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

[s.l.]: [s.n.], 1941-1959

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XXXXXXXX 41 Roby Road,

Feb. 6, 1941

Mr. F. D. Holo,
615 National Road West,
Richmond, Indiana

Dear Mr. Holo:

Thank you for your recent letters, the stamps which I turned over to Mrs. Nelson, and the copy of your paper.

I have as yet heard nothing of your application here. Trencher is chairman this year. Doubtless it will be considered later.

I am revising all the directions for mapping but as yet the girls in the office have not even started on the job. It will doubtless drag on a long time.

Just wound up affairs for the First Semester today. I had four blind students in physiography. If you ever think you have any troubles just think of that!

I drew up maps for Flint's project of a new glacial map of N. America and sent them to him with an explanation of the problem of the extra-morainic drift or drifts. He sent back the maps and now demands the whole job redrawn on the scale of 40 miles to the inch with moraines shown full width instead of as lines! I was decidedly provoked and told him flatly that I would not draw on so small a scale. I also told him that with your plans as they are now you will probably not be able to do any more field work on this problem. If that is not correct please advise me. I probably will be out of this problem entirely as I cannot see my way to cooperation under present conditions. It was unfortunate we could not go to the meeting at New Haven but were prevented by flu. All the family have been down and we still have two confined to the house.

Sincerely,

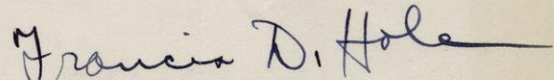
615 National Road West,
Richmond, Indiana,
February 1, 1941.

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

Dear Professor Thwaites:

Thank you very much for the generous series of outlines of material for Mapping work and for Physiography of the Eastern United States. I shall be able to give a course in Mapping this summer, and am indebted to you for this material. Physiography of the Eastern United States is scheduled for 1941-42, but if I am at Wisconsin next year, may be postponed till 1942-43. In any case I shall make use of your sheets, which you have so kindly sent. Please find enclosed 18¢ in stamps, If the cost was greater, as it may very well have been, please let me know.

Sincerely yours,


Francis Doan Hole

Department of Geology,
Earlham College,
Earlham, Indiana,
September 13, 1940.

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

Dear Professor Thwaites:

Thank you very much for your letter of September eleventh. I shall plan to have a talk with Leverett and I hope I can get an opportunity to present a paper as you kindly encourage me to do.

I hesitate to ask you for copies of your outlines and exercises for your Physiography Courses and for your Mapping Course, because it is a great deal of trouble to get such a set together, and because some material may be missing, having been used up by students last year. Therefore I suggest, only, that if it is convenient some time, I should be glad for any occasional copies, which are extras, of some portion of your outlines for these courses. This first semester I am offering "Physiography of the Western United States", whereas the Mapping and Physiography of the Eastern United States will come another semester. I have your text on Glacial Geology, which I shall ask my students to purchase, next semester. Any postage involved in mailing material from your office I should of course repay.

I am glad to hear that your trip west was enjoyed so much by your young sons.

Very sincerely yours,

Francis D. Hole

*Sent western
early last
summer*

*low eastern
and mapping*

EARLHAM COLLEGE
RICHMOND, INDIANA
Department of Geology.

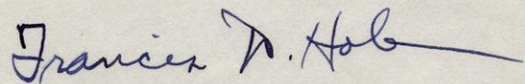
February 3, 1941

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

Dear Professor Thwaites:

I am not sure I ever sent you the final draft of the paper which I presented at the Indiana Academy of Science Meeting last autumn. I enclose a copy herewith. I am sending a copy with my application for a scholarship or fellowship to the Chairman of the Department.

Sincerely yours,


Francis Doan Hole

EARLHAM COLLEGE
RICHMOND, INDIANA
Department of Geology

February 7, 1941

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

Dear Professor Thwaites:

Thank you for your letter of February sixth. The copy of my paper was intended for you. I sent another copy to Professor Twenhofel, along with my application for a scholarship or fellowship.

I have every intention of doing more field work on the problem of last summer. Probably I can spend only two weeks in the field in that area next summer, but in subsequent summers I count on spending more time there. Should I write to Flint, saying that I still lay claim to the problem?

You do not have any misgivings about the problem as being a good one to serve as a Ph.D. thesis, do you? Is it not true that the work I have done now is insufficient as a basis for such a thesis? If it were to abandon this investigation, it would be necessary for me to pursue another one just as far, in order to fulfill requirements for a Ph.D. thesis, would it not? Even if the field work which I have done is sufficient, I like the problem, and wish to continue work on it, summers, anyhow. I have the feeling that it will not take ten summers to get a definite solution but rather two to four summers, at the most. Do you share this view?

Although my present work is time-consuming, this first year at Earlham, I feel that it will provide a good opportunity in the future for research, in the field in summers, and in the laboratory in winters. I then, aside from the desire to take my Ph.D. degree at once, for financial reasons, as well as for the scientific training and experience which it entails, do not wish to give up the project in Central Wisconsin, which I have enjoyed so much already, under your kind guidance. May I look forward to continuing this work under your direction?

I have not seen Leverett yet, but hope to, this Spring.

I have a class of twelve students in "Glacial Geology and Soils" this semester. We are using your "Outline...". I wish we had a Kettle Moraine and some drumlins near here!

