I will make a brief reference to the place of the Iowan drift. As matters now stand it remains to be determined whether it is an early Wisconsin deposit, or instead a late Illinoian. I am glad Gould has been assigned to the clearing up of this matter, and hope he will be able to make an interpretation that we can all agree on. Fortunately Leighton and I have come to an agreement that what I had called Iowan in northern Illinois is a northward extension of the Shelbyville sheet of Early Wisconsin age. In your "Outline of Glacial Geology", Edition of 1934, it is so represented in Fig. 63. You, however, call it "Second Wisconsin", which may not prove to be the case. It was the opinion of Calvin and myself at the time Monograph 38 was published, in 1899, that the Iowan of northern Illinois is a correlative of the Iowan of northeastern Iowa. If it really is so, it follows that the Iowan of northeastern Iowa is a correlative of the Shelbyville sheet. Then both should be classed as "First Wisconsin", the name applied in your Fig. 62. Or both should be called Shelbyville, and the name Iowan should be dropped. I think it is unfortunate that you used the terms First, Second, etc. in your Outline of Glacial Geology. I am also unable to see why Leighton selected Mankato for the Late Wisconsin. Either Port Huron, or Fond du Lac, seem more fitting as these towns stand near the limit of this drift.

I think you have several copies of my Prof. Paper 154 A in the University, that I forwarded to Dr. Leith several months ago. So you will not need one sent you now.

I shall be glad to help in any way I can toward the preparation of the glacial map, or to examine and criticise the compilations made by others.

Very truly yours,

*Frank Leverett*



Sept. 9, 1941

Dr. Frank Leverett,  
1724 S. University Ave.,  
Ann Arbor, Michigan

Dear Dr. Leverett:

Thank you for your letter of August 29 which arrived while I was up north. I have not had time as yet to get at the map as I have to go out with Hole for a conference with Gould at Carleton and with a soils party in Barron County. While up north I was able to do a little work on the Bayfield Peninsula which is now a National Forest with abundant fire lanes and towers. I did only a fraction of what I had intended because of the floods and washouts but hope I can now understand the aerial photos. I find that moraines generally have quite a different appearance from the air than does pitted outwash. Drumlins can be mapped in much greater detail from the aeriels than on the ground. They certainly put an entirely different view on topography than we had before!

Under separate cover I am mailing you a copy (complimentary) of the 1941 edition of the "Outline". It is not all I could wish in the way of revision but one the northeastern Wisconsin report is completely out of the way I will start a thorough revision. I have not heard from Aldrich about the report, however, except that it arrived.

Sincerely,



Aug. 21, 1941

Dr. Frank Leverett,  
1724 S. University Ave.,  
Ann Arbor, Michigan

Dear Dr. Leverett:

I found the information you sent of great value in finishing the map of Michigan for the proposed new glacial map of North America. However, in checking over I note that your published maps do not subdivide the drifts outside of the moraine of the Des Moines Lobe in southeastern Minnesota. Now the Iowa maps show Iowa, Kansas and Nebraska just south of the state line so I am at a loss how to show this area immediately to the north. This also affects correlations in Wisconsin. I am tentatively following your mapping in central Wisconsin with the exception that I am showing the area of Colby and Vesper soils as possibly post-Illinoian age. This matter was discussed with you by Hele and rests mainly on soil data. However, I am not at all satisfied for he finds the Colby soils north of the Wisconsin moraine are much more sandy than around Marshfield. The similarity of soils may be due to the fact that the northern soils are poorly drained because of topography and not of subsoil. We are going to drill some deep holes with a posthole auger to get samples below the zone of weathering. We are finding calcareous drift over a wide area now and checking that by the nature of the drift ground water where accurate analyses are available.

I will greatly appreciate data on SE. Minnesota.

Sincerely,



Ann Arbor, August 24 1941

Dear Prof. Shwaites:

In reply to your letter of Aug 21 as to borders of the drift in SE Minn. The Iowan in Minnesota extends into a broad area, and the broadness makes it difficult to determine the Iowan boundary. If you read carefully my description of features that I interpreted to be Iowan as given on pp 25 and 29 of Prof. Paper 161 you will see how far east I found features suggestive of Iowan drift. You can then put on a line that will take in these features, and label it "approximate eastern border of Iowan drift".

I had no such difficulty in mapping the western border in South Dakota, Minnesota and Iowa, but for a distance of 200 miles I could fix its border quite easily. There are weak ridges and are undulating topography along the border and they line up nicely. (See Fig 6 and 7 for the position of this border, and Fig 9 to show the weak morainic ridges in Obrien & Cherokee counties Iowa.) Macbride was also able to see the contrast between the Iowan and the Kansan as you will see by the quotation on pp 32 & 33 of my report.

In SW Minnesota and eastern South Dakota the drift exposed outside the Iowan is Kansan, as shown in Fig 6. In Iowa the large streams expose Nebraskan below the Kansan. I think the Kansan is the surface drift clear out to the Missouri River for some distance below Sioux City.

In SE Minnesota the Kansan drift extends into Western Winona and eastern Fillmore Counties but its border there is ill-defined and is interrupted by the great erosion in the valleys.

The outlying part of Winona County and Austin County have only scattered boulders, and these may be Nebraskan. You can connect the Kansan border of Iowa with that of Minnesota I think with some confidence as to its general accuracy.

Very truly yours, Frank Leverett.



Nov. 5, 1941

Mr. Marc A. Law, Jr.,  
27 North Linden Ave.,  
Highland Park, Illinois

Dear Mr. Law:

In reply to yours of the 3rd I am enclosing letter  
as per your request and hope you get in all right.

Best regards,

Sincerely,

Nov. 5, 1941

To whom it may concern:

Mr. Marc A. Law was in my classes at the University  
of Wisconsin during the years 1940 and 1941.

His work was both in geology and geologic and  
topographic mapping including the use of aerial photographs  
in making maps.

I found that he was a good worker and took hold of things  
very well.

Assistant Professor of Geology,  
University of Wisconsin



27 North Linden Avenue,  
Highland Park, Illinois  
November 3, 1941

Dear Mr. Thwaites;

Following my conversation with you a week ago, I have decided to enlist in the Air Corps and take their photography training. They specifically ask for men who have majored in Geology in school and I have had some experience in aerial photographs, so I think my chances of getting in are good. I must send in three letters of recommendation with my application, and I would appreciate it if you would write one of them for me. Please address the letter "To Whom it May Concern" and I will mail it with my application. Receiving of applications at Washington opens and closes without notice and since they are taking them now, and I don't know when they will stop, could you send the letter as soon as possible.

Sincerely yours,

*Marce A. Law, Jr.*



Jan. 28, 1942

To whom it may concern:

Mr. Walter E. Long was in my classes at the University of Wisconsin since 1940. This work included a course in surveying for geologists which involved use of aerial photographs. His record in courses with me was good and he appeared to get along well in camp.





House of Three Bears  
Green Lake, Wisconsin

June 19, 1942.

Mr. F. T. Thwaites,  
41 Roby Road  
Madison, Wis.

Dear Mr. Thwaites;

As you suggested, I am writing again to find out the date which would be best for you to come to Green Lake to give the day to our counselors, telling them the geological history of this part of the country. Any day from June 24 to June 28 would be fine. There is a bus coming from Madison to either Green Lake or Princeton. We will meet you at either of these towns. Of course we will pay your expenses and if the bus connections are such that it is best to stay over night, we have ample accommodations at the camp.

We appreciate your willingness to cooperate with us in this educational plan and hope that you or Mr. Bean will be able to come.

Sincerely yours,

*Emily Lloyd*  
Emily Lloyd, Director.

*bus - Green Lake*  
*Wp* 7<sup>30</sup> A - 11<sup>15</sup> A  
5<sup>05</sup> Pm 8<sup>15</sup> P  
*bush* 8<sup>50</sup> A - 12<sup>15</sup>  
5<sup>55</sup> P 9<sup>30</sup>  
*Friday*

*C&NW*  
8<sup>00</sup> am August  
10<sup>50</sup> Am 4<sup>30</sup> pm

61700

13142

84125



June 22, 1942

Miss Emily Lloyd, Director,  
House of Three Bears,  
Green Lake, Wisconsin

Dear Miss Lloyd:

In reply to yours of the 19th Mr. Bean will not be able to come up.

Despite my former reluctance to use the car I will drive up this coming Friday, June 26 and bring my family along. We should be there around 10 A. M. which ought to leave enough time before we have to return. I have obtained an extra inner tube and feel we might just as well use the car as let it rust out. Bus schedules proved very slow and the train just out of the question.

If you will please let me know where to meet you at the Lake I will save time in coming up.

Sincerely,



600 McKinley Street

St. Charles, Illinois

May 3, 1942.

Professor Fred T. Thwaites,  
University of Wisconsin  
Madison, Wisconsin.

Dear Mr. Thwaites,

From Dr. Ekblau, of the Illinois Geological Survey, I learned of you. He suggested that you might be able to send someone to my camp which is located at Green Lake, Wisconsin, to walk with us over the nearby area, tell us something of the geological history and point out factors of interest. This information and interest would be passed on by my counselors to the young campers who would be under their care through the summer.

We have several days before camp opens, between June 24th and June 28th, when the entire staff will be present before the children's arrival. Will it be possible to send us some one at that time? We will pay traveling expenses and any reasonable fee as we are anxious for the information. Thank you for anything you may be able to do for us.

Sincerely yours,

*Emily Lloyd*

Director House of Three Bears



May 11, 1942

Miss Emily Lloyd,  
600 McKinley St.,  
St. Charles, Illinois

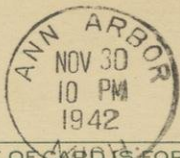
Dear Miss Loyd:

I delayed reply to yours of the third until  
I was able to see Mr. Bean, State Geologist.

Under ordinary circumstances either of us  
would have been glad to run up to Green Lake.  
But as things are we cannot use our tires for  
such trips. However, if it is possible to go  
by train or bus one of us could probably go up.  
Of course it is impossible to make any definite  
appointment at this time but I suggest that you write me  
no shortly before the time and I will see what can be do  
done. We would expect you to pay our expenses but  
there will be no other charge.

Very truly yours,





THIS SIDE OF CARD IS FOR ADDRESS

Prof. J. J. Thwaites  
21 Raby Road  
Madison  
Wisconsin.



Why November issue of G.S.A. Bulletin  
came today, but your paper is not  
in it. I hope it will come in the  
December issue.

Ann Arbor, Mich. Nov. 30/1942.

Dear Prof. Shwaites:

Your letter of the 28<sup>th</sup> inst. is received, and I  
owe you an apology for not writing you that I had a  
prompt and very satisfactory report on the Saltonstalls  
worked up by Evelyn M. Pehlke. It seems there  
have been at least five Leverett Saltonstalls the  
governors son, himself, his grandfather and great grand-  
father, and one a generation further up. The Saltonstalls  
were also connected with the Leveretts through a daughter  
of Pres. John Leverett who held the presidency of Harvard  
1707-1724. <sup>he was</sup> A grandson of Gov. John Leverett, from  
whom Gov. Leverett Saltonstall is descended.

Very truly yours, Frank Leverett,



Nov. 28, 1942

Dr. Frank Leverett,  
1724 S. University Ave.,  
Ann Arbor, Michigan

Dear Mr. Leverett:

Your letter of a few days ago I took over to Miss Foster of the Historical Library. She kept it and said she would take care of the matter. I trust that this was done but if not please advise me and I will check up.

The report on northeastern Wisconsin ought to be out in the next G. S. A. Bulletin but may be delayed for correction of the map. I counted exactly 100 errors in the proof!

Best regards,

Sincerely,



Dr. Frank Leverett,  
1724 S. University Ave.,  
Ann Arbor, Michigan

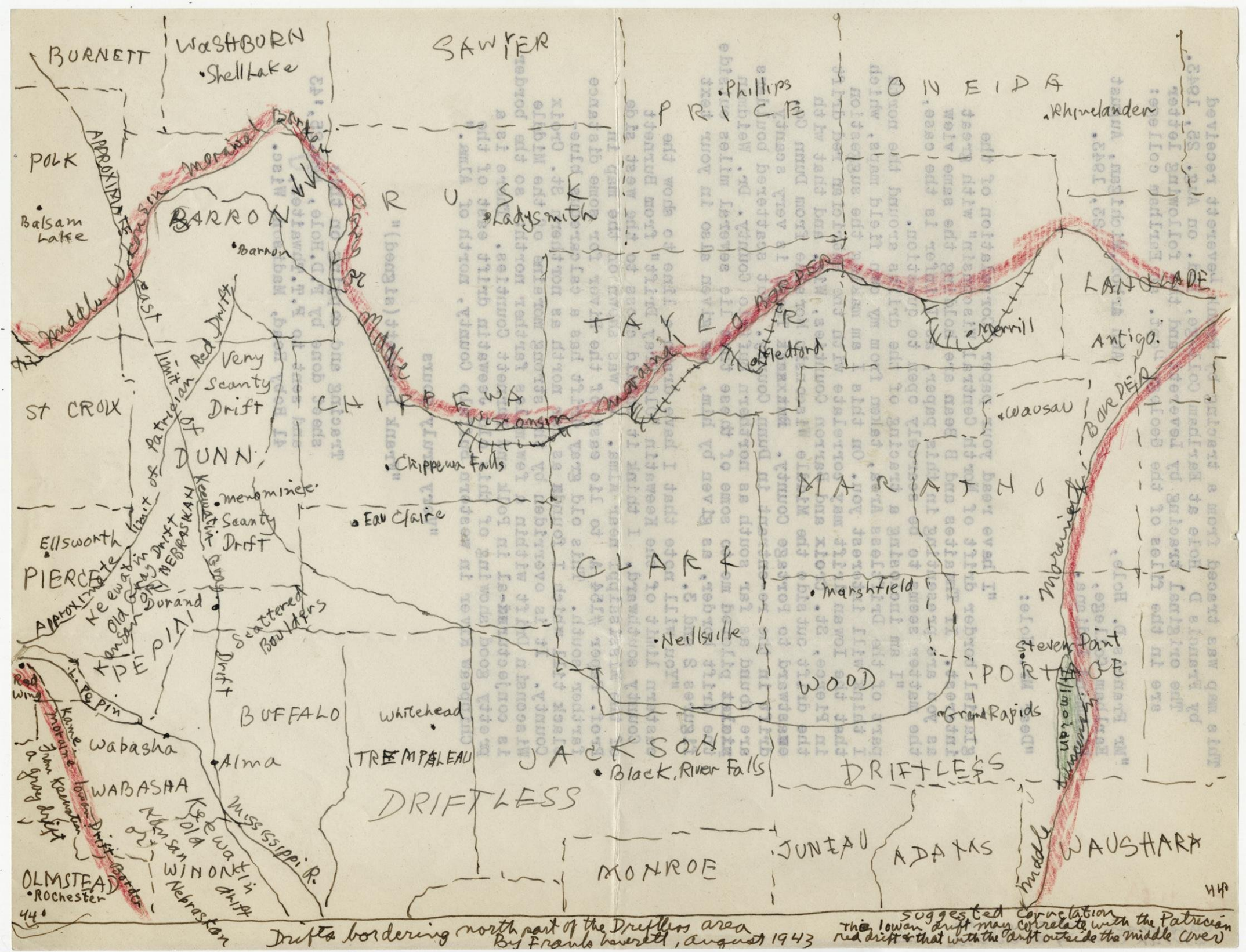
Thank you for yours of Aug. 29. Hole sent me a copy of your map. I am pretty well out of geology for the duration because I am teaching Physics to over a hundred sailors plus about half that number of civilian engineers. Aside from taking care of well samples which are coming in I get almost no time to even think about geology.

Both Hole and I were far from convinced about the suggested glaciation of the reentrant angle south of Wausau. Much of the Marathon soil is loess and not till as supposed by Nelson (Wisconsin Academy of Science). It may be, however, that the north-central Wisconsin drift came from the northeast but was very thin in this rough country along the valley of the Wisconsin where much of the granite is coarse-grained and disintegrates easily.

With best regards,

Sincerely,







(Cen 118)  
This map was traced from a tracing by Frank Leverett received  
by Francis D. Hole at Earlham College, Ind. on Aug. 25, 1943.  
The original tracing by Leverett and the following letter  
are in the files of the Geology Dept. at Earlham college:

"Mr Francis D. Hole,  
Earlham College,  
Richmond Indiana.