Thanking you for your interest, and wishing for you and your family the best of health for the remaining cold months,

I am,

Very sincerely yours,

Francis D. Hole

~~xxxxxxxx~~ 41 Roby Road,

Feb. 11, 1941

Mr. Francis D. Holo,
Earlham, Indiana

Dear Mr. Holo:

I was slow answering yours of the 7th for the reason of a bad cold following on the flu. Tommy missed another week of school for the same reason.

I was not sure if you would be able to do any more field work if you must get your degree in another year and am very glad to learn that you will be able to do something, perhaps much toward its solution. Not that I felt the amount of work already done was insufficient for a doctor's thesis but simply because it would not be enough to reach a final correlation. I well remember one man who got by (under a former chairman) with a short paper on a local area based on work done while in private employ. I know how hard and carefully you worked last summer and was looking forward to going into the field with you again. I certainly hope you can continue with the problem even after you get the degree. I will write Flint to this effect and lend him the copy of your preliminary report so that he will understand that final results in tracing the drift to an area of determined age cannot be expected at once. He had a project outline for Gould to solve the relations of the Iowa and Illinoian in a single season. I told him I felt that is an impossibility.

I also have 12 students in glacial. Physiography has fallen from 32 to 11 or 12. Mapping will be around 14 I think.

A 1941 edition of the "Outline" will soon be out. The books arrived but there was a mistake in making them up which will take some time to straighten out.

I hope you get up to see Leverett soon. I understand his health is far from good. I have an unpaid account for a book of \$2.00 at Bluffton, Ohio, not far from Lima. If you cared to go that way I would be glad to assign to you all you could collect on it. I do not like to let them get away with such a fraud by virtue of the smallness of the sum involved. I once collected a smaller sum from a defaulting dealer in London, England by sending in a local man so it might work again.

Sincerely,

615 National Road West,
Richmond, Indiana,
January 27, 1941.

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

Dear Professor Thwaites:

President William C. Dennis
of Earlham College, has given me permission, today, to
write to the University concerning my plan to return to
complete my graduate work in residence next year.

Dr. Winchell suggested, in a letter in September, that it
is probable that I can finish up courses requisite for
my degree (PhD) in one year. It is with the hope that,
with industry and determination, I can do this, that I
am to be granted leave of absence so promptly.

Since my national order number in the present draft
is 8457, which is near the end of the list, it seems
probable that I shall not be called to service before
June, 1942.

I am writing to Dr. Winchell today about this plan,
and to Mrs. Nelson, asking for forms of application for
scholarships and fellowships. Since my salary of this
year is being consumed in connection with the settling of
my father's Estate, and in refitting the house for
rental purposes, I feel as impecunious as a student,

even though I hold the position of an instructor. I should therefore appreciate any statement to the Regents in my behalf which you may be able to make in my behalf, if occasion presents itself.

I plan to analyze the samples and write the progress report before the middle of next August. If the Academy of Science(Indiana) prints my paper on the summer's work, I shall send you reprints.

I enjoyed your family Christmas Card.

With kindest regards,

I am,

Sincerely yours,

Francis D. Hole
Francis Doan Hole

March 13, 1941

Mr. F. D. Hole,
Earlham College,
Richmond, Indiana

Dear Mr. Hole:

I delayed answering yours of Feb. 13 until I wrote again to Bluffton, Ohio. The account there has now been paid as a mention of sending an agent produced the desired effect. Thank you greatly for the offer to go.

The business manager of your college wrote me that they had an extra copy of the Outline. I told him to deduct the price from the bill and turn it over to you for a desk copy. There are some slight changes from the older edition you have, mainly new references.

I hope you are able to have a conference with Lovorott.

I have 11 in Glacial and 19 in Mapping but Physiography fell to only 10. However they keep me busy. well samples are few just now but will probably increase before long.

With best regards,
Sincerely,

EARLHAM COLLEGE
RICHMOND, INDIANA
Department of Geology

February 13, 1941

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

Dear Professor Thwaites:

Thank you for your kind letter of February eleventh. I am sorry that you were troubled with the flu, and a cold besides. I hope Tommy is back in school by now. Thus far, I have been fortunate, this year, and have not missed a day yet.

I appreciate your sending a copy of my preliminary paper on the border drift near Marshfield to Flint, and telling him of my continued interest in the problem.

I shall write Leverett in March for an appointment during Spring vacation, which is from March 28 to April 6 here at Earlham. I shall be glad to visit the party in Bluffton, Ohio, en route, if you will give me the necessary papers relative to the debt.

With best wishes,

I am,

Sincerely yours,

Francis D. Hole

Francis Doan Hole

May 8, 1941

Mrs A. C. Holscher,
304 N. Carroll St.,
Madison, Wisconsin

Dear Mrs. Holscher:

Enclosed please find some of the photos which I took at the Lake which we thought might interest you. I was up again last Saturday and recovered most of the lost things. Today I tried checking Dorothy's financial accounts. Guess I will have to question Dan before some are understandable! Told her I had considerable experience in bank examining. Anne had to send back her dog after the landlady tried to take care of it while she was away. Ballard has had quite a time with his he tells me!

Thank you again for going.

Best regards fromus all.

Sincerely,

4-15-41

The Department of Geology,
Earlham College,
Earlham, Indiana,
April 12, 1941.

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

Dear Professor Thwaites:

Thank you for your letter of April 4, in which you so kindly suggested that I go with you in August when you talk with Gould and check on some of the critical areas in Northern Wisconsin. I hope that I have not delayed too long in replying.