Ann Arbor, Michigan, August  
23, 1943.

"Dear Mr. Hole:

"I have read your paper "Correlation of the  
glacial border drift of North Central Wisconsin" with great  
interest. If Thwaites and B Bean are holding the same view  
as you are presenting in this paper, as I infer is the case,  
the matter seems to be scarcely open to question.

"I am inclosing a tracing of the drifts around the north  
part of the Driftless Area, taken from my own field maps, which  
I think will interest you. On this I am making the suggestion  
that the Iowan drift may correlate with the Patrician red drift  
in Pierce, St. Croix and Barron Counties, Wis. and that with  
the drift outside the Middle Wisconsin Moraine from Dunn Co.  
eastward to Portage County. ~~xxxxxx~~ There is very scanty  
drift in the re-entrant in Dunn County. But scattered boulders  
are found as far south as northern Buffalo County. Dr. Weidman  
~~xxxx~~ piloted me to some of these that lie several miles outside  
the drift border, as given by him, as given also in your text  
figures 2 and 3.

"You will note that I have drawn a line to show the  
eastern limit of the Keewatin "Old Gray Drift" from Burnett  
County southward. I think it should cross to the west side  
of the Mississippi near Alma. It was shown on the map in  
Prof. Paper #154 A to lie east of the River for some distance  
farther south. This old gray drift has a calcareous blue-  
black till which I found as far north as northern St. Croix  
County. It is overridden by the strong moraine of the Middle  
Wisconsin Drift within a few miles farther north: so the border  
is conjectured-al in Polk and Burnett Counties. There is a  
pretty good showing of this old Jeewatin drift east of the  
Chippewa River in western Buffalo County, north of Alma."

"Very truly yours

"Frank Leverett (signed)"

Tracing and copying on this  
sheet done by F.D.Hole, Aug. 25, '43  
and sent to F.T.Thwaites,  
41 Roby Road, Madison, Wisc.



October 28, 1943

Mrs. Vivian Zealand Lawrence,  
1415 College Avenue,  
Houghton, Michigan.

Dear Vivian:

The clipping concerning Stanley's engagement will be of interest to you and Ella Lu and the one concerning Dr. Hunt to Stanley.

I presume Ella Lu has been just as busy as Fred has. The reports required by the army and navy certainly keep the instructors on their tip toes all the time.

Since I returned I have had help four instead of six days a week and find that it keeps me pretty tired.

The week of September 21 I hoped that I would at least get a phone call from Ella Lu. I trust that she was able to get enough gas to bring her mother back to Houghton.

Tom and I want to thank you for the pleasant evening we spent at your home.

Sincerely,



5  
May 27, 1944

Dear Mrs. Lobeck:

Rev. Kennedy and his family must be well on their way to you by now. I have been intending to write you and congratulate you on your good fortune in securing his services. We all shall miss him, but we know that we cannot keep a man of his ability permanently. We hope to secure another minister on his way up to something better.

Thomas is at a boy scout camp in Olin Park. Do you remember the mosquitoes that drove you from a picnic there to our screened-in porch one Memorial Day?

Bill and Bob are helping Fred plant the victory garden. The heat seems to be killing the tomato plants and the rabbits have been feasting on the beans. This afternoon Fred is planting a few cabbage plants. We expect to have lettuce and radishes in a few days.

I hope that you and Dr. Lobeck are both well.

Sincerely,



# WHO'S WHO in *Wisconsin*

LARKIN, ROOSEVELT & LARKIN, LTD.  
38 NEWBURY STREET • BOSTON, MASS.

EDITORIAL DEPARTMENT  
38 NEWBURY STREET  
BOSTON

133 N. Jefferson St.  
Chicago 6, Illinois  
7 April 1945

MAY 9 1945

Dear Prof. Thwaites,

We are about to send to the printer for typesetting, your biographical sketch from the personal data furnished for that purpose for inclusion in "Who's Who in Wisconsin".

We enclose a copy of the sketch carrying the latest changes made by you. Any necessary additional changes will be gladly made if they reach us before ~~April 30~~. Furthermore, an interim galley proof from the type will be sent you. MAY 30 1945

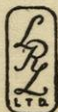
Both the wartime business conditions all have experienced, and the great amount of detail involved in biographical compilation, have had to be overcome. However, now that the time-taking task of writing the sketches, typing the manuscripts, and arranging the copy for going to type - all mental and hand operations, necessarily - have been accomplished, only the more mechanical steps of production remain.

In contrast to the unexpected and unavoidable wartime operative and cost problems, there is the highly gratifying interest consistently attracted by the work throughout the compilative period.

As a result, it has expanded in scope most satisfactorily, and instead of being limited to a state, will encompass contiguous areas, be main-titled "Who's Who in the Central States", and serve both user and biographee much more effectively. Also, a novel quick-reference indexed pagination has been developed which experiments indicate to be considerable more effective than the old-style alphabetization.

But it will help - as time is one of the expenses most affected by the wartime conditions - to have this enclosed biography returned as promptly as possible.

Thank you.



Yours very truly,

LARKIN, ROOSEVELT & LARKIN, LTD.

*Thomas Larkin III*





*A White* CHRISTMAS



*"Everywhere, everywhere, Christmas tonight!  
Christmas in lands of the fir-tree and pine!"*

*PHILLIPS BROOKS*






★ ★ ★  
*Season's  
Greetings* ★  
★

*"The Erwin Lyons"*



ay memories of Happy Christmases  
bless and enrich

THIS CHRISTMAS DAY FOR YOU

and make it the happiest  
you have ever had.

Ever  
Truly  
Sincerely

Pat Lyons

(over)



We have kept your cards  
from past Christmases  
& it is interesting to  
compare heights of the  
boys with those of former  
years.

Thanks for this year's  
card with the picture  
of the whole family.

We had hoped to have  
cards printed with pictures  
of our two girls but none of  
our snaps turned out well,  
& the printer lost the negatives  
of our house. Anyway,  
We wish you the best

H. Lyons



May 14, 1945

Larkin, Roosevelt and Larkin, Ltd.,  
133 N. Jefferson St.,  
Chicago 6, 1945

Gentlemen:

In reply to yours of April 7 I hereby refuse my permission to include my name in "Who's who in Wisconsin" or any other publication. I do not want to have such personal information published and will hold you responsible to the full extent of the law if you do not heed this letter.

Very truly yours,



THE STATE UNIVERSITY OF IOWA  
COLLEGE OF ENGINEERING  
IOWA CITY

September 26, 1945

Mr. F. T. Thwaites  
Asst. Professor of Geology  
The University of Wisconsin  
Madison 6, Wisconsin

Dear Professor Thwaites:

Thank you very much indeed for your letter of July 6 containing information on the geology of stream drainage basins in Wisconsin. Your remarks have been very helpful and I appreciate them very much indeed.

I hope you will pardon the delay in acknowledging your kind letter. I have been working during the summer in Denver for the Bureau of Reclamation, but stenographic help was unavailable and as I spent the whole day writing I did not find writing letters in the evening a very pleasant occupation.

I sincerely hope that you have completely recovered from the operation which you were about to take when you wrote your letter and I particularly appreciate the kindness which you have shown in writing under such unfavorable conditions.

Again I wish to thank you for the valuable information which you have sent.

Yours very truly,

*E. W. Lane*

E. W. Lane  
Professor of Hydraulic  
Engineering



Atlanta Jan. 10 - 1947

Dear Fred and Amy

Thank you  
so much for your Christmas  
greeting of you and your  
fine boys - my! how they  
are growing and they must  
give you great pleasure  
and to wonder what  
work they will take up -  
Among a number of things  
Margaret Turville sent me  
was a picture of the  
Point looking toward  
Madison - Janine is going



to have it framed for  
me - I am in a Swedish  
Home and am very  
comfortable - two windows  
on the street and two  
others - have a parlor  
room - upstairs - and two  
little (the head here) and  
my <sup>the</sup> room allow me to go  
down stairs but once a  
day - I am out to Justice  
every Sunday. he comes for  
me after church to go home  
to dinner and he comes in  
during the week, in the  
evening for a short visit, he  
is the all of the World to me  
The first Sunday in the Month  
I entertain them at dinner



down town at one of the hotels down  
where I lived before I came here.  
all our meals are brought up,  
the nurse eat downstairs -  
now best wishes to you all  
from Florence W. Lane



List of Persons Invited to Field Conference,

June 14-27, 1948

Chalmers Roy Ames  
Department of Geology  
Washington University  
St. Louis, Missouri

Professor E. T. Apfel  
Department of Geology  
Syracuse University  
Syracuse, New York

Professor Hugh A. Bernard  
Professor of Geology  
Southwestern Louisiana Institute  
Lafayette, Louisiana

Dr. Arthur Bevan  
State Geological Survey  
Urbana, Illinois

Dr. J Harlen Bretz  
Rosenwald Hall  
University of Chicago  
Chicago, Illinois

Professor Kirk Bryan  
Department of Geology  
Harvard University  
Cambridge, Massachusetts

Mr. H. B. Burwell  
State Geologist  
Division of Geology  
Nashville 3, Tennessee

Dr. E. L. Clark  
State Geologist  
Missouri Geological Survey  
Rolla, Missouri

Dr. G. E. Condra  
State Geologist  
Lincoln, Nebraska

Dr. L. W. Currier  
U. S. Geological Survey  
Washington, D. C.

Dr. H. N. Fisk  
Professor of Geology  
Louisiana State University  
Baton Rouge 3, Louisiana

Professor R. F. Flint  
Department of Geology  
Yale University  
New Haven, Connecticut

Mr. H. B. Foxhall  
State Geologist  
Little Rock, Arkansas

Dr. John C. Frye  
Kansas Geological Survey  
Lawrence, Kansas

Professor F. M. Fryxell  
Augustana College  
Rock Island, Illinois

Professor Charles S. Gwynne  
Department of Geology  
Iowa State College  
Ames, Iowa

Mr. Stanley Harris  
State Geological Survey  
Iowa City, Iowa

Dr. H. G. Hershey  
State Geologist  
Iowa City, Iowa

Professor Chauncey D. Holmes  
Department of Geology  
University of Missouri  
Columbia, Missouri

Dr. C. L. Horberg  
Department of Geology  
University of Chicago  
Chicago, Illinois



Dr. Jack L. Hough  
Department of Geology  
University of Illinois  
Urbana, Illinois

Mr. Leo Hough  
State Geologist  
Louisiana Geological Survey  
Louisiana State University  
Baton Rouge 3, Louisiana

Dr. A. D. Howard  
U. S. Geological Survey  
Washington, D. C.

Mr. D. J. Jones  
State Geologist  
Lexington, Kentucky

Mr. Rufus J. LeBlanc, Geologist  
U. S. Waterways Experiment Sta.  
Geology Building  
Louisiana State University  
Baton Rouge 3, Louisiana

Dr. M. M. Leighton  
State Geological Survey  
Urbana, Illinois

Dr. A. Byron Leonard  
Department of Zoology  
University of Kansas  
Lawrence, Kansas

Dr. Gilbert Lueninghoener  
Professor of Geology  
Freemont College  
Freemont, Nebraska

Professor A. L. Lugn  
Department of Geology  
University of Nebraska  
Lincoln, Nebraska

Dr. Paul MacClintock  
Kingston  
New Jersey

Dr. R. C. Moore  
State Geologist  
Lawrence, Kansas

Dr. W. C. Morse  
State Geologist  
University, Mississippi

Dr. Louis V. Peltier  
Department of Geology  
Washington University  
St. Louis, Missouri

Dr. W. E. Powers  
Department of Geology  
Northwestern University  
Evanston, Illinois

Dr. W. Armstrong Price  
Consulting Geologist  
P. O. Box 1860  
Corpus Christi, Texas

Professor E. C. Reed  
Nebraska Geological Survey  
Lincoln, Nebraska

Dr. R. J. Russell  
Department of Geology  
Louisiana State University  
Baton Rouge 3, Louisiana

Dr. Paul Schafer  
Department of Geology  
University of Illinois  
Urbana, Illinois

Professor Oliver Scherer  
Department of Geology  
University of Nebraska  
Lincoln, Nebraska

Dr. C. Bertrand Schultz  
Director of the State Museum  
University of Nebraska  
Lincoln, Nebraska

Dr. Walter Searight  
Geological Survey and Water Resources  
Rolla, Missouri

Dr. Robert P. Sharp  
Division of Geological Sciences  
California Institute of Technology  
Pasadena, California



X Dr. Guy D. Smith  
U. S. Department of Agriculture  
Bureau of Plant Industry  
Ames, Iowa

X Dr. R. S. Smith  
Department of Agronomy  
University of Illinois  
Urbana, Illinois

Professor W. D. Thornbury  
Department of Geology  
University of Indiana  
Bloomington, Indiana

X Dr. James Thorp  
Professor of Soil Science  
Conservation and Survey Division  
University of Nebraska  
Lincoln, Nebraska

Professor Carl Tolman  
Head, Department of Geology  
Washington University  
St. Louis, Missouri

Dr. F. T. Thwaites  
Department of Geology  
University of Wisconsin  
Madison, Wisconsin

Professor A. C. Trowbridge  
Department of Geology  
University of Iowa  
Iowa City, Iowa

Dr. H. R. Wanless  
Department of Geology  
University of Illinois  
Urbana, Illinois

X Dr. Herman L. Wascher  
Assistant Chief in Soil Survey  
Department of Agronomy  
University of Illinois  
Urbana, Illinois

Dr. George White  
Department of Geology  
University of Illinois  
Urbana, Illinois

X Dr. E. P. Whiteside  
Department of Agronomy  
University of Illinois  
Urbana, Illinois

Dr. H. B. Willman  
State Geological Survey  
Urbana, Illinois



Jan. 3, 1948

Dr. H. H. Leighton, Chief,  
State Geological Survey,  
Natural Resources Bldg.,  
Urbana, Illinois

Dear Dr. Leighton:

In reply to your letter of Dec. 8, 1947  
I hope that I will be able to go on at least a part of  
the proposed Field Conference next June. That is a bad  
time of year to visit malarial country! The date suits  
our schedule here with last exam on June 15.

I talked with Dr. F. D. Hole of the  
Department of Soils and he said he would be highly  
interested. His major was geology and he is one of the  
few soil men who have had experience in both soils and  
Pleistocene geology. I am positive he would appreciate  
an invitation.

Thanking you for the invitation, and with  
best wishes for the New Year,

Sincerely,

Copy to Prof. H. W. Fisk, L. S. U.



December 8, 1947

PRELIMINARY NOTICE OF FIELD CONFERENCE

on

The Loess Deposits of the Upper Mississippi Valley Area and the  
Terrace and Loess Deposits of the Lower Mississippi Valley Area

June 14-27, 1948

*last field exam June 15*

The undersigned cordially invite you to a field conference on the above subject, June 14-27, 1948.

The field traverse will begin at the border of the Iowan glacial drift near Iowa City, Iowa, thence along the Mississippi River Valley from about Rock Island, Illinois, to about Quincy, Illinois, thence across to the Illinois River Valley near Beardstown, Illinois, and for some seventy-five miles southeast of Beardstown, thence to the Mississippi River Valley in the vicinity of St. Louis, Missouri, thence down the Mississippi to the Ohio River at Metropolis, thence to Crowley's Ridge and Poplar Bluff, Missouri, thence back to the uplands near Reelfoot Lake and Dyersburg, Tennessee, thence several other such crossings of the Mississippi River Valley tracing the major terrace units to the Gulf. A more detailed itinerary will be furnished well in advance of the conference.

This preliminary notice is going to the enclosed list of persons we believe to be most actively interested in the problems that are to be considered, and we would appreciate it if you would inform us of any important omissions and also let us have any suggestions which you may have to offer on other points. In order to keep the field conference within bounds, it is necessary that the number of participants be limited to those who are most actively interested.

The detailed itinerary for Iowa will be arranged by Drs. Hershey and Trowbridge and the rest of the itinerary by Leighton and Fisk and their associates. We most cordially invite your suggestions now. The precise dates might be shifted slightly if the majority desire. Kindly send statement as to possibility or probability of your attending and any suggestions to Mr. Leighton, with copy to Mr. Fisk.

H. N. Fisk, Professor of Geology  
Louisiana State University  
Baton Rouge 3, Louisiana

M. M. Leighton, Chief  
State Geological Survey  
Urbana, Illinois



DEPARTMENT OF  
REGISTRATION AND EDUCATION  
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FORESTRY - - LEWIS H. TIFFANY  
STATE UNIVERSITY  
PRESIDENT - GEORGE D. STODDARD

January 6, 1948

Professor F. T. Thwaites  
Department of Geology  
University of Wisconsin  
Madison, Wisconsin

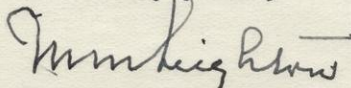
Dear Professor Thwaites:

Thank you for your letter of January 3.

At your convenience, will you kindly send  
me the address of Dr. F. D. Hole?

With best wishes, I am

Sincerely yours,



M. M. Leighton  
Chief



Jan. 9, 1948

Dr. M. M. Leighton, Chief,  
State Geological Survey,  
Natural Resources Bldg.,  
Urbana, Illinois

Dear Dr. Leighton:

In reply to yours of Jan. 6 I  
thought I had given the address of Dr. Hebe. It is

Dr. F. D. Hebe,

Soils Bldg.,

Madison 6, Wisconsin

Sincerely,



Revision Number 1  
As of January 28, 1948

to

List of Persons Invited to Field Conference, June 14-27, 1948,  
On the Loess Deposits of the Upper Mississippi  
Valley Area and the Terrace and Loess Deposits  
of the Lower Mississippi Valley Area

---

Additional Names

Dr. Wm. S. Cooper  
Department of Botany  
University of Minnesota  
Minneapolis 14, Minnesota

E. M. Cushing  
U. S. Geological Survey  
Memphis General Depot  
U. S. Army  
Memphis 2, Tennessee

Dr. George E. Ekblaw  
State Geological Survey  
Urbana, Illinois

Dr. Richard Goldthwait  
Department of Geology  
Ohio State University  
Columbus 10, Ohio

L. M. Gould, President  
Carleton College  
Northfield, Minnesota

Dr. F. D. Hole  
Department of Soils  
Soils Building  
Madison 6, Wisconsin

Dr. W. C. Krumbein  
Northwestern University  
Evanston, Illinois

Mr. I. L. Martin  
Senior Soil Correlator  
209 Kern Building, c/o T.V.A.  
Knoxville, Tennessee

Robert Schneider  
U. S. Geological Survey  
Memphis General Depot  
U. S. Army  
Memphis 2, Tennessee

Dr. H. B. Vanderford  
Department of Agronomy  
Mississippi State College  
State College, Mississippi

Dr. Eric Winters  
Department of Agronomy  
University of Tennessee  
Knoxville, Tennessee

Dr. Herbert E. Wright  
Department of Geology  
University of Minnesota  
Minneapolis 14, Minnesota

Corrections

1. The name of Chalmer Roy was inadvertently typed as Chalmers Roy Ames. Make name and address read as follows: Dr. Chalmer Roy, Department of Geology, Iowa State College, Ames, Iowa.
2. The name of Dr. George E. Ekblaw, State Geological Survey, Urbana, Illinois, was inadvertently omitted. This name now appears on the above list.
3. Dr. Stanley E. Harris, Jr., has a new address -- Department of Geology, University of Missouri, Columbia, Missouri.
4. Dr. Arthur D. Howard has a new address -- School of Mineral Sciences, Stanford University, Stanford University, California.

Sponsors:

H. N. Fisk, Professor of Geology  
Louisiana State University  
Baton Rouge 3, Louisiana

M. M. Leighton, Chief  
State Geological Survey  
Urbana, Illinois





# The State of Wisconsin

STATE HISTORICAL SOCIETY

816 STATE STREET

Madison 6, Wisconsin

1846-1947

15 May 1948

CLIFFORD L. LORD  
DIRECTOR

Mr. F. T. Thwaites  
41 Roby Road  
Madison, Wisconsin

Dear Mr. Thwaites:

We are about to get out a little booklet commemorating the first hundred years of the State Historical Society, in which among other things, we will run pictures of the superintendents from Draper to Alexander. We have only one good picture of your father which has been so frequently used that if we can obtain another of equal merit I would prefer to use it. I am wondering if you have in your possession any good picture of your father which you would permit us to use for this purpose.

Sincerely yours,

A handwritten signature in dark ink, appearing to read "Clifford L. Lord".

Clifford L. Lord

CLL:pho

WISCONSIN  
CELEBRATE  
IN  
WONDERFUL  
WISCONSIN  
1948



DEPARTMENT OF  
REGISTRATION AND EDUCATION  
FRANK G. THOMPSON, DIRECTOR  
SPRINGFIELD

STATE OF ILLINOIS  
DWIGHT H. GREEN, GOVERNOR

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ENGINEERING - - - LOUIS R. HOWSON  
BIOLOGY - - - A. E. EMERSON  
FORESTRY - - - LEWIS H. TIFFANY  
STATE UNIVERSITY  
PRESIDENT - GEORGE D. STODDARD

Dr. F. T. Thwaites

July 6, 1948

Subject: Submission of titles on Geomorphology  
and Glacial Geology, G.S.A.

Dear Colleague:

At the Ottawa meeting of the Geological Society of America last December, about thirty-five Fellows in an informal meeting discussed the formation of a section of geomorphology and glacial geology. Because it was the sense of the meeting that action should be postponed until the New York meeting next November, it was moved and approved that

"Morris M. Leighton, Chairman, A. N. Strahler, and Donaldson Koons constitute a committee to advise with the Secretary of the Society and to cooperate with him in arranging a program or programs dealing with geomorphology, Pleistocene geology and related subjects at the New York meetings in November, 1948."

I now take pleasure in writing you on behalf of this committee.

It will be much appreciated and you will greatly assist our Committee and Secretary Aldrich in planning for this meeting if you will fill out the attached inquiry form and return it promptly to the Chairman, Morris M. Leighton, 100 Natural Resources Building, Urbana, Illinois, and, if you plan to give a paper, write at once to the Secretary, H. R. Aldrich, 419 West 117th Street, New York 27, New York, for an abstract form to be filled out and submitted to him by September 1, 1948. State that the form will be used for this particular purpose.

I would also be glad to have your suggestions regarding any important work now being done by others which, in your opinion, should provide important papers.

As you probably know, the annual meeting of the G.S.A. in 1948 will be held in the Pennsylvania Hotel in New York on November 11, 12 and 13. The last date for submitting titles and abstracts of papers for oral presentation is September 1. By ruling of the Council (October 1947), no abstract will be printed unless the paper is to be presented orally, and normally, in the discretion of the Program Committee no speaker will be allowed more than one appearance on the programs of a meeting.

Sincerely yours,

*Morris M. Leighton*

Morris M. Leighton, Chairman  
Committee on Geomorphology and  
Glacial Geology

Encl.





# The State of Wisconsin

STATE HISTORICAL SOCIETY

816 STATE STREET

Madison 6, Wisconsin

1846-1947

13 May 1948

CLIFFORD L. LORD  
DIRECTOR

Mr. F. T. Thwaites  
41 N. Roby Road  
Madison, Wisconsin

Dear Mr. Thwaites:

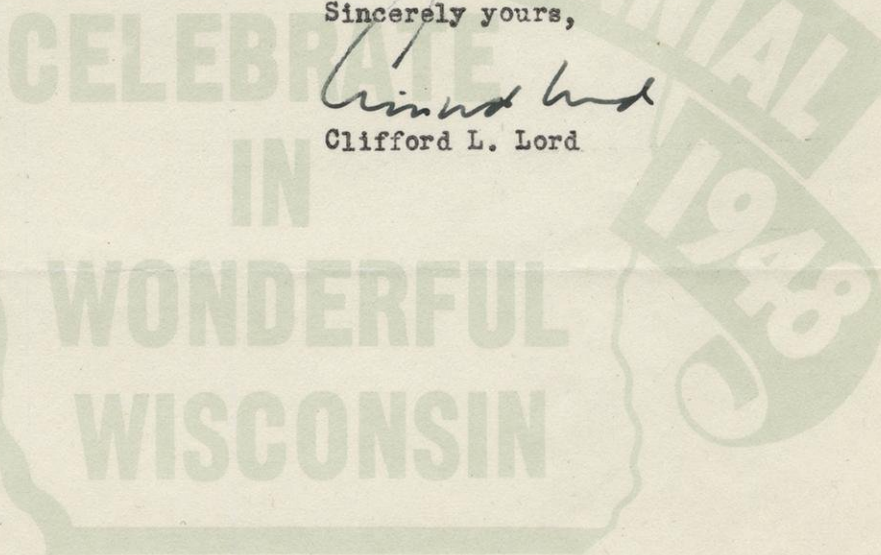
I am very sorry that you do not expect to find it possible to be with us for the meeting in Milwaukee this coming August. If you change your mind when your plans for the summer become a little more definite, I can assure you of a very warm welcome at our convention. If you don't make it in 1948, I hope you will be able to be with us at the next and subsequent annual gatherings.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "Clifford L. Lord".

Clifford L. Lord

CLL:pho





April 14, 1948

Canvass of Opinion  
regarding  
Holding the Field Conference on the Loess Deposits of the  
Upper Mississippi Valley Area and the Terrace and  
Loess Deposits of the Lower Mississippi  
Valley Area, June 14-27, 1948

Under date of April 11, 1948, Dr. H. N. Fisk advises me that he will be unable to participate in the above mentioned field conference because of unavoidable circumstances. He and I both regret very much that he cannot go through with his part of the traverse, and I recognize the validity of his reasons.

The point now is, what are the wishes of the conference group in regard to holding the conference.

The idea of holding this conference stemmed from a lecture-visit here by Dr. Fisk a year ago last winter. Previous to that some of us had thought that it was desirable to have a conference on the loess when Dr. Russell's paper came out. We know that there is unity in the natural history of the whole Mississippi River Valley and we think that a harmonious view may be arrived at if the active workers will go over the field together.

Now that Dr. Fisk and Dr. Russell cannot be present and see the phenomena of the Upper Mississippi Valley nor show the phenomena of the Lower Mississippi Valley as they have found and interpreted them, it is obvious that our primary purpose cannot be met.

However, Dr. Fisk has offered to place at our disposal the information that he has worked up for each stop of his part of the traverse and I am willing to go ahead with the general direction of the trip with the cooperation of others, if you desire it for other benefits that may be gained. Because of the probable lack of hotel accommodations in Baton Rouge, and perhaps Natchez also, Dr. Fisk suggests that the trip could be stopped at Vicksburg where accommodations can be gotten.

In order that a decision may be reached as promptly as possible, I shall be glad if you will carefully check the enclosed slip and send it back to me so as to reach me not later than April 20.

M. M. Leighton  
State Geological Survey  
100 Natural Resources Building  
Urbana, Illinois

Encl.



April 24, 1948

POSTPONEMENT OF FIELD CONFERENCE ON THE  
LOESS-TERRACE DEPOSITS OF THE MISSISSIPPI RIVER VALLEY

My canvass, based on 33 replies, shows that the majority think it wise to postpone the above mentioned field conference until next year, in the hope that the workers in the Upper and Lower Mississippi Valleys can examine together the phenomena and reach an agreement on interpretations. To this end, the conference this year is postponed. You will be informed about possible plans for next year as soon as possible.

M. M. Leighton  
100 Natural Resources Building  
Urbana, Illinois



THE UNIVERSITY OF KANSAS

DEPARTMENT OF GEOLOGY

LAWRENCE

May 31, 1948

Professor F. T. Thwaites  
41 Roby Rd.  
Madison 5, Wisconsin

Dear Professor Thwaites:

Will you kindly advise me the cost of the large scale size of plate III, Pleistocene of Great Lakes, from your manual, in lots of 100 or more. I am considering using it in our laboratory in historical geology.

Yours truly,

A handwritten signature in cursive script, reading "Cecil G. Lalicker".

Cecil G. Lalicker  
Professor of Geology

CGL:an



June 2, 1943

Prof. Cecil G. Lalicker,  
Dept. of Geology,  
University of Kansas,  
Lawrence, Kansas

Dear Prof. Lalicker:

In reply to yours of May 31 the map in the back of the "Outline of Glacial Geology" has been published in two sizes. I take it from the title that the one you are interested in is that in the edition of 1946. The original drawing of this measures 11 x 16 inches. I would not advise enlarging this. Edwards Brother have the negative for this map on the published size which goes on an 8 1/2 x 11 inch. Negatives of the older edition have probably been destroyed. The older edition showed outwash within the glaciated area but is not up to date on ages of drift. If you will please let me know which size you want I will get a quotation from Edwards Brothers. The 11 line print I have if this map is not in shape to reproduce satisfactorily as it would require a lot of retouching.

Very truly yours,



June 15, 1948

Dr. M. M. Leighton, Chief  
Illinois State Geological Survey  
100 Natural Resources Bldg.  
Urbana, Illinois

Dear Dr. Leighton:

In thinking of your 35th anniversary as Chief of the Geological Survey it is a pleasure to recall our long association in the same field of geology, namely the Pleistocene. During this time it seems that we are now in agreement on almost if not all important problems in not only this field but also in that of subsurface geology of the northern part of your state. I have always been grateful for the support you furnished me when my studies had to overcome the disagreement with earlier investigators in the matter of correlation of formations. We have lived to see these early conclusions justified by the test of time.

Recollections of my two field seasons spent with your organization on the Road Materials Investigation will always be most pleasant. In view of the nature of the country and the necessity of haste, I shall always think that we discovered a surprisingly large amount of information on this subject.

Please accept my congratulations on the progress of your survey during the time you have been in charge.

Very truly yours,

F. T. Thwaites

FTT:EWM





THIS SIDE OF CARD IS FOR ADDRESS

F. T. Thwaites

41 N. Roby Road

Madison, Wis.



# VOTE FOR EDWARD D. LUDWIG

## State School Superintendent

Master's degree in educational administration.

Bachelor's degree in secondary education.

Experienced in junior high, vocational, extension school and college teaching.

President of Wisconsin Council of Geography Teachers.

Navy Veteran, World War II - - Four Children.

"A family man for a position of family concern."

**Election - - Tuesday, April 5, 1949**

---

Thank you for signing my nomination papers. Please tell your friends to vote for me on Election Day. I assure you that I can provide a worthy school administration.

Sincerely yours,  
*Edward D. Ludwig*



May 5, 1949

Mr. F.T. Thwaites  
Department of Geology  
University of Wisconsin  
Madison, Wisconsin

Dear Sir:

This summer my roommate and I are going to check any possible sediments at the bottom of Lake Geneva with a core bomb for a special projects problem here at Beloit College. We hope to find some sort of a varve sequence at the bottom of the lake.

We wondered if you knew if there has been anyone who has done any work along similiar lines for some project or term paper? We don't want to duplicate any work that has been done before and we would appreciate if you would let us knew if anyone has worked on Lake Geneva.

My address is Syl Ludington Jr., S A E House, Beloit College, Beloit, Wisconsin.

Respectfully yours,

*Syl Ludington Jr.*



In reply to yours of May 5 none of us  
here know of any previous work in  
the sediments of Lake Geneva. Twardog  
did ~~some~~ <sup>III</sup> work here and farther north.  
He found no varves at depths to which he  
could go



May 10, 1949

Mr. Syl Ludington, Jr.  
SAE House  
Beloit College  
Beloit, Wisconsin

Dear Mr. Ludington:

In reply to yours of May 5, none of us here knows  
of any previous work on the sediments of Lake Geneva.  
Twenhofel did some work here and farther north. He found  
no varves at depths to which he could go.

Sincerely yours,

F. T. Thwaites



April 6, 1949

Dr. James Thorp,  
204 Nebraska Hall,  
University of Nebraska,  
Lincoln 8, Nebraska

Dear Dr. Thorp:

I received the notice of the proposed map of aeolian deposits of Minnesota and Wisconsin some time ago and wish to thank you for inclusion in the list. However, I have never done any actual mapping and would have to depend upon my interpretation of the work of the soils men. I called Dr. Hole in the absence of Dr. Muckenheim and offered to supply what aid and advice I can. We have already discussed some of the aspects of the problem. Possibly this note should go to Dr. Gould but I think the soils people will send him the same information as I have given to you.