I received a letter from Dean Fred on April 1, stating that I had been recommended for a University Fellowship in Geology for the year 1941-42. I immediately accepted the appointment, writing to Dean Fred and to Dr. Twenhofel expressions of my gratitude and of my delight at the prospect of being at the University next year.

As plans now are, I shall finish the mapping course which I am offering here this summer, on August 16. I have intended to spend about three weeks in the field immediately thereafter. I should be very glad if I could accompany you on your trip, if it is at all possible. I could be in Madison on August 18. It would be a very stimulating experience for me to have the privilege of traveling with you again, and I should appreciate a chance to become acquainted with Dr. Gould.

I am going to take my Glacial class out to take soil samples from Illinoian till, and Shelbyville and Bloomington tills. We shall have time only to note depths to calcareous drift, but that ought to be very interesting.

It is with regret that I hear that Carter has had to abandon the McCaslin Mountain project. The area certainly is an interesting one. It must have been quite an undertaking to make the topographic map from the photographs.

Thanking you again for your interest, and your suggestions, I am,

Very sincerely yours,

Francis D. Hole

March 28, 1941

Dear Mrs. Holscher:

Would you be interested in going to Devils Lake again? The trip is from April 18 to 26 and I have two girls to be taken care of. Last year when I had the chicken pox I am afraid disciplin was rather lax so would like very much to make a change this time. If you think you could go please call us up.

Best regards,

Sincerely,

41 Roby Road,
Madison, Wis.,
April 4, 1941

Mr. Francis D. Hole,
Earlham College,
Richmond, Indiana

Dear Mr. Hole:

Yours of the 21st is at hand and I am glad you had a chance to talk over the problem with Leverett. You will realize that at his age now ideas often are forgotten in favor of older ones. However, in view of his life-long attention to glacial geology I hope the experience was worth the effort.

With regard to the work of Allen and Barrett the major results were published in Michigan Geol. Survey publication 18 in 1915. They did quite a lot of test drilling and found some marble. The marble of the Gogebic Range is also well known, as is Limestone Mountain near L'Anse, Michigan. I have found pebbles of Niagara dolomite in the drift all along the south shore of Lake Superior. Also it is well known that the lake clays along Lake Superior contain calcium carbonate. On p. 213 of Vol. 3 Geology of Wisconsin are 5 analyses showing from 4.31 to 11.93 percent of that combination besides from 3.53 to 4.01 percent of magnesium carbonate. In Wisconsin Bull. 25, p. 52 I noted a partial analysis of Keweenawan shale which indicated somewhat less than 20 percent calcium and magnesium carbonates in a green shale.

My subsurface studies have shown calcareous glacial clays and tills over a wide area. The sands and gravels do not react with acid so the carbonate appears to be finely divided. You probably know that basic igneous rocks locally contain carbonate and that weathering of such forms considerable carbonate. It is distinctly possible that the observed carbonate of the drift is mainly derived from basic igneous rocks rather than from limestone although I am far from convinced of that. It looks as if some intensive study of pebbles is in order.

Gould writes me asking for a conference during the latter part of August. I was wondering when you plan to be in the field for I would like you to be along if it is at all possible. He has been working with some U. S. Soil men and finds a marked difference in soil profiles. I also note that in the region around River Falls, Wisconsin there are many crags and towers of sandstone which strongly suggest an age equal to that of the drift around Montecello. I would also like to see the Nibleville crags again (Martin's nunataks). It may easily be that the drift outside the moraine farther west is really much older than that around Marshfield. I still doubt the Marshfield moraine by the way! I feel like taking some more time next summer to go over some of these critical localities.

Carter gave up the McGaslin Mountain project so I took the photos and have just completed a topographic map. It may not be 100 percent perfect but at the least it is vastly better than anything available before!

I do not think you would get anything out of Allen. He is with a steel company in Cleveland, if I recall correctly.

Sorry I forgot to include a desk copy for you in the first place.

Best regards,

Sincerely,

EARLHAM COLLEGE
RICHMOND, INDIANA
Department of Geology

March 31, 1941

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

Dear Professor Thwaites:

I had the good fortune
to talk with Frank Leverett for two hours last Friday,
March 28, at his home in Ann Arbor. He was very
appreciative of your work.

As you know He considers the Marshfield Moraine to be a real
moraine, a terminal made by Illinoian ice. The till
south of the moraine may be about the same age. The
presence of the Calcareous drift near Auburndale and
Marshfield does not change his opinion concerning the
age of the drift, namely, ^{that it is Illinoian} ~~Wisconsin~~. He thinks that
perhaps the northward extension of the Marshfield moraine
from Marshfield, as drawn by Mr. Weidman, is incorrect.
He suggests I write to R.C.Allen to see if he knows of
a limestone outcrop in the crystalline area near
Marshfield which would account for the strip of calcareous
drift. Do you think this is a good suggestion? If so,
can you give me Mr.Allen's address, or the addresses of
any other men who might have done special research on
the rocks of North Central Wisconsin?

Mr.Leverett seemed most interested in the Iowan-
Illinoian controversy, and is glad that Dr.Gould is going
to reinvestigate the area in south-eastern Minnesota,
which Leverett believes presents ample field evidence to

EARLHAM COLLEGE
RICHMOND, INDIANA
Department of Geology
prove his contention that the Iowan is really Illinoian.