Sincerely yours,



*J. T. Thwaites*

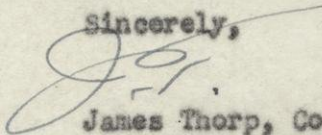
204 Nebraska Hall  
University of Nebraska  
Lincoln 8, Nebraska  
March 14, 1949

Dr. Laurence M. Gould  
Carleton College  
Northfield, Minnesota

Dear Dr. Gould:

We were, indeed, sorry that you could not be present at our committee meeting the last of January. The committee members present agreed that we should ask you to be responsible for assembling a map of eolian deposits of Minnesota and Wisconsin, with the assistance of Drs. Thwaites, Muckenhirn, and Nygard. Doubtless you will know of others who can be of further help on the job. We hope to prepare a map of first approximation by the 1st of June. With best regards,

Sincerely,



James Thorp, Co-Chairman  
Committee on Eolian Deposits

cc: IJ Nygard, RJ Muckenhirn, FT Thwaites



U. S. DEPARTMENT OF AGRICULTURE, Agricultural Research Administration, Bureau of Plant Industry, Soils, and Agricultural Engineering, Division of Soil Survey.

204 Nebraska Hall  
University of Nebraska  
Lincoln 8, Nebraska

MEMORANDUM

MAR 15 1949

To:

*Prof. F. T. Thwaites*  
*Dept. of Geology*

From:

James Thorp and H. T. U. Smith, Co-Chairmen (Reply to James Thorp, 204 Nebraska Hall, University of Nebraska, Lincoln 8, Nebraska)

Subject:

Committee for the Study of Eolian Deposits of the United States, Canada, and Alaska; National Research Council, Division of Geology and Geography.

As studies in soil science and Pleistocene geology have advanced in recent years, an increasing need has been felt for a map of Pleistocene eolian deposits in North America, and a summary statement regarding their characteristics, their modes of accumulation, and their relationships to soil resources. This need has been felt especially keenly among soil scientists, who, as their studies of soils in the field have advanced, have come to realize the great importance of wind as a means of accumulating fine earth for soil formation.

At the April 1948 meeting of the NRC Committee on Interrelationships of Pleistocene Research, this problem was discussed, and that committee recommended the organization of a new committee charged with the study of eolian deposits.

The new committee, formed in the summer of 1948, held its first meeting at Lincoln, Nebraska, on January 27-28, 1949. At the meeting, the following decisions were reached:

(1) That a map of eolian deposits be assembled, based on knowledge now available, showing kinds, thicknesses, and distribution of eolian deposits of North America, north of Mexico.

(2) That a first-approximation rough draft of this map be assembled by the 1st of June, 1949, so that it will be available for examination and criticism at meetings of scientific societies (like the Geological Society of America). The base map for assembling the U. S. data is the U.S.G.S. map, 1:2.5 million. Publication probably will be on the scale of 1:5 million.

(3) That an attempt be made to complete the draft of the map by January 1950, so that work can begin on reproduction and publication in 1950.

(4) That a text be prepared to accompany the map. The text would cover morphology, genesis, and stratigraphy of the deposits, a bibliography of literature on eolian deposits, and a discussion of the relationships of the deposits to soil genesis, morphology, and possibly economic use.

(5) That geologists, soil scientists, and others acquainted with the deposits, but not on the committee, be requested to cooperate with the committee in assembling all available information. Full credit for all contributions will be shown on the map and in the text that will accompany it.



The committee discussed the items that should be recognized in the map legend. The conclusions reached are embodied in the tentative legend, appended below. It was agreed that the following items should be shown on the map, where possible:

1. Sandy eolian deposits, including blanket deposits and dunes.
2. Silty eolian deposits (loess).
3. Clayey eolian deposits (clay dunes).

Information on volcanic ash deposits, ventifacts, and wind-eroded basins may be discussed in the text, but probably will not be shown on the map.

While it is known that there are eolian deposits older than those of Loveland age, the committee recognized the impracticability of showing most of these older deposits on the map because most of them are buried and knowledge of their extent is only fragmentary. Hence, it was decided to recognize two major loess deposits: (1) the Loveland and (2) the Wisconsin. The latter is defined to include: (a) the Farmdale, (b) the Iowan, (c) the Tazewell, (d) the Cary, and (3) the Mankato. Perhaps a post-Mankato can be shown in some areas. Where data are adequate, the subdivisions of the Wisconsin loess can be shown separately; where they are not, the Wisconsin loess can be shown as an undifferentiated unit. In many places the Loveland and Wisconsin cannot be separated.

Because of the importance of loess thickness to soil character, the committee recommends that the thickness of essentially uneroded loess be indicated by isopachs, with thickness intervals as shown on the legend where this can be done. Some loess deposits are too uneven in thickness to be treated in this way and their thicknesses will have to remain undifferentiated. Proposed legend is attached.

The committee drew on its collective knowledge of the interest of various geologists and soil scientists of the United States in Pleistocene eolian phenomena and made a list of scientists who, it felt, could make important contributions to the project. It is recognized that the list is incomplete, and each recipient of this memorandum is requested to inform the committee chairmen of important omissions in his area.

As a recipient of this memorandum, you are requested to participate in the project ~~(as leader)~~

(to assist Dr. Laurence M. Gould, Carleton College, Northfield, Minn.

\_\_\_\_\_  
(Name and Address)

in preparing the map for Wisconsin & Minnesota  
State or other Area

(See the attached list of proposed collaborators.) If you can help the committee in this work, a base map will be sent you, so that you can record your data and return it to the Committee Co-Chairman on or before June 1, 1949. If you cannot participate, we should like to have your suggestions for a substitute.

Following are several proposed definitions of loess for criticism and suggestions.



## Loess (Proposed by H. T. U. Smith)

**Definition:** Loess is a fine-grained, non-indurated deposit laid down at or near its present position by the settling of dust from the atmosphere. It consists predominantly of silt, with subordinate amounts of very fine sand and/or clay.

**Description:** Loess deposits are characteristically light in color, pulverulent in texture, and homogeneous in composition. Generally they are lacking in recognizable bedding, although there are minor local exceptions to this. Vertical parting is common in some places. The loess forms a mantle deposit, completely blanketing the pre-loess topography. Thickness and grain size commonly decrease away from the source area. The mineralogy and mechanical composition of the loess are entirely independent of the nature of the underlying material. Where the source areas contained calcareous rock, the loess is calcareous. Where the loess has been strongly weathered, some of the above characteristics may be blurred or modified.

\* \* \*

Definition of loess proposed by Guy D. Smith.

Loess -- An eolian deposit other than volcanic ash, which at the time of deposition is dominantly silty in composition. Loess is distinguished from volcanic ash on the basis of mineralogic composition; it is distinguished from other eolian deposits, such as dune sands, on the basis of the size distribution of the particles.

If a narrower definition is desired which will exclude the weathered deposits, we might consider a slight modification of Flint's definition as follows: "Loess is a nonindurated, eolian deposit consisting predominantly of particles of silt size, and of mineralogic composition other than volcanic ash. Weathering under humid climates may alter portions of the silt to clay, and produce horizons which are high in clay content. Such deposits are referred to as weathered loess."

\* \* \*

Definition and discussion proposed by Mark Baldwin and used by Division of Soil Survey, U.S.D.A.

An unconsolidated or weakly consolidated deposit of fine earth material, dominantly silt throughout, with a minor content of very fine sand or clay or both. The deposits are practically homogeneous as to mechanical composition; the mineral composition is variable, depending on the source of material. Most of the material observed effervesces in cold dilute hydrochloric acid, indicating the presence of calcium carbonate. Secondary nodules (concretions) and tubes of calcium carbonate are present in many deposits.

Most geologists and geomorphologists now agree that true loess deposits have been accumulated by wind. Residuum from loess is generally very silty, although loess high in clay-forming minerals, weathering in humid climates, may form residuum with a relatively high proportion of clay. In humid and other climates, free carbonates are leached out to considerable but variable depths, depending upon the kind and degree of impress of the factors and processes of weathering. Some confusion has arisen among soil scientists owing to failure to



distinguish between geological formations properly called loess and very silty residuum which may or may not have been formed by the weathering of loess. Where free carbonates have been removed by leaching, it may be designated as leached loess. Distinction should be made between loess and dune sand on the one hand, and between clayey wind-laid deposits or "clay dunes" on the other.

\* \* \*

Loess (Definition from R. F. Flint, 1947, Glacial Geology and the Pleistocene Epoch, p. 175.)

Loess is a buff-colored nonindurated sedimentary deposit consisting predominantly of particles of silt size. Commonly it is nonstratified, homogeneous, calcareous, and porous, and it may possess a weak vertical structure resembling jointing.

\* \* \*

The committee wishes to urge participation of everyone who can contribute to the job, so that the best possible summary can be prepared. Leaders for each area are requested to keep a record of assistance received, so that credit will be given to all who help. It would also be a great help to the committee if reprints dealing with eolian deposits were filed with the co-chairmen. Bibliographic material should be listed according to the system used in the Proceedings of the Geological Society of America, sample attached.

Committee members and addresses:

Dr. Mark Baldwin, Rural Route No. 3, Albany, Georgia.

Mr. W. Earl Bowser, Soils Department, University of Alberta, Edmonton, Alberta, Canada.

Prof. Richard Foster Flint, Department of Geology (& USGS), Yale University, New Haven, Connecticut

Dr. Lawrence M. Gould, President of Carleton College, Northfield, Minnesota.

Mr. Harold C. Moss, Soils Department, University of Saskatchewan, Saskatoon, Saskatchewan, Canada.

Prof. E. C. Reed, Associate State Geologist, 108 Nebraska Hall, University of Nebraska, Lincoln 8, Nebraska.

Dr. Guy D. Smith, Room 2, Landscape Arch. Bldg., Iowa State College, Ames, Iowa.

Dr. A. C. Trowbridge, Geology Department, University of Iowa, Iowa City, Iowa.

Prof. H. T. U. Smith, Co-Chairman, Department of Geology, University of Kansas, Lawrence, Kansas.

Prof. James Thorp, Co-Chairman, 204 Nebraska Hall, University of Nebraska, Lincoln 8, Nebraska.

Attached is list of persons asked to collaborate and to suggest other collaborators.



## Appendix 1.

### Suggested areas of responsibility for compiling data.

#### 1. INDIANA

Oliver C. Rogers, Division of Soil Survey, College of Agriculture,  
Agricultural Experiment Station, Purdue University, Lafayette, Indiana.

William D. Thornbury, Department of Geology, University of Indiana,  
Bloomington, Indiana.

#### 2. OHIO

Earl D. Fowler, Division of Soil Survey, Plant Industry Station,  
Beltsville, Maryland.

J. Ernest Carman, Department of Geology, Ohio State University, Columbus,  
Ohio.

#### 3. MICHIGAN

Oliver C. Rogers, Division of Soil Survey, College of Agriculture,  
Agricultural Experiment Station, Purdue University, Lafayette, Indiana.

S. G. Bergquist, Michigan State College, East Lansing, Michigan.

#### 4. WEST VIRGINIA

Oliver C. Rogers, Division of Soil Survey, College of Agriculture,  
Agricultural Experiment Station, Purdue University, Lafayette, Indiana.

W. J. Latimer, Soil Conservation Service, U. S. Department of Agriculture,  
Washington 25, D. C.

#### 5. PENNSYLVANIA

Earl D. Fowler, Division of Soil Survey, Plant Industry Station,  
Beltsville, Maryland.

Charles S. Denny, U. S. Geological Survey, c/o Division of Soil Survey,  
Plant Industry Station, Beltsville, Maryland.

#### 6. NEW YORK

Earl T. Apfel, Department of Geology, Syracuse University, Syracuse, N. Y.

#### 7. CONNECTICUT

Richard Foster Flint, Department of Geology, Yale University, New Haven,  
Connecticut.

#### 8. MASSACHUSETTS, RHODE ISLAND, NEW HAMPSHIRE, VERMONT, MAINE

L. W. Currier, U. S. Geological Survey, Washington 25, D. C.

W. J. Latimer, Soil Conservation Service, U. S. Department of Agriculture,  
Washington 25, D. C.



9. NEW JERSEY, DELAWARE, MARYLAND, VIRGINIA

John T. Hack, U. S. Geological Survey, Section of General Geology,  
Washington 25, D. C.

Paul MacClintock, Department of Geology, Princeton University, Princeton,  
New Jersey.

10. NORTH CAROLINA, SOUTH CAROLINA, FLORIDA, GEORGIA, ALABAMA

Mark Baldwin, Rural Route No. 3, Albany, Georgia.

Stephen Taber, Department of Geology, University of South Carolina,  
Columbia, South Carolina.

11. ARKANSAS, LOUISIANA, MISSISSIPPI, TENNESSEE

Irving L. Martin, Division of Soil Survey, New Sprankle Building, c/o TVA,  
Knoxville, Tennessee.

Roy W. Simonson, Division of Soil Survey, New Sprankle Building, c/o TVA,  
Knoxville, Tennessee.

Watson H. Monroe, U. S. Geological Survey, Washington 25, D. C.

12. KENTUCKY

W. S. Ligon, 509 New Sprankle Building, c/o TVA, Knoxville, Tennessee.

13. WISCONSIN, MINNESOTA

Laurence M. Gould, Carleton College, Northfield, Minnesota.

Iver J. Nygard, Division of Soils, University Farm, University of  
Minnesota, St. Paul, Minnesota.

Robert J. Muckenhirn, University of Wisconsin, Department of Soils,  
Madison, Wisconsin.

F. T. Thwaites, Department of Geology, University of Wisconsin, Madison,  
Wisconsin.

14. ILLINOIS

Morris M. Leighton, State Geological Survey, Urbana, Illinois.

R. S. Smith, Department of Soils, University of Illinois, Urbana, Illinois.

15. IOWA

A. C. Trowbridge, Department of Geology, Iowa State University, Iowa City,  
Iowa.

Frank F. Riecken, Department of Agronomy, Iowa State College, Ames, Iowa



16. NEBRASKA

E. C. Reed       )Conservation and Survey Division, University of Nebraska,  
G. E. Condra     )108 Nebraska Hall, Lincoln 8, Nebraska.

C. B. Schultz    )Department of Geology, University of Nebraska,  
T. M. Stout       )Lincoln 8, Nebraska  
A. L. Lugin       )

James Thorp, Division of Soil Survey, 204 Nebraska Hall, University of Nebraska, Lincoln 8, Nebraska.

17. MISSOURI

Guy D. Smith, Division of Soil Survey, Room 2, Landscape Arch. Bldg., Iowa State College, Ames, Iowa.

Chauncey D. Holmes, Department of Geology and Geography, University of Missouri, Columbia, Missouri.

W. D. Shrader, Division of Soil Survey, Department of Soils, University of Missouri, Columbia, Missouri.

18. NORTH DAKOTA

W. M. Johnson, Division of Soil Survey, 204 Nebraska Hall, University of Nebraska, Lincoln 8, Nebraska.

P. D. Akin, U. S. Geological Survey, Water Supply Division, Grand Forks, North Dakota.

19. MONTANA

Frank Swenson, U. S. Geological Survey, Water Supply Division, Rudge and Guenzel Building, Lincoln 8, Nebraska.

B. H. Williams, Division of Soil Survey, 204 Nebraska Hall, University of Nebraska, Lincoln 8, Nebraska.

20. SOUTH DAKOTA

Richard Foster Flint, Department of Geology, Yale University, New Haven, Connecticut.

W. I. Watkins, Division of Soil Survey, 204 Nebraska Hall, University of Nebraska, Lincoln 8, Nebraska.

21. WYOMING

James Thorp, Division of Soil Survey, 204 Nebraska Hall, University of Nebraska, Lincoln 8, Nebraska.

Horace D. Thomas, State Geological Survey, Laramie, Wyoming.

C. B. Schultz, Department of Geology, Morrill Hall, University of Nebraska, Lincoln 8, Nebraska.



22. COLORADO

B. H. Williams, Division of Soil Survey, 204 Nebraska Hall, University of Nebraska, Lincoln 8, Nebraska.

Thad G. McLaughlin, Department of Geology, Kansas State University, Lawrence, Kansas.

Stanley W. Lohman, Department of Geology, University of Kansas, Lawrence, Kansas.