I have made notes on my conference with Everett,
since, for future reference.

Thank you very much for the desk copy of the
"Outline".

Very sincerely yours,

Francis D. Hole

THIRTY-
FIVE
YEARS
OUT

THE HOD

U. OF W. CLASS OF 1906

Reunion of June 21, 1941

WEATHER.
BRITE
AND
FAIR

VOL. VII

NO. 4

Madison, Wisconsin

June 30, 1941

REUNION IN RETROSPECT

For '06 members and friends who came back for alumni festivities, the reunion of June 1941 remains a memory to be cherished long after. This from their own testimony as they took leave of associates of their campus years after a glorious weekend together.

During the weeks of preparation the home folks had not been sure that the graduates of 1906 would come back in any large numbers this year. The times were "uncertain." But any negative forecasts were to be thrust aside when, a few days before the reunion date, reservations equalled the dining-hall capacity and it became necessary to seek quarters for the overflow.

And now with the final checkup of attendance--registered and unregistered--it is revealed that 76 members of '06 responded to the invitation to return, that the luncheon group made a company of 125, and that, with others of their families and guests from other classes, the total attendance reached 137, perhaps a few more.

For a class as small as ours at the present time, the showing is among the finest of any of the 1941 reunioning groups, and of any previous year.

'06ERS TRAVEL FAR

Not for many reunions have so many members come from far distant parts of the country. Five years ago John Earl Baker returned from China--the most traveled alumnus on the campus. This year both coasts and the far south sent representatives. L. J. Shadbolt boasted he came 2,000 miles. He's from Yakima, Wash. But he was outdistanced by Zeb Kinsey, who lives two blocks farther in the same burg. Polly Fenton, of New York, John Whyte, of Brooklyn, and Ralph Collie, of Philadelphia, were those from the eastern seaboard.

Only Canada's defense rules kept Tom Slagsvol from returning. It's unlawful to take more than four dollars out of the country, and Tom, who lives at Winnipeg, can't travel on IOU's alone, hence his regretful cancellation of Dodo Bones and general reunion plans.

THOSE DODO BONES

Zeb Kinsey saw his efforts of many months rewarded by the return of the majority of his accomplices in Dodo Bones. Ten were back. Of the others two are deceased. Those returning were Louis M. Anderson, Minneapolis; Ralph W. Collie, Philadelphia; Thomas M. Conway, Evanston; W. Ray Gilfillan, St. Paul; Hiram C. Houghton, Jr., Red Oak, Ia.; Zebulon B. Kinsey, Yakima; Arthur O. Kuehmsted, Appleton; William V. Lehmann, Woodland; Arthur Strong, Dodgeville, and Milton L. Woodward, Detroit.

These men were enrolled in the school of commerce. It was the first time since graduation they had gathered together, and at first sight most of them had extreme difficulty in recognizing pals they once knew so well.

AND THOSE OARSMEN

The opportunity was too good to pass by, so a handful of crewmen who represented Wisconsin at Poughkeepsie in their day in school, and who rowed one of the fastest races on the Hudson, took to the water again on June 21. As the afternoon was fading these hearties of another generation, manning a borrowed shell, headed toward the western end of Lake Mendota. But Father Time was not to be denied, and with a number of stops for rest they closed their day's grind with a sigh, "There was a time when..."

Positions in the boat were: Johnson (Ellis), stroke; Van Meter, 2; Johnson (Guy), 3; Foster, bow.

OTHER '06 GROUPS

Aided by the persuasive Florence DE LAP Steele, Kappa Kappa Gamma sisters of the 1906 era foregathered as a reunion group. A half dozen took advantage of the special class program to revive "auld acquaintance."

Returning also were a half dozen '06 law graduates, who made their presence manifest in ways known best to disciples of Demosthenes.

THE CLASS LUNCHEON

Gathered in the Old Madison room for the after-luncheon program, '06ers gave evidence of their usual articulateness on such occasions. With Otto Kowalke presiding, all present were privileged to identify themselves, to tell something about their activities since graduation, or bring out some facts or traditions hinging on their student days.

Someone asked how many present were grandparents. A score or more of '06ers arose as Exhibit A.

So the afternoon passed, and '06ers came to know each other again much as they did when trodding the hill "way back when."

THEY WERE THERE IN SPIRIT

One of the stimulating things about reunions is the way many keep in touch by mail. This year a large number of those who couldn't return sent cordial greetings. Here's a sample of the spirit shown:

"I was back to commencement last year--the first time since 1908. It was like a bit of heaven. Will come again when I come back to my home town, River Falls, Wis. Never saw Wisconsin as beautiful as it was last June. I appreciate more and more our state and my alma mater, although I have adopted California for thirty years." Hermione Smith, Los A.

And here are some of the others who responded with best wishes for a successful reunion:

Jettie BERG Johnson, Clinton; Jeannette ST. SURE Andrews, Minneapolis; Agnes I. ROBERTS, West Bend and Milwaukee; Clara A. RICHARDS, Fargo, N.D.; Thomas L. BEVICK, Madison; Roy A. WHEELER, Milwaukee; John W. BRADSHAW, New York; Mrs. John Messmer (Louise M. JAHNS), Milwaukee; Arden R. JOHNSON, Elmhurst, Ill.; Allen T. KIRK, St. Joseph, Mich.; Merrill H. CRISSEY, Pasadena, Cal.; John J. ENRIGHT, Enid, Okla.; C. J. CALVIN, Hibbing, Minn.; Elmer T. HOWSON, Chicago (from Jasper Park, Alta.).

And from John Earl BAKER came word (dated May 28) of some of the difficulties encountered in his job of getting supplies to the Chinese through the Burma Road. Likewise, of his narrow escape (at Kunming) from a rain of Japanese bombs that killed and mangled 500 natives.

A RECORD?

E. J. Delwiche, Green Bay, '06 graduate with the degree of BSA, met many friends he once knew, but his principal reason for coming back was to see his youngest son graduate. For E. J., this meant the seventh son to graduate from his own alma mater. What alumnus can match a record like that?

STRICTLY BUSINESS

On the theory that a reunion is a time to forget business, '06 members kept this item down to a minimum, voting only to authorize a post-reunion HOD (here 'tis), and to retain the officers. The Hod is now upwards of thirty years of age, and still ranks as the only "newspaper" published by a university class on this campus. You'll probably get your next issue in May of 1946. Watch for it.

Thanks to the many who helped out on the budget, we are in the black by a sizable margin. With a small balance left from 1936 and with many individual contributions our receipts were approx-

imately \$120. Expenses, including cost of the final HOD, were about one-half the receipts, leaving a surplus of more than \$50.

DINNER, BREAKFAST, FAREWELLS

In large numbers '06ers attended the Alumni Dinner seated at two long tables decorated with the orange and black. This twilight event on the terrace, against a background of fleecy clouds and white sails on Mendota, made a great hit with everyone; for one thing, it meant relief from the humid confines of Great Hall, and it offered a lakeshore perspective from which few ever tire. And on Sunday morning many '06ers joined with other alumni in breakfasting on the same Union terrace, in poring over George Keachie's age-toned scrapbook showing Wisconsin athletic immortals who made history in the years after the turn of the century, and in doing that concentrated visiting that to many had been impossible before.

So passed "Alumni day," and farewells were said with many a promise to "See you again in '46."

THESE CAME BACK

Below is a roster of the 1906 class family as recorded at the various reunion functions. The number of alumni of other classes present as guests of '06 was a splendid manifestation of interclass fellowship--one that might well become a class tradition. Among our honored guests was John S. Lord, a past president of the General Alumni association.

Roster

Mr. and Mrs. O. A. Crowell (Annabel HUTTON), Almond; George W. BLANCHARD, Edgerton; Edmond J. DELWICHE, Green Bay; Mr. and Mrs. Fred Heinemann (Jenos Greverus '08), and Jane, Merrill; Judge Gad JONES (law), Wautoma; Mrs. Carol Jones (Litta FULLER '05), Boscobel; Mrs. W. F. Kachel (Jessie CORSE), Milwaukee; Mr. and Mrs. A. O. KUEHMSTED and June, Appleton; Mr. and Mrs. William V. LEHMANN (Margaret DURLIN '10), Woodland; Mrs. Kenneth S. Parker (Mildred GAPEN), Janesville; Mr. and Mrs. Ben H. RODERICK (Matilda BLIED '07), Brodhead; Mr. and Mrs. B. B. BURLING, Mr. and Mrs. Harold S. FALK, Mr. and Mrs. Wilfred C. PARKER, Mr. and Mrs. Ben W. REYNOLDS (law), Dr. and Mrs. C. M. Schwendener (Elizabeth HARVEY), Mr and Mrs Henry C. STARK (law), Milwaukee;

Mr. and Mrs. Osmore R. SMITH, Wausau; Mr. and Mrs. Walter E. SPRECHER, Independence; Mr. and Mrs. Arthur STRONG, Marian and Sally, Dodgeville; Charles A. TAYLOR (law) and Mrs. Taylor (Gladys PRIEST '10), Barron; Mrs. H. R. Vergeront (Barbara MUNSON), Viroqua; William E. WAGENER (law), Sturgeon Bay; Mr. and Mrs. Hugo S. WELLS; De Pere; the Rev. and Mrs. E. W. Blakeman (Anna DuPre SMITH), Ann Arbor, Michigan; Mr. and Mrs. Ralph W. COLLIE and Gretchen (Bryn Mawr '38), Philadelphia; Thomas M. CONWAY, Evanston, Ill.;

Walter L. DISTELHORST, Louisville, Ky.; Mrs. Florence LACKNER Divekey, Aurora, Ill.; Polly FENTON, New York; Mrs. John H. Fraser (Ethel GEORGE), Monticello, Ia.;

Mr. and Mrs. Dean E. FOSTER and Walter Dean (Grinnell '38), Tulsa, Okla.; W. Ray GILFILLAN and Gordon, St. Paul, Minn.; Hiram C. HOUGHTON, Jr., Bud and Joan, Red Oak, Ia.; Mr. and Mrs. Guy M. JOHNSON and niece, Jean Johnson, Hammond, Ind.; Zebulon B. KINSEY, Yakima, Wash.; Mr. and Mrs. Walter S. LACHER, La Grange, Ill.; Mr. and Mrs. Fred V. LARKIN, Bethlehem, Pa.; Mr. and Mrs. Arthur B. MELZNER (law), Washington, DC.; Owen W. MIDDLETON, Winnetka, Ill.; Mr. and Mrs. Ira L. REYNOLDS, Wilmette, Ill.; Mr. and Mrs. L. J. SHADBOLT, Yakima, Wash.; Mrs. S.J. Steele (Florence DE LAP), River Forest Ill.; Mr. and Mrs. Edward N. STRAIT (Allie LOUNSBURY '05), and Ed Jr. '41, Oak Park, Ill.; Mr. and Mrs. T. E. VAN METER, Moline, Ill.;