23. KANSAS

John Frye, Department of Geology, University of Kansas, Lawrence, Kansas.

H. T. U. Smith, Department of Geology, University of Kansas, Lawrence, Kansas.

W. I. Watkins, Division of Soil Survey, 204 Nebraska Hall, University of Nebraska, Lincoln 8, Nebraska.

24. OKLAHOMA

Frank A. Melton, Department of Geology, University of Oklahoma, Norman, Oklahoma.

Harvey Oakes, Division of Soil Survey, Agricultural Experiment Station, College Station, Texas.

25. TEXAS

W. Armstrong Price, P. O. Box 1860, Corpus Christi, Texas.

E. H. Templin, Division of Soil Survey, Agricultural Experiment Station, College Station, Texas.

Harvey Oakes, Division of Soil Survey, Agricultural Experiment Station, College Station, Texas.

C. B. Schultz, Department of Geology, Morrill Hall, University of Nebraska, Lincoln 8, Nebraska.

26. NEW MEXICO

Charles V. Theis, U. S. Geological Survey, Albuquerque, New Mexico.

W. G. Harper, Division of Soil Survey, Box 1348, Albuquerque, New Mexico.

Kirk Bryan, Department of Geology and Geography, Harvard University, Oxford Street, Cambridge, Massachusetts.

Arvad J. Cline, Division of Soil Survey, P. O. Box 592, Salina, Kansas.

C. B. Schultz, Department of Geology, Morrill Hall, University of Nebraska, Lincoln 8, Nebraska.

H. T. U. Smith, Department of Geology, University of Kansas, Lawrence, Kansas.



27. IDAHO

W. J. Leighty, Division of Soil Survey, 2168 Shattuck Avenue, Berkeley 4, California.

28. NEVADA

Ray C. Roberts, Division of Soil Survey, 2168 Shattuck Avenue, Berkeley 4, California.

Roger Morrison, U. S. Geological Survey, Washington 25, D. C.

Eliot Blackwelder, Stanford University, Palo Alto, California.

29. UTAH

H. J. Bissell, Brigham Young University, Provo, Utah.

LeMoyne Wilson, Department of Agronomy, Utah State Agricultural College, Logan, Utah.

30. ARIZONA

W. G. Harper, Division of Soil Survey, P. O. Box 1348, Albuquerque, N. M.

John T. Hack, U. S. Geological Survey, Section of General Geology, Washington 25, D. C.

Kirk Bryan, Department of Geology and Geography, Harvard University, Oxford Street, Cambridge, Massachusetts.

Alexander Stoyanow, Department of Geology, University of Arizona, Tuscon, Arizona.

31. WASHINGTON

Lawrence C. Wheeting, Department of Soils, State College of Washington, Pullman, Washington.

Eliot Blackwelder, Department of Geology, Stanford University, Palo Alto, California.

32. OREGON

W. J. Leighty, Division of Soil Survey, 2168 Shattuck Avenue, Berkeley 4, California.

W. L. Powers, Department of Soils, Oregon State College, Corvallis, Oregon.

Eliot Blackwelder, Department of Geology, Stanford University, Palo Alto, California.



33. CALIFORNIA

Macy H. Lapham, Division of Soil Survey, 2168 Shattuck Avenue, Berkeley 4, California.

Alfred O. Woodford, 443 West 10th Street, Claremont, California.

Ray C. Roberts, Division of Soil Survey, 2168 Shattuck Avenue, Berkeley 4, California.

William C. Putnam, Department of Geology, University of California, Los Angeles, California.

Eliot Blackwelder, Department of Geology, Stanford University, Palo Alto, California.

34. ALASKA

Robert Black, U. S. Geological Survey, Washington 25, D. C.

Iver J. Nygard, Division of Soils, University Farm, University of Minnesota, St. Paul, Minnesota.

W. A. Rockie, Soil Conservation Service, Regional Office, Portland, Oregon.

35. CANADA

Harold C. Moss, Soils Department, University of Saskatchewan, Saskatoon.

W. Earl Bowser, Soils Department, University of Alberta, Edmonton, Alberta.

Others to be called upon by Moss and Bowser.



## Appendix 2.

For the information of those contributors who are not familiar with current geological classification of sand dunes, the following selected references are included and will be found to contain illustrations and discussions of the common types of dunes:

Hack, J. T. (1941) Dunes of the western Navajo Country, Geog. Rev., vol. 31, pp. 240-263.

Melton, F. A. (1940) A tentative classification of sand dunes; its application to dune history in the southern High Plains, Jour. Geol., vol. 48, pp. 113-174.

Smith, H. T. U. (1940) Geologic studies in southwestern Kansas, Kans. Geol. Surv., Bull. 34, pp. 153-168.

----- (1943) Aerial photographs and their applications, Appleton-Century, N. Y., pp. 311-319.



### Appendix 3.

#### SAMPLES OF GEOLOGICAL SOCIETY OF AMERICA BIBLIOGRAPHIC STYLE

- Bagnold, R. A. (1941) The physics of blown sand and desert dunes, Methuen & Co., London, 265 p.
- Leverett, Frank (1942) Wind work accompanying or following the Iowan Glaciation, Jour. Geol., vol. 50, p. 548-555.
- Cooper, W. S. (1935) The history of the upper Mississippi River in late Wisconsin and postglacial time, Minn. Geol. Surv., Bull. 26, p. 72-108.
- Nieschmidt, E. A., Abashkin, B. J., Hayes, F. A., and Bacon, S. R. (1931), Soil Survey of Dundy County, Nebraska, U. S. Dept. Agric., Bur. Chem. & Soils, Ser. 1931, No. 1, 44 p.

For further examples see any current number of the Bulletin of the Geological Society of America.



# EOLIAN DEPOSITS

## Tentative Compilation Legend

### I. LOESS (Proposed alternate color legend)

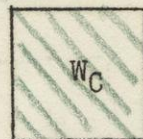
#### A. Stratigraphic Units:



Wisconsin loesses (Polychrome Pencil No. 17)



Mankato and later loesses



Cary and later loesses



Tazewell and later loesses



Iowan and later loesses



Farmdale and later loesses



Loveland loess (Polychrome Pencil No. 48)

These subdivisions of the Wisconsin loess will be shown separately in all areas where separable; and will be shown simply as Wisconsin loess where not separable.



## B. Thickness Units:

Thickness of the uneroded loess deposits will be shown by isopachs (black dashed ink lines of equal loess thickness). The thickness indicated will represent the total of Wisconsin (post-Loveland) loesses except in cases of deposits less than 8 feet thick, where the thicknesses will represent the total of all loesses. Where not practicable to use isopachs, spot numbers can be used where thicknesses are known.

Isopachs will be drawn for the following thicknesses:

1 foot	
2 feet	
4 "	Spot figures for thickness
8 "	desirable where data
16 "	insufficient for isopachs.
32 "	
64 "	

## C. Paha:

Areas of paha (loess ridges) will be shown by an elongated isosceles triangle in black ink, pointing in the direction toward which the prevailing loess-depositing winds blew. These triangles will be superimposed on the appropriate color symbol for the loess deposit.

Example:

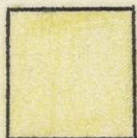


## D. Inset Maps:

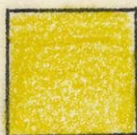
Inset maps on a smaller scale will be prepared to show the surface and subsurface distribution of the various loesses. The same color and letter symbols will be used for these maps as for the main map. To be prepared by committee from information supplied by compilers on maps of any convenient scale.

## II. SAND

### A. Stability Condition Units:



Active sand deposits (Polychrome Pencil No. 2)



Stabilized sand deposits (Polychrome Pencil No. 6)



## II. SAND (continued)

### B. Form Units:

#### 1. Eolian sand without distinct topographic form:

If an area of eolian sand has no distinct topographic form, it will be shown simply by the appropriate color for active or stabilized deposits, with arrows to show the direction of the dominant sand-drifting wind, if ascertainable (this might be different from the present prevailing wind).

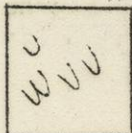


#### 2. Eolian sand with distinct topographic form:

If the sand area is characterized by distinct dune form, it will be shown by one or another of the following graphic symbols superimposed on the appropriate color.



Longitudinal dunes. Arrows show prevailing direction of wind that shaped the dunes.



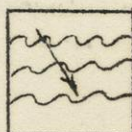
"U"-shaped or parabolic dunes. Open end of symbol shows direction from which dune-forming winds came.



Undifferentiated dunes. Arrows indicate prevailing wind direction during formation of dunes.



Transverse dune ridges and barchans. Open side of crescents show direction toward which dune-forming winds blew.

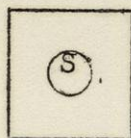


Multicycle dune complex. Arrow indicates prevailing wind direction.

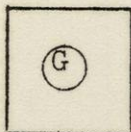


C. Composition Units:

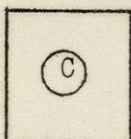
The following letters, circled, in black ink will be added to the color and graphic symbols for sand deposits to indicate composition of the sand where it differs notably from the usual quartz-feldspar mixtures:



Pure quartz



Gypsum



Calcite

Note: If other letter symbols for composition are needed, they may be defined and established by individual compilers.

- D. Small isolated patches of dunes will be shown by the following symbol alone (without boundary, color, or other symbol):

D

(Arrow indicates dune-forming wind direction)

E. Clay Dunes:

Clay dunes occur in small areas and can be shown by spot symbol without boundary, as follows:

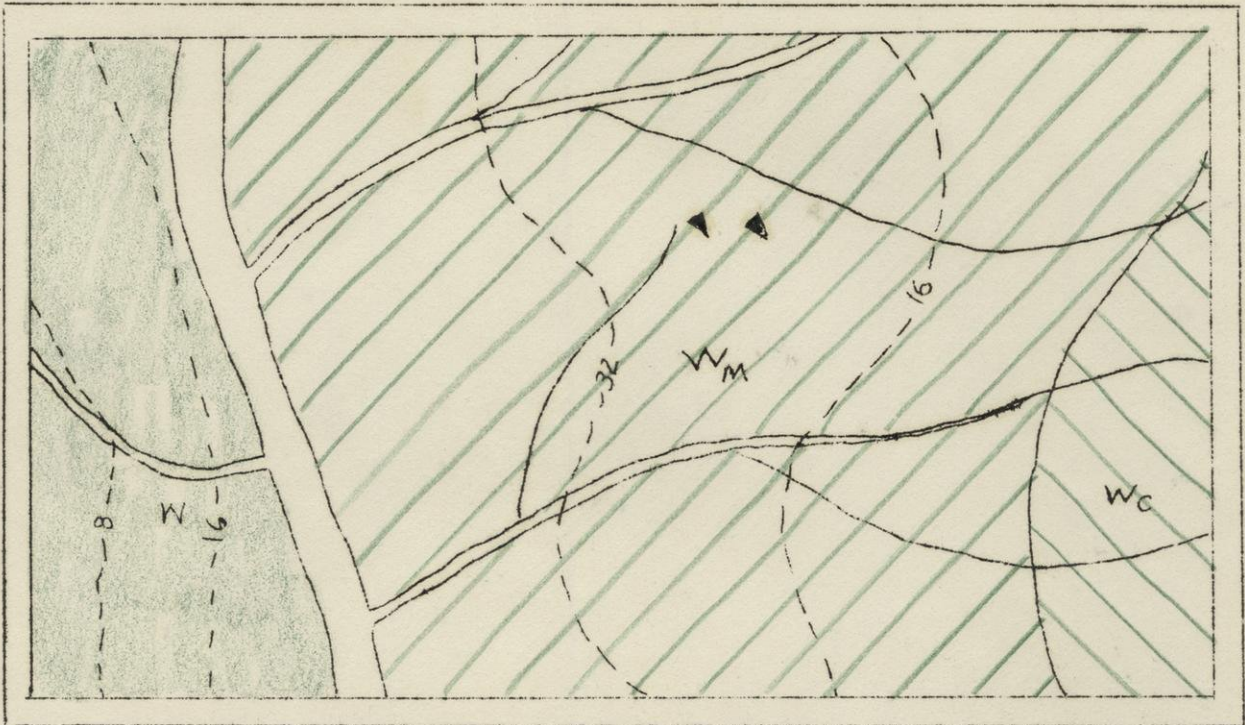
A

A Clay dunes; arrow shows direction of dune-forming wind.

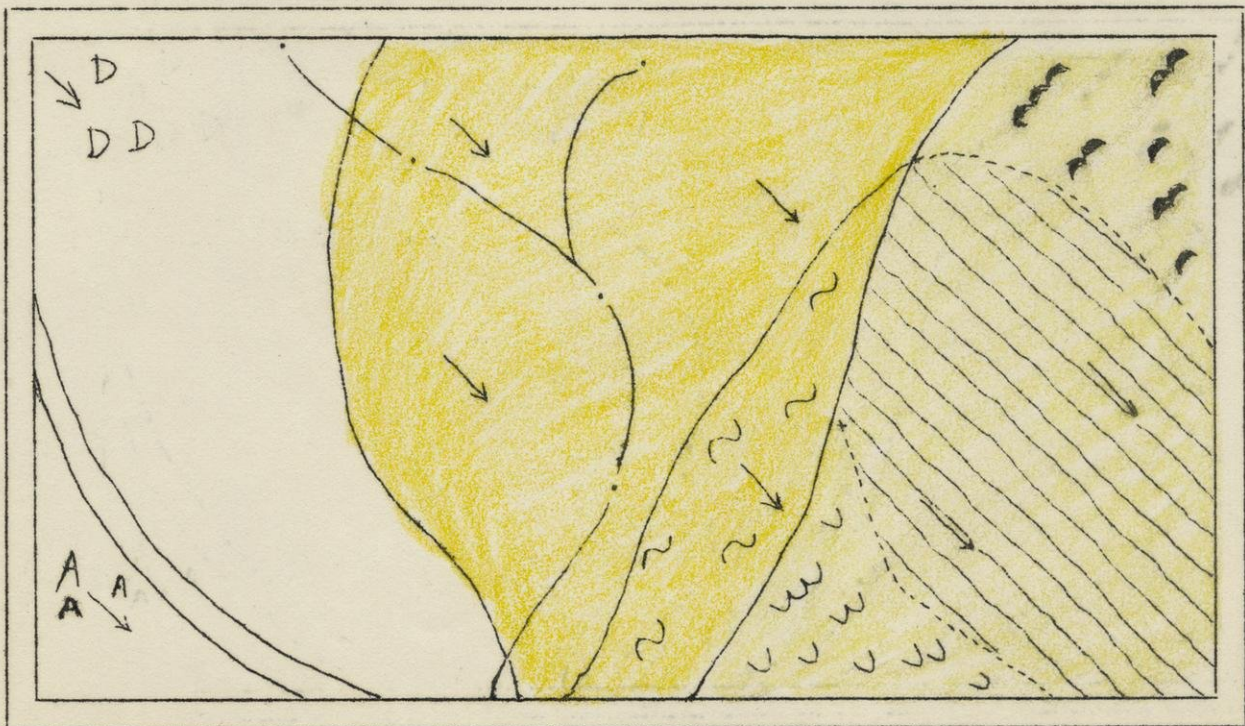


EXAMPLES OF USE OF SYMBOLS

A. LOESS AREA



B. SAND AREA, AND ISOLATED CLAY DUNES





Loess  
UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH ADMINISTRATION  
BUREAU OF PLANT INDUSTRY, SOILS, AND  
AGRICULTURAL ENGINEERING

204 Nebraska Hall  
University of Nebraska  
Lincoln 8, Nebraska  
April 25, 1949

DIVISION OF SOIL SURVEY

~~RECEIVED MARYLAND~~

Received  
April 26, 1949

Dr. F. T. Thwaites  
41 North Roby Road  
Madison 5, Wisconsin

Dear Dr. Thwaites:

Thanks for your note of April 6 on eolian  
deposits. I am sure that you, Dr. Muckenhirn,  
and Dr. Hole will come up with a good map of  
eolian deposits of Wisconsin.

Sincerely,

*James Thorp*

James Thorp, Co-Chairman  
Committee on Eolian Deposits



## CLASS OF SERVICE

This is a full-rate Telegram or Cablegram unless its deferred character is indicated by a suitable symbol above or preceding the address.

# WESTERN UNION

1201

## SYMBOLS

DL = Day Letter

NL = Night Letter

LC = Deferred Cable

NLT = Cable Night Letter

Ship Radiogram

W. P. MARSHALL, PRESIDENT

The filing time shown in the date line on telegrams and day letters is STANDARD TIME at point of origin. Time of receipt is STANDARD TIME at point of destination

MA 317

1949 AUG 16 PM 12 32

M. MDB133 PD=MADISON WIS 16 1212P=

PROFESSOR F T THWAITES=

1034 DIVISION ST CARE BERNARD BERTRAND GREENBAY WIS=

ARRIVED BACK MADISON TOO LATE TO SEE YOU BUT FOR 16 FOOT  
BOAT, OUTBOARD MOTOR, AND BOAT TRAILER SEE JOE HOFFMAN  
3314 ADAMS STREET TWO RIVERS WISCONSIN=

JAMES LAHEY=

TELEPHONE NO. \_\_\_\_\_

TELEPHONED TO called inTIME 9:21BY elTO BE mail

16 3314=

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE



December 17, 1948

Dear Mrs. Lobeck:

Yesterday I learned from Lofty that Dr. Lobeck and Elmire will be in Madison for the meetings. Please remind them of the fact that I have a guest room. I haven't seen Elmire since she left Madison and would certainly like to see her.

Tom and Bill are to spend the week end with my cousin in Chicago. They expect to visit the Field Museum, The Aquarium, Planetarium, Museum of Science and Industry, and Charles Bass' photography store. I know they will have a good time. When they were small, we went down on several excursions and most of these places were closed for painting, etc. Now that they have had considerable science, I think they will enjoy them still more. Ruth is going to take her knitting along and rest while they go through the various buildings.

I hope you will find it possible to come west with Dr. Lobeck.

With the Season's greetings, I am

Sincerely,



mine. He looks and seems  
better than he has for several  
years. We will leave for the  
Vineyard, soon after the middle  
of June.

Have a wonderful trip to Eu-  
rope.

Greetings to you all

Cordially

Bertley





May 10, 1956

Dear Army,

Armin will ask some one to send you the map you requested.

Last January he sold the Press to Hammonds, the map Co. There were some copies of course left at the University so you'll get a copy from one place or the other -

Armin retired in June, after having been ill since January. This February we flew to Puerto Rico, Haiti, where Eleire is married and living in Port au Prince, and then on to Antigua, Barbados, St. Vincent and St. Lucia. We got back the day before Easter. Over two months of continuous sunshine, hot weather and rest did wonders for Ar-



# Madison Lakes History

## Lake Mendota

## Lake Monona

Winter	Closed	Opened	Winter	Closed	Opened
1852-53		April 5	1851-52	Dec. 13	Mar. 25
1853-54	Dec. 27		1852-53	Dec. 21	
1854-55			1853-54		
1855-56	Dec. 18	April 14	1854-55	Dec. 18	April 14
1856-57	Dec. 6	May 6	1855-56	Dec. 4	May 4
1857-58	Nov. 25	Mar. 26	1856-57	Dec. 23	Mar. 22
1858-59	Dec. 8	Mar. 14	1857-58	Dec. 11	Mar. 15
1859-60	Dec. 7	Mar. 26	1858-59	Dec. 6	Mar. 26
1860-61	Dec. 14	April 10	1859-60	Dec. 2	April 10
1861-62	Dec. 2	April 13	1860-61	Dec. 1	April 13
1862-63	Dec. 26	April 9	1861-62	Dec. 7	April 5
1863-64	Dec. 18	April 21	1862-63	Dec. 11	April 20
1864-65	Dec. 8	April 5	1863-64	Dec. 9	April 5
1865-66	Dec. 18	April 20	1864-65	Dec. 14	April 18
1866-67	Dec. 13	April 30	1865-66	Dec. 12	April 19
1867-68	Dec. 12	Mar. 31	1866-67	Dec. 14	Mar. 31
1868-69	Dec. 10	April 16	1867-68	Dec. 10	April 10
1869-70	Dec. 2	April 12	1868-69	Nov. 24	April 11
1870-71	Dec. 24	April 2	1869-70	Dec. 22	April 1
1871-72	Dec. 19	April 23	1870-71	Nov. 30	April 20
1872-73	Nov. 30	April 23	1871-72	Nov. 28	April 18
1873-74	Nov. 29	April 14	1872-73	Dec. 12	April 14
1874-75	Dec. 10	April 15	1873-74	Jan. 10	April 10
1875-76	Dec. 8	April 17	1874-75	Dec. 5	April 16
1876-77	Jan. 6	Mar. 9	1875-76	Dec. 16	Mar. 9
1877-78	Dec. 21	April 12	1876-77	Dec. 16	Mar. 18
1878-79	Dec. 17	Mar. 25	1877-78	Nov. 22	May 1
1879-80	Nov. 23	May 3	1878-79	Dec. 7	April 13
1880-81	Dec. 10	Mar. 21	1879-80	Dec. 17	April 15
1881-82	Dec. 18	April 13	1880-81	Dec. 17	April 17
1882-83	Dec. 12	April 15	1881-82	Dec. 7	April 17
1883-84	Dec. 17	April 20	1882-83	Dec. 5	April 15
1884-85	Dec. 24	April 15	1883-84	Dec. 28	Mar. 26
1885-86	Dec. 5	Mar. 31	1884-85	Dec. 29	Mar. 29
1886-87	Jan. 14	Mar. 30	1885-86	Dec. 24	April 16
1887-88	Dec. 26	April 16	1886-87	Dec. 27	April 1
1888-89	Dec. 15	April 7	1887-88	Dec. 11	April 7
1889-90	Dec. 4	Mar. 15	1888-89	Dec. 2	Mar. 11
1890-91	Dec. 28	April 8	1889-90	Dec. 25	April 8
1891-92	Dec. 21	April 5	1890-91	Dec. 4	April 1
1892-93	Dec. 3	April 10	1891-92	Dec. 3	April 5
1893-94	Dec. 17	Mar. 27	1892-93	Dec. 15	Mar. 26
1894-95	Dec. 9	April 18	1893-94	Dec. 25	April 15
1895-96	Dec. 27	April 17	1894-95	Dec. 14	April 16
1896-97	Dec. 25	Mar. 30	1895-96	Dec. 26	Mar. 27
1897-98	Dec. 13	April 17	1896-97	Nov. 27	April 3
1898-99	Dec. 14	April 8	1897-98	Dec. 14	April 8
1899-00	Dec. 20	Mar. 24	1898-99	Dec. 8	Mar. 24
1900-01	Dec. 1	Mar. 24	1899-00	Dec. 11	Mar. 26
1901-02	Dec. 22	April 7	1900-01	Dec. 9	April 6
1902-03	Dec. 18	Mar. 26	1901-02	Dec. 18	Mar. 24
1903-04	Dec. 9	Mar. 20	1902-03	Dec. 8	Mar. 21
1904-05	Dec. 28	April 14	1903-04	Dec. 18	Mar. 21
1905-06	Dec. 24	April 10	1904-05	Dec. 19	April 2
1906-07	Dec. 16	April 8	1905-06	Dec. 27	April 2
1907-08	Dec. 16	April 11	1906-07	Dec. 15	April 9
1908-09	Dec. 17	April 5	1907-08	Dec. 16	April 11
1909-10	Dec. 17	Mar. 26	1908-09	Dec. 8	April 4
1910-11	Dec. 28	Mar. 20	1909-10	Dec. 27	Mar. 23
1911-12	Dec. 24	April 2	1910-11	Dec. 3	Mar. 20
1912-13	Dec. 12	April 10	1911-12	Dec. 18	Mar. 21
1913-14	Dec. 16	April 10	1912-13	Dec. 19	April 2
1914-15	Dec. 28	April 8	1913-14	Dec. 27	April 2
1915-16	Dec. 16	April 11	1914-15	Dec. 15	April 9
1916-17	Dec. 17	April 5	1915-16	Dec. 15	April 4
1917-18	Dec. 9	Mar. 26	1916-17	Dec. 16	April 11
1918-19	Dec. 25	Mar. 28	1917-18	Dec. 27	Mar. 20
1919-20	Dec. 25	Mar. 31	1918-19	Dec. 3	Mar. 23
1920-21	Dec. 16	April 20	1919-20	Dec. 21	Mar. 18
1921-22	Dec. 19	April 14	1920-21	Dec. 19	Mar. 25
1922-23	Dec. 19	April 3	1921-22	Dec. 13	April 19
1923-24	Dec. 14	April 19	1922-23	Dec. 1	April 13
1924-25	Dec. 16	April 19	1923-24	Dec. 14	Mar. 27
1925-26	Dec. 6	Mar. 19	1924-25	Dec. 10	April 15
1926-27	Dec. 17	April 1	1925-26	Dec. 5	Mar. 5
1927-28	Dec. 28	Mar. 27	1926-27	Dec. 9	Mar. 26
1928-29	Dec. 3	Mar. 27	1927-28	Dec. 21	Mar. 27
1929-30	Dec. 16	Mar. 24	1928-29	Dec. 3	Mar. 16
1930-31	Dec. 30	April 4	1929-30	Dec. 16	Mar. 24
1931-32	Dec. 25	Mar. 26	1930-31	Dec. 10	Mar. 30
1932-33	Dec. 24	Mar. 28	1931-32	Dec. 20	Mar. 26
1933-34	Dec. 20	Dec. 30	1932-33	Dec. 11	Mar. 27
1934-35	Dec. 7	Dec. 30	1933-34	Dec. 4	Mar. 27
1935-36	Dec. 5	April 13	1934-35	Dec. 19	Mar. 22
1936-37	Dec. 28	April 16	1935-36	Dec. 31	April 11
1937-38	Dec. 2	April 11	1936-37	Dec. 3	April 9
1938-39	Dec. 14	Mar. 26	1937-38	Dec. 29	Mar. 24
1939-40	Dec. 16	April 8	1938-39	Dec. 14	Mar. 24
1940-41	Dec. 18	Mar. 21	1939-40	Dec. 18	Mar. 21
1941-42	Dec. 13	April 10	1940-41	Dec. 18	Mar. 21
1942-43	Dec. 9	April 3	1941-42	Dec. 9	Mar. 26
1943-44	Dec. 24	Mar. 30	1942-43	Dec. 24	Mar. 26
1944-45	Dec. 23	April 11	1943-44	Dec. 15	April 7
1945-46	Dec. 11	April 12	1944-45	Dec. 16	April 8
1946-47	Dec. 16	April 6	1945-46	Dec. 14	April 5
1947-48	Dec. 24	April 3	1946-47	Dec. 12	Mar. 21
1948-49	Dec. 23	April 11	1947-48	Dec. 9	Mar. 26
1949-50	Dec. 11	April 12	1948-49	Dec. 24	Mar. 26
1950-51	Dec. 16	April 6	1949-50	Dec. 15	April 7
1951-52	Dec. 19	April 6	1950-51	Dec. 11	April 8
Average			1951-52	Dec. 16	April 5



# Madison Lakes History

## Lake Mendota

## Lake Monona

Winter	Closed	Opened	Winter	Closed	Opened
1852-53.....		April 5	1851-52.....	Dec. 13	Mar. 25
1853-54.....	Dec. 27		1852-53.....	Dec. 21	
1854-55.....			1853-54.....		
1855-56.....	Dec. 18	April 14	1854-55.....	Dec. 18	April 14
1856-57.....	Dec. 6	May 6	1855-56.....	Dec. 4	May 4
1857-58.....	Nov. 25	Mar. 26	1856-57.....	Nov. 23	Mar. 22
1858-59.....	Dec. 8	Mar. 14	1857-58.....	Dec. 11	Mar. 15
1859-60.....	Dec. 7	Mar. 26	1858-59.....	Dec. 6	Mar. 26
1860-61.....	Dec. 14	April 10	1859-60.....	Dec. 2	April 10
1861-62.....	Dec. 26	April 13	1860-61.....	Dec. 1	April 13
1862-63.....	Dec. 18	April 9	1861-62.....	Dec. 7	April 5
1863-64.....	Dec. 8	April 21	1862-63.....	Dec. 11	April 20
1864-65.....	Dec. 13	April 5	1863-64.....	Dec. 9	April 5
1865-66.....	Dec. 13	April 20	1864-65.....	Dec. 14	April 18
1866-67.....	Dec. 13	April 30	1865-66.....	Dec. 12	April 19
1867-68.....	Dec. 12	Mar. 31	1866-67.....	Dec. 14	Mar. 31
1868-69.....	Dec. 10	April 16	1867-68.....	Dec. 10	April 13
1869-70.....	Dec. 2	April 12	1868-69.....	Nov. 24	April 11
1870-71.....	Dec. 24	April 2	1869-70.....	Dec. 22	April 1
1871-72.....	Dec. 19	April 23	1870-71.....	Nov. 30	April 20
1872-73.....	Nov. 30	April 23	1871-72.....	Nov. 29	April 18
1873-74.....	Nov. 29	April 14	1872-73.....	Dec. 12	April 14
1874-75.....	Dec. 10	April 15	1873-74.....	Jan. 10	April 10
1875-76.....	Jan. 10	April 10	1874-75.....	Dec. 5	April 16
1876-77.....	Dec. 8	April 17	1875-76.....	Jan. 6	Mar. 9
1877-78.....	Jan. 6	Mar. 9	1876-77.....	Dec. 16	April 10
1878-79.....	Dec. 21	April 12	1877-78.....	Dec. 16	Mar. 18
1879-80.....	Dec. 17	Mar. 25	1878-79.....	Nov. 22	May 1
1880-81.....	Nov. 23	May 3	1879-80.....	Dec. 7	Mar. 19
1881-82.....	Jan. 2	Mar. 21	1880-81.....	Dec. 17	April 13
1882-83.....	Dec. 10	April 13	1881-82.....	Dec. 17	April 15
1883-84.....	Dec. 18	April 15	1882-83.....	Dec. 17	April 17
1884-85.....	Dec. 17	April 20	1883-84.....	Dec. 5	April 17
1885-86.....	Dec. 12	April 19	1884-85.....	Dec. 29	April 3
1886-87.....	Dec. 5	April 15	1885-86.....	Dec. 28	Mar. 26
1887-88.....	Dec. 24	April 15	1886-87.....	Dec. 24	Mar. 29
1888-89.....	Jan. 2	Mar. 31	1887-88.....	Dec. 27	April 1
1889-90.....	Jan. 14	Mar. 30	1888-89.....	Dec. 11	Mar. 11
1890-91.....	Dec. 26	April 16	1889-90.....	Dec. 2	April 1
1891-92.....	Dec. 16	April 7	1890-91.....	Dec. 25	April 5
1892-93.....	Dec. 4	Mar. 15	1891-92.....	Dec. 4	April 1
1893-94.....	Dec. 28	April 8	1892-93.....	Dec. 3	April 15
1894-95.....	Jan. 6	April 5	1893-94.....	Dec. 15	April 16
1895-96.....	Dec. 21	April 10	1894-95.....	Dec. 7	April 11
1896-97.....	Dec. 17	Mar. 27	1895-96.....	Dec. 25	April 1
1897-98.....	Dec. 9	April 18	1896-97.....	Dec. 14	Mar. 28
1898-99.....	Dec. 27	April 17	1897-98.....	Dec. 14	Mar. 21
1899-00.....	Dec. 25	April 11	1898-99.....	Dec. 26	Mar. 21
1900-01.....	Dec. 15	Mar. 30	1899-00.....	Dec. 13	April 3
1901-02.....	Dec. 25	Mar. 24	1900-01.....	Dec. 14	April 8
1902-03.....	Dec. 13	April 17	1901-02.....	Dec. 11	Mar. 24
1903-04.....	Dec. 14	April 8	1902-03.....	Dec. 9	Mar. 26
1904-05.....	Dec. 20	Mar. 24	1903-04.....	Dec. 18	Mar. 24
1905-06.....	Dec. 22	Mar. 27	1904-05.....	Dec. 8	Mar. 21
1906-07.....	Dec. 18	Mar. 20	1905-06.....	Dec. 19	Mar. 27
1907-08.....	Dec. 13	Mar. 26	1906-07.....	Dec. 21	Mar. 27
1908-09.....	Dec. 28	Mar. 27	1907-08.....	Dec. 3	Mar. 16
1909-10.....	Dec. 28	Mar. 27	1908-09.....	Dec. 10	Mar. 24
1910-11.....	Dec. 28	Mar. 27	1909-10.....	Dec. 16	Mar. 27
1911-12.....	Dec. 24	Mar. 27	1910-11.....	Dec. 27	Mar. 27
1912-13.....	Dec. 16	Mar. 27	1911-12.....	Dec. 19	Mar. 27
1913-14.....	Dec. 28	Mar. 27	1912-13.....	Dec. 15	Mar. 27
1914-15.....	Dec. 16	Mar. 27	1913-14.....	Dec. 16	Mar. 27
1915-16.....	Dec. 17	Mar. 27	1914-15.....	Dec. 8	Mar. 27
1916-17.....	Dec. 17	Mar. 27	1915-16.....	Dec. 27	Mar. 27
1917-18.....	Dec. 3	Mar. 27	1916-17.....	Dec. 21	Mar. 27
1918-19.....	Dec. 9	Mar. 27	1917-18.....	Dec. 13	Mar. 27
1919-20.....	Dec. 25	Mar. 31	1918-19.....	Dec. 14	Mar. 27
1920-21.....	Dec. 25	Mar. 31	1919-20.....	Dec. 10	Mar. 27
1921-22.....	Dec. 16	Mar. 31	1920-21.....	Dec. 10	Mar. 27
1922-23.....	Dec. 1	Mar. 31	1921-22.....	Dec. 10	Mar. 27
1923-24.....	Dec. 19	Mar. 31	1922-23.....	Dec. 10	Mar. 27
1924-25.....	Dec. 16	Mar. 31	1923-24.....	Dec. 10	Mar. 27
1925-26.....	Dec. 6	Mar. 31	1924-25.....	Dec. 10	Mar. 27
1926-27.....	Dec. 17	Mar. 31	1925-26.....	Dec. 10	Mar. 27
1927-28.....	Dec. 28	Mar. 31	1926-27.....	Dec. 10	Mar. 27
1928-29.....	Dec. 16	Mar. 31	1927-28.....	Dec. 10	Mar. 27
1929-30.....	Dec. 10	Mar. 31	1928-29.....	Dec. 10	Mar. 27
1930-31.....	Dec. 30	Mar. 31	1929-30.....	Dec. 10	Mar. 27
1931-32.....	Dec. 25	Mar. 31	1930-31.....	Dec. 10	Mar. 27
1932-33.....	Dec. 24	Mar. 31	1931-32.....	Dec. 10	Mar. 27
1933-34.....	Dec. 20	Mar. 31	1932-33.....	Dec. 10	Mar. 27
1934-35.....	Dec. 7	Mar. 31	1933-34.....	Dec. 10	Mar. 27
1935-36.....	Dec. 5	Mar. 31	1934-35.....	Dec. 10	Mar. 27
1936.....	Dec. 28	Mar. 31	1935-36.....	Dec. 10	Mar. 27
1937-38.....	Dec. 28	Mar. 31	1936.....	Dec. 10	Mar. 27
1938-39.....	Dec. 14	Mar. 31	1937-38.....	Dec. 10	Mar. 27
1939-40.....	Dec. 7	Mar. 31	1938-39.....	Dec. 10	Mar. 27
1940-41.....	Dec. 18	Mar. 31	1939-40.....	Dec. 10	Mar. 27
1941-42.....	Dec. 18	Mar. 31	1940-41.....	Dec. 10	Mar. 27
1942-43.....	Dec. 13	Mar. 31	1941-42.....	Dec. 10	Mar. 27
1943-44.....	Dec. 13	Mar. 31	1942-43.....	Dec. 10	Mar. 27
1944-45.....	Dec. 13	Mar. 31	1943-44.....	Dec. 10	Mar. 27
1945-46.....	Dec. 13	Mar. 31	1944-45.....	Dec. 10	Mar. 27
1946-47.....	Dec. 9	Mar. 31	1945-46.....	Dec. 10	Mar. 27
1947-48.....	Dec. 24	Mar. 31	1946-47.....	Dec. 10	Mar. 27
1948-49.....	Dec. 23	Mar. 31	1947-48.....	Dec. 10	Mar. 27
1949-50.....	Dec. 11	Mar. 31	1948-49.....	Dec. 10	Mar. 27
1950-51.....	Dec. 16	Mar. 31	1949-50.....	Dec. 10	Mar. 27
1951-52.....	Dec. 19	Mar. 31	1950-51.....	Dec. 10	Mar. 27
Average.....	Dec. 19	Mar. 31	1951-52.....	Dec. 10	Mar. 27