Mr. and Mrs. John WHYTE, Brooklyn, N. Y.; Milton L. WOODWARD, Detroit; Mr. and Mrs. Louis M. ANDERSON, Charles H. PRESTON, Mr. and Mrs. Lloyd L. SMITH, Minneapolis; Mr. and Mrs. Allen E. WRIGHT and Allen Jr., Detroit; Joseph P. FITCH, Frederick M. JOHNSON, Mr. and Mrs. L. B. ROBERTSON, Mrs. Fred Schultz (Laura LAWSON), Mr. and Mrs. Wyman E. WARREN, John S. LORD '04, Chicago;

Mr. and Mrs. Walter M. ATWOOD, Mr. and Mrs. Alexius H. BAAS, Anna G. BIRGE, Mrs. Wayne D. Bird (Theo FENTON '05), Mr. and Mrs. Louis W. BRIDGMAN, Mrs. L. D. Burling (Marian VAN VELZER), Mr. and Mrs. W. M. CONWAY, Mr. and Mrs. Henry DAVIS, Lillian Dean, Mr. and Mrs. William T. EVJUE (Zillah BAGLEY), C. S. HEAN, Fred L. HOLMES, Mr. and Mrs. Henry J. HUNT, Mr. and Mrs. F. Ellis JOHNSON, Mr. and Mrs. O. L. KOWALKE (Winifred TITUS '00), Katherine MINCH, Don E. MOWRY, Mr. and Mrs. George R. RAY, Phyllis and Gwenyth, Alma M. RUNGE, Mrs. Eugene Sanborn (Helen WHITNEY), Jennie T. SCHRAGE, Mr. and Mrs. Frederick T. THWAITES, Madison.

July 5, 1941

Mr. Henry Hanusa,
R. F. D. 1,
Loganville, Wisconsin

Dear Mr. Hanusa:

Yesterday all our family visited the falls and we could not find you at home. I am enclosing check for \$1.00. All enjoyed their visit very much. Some time I would like to come up with the elder of my boys and stay over night in a tent, if this will be all right with you. I will also bring up my class some Saturday in October.

Best regards,
Sincerely

MICHIGAN STATE COLLEGE
OF AGRICULTURE AND APPLIED SCIENCE
EAST LANSING

CONSERVATION INSTITUTE

May 9, 1941

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

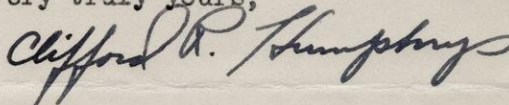
Dear Dr. Thwaites:

I recently consulted Dr. Bergquist, Head of the Geology Department here at the College, regarding "chatter marks;" several theories on their origin were reviewed. The problem broadened out to the Physics Department, where data on geo-physics were included.

I was chiefly concerned with the direction of ice movement and orientation of curved "chatter marks" and the application of the compression tension theory.

In your recent publication OUTLINE OF GLACIAL GEOLOGY you discussed "chatter marks;" could you give me, sometime in the near future, a more detailed discussion?

Very truly yours,



Clifford Humphrys

CH:JR

June 2, 1941

Dr. Clifford Humphrys,
Michigan State College,
East Lansing, Michigan

Dear Dr. Humphrys:

I am afraid I have been a long time answering yours of May 9 but really I have very little to add to what I have given in the outline. My field observations show that chatter marks are common on granite, quartzite, basalt, rhyolite and similar rocks. They furnish an approximate means of telling direction of movement and an absolute criterion of which way the ice moved along adjacent striae. Only rarely have I seen any crescentic gouges. I noted some at Montello, Wisconsin last fall. As far as a geophysical interpretation goes there are several variables. The weight of the ice, its speed, and the nature of the rock which carried the pressure to the bed rock are all variables. Not knowing the latter we cannot determine the coefficient of friction. Of course, the kind of bed rock is important because some rocks are more brittle than others. In extensive field work I never have seen any chatter marks on limestone or dolomite. I have not checked the localities mentioned by Russell in northern Michigan where he thought the curves ran the wrong way. From what is now known of the complexity of glacial history of that region it seems quite probable that these record changes in ice direction and not exceptions to the general rule.

If there is anything else I can do please ask me

The Department of Geology,
Earlham College,
Earlham, Indiana,
May 23, 1941.

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

Dear Professor Thwaites:

I am enclosing three
copies of my paper at the Indiana Academy of
Science. More can be provided when I come north
next August, if you wish to have some on your
shelves.

I am finding your Mapping problems very
helpful indeed, as I plan my course in Topographic
Mapping here, for this summer.

Things are beginning to clear enough so that
I hope to begin work on the specimens which I
collected last summer, by June.

Very sincerely yours,

Francis D. Hole
Francis Doan Hole

June 2, 1941

Mr. Francis D. Hole,
Earlham College,
Earlham, Indiana

Dear Mr. Hole:

Thank you for yours of May 23 with enclosed reprints. These will be enough for the present.

I revised some of the Mapping problems and will try to send you some of the new versions. This applies mainly to the aerial mapping one. There are some errors in the older edition.

Field trips are now over. 19 in mapping kept me busy and all have not checked out yet. 11 in Glacial just filled two cars so we made the trips for very little.

I am looking forward to your coming and hope to be able to arrange a field conference with Gould for that time he is working on the Illinoian-Iowan problem in Minnesota.

With best regards,

Sincerely,

May 15, 1941

Hotel Hamilton,
Two Rivers, Wisconsin

Gentlemen:

I expect to bring my class to your hotel for the night of the 24th. There will apparently be just 12 in the party, two of them girls. We would like to have the same accommodations as last year namely two rooms with bath, preferably those in the middle on second and third floors, remainder rooms without bath, dinner (same for all), breakfast and a lunch for Sunday noon. Please let me know if rates will be the same as before so I can make up my budget. Postcard for reply is enclosed.

Sincerely,

Aug. 8, 1941

Mr. Francis D. Hole,
615 National Road West,
Richmond, Indiana

Dear Mr. Hole:

I delayed answering yours of July 25 until I had fixed the plans for the trip north which is made necessary by Tony's hay fever.

We have to leave here for the north about the 23rd of this month. I could get away before that time for about a week. Both Gould and Vessel have desired conferences. I have to get back long enough before going north to get all clothes washed.

There will also be an interval of 10 days between the 9th and 17th of September that I will be free but the boys will be in school. However, it is unlikely that Mrs. Thwaites will have a maid then which makes it hard for me to get away.

I am now working on my part of the glacial map of North America.

Congratulations on your marriage. Hope you escape the concentration camp, and are able to get up here.

Sincerely,

615 National Road West
Richmond, Indiana

July 25, 1941

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

Dear Professor Thwaites:

I wish to let you know that I plan to arrive in Madison by the evening of August 15. The only uncertainty at present is a possible call from my local draft board which will require my return here to appeal my case for deferment.

I have been working nearly a month now on mechanical analyses of my soil samples of last field season. Dr. Nelson just sent me some fresh Rib Hill soil samples.

I have four students in my topographic mapping class this summer. The course ends on August 13. The weather has been most favorable for work.

I hope that you and Mrs. Thwaites and the boys are having a pleasant summer.

Very sincerely yours,

Francis D. Hole

Sept. 28, 1941

Mrs. A. G. Holscher,
212 W. Carroll St.,
Madison, Wisconsin

Dear Mrs. Holscher:

Enclosed please find two copies of the group photo at Devils Lake. I happened to run both as I first thought one was no good. Sorry I forgot them before.

It looks like small classes this year in the entire department. One of mine is only a quarter of last year but this is partly due to having two. The sum of the two is only half or slightly more of last year.

All the boys are now in school. Bobby seems to enjoy it and is learning to talk much more rapidly than before. Today we took him to Sunday school for the first time and he seems to like that also.

Hope you are all right.

Sincerely,

Gen. Delivery,
Marshfield, Wis.,
Sept. 4, 1941

Professor F. J. Thwaites,
41 Roby Road,
Madison, Wis.

Dear Professor Thwaites:

I have been boring at the Experiment Station "buried-soil" well two days now and am down 25 feet. There is blue-grey clay for 4 feet beneath the "buried soil". I may not get back to Madison until Monday evening, Sept. 8. I shall be ready to start, on Sept. 9, to see Gould and Vessel. You might leave a note in my box at Science Hall stating when you wish to have Tuesday morning, or I could phone you Monday night, if I don't get back too late.

I finished my Progress Report Labor Day evening, after rereading my notes of last summer and classifying data and recording some of it on maps. My suggestion in this Report is that a grey-brown drift (Post-cary) overlies a red-brown drift (Cary or Post-cary), both north and south of the Terminal "moraine" Borderland.

Dr. Nelson will take me out to see some cuts on Saturday. Very sincerely yours,
Francis W. Hole

615 National Road West
Richmond, Indiana

August 9, 1941

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

Dear Professor Thwaites:

I shall leave here the morning of August 15 in my Model A Ford. I should arrive in the early afternoon of the 16th. I could leave with you that afternoon or on the following morning, which is Sunday, whichever you prefer. I regret that I cannot reach Madison any earlier.

I have completed the analysis of about 40 samples. Rib Hill has loess on top, I feel sure. I can have no definite ideas on the drifts until I compute percentages of the separates of the samples. I am saving all sands.

I look forward to seeing you in a week.

Very sincerely,

Francis D. Hole

Aug. 17, 1941

Mr. Francis D. Hole,
615 National Road West,
Richmond, Indiana

Dear Mr. Hole:

In reply to yours of the 9th I think it will be best to wait until Sunday morning to start out.

I am writing Gould to see when he could meet us. From my last compilation, however, I am inclined to think he really has Illinoian drift and that the Colby-Iowan area does not touch Minnesota. However, I feel that a tour around will pay.

Sincerely,

Department of Geology
Science Hall
University of Wisconsin
Madison, Wisconsin

October 16, 1941

Professor Harold W. Stoke
Assistant Dean of the Graduate School
150 Bascom Hall
University of Wisconsin
Madison, Wisconsin

Dear Professor Stoke:

Mr. F. D. Hole worked in the field on his doctor's thesis for seven weeks in 1940 and two weeks in 1941. The subject is the discrimination of the glacial drifts outside the terminal moraine in central Wisconsin. I was out with him for a week each year. The rest of the time he worked out of Marshfield, Wisconsin in collaboration with Dr. L. B. Nelson, Instructor in Soils in our College of Agriculture. Mr. Hole also kept in touch with me by correspondence, turning in many reports on progress which I commented on in replies.