May 6, 1955

Dear Mrs. Lobeck:

If Dr. Lobeck has any of the two page pamphlets on Europe with accompanying map left, please have him send me one. I am inclosing fifty cents to cover cost of same.

I am going on the General Federation trip to Europe and thought the pamphlet would be light in weight and contain just the information I would want.

As Tom has had the maximum deferment after graduation, namely two years, he will enter the army this summer as will also Bill. The latter is to receive his B. S. in June. Bob also may be in the army in short time. He will finish West in June, but the courses they have allowed him to take are very deficient as far as University preparation goes. For that reason he may ask to have his number pushed forward and take correspondence courses to as to be better prepared for University work.

After a sick spell in January, Fred is now feeling better.

Both Fred and I hope that you and Dr. Lobeck are in good health.

Sincerely,





# The State of Wisconsin

STATE HISTORICAL SOCIETY

816 STATE STREET

Madison 6, Wisconsin

7 April 1955

CLIFFORD L. LORD  
DIRECTOR

Mrs. Frederick T. Thwaites  
41 Roby Road  
Madison 5, Wisconsin

Dear Mrs. Thwaites:

I have been trying for some time to run down the records of the old Wisconsin Consumers League which passed to the Valhalla ~~Reserved~~ for such organizations in the early 1920's. I just received a letter from Mrs. George E. Williams of Oshkosh mentioning that "Mrs. Thwaites was also a member of the Council from Madison." This I realize might have been your mother-in-law or might quite possibly have been you as a young lady. In either case would you have any idea where the files, minute books, etc. might possibly be?

Regards,

A handwritten signature in cursive script, appearing to read "Clifford L. Lord".

Clifford L. Lord

CLL:aq



Oct. 26.

L

Dear Amy,

How thoughtful and  
how like you to send me  
the notice of Prof. Finch's  
death. Thank you -  
I've written to Louise - I  
hope she isn't too ex-  
hausted from what she's



been through; to get  
hold of herself -

I've been back from  
the Vineyard nearly  
two months, and fall  
has been like sum-  
mer here. The leaves  
are finally turning, and  
I think I've never seen  
them more beautiful.

I've just had a  
Wellesley house-party.  
Four of us were together  
for several days. It  
was great fun, but I'm  
glad to settle down  
again to my quiet  
existence with Merrill.

He's busy all day at  
the R.C.A. Institute, but



he's here evenings, so Lin  
not alone -

I expect to go to Haiti  
again in January to  
stay through the cold  
weather. Elvire is in  
her new house, and Lin  
very anxious to see it.

Thank you again for  
your thoughtfulness -  
Affectionately  
Bertha -



**CLARK UNIVERSITY**  
GRADUATE SCHOOL OF GEOGRAPHY  
WORCESTER 10, MASSACHUSETTS

SAMUEL VAN VALKENBURG, POLITICAL GEOGRAPHY AND CLIMATOLOGY, DIRECTOR  
RAYMOND E. MURPHY, ECONOMIC GEOGRAPHY AND URBAN GEOGRAPHY  
HENRY J. WARMAN, GEOGRAPHY IN EDUCATION AND LATIN AMERICA, SECRETARY  
RICHARD J. LOUGEE, PHYSIOGRAPHY  
EDWARD C. HIGBEE, LAND UTILIZATION AND BIOGEOGRAPHY  
GUY H. BURNHAM, CARTOGRAPHY  
ERWIN RAISZ, GEOGRAPHIC LANDSCAPE

August 9, 1956.

Professor F. T. Thwaites  
University of Wisconsin  
Madison, Wisconsin

Dear Professor Thwaites:

I am about to leave Worcester, Mass., for a trip to the Dakotas, in the course of which I plan to go through Wisconsin. I am hoping to have a chance to see the Two Creeks locality, and perhaps I can prevail on you to introduce me to it. I will come to Madison to see if you are there, and get directions for finding the more important sections. If you would care to accompany me to Two Creeks I would be delighted to have you as my guest during such a visit. I am driving in a Rambler Cross-Country model station wagon, and have my son, Gerard, along with me as rod-boy. I should appear in Madison early next week: perhaps Monday, August 13, or thereabout.

Under separate cover I am sending you a copy of the North American Committee report of the Terrace Commission of the International Geographical Congress, of which I am the Secretary. The Congress meets in Rio this month, at which time these reports will be distributed.

Hoping to see you in Madison, shortly.

Cordially yours,

*Richard J. Lougee*

Richard J. Lougee  
Professor of Geomorphology and  
Geology



Form 3813  
(12-54)

# RECEIPT FOR DOMESTIC INSURED PARCEL

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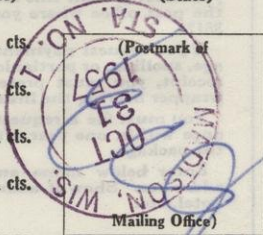
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**SAVE THIS RECEIPT UNTIL PACKAGE IS  
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**You must file a request for payment of insurance within one year after the date you mailed the package.**

**Enter below name and complete address of addressee. Show if addressed in care of person, hotel, etc.**

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**-----**  
**INSURANCE COVERAGE IS AVAILABLE UP TO \$200.**



Lane Bryant

Please Keep

October 20, 1957

Lane Bryant  
Wabash at Washington  
Chicago, Illinois

Gentlemen:

Thank you for your prompt attempt  
to furnish me with an undamaged skirt. The  
new skirt you sent, however, is about two  
inches shorter than the one I have and simply  
will not do. I am, therefore, returning the  
new skirt and the bill for same herewith.

As I must wear the skirt this week  
end, it will be futile to try to send me  
another.

Thanking you for your efforts,  
I am

Yours very truly,

Mrs. F. T. Thwaites



October 26, 1957

Lane Bryant  
Wabash at Washington  
Chicago, Illinois

Gentlemen:

On the afternoon of October 12, I  
bought one of your permanently pleated  
navy blue silk skirts. I received it  
the end of the next week. When I showed  
it to my sister last night, she noticed that  
there was a hole in the back of the skirt.

Number 651914 Series 998764 Size 40

\$9.98

If you have a duplicate, please send it to  
me special delivery. If I do not get the  
duplicate by Thursday, shall be obliged to  
wear the skirt with a hole in it.

Yours very truly,

Number  
651914

Mrs. E. T. Thwaites

Series  
978764

Size  
40

9.98

November



ARMIN K. LOBECK  
251 SUNSET AVENUE  
ENGLEWOOD, NEW JERSEY

Sept. 20, 1957

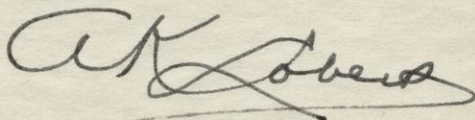
Dear Fred:

It is a long time since I have seen you but I occasionally I hear about you and your family through "Miss" Loft. I hope all is going well with you. My reason for writing to you now is that I think you are the one person who can answer a question for me.

In connection with a new book I am doing I want to know the actual location of the great ice ridges which form across Lake Mendota during the winter. I know that one usually runs from Picnic Point across the lake. The geologists (Mead et al) were interested in these cracks from the standpoint of structural geology. Maybe the present geologists also are. Perhaps you could find out for me. If possible, a small sketch map of Lake Mendota showing the usual position of these ridges would be immensely helpful to me.

Thanking you for your trouble, I am

Very sincerely,

A handwritten signature in dark ink, appearing to read 'Armin K. Lobek', with a long, sweeping horizontal line underneath it.



29 Sept., 57

Dear Dr. Lobeck:

I was glad to get yours of the 20th and set about finding recent material on ice expansion cracks. I contacted the meteorologists for it is of more interest to them than to geologist. They gave me the book which I am mailing you under separate cover. It may take several more days to reach you. My impression is that the factors which cause ice expansion cracks vary from year to year so that they are seldom in the same place every year. They tell me Hobb's ideas were all wrong. Mead as usual did nothing so far as I can find out.

We are all well. Tom is going to University of Rochester. He is married and has a daughter who is "going on two". Bill is going to school in California and is buying a house in San Jose. He also is married. Bob is going to Platteville teachers college although he comes home twice every week. He attains his majority this week. I am now finally retired but am finishing up a lot of papers and a book which I never had time for before. The book is on geomorphic processes. I expect you have seen my recent report on the Door Peninsula. Its too bad the map is so poor but I never had a second proof. As long as this was pending I hesitated to send in any other papers. Now I must decide what to do with them. Two were left at the Survey but nothing has been done about publishing them. I am working on a map of the rock cuestas of the Great Lakes Region some of which do not reach the surface today being under drift or water. I also have a paper on the peneplain question in the Driftless Area. Any suggestions about publication would be appreciated. There is another on underfit rivers in Illinois and one on the Baraboo region.

Sincerely yours,



Lobeck

41 North Roby Road  
Madison 5, Wisconsin  
May 22, 1958

Dear Bertha:

Both Fred and I were shocked to hear of Dr. Lobeck's death from Lofty. We did not know that he had been ill.

I still appreciate the many favors he did for me while I was in Science Hall: he invited me to the faculty lunch which I enjoyed very much, in class he treated me as a graduate fellow and not as an office girl, and most of all he was the first to tell me of Fred's true worth. He was always fair and courteous in all his dealings. In the class on the physiography of the United States he allowed me to take the laboratory by myself in the evening. For the latter favor I always straightened out all the laboratory assignments for him.

Every time I hear of violence in Haiti I worry about Elmiré. I do hope matters become calm there.

It is good that you have Merrill with you.

I sincerely hope that you do not have troubles like we are having in trying to settle my father's estate. He apparently was talked into signing papers which may wipe out all the assets.

Did you hear that Professor Ingersoll of the Physics Department dropped dead in Sterling Hall some two or three weeks ago?

Sincerely,



*Mrs. Houghton David Drives*



Dear Mr. and Mrs. Thwaites and  
Bobby,

Haughtie and I thank  
you for the place setting of  
sterling. We are thrilled with  
the wonderful addition to our  
silver pattern.

We had a wonderful trip  
to Colorado Springs and Las



Vegas, but now we are busy  
getting our apartment settled.

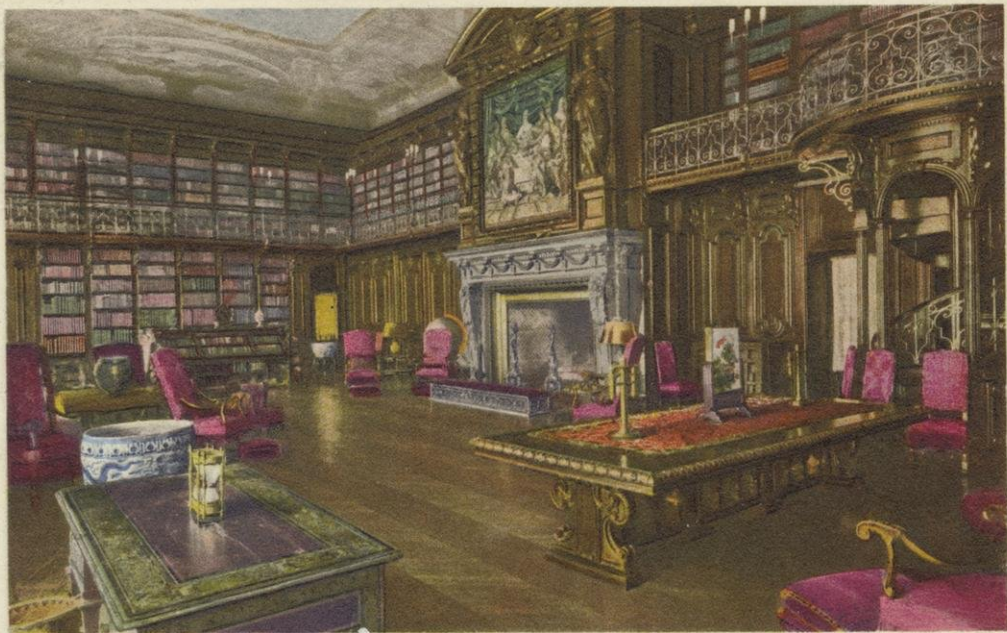
Thank you again for  
the wonderful gift.

Sincerely,

Laura Lee

*Mrs. Houghton David Drives*







18 - The Library

Photo Copyrighted by C. V. C.

BILTMORE HOUSE & GARDENS

— BILTMORE ESTATE —

BILTMORE, N. C.

July 1, 1957

Dear Mrs. Thwaites,

Went back today to see if this place was as beautiful as it was a month ago, and it was lovelier, with the rhododendrum all in bloom.

We are on our way home and will be back this week end. Hope all is well in Madison and in our Club. Love, Gertrude Lewis.

Made in Switzerland by Atelier Graphique H. Vontobel, Feldmatten  
Imported exclusively by Runca Import Company, Rutherfordton, N.C. U.S.A.



POSTCARD

THIS SPACE FOR ADDRESS ONLY



Mrs. F. L. Thwaites

41 Roby Road,

Madison 3-

Wisconsin



May 27, 1958

Dear Amy,

Thank you for your very kind letter which came today.

When Armin first went to the hospital he didn't want people to know about it, as he expected to be there only a short time. But as his condition grew worse I did write to a few people, as I knew there really was no hope of his getting better.

Elaine and Peggy were here for four weeks from the middle of February on. Her hus-



band had been very ill, but was better at that time, so she could get away. He is back in the hospital again and his condition is very grave. He has a serious heart condition and complications.

When Eleire writes, she never mentions the political situation. It seems fairly quiet at the moment.

Peggy is adorable. Of course she speaks French, but she understands English and uses a good many English words.

Please remember me to  
Fred, and thank you again  
for writing me -  
affectionately  
Bertha



# GREETINGS



*Bertha and Armin  
Lobeck*





Best wishes to your fine  
family. Hope you are all well.

Elmine has just been home for  
2 months with her family, from Haiti  
but have now returned. We had a  
lively time for us old folks,

Already we have had snow  
here. Last week our house looked  
like this picture.

Armin A. Levens



16 Feb., 1959

Life Subscription Service,  
540 N. Michigan Ave.,  
Chicago 11, Illinois

Gentlemen:

For the last two weeks we have been receiving duplicate copies of Life. This is evidently due to the fact that thinking our subscription must be nearly out we sent in your rate subscription blank. Now if the older subscription is not nearly out (we can't tell because labels are in code) could you fix this up. We had intended extending our subscription instead of duplicating it. Enclosed are labels from two copies now received. of same date. Please straighten us out.

Sincerely yours,



540 N. MICHIGAN AVE.  
CHICAGO 11, ILLINOIS

**SUBSCRIPTION HEADQUARTERS**

for  
TIME  
LIFE  
SPORTS ILLUSTRATED  
FORTUNE



Mr. F. T. Thwaites  
41 North Roby Rd.  
Madison 5, Wisconsin



☐☒☐☐

Dear Subscriber:

This acknowledgment refers to the magazine checked.

This is to let you know that we will make the correction you asked for.

Thank you for getting in touch with us.



Mrs. A. K. Sobeco

41 North Roby Road  
Madison 5, Wisconsin  
August 24, 1959

Dear Bertha:

When I read the paper for the second time after breakfast this morning, I was shocked to see the inclosed notice.

While I was talking with Mable George about her, the following card came

Kalama, Wash. Aug. 21

We returned from a three day visit at a home on the Oregon beach south of Astoria yesterday. Today we are driving to the Washington coast near Gray's Harbor where we will be until Monday. I just can't enjoy these Pacific coast forests and beaches enough. They are just beyond description. Expect to start home the 27th after nearly a month of enjoying this beautiful country. The trip to Asiland took us almost all the way across Oregon to the Cal. Border.

Lofty

Fred and I received a letter from Lofty the end of July telling us about the proposed trip and advising us how long she would be away. Accordingly we went up there on Tuesday, July 28. As we were delayed in starting, we did not get up there until 1:00. Lofty had eaten but insisted on giving us a lunch with fresh red raspberry pie. Strangely enough Lofty discussed how she was leaving her money to the nieces and nephews.

In her passing Fred and I lose a very dear friend. When the children were small, it was always such a nice place to take them. They always played in the yard and we could watch them through the picture window. We always ate on the porch on Lofty's golden tablecloth and did not have to worry about the children soiling the rug.

We plan to call Plymouth this evening. Her room mate is a retired secretary and Lofty has the use of her lovely living room again.

Sincerely,

P. S. Have always kept in touch with you through Lofty. Please write me directly.



✓

A MESSAGE TO YOU from MRS. ALDO LEOPOLD\*

"I have just heard about the proposal to destroy our beautiful woods on Bascom Hill for the purpose of erecting a new university building, or buildings, and I hasten to protest such a regretable plan. I can hear what Aldo Leopold would say about this ruthless destruction of the small natural beauty on our campus, when there are many acres of unwooded land which can be used for more buildings.

"I wonder if there is no 'Ecological conscience' among our university men, and 'no state of harmony between men and land.'

"Please keep fighting against this unnecessary destruction. I know that all real conservationists and lovers of the beauty of nature are back of you, as am I."

Mrs. Aldo Leopold  
135 Grant avenue  
Santa Fe, New Mexico

January 31, 1959

-----

\* - This quotation from a letter sent to one of those opposing the building in Bascom Woods is used with permission of Mrs. Leopold, widow of the conservation pioneer leader, Aldo Leopold, who died in 1948. In 1933 the University of Wisconsin created the Chair of Game Management for him and during his 15 years in this position, he worked to create a public awareness for the "ecological conscience" and "harmony between men and land."

-----



The Committee for the Preservation of Bascom Woods

% J.C. Bradley

2805 Sylvan Avenue

Madison 5, Wisconsin

Mrs. Aldo Leopold  
135 Grant Avenue  
Santa Fe, New Mexico

January 31, 1959



V  
MORRIS M. LEIGHTON  
307 EAST FLORIDA AVENUE  
URBANA, ILLINOIS

Dec. 20, 1959

Dr. and Mrs. Fred Thwaites:  
41 Roby Road  
Madison, Road.

Dear Friends:

Thank you for your kind Christmas greetings.  
I extend my best wishes to you for a very Merry  
Christmas and a Happy New Year.

I was sorry not to receive notice of the  
Tri-State. I was in the west. It was fine that you  
both were able to go.

Cordially,

*Morris M. Leighton*

P. S. I can't understand the action in regard to your Pittsburg  
paper. What has happened to the Secretary's office? MML



HIKING TRAILS  
IN  
THE ICE AGE PARK  
OF WISCONSIN

---

#1. Dundee Shelter Hike

---

Prepared and distributed by the  
Ice Age Park & Trail Foundation  
of Wisconsin, Inc.  
1412 First Wisconsin National  
Bank Building  
Milwaukee 2, Wisconsin



Additional copies 3¢ each plus  
postage.

FUTURE TRAILS & SHELTERS

2  
The Ice Age Park & Trail Foundation believes that large portions of the eastern Kettle Moraine region are not being used by hikers and picnic parties because they do not know exactly what is state owned land and because they hesitate to go into unknown and unmarked wild areas of woods and marsh.

With a view to opening the wilder regions to greater use, the Foundation has cut out trails and clearly marked them in areas where state ownership is substantial and contiguous. Areas that are not contiguous can hardly be used at all.

The Foundation also hopes to establish a series of shelters for hikers and skiers in the Kettle Moraine so that trips may be taken in the Kettle Moraine from the Northern end near Plymouth to the Southern end near Janesville, including the intervening area which was unanimously recommended for purchase by the State Park Survey of 1936.

It is appropriate that the first area mapped includes the first shelter.

The Foundation is trying to help you. Why don't you help the Foundation? By membership, a tax deductible contribution, or work.

CAUTION

We believe that people who love to hike have a greater appreciation of the wilderness and understand its meaning better than anyone else.

We hope, therefore, that all those whom we encourage to use wild areas will help us in keeping it wild and natural, so that our children may be privileged to enjoy the areas as we have. We would like to appoint each one of you a special guardian to assist us in keeping the area as it is today--wild and beautiful.

See that everyone obeys the rules set forth in detail in the State Kettle Moraine leaflet and report serious violations to the State.

We add a special caution about fires. Build them only in spots provided and indicated on the map herein. See that the fires are put out when you leave. Take all cans, paper and rubbish home with you. Do not toss them into the borders of your camp. Leave the place better than you found it.

In hiking, wear sturdy low-heeled shoes, dress warm enough in cold weather, take a pack sack to carry food, extra clothing, and water.



## DUNDEE SHELTER HIKE

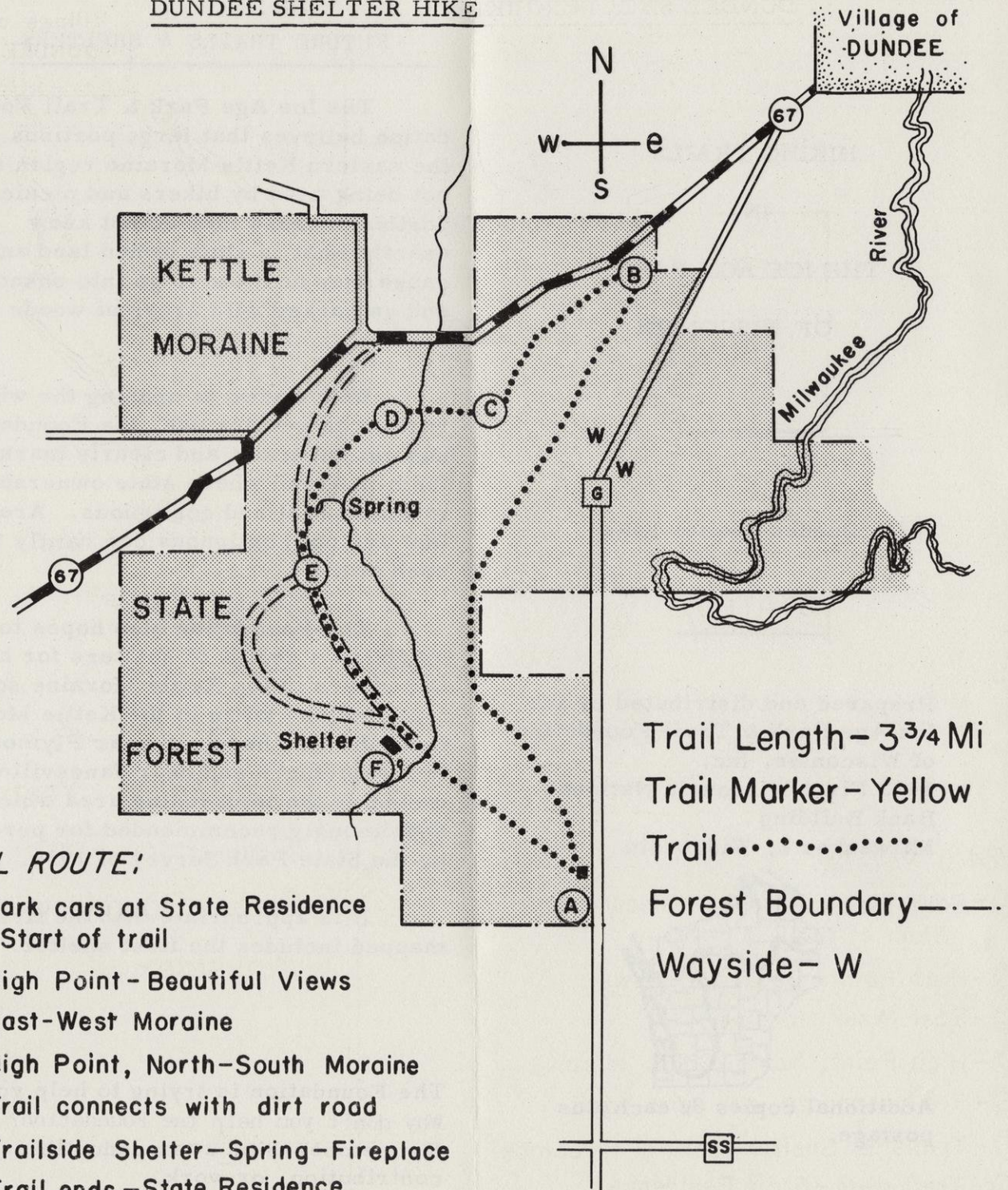
### DIRECTIONS FOR HIKE

The Dundee Shelter Trail lies in the moraine area between Highway 67 and County Trunk G.

Park your car south of the Ranger House which is 1-1/2 miles south of Dundee Village on Highway G. The Trail goes westerly uphill along a dirt road which leads to the top of the north-south ridge. Follow this ridge in a northerly direction across an open grassy meadow and through open forest. The Trail swings westerly from the top of the ridge to go around private property, which contains a high ridge with beautiful views of the Milwaukee River Valley. The Trail returns northeast back to the main ridge and along the ridge to B a high point with magnificent views. The Trail swings back southeast along the west edge of the ridge skirting the marsh to the west. At C the Trail connects with a low east-west moraine which leads through a marsh to a creek which you cross on the Mickey O'Connor Bridge. It then goes steeply uphill west to the top of a north-south moraine at D. The Trail follows this to the south until it drops down to meet the dirt farm road which you follow southerly to the creek crossing. Before you cross the creek and 100 yards west at F are clear running springs, a shelter and fire places for overnight campers. The Trail continues across the creek and follows the dirt road southeast to your parked car.

### *TRAIL ROUTE:*

- (A) - Park cars at State Residence  
Start of trail
- (B) - High Point - Beautiful Views
- (C) - East-West Moraine
- (D) - High Point, North-South Moraine
- (E) - Trail connects with dirt road
- (F) - Trailside Shelter - Spring - Fireplace
- (A) - Trail ends - State Residence





STATE OF ILLINOIS

WILLIAM G. STRATTON, GOVERNOR

DEPARTMENT OF  
REGISTRATION AND EDUCATION  
VERA M. BINKS, DIRECTOR  
SPRINGFIELD

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## STATE GEOLOGICAL SURVEY DIVISION

LOCATED ON THE CAMPUS OF THE UNIVERSITY OF ILLINOIS

JOHN C. FRYE, CHIEF

NATURAL RESOURCES BUILDING

URBANA

March 7, 1960

Dr. F. T. Thwaites  
41 North Roby Road  
Madison 5, Wisconsin

Dear Fred:

I infer from your postcard that you think I had a hand in the "Classification of the Wisconsin Stage in the Lake Michigan Glacial Lobe". Quite the opposite. I knew nothing of this until Circular 285 was in press. I am including an analysis of their classification in a paper now in preparation dealing with the whole question of "The Classification of the Wisconsin Glacial Stage".

You challenge the correlation of drifts on the basis of loess alone. You are right. But there is more to it than that. When you consider the scientifically derived fact that the thick loess at the border of the Iowan was derived from the Iowan drift, that the paha ridges are consistently elongated in a west-northwest, east-southeast direction, together with widespread ventifacts in the pebble layer on the Iowan drift both indicate strong persistent winds from the west-northwest, that the loess from the Iowan border extends across northeastern Iowa into southwestern Wisconsin and northwestern Illinois with gradually decreasing thickness and is thinner on the east side of the Mississippi River Valley than it is on the west side, it is clear that its extent was great. The finding of this loess under the Tazewell drift of Illinois from Peoria to Paris and Bureau County to Vermillion County is also significant of its great extent. When you also consider that the weathering of the Iowan loess at the Iowan border is the same as the weathering of the Iowan drift, and that it shows no weathering anywhere beneath the Tazewell drift is indicative that the correlation that has been made is highly probable.



✓

Since I cannot make this letter do for a scientific paper that I have prepared for publication on the Iowan Glacial Substage, you will have to wait for its appearance to see that there are other important lines of evidence that critically bear on the question and point to the same conclusion.

I would greatly enjoy discussing these questions with you if we only had the chance. Maybe I can get to Madison before too long.

What do you think of Frye and Willman lumping your Green Bay Lobe with the Tazewell? They record entirely different climatic controls.

Cordially yours,

Morris M. L.

Morris M. Leighton  
Chief Emeritus