I recommend that this work be accepted as 'in residence'.

Sincerely yours,

F. T. Thwaites

June 4, 1942

Mr. F. D. Hole,
1001 So. Cherry St.,
Marshfield, Wisconsin

Dear Mr. Hole:

Many thanks for your two letters of June 1 and June 3. I am sure I can not make any suggestion as to why drilling is so much poorer only a short distance from the first hole. I do venture to suggest, however, that the sand and gravel are a gravel boulder in the till derived from the deposits below the buried soil. Maybe it would be better to abandon the new hole now you have checked the soil and reopen the old one with the smaller bit. I had hoped that the better device for hoisting would speed up work greatly. Let us hope for the best.

I am just finishing up the Northeastern Wisconsin report. Maybe able to send it tomorrow, Saturday anyway.

Science Hall is not entirely deserted as several had to continue work until June 22 as per original schedule. Holson leaves next Wednesday, however. Saw Kenney yesterday. Nowell is talking of leaving for the war. Sometimes I think that would be a nice quiet place after we have got all three into bed and asleep!

Hoping you get along better, best regards to both of you,

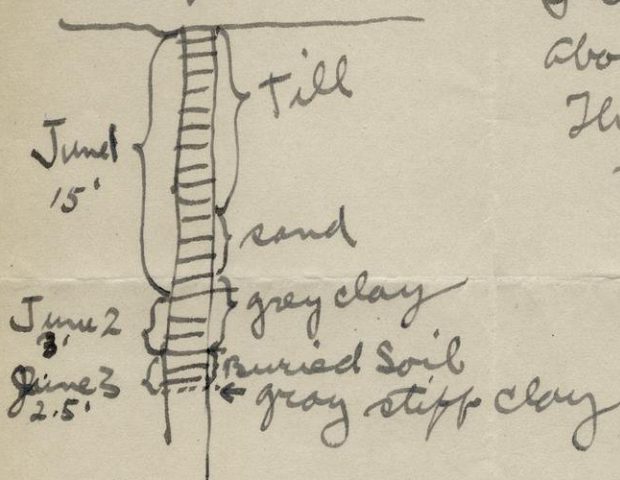
Sincerely,

1001 So. Cherry St.,
Marshfield, Miss.
June 3, 1942

Professor F. J. Thuwates,
411 Roby Road,
Madison, Miss.

Dear Professor Thuwates:

Tuesday was a good work day, as far as weather was concerned. Today the usual 8 hour working schedule was cut one hour and a half short by heavy rains, late afternoon. The log thus far is:



The speed of boring seems to be about 3 feet in 8 hours of drilling ^{below 15 feet}.

This is only slightly less rapid than last autumn. On the present hole sand and stones up to 2" in diameter slump in from time to time. It takes out time and effort to keep cleaning out the

hole. Besides the clay is very stiff below 15'. Even the burned soil is stiff and hard to work. Mr. Reed and I sharpened the auger blades this morning but it is still unusual to go more than an inch ^(or two) down at a "bite". The "bite" occupies about $\frac{1}{4}$ of the space in the auger. Prolonged turning after the "bite" has been taken into the auger apparently does not force more of the stiff clay in. I do not wish to try the long auger-tube since I feel sure that the friction on the clay would be even greater. However I shall try it once to be sure, tomorrow morning.

We took buried soil samples in series.

The men at the Farm have been unable to plow for over 3 weeks. They tried to plow in the field (pasture) where the hole is being made, but the tractor sank down of its own weight and had to be pulled out with a team, this morning.

With best wishes,

I am,

Very sincerely yours,

Francis D. Hale

C/o Mrs. Lundgren
1001 South Cherry St.,
Marshfield, Wisconsin
June 1, 1942

Professor F. J. Thuwates,
411 Roby Road,
Madison, Wisc.

Dear Professor Thuwates:

We arrived here Sunday evening about 8:00 P. M., having left Madison about 1:30 P. M. This is the end of a very rainy period. The water table at the Experiment Station is at 5 feet. West of Steven's Point on Route 10 we were pushed through a section of concrete road under 2 to 3 feet of water. Now that part is impassable, we hear. I wonder if floods in the Wisconsin Valley in post-glacial times could account for sparse ~~deep~~ till. There should be some log-gravels or gravel concentrates on the hills, in that case.

Today I worked six hours on a hole 5 feet from the hole I made last autumn, which is marked by a pile of stones. At 11 ft to 14 ft. I went through sand, which was not evident in the hole 5 ft. away last autumn. I stopped on a stone ^{at 15 ft.}. I shall find out by attaching a small auger and poking tomorrow, whether the stone is large or small. A man at the Experiment Station, who helped dig the well said some stones over 6" in diameter were above the buried soil.

We have the car in a ^{storage} garage over night, for protection.

With best wishes,

Yours very sincerely yours,

Francis D. Hole

Tuesday -

Dear Amy:-

Received your Christmas card
& surely did enjoy seeing three such
fine-looking boys. I still favor
little boys over girls.

We had a very nice Christmas.
The children usually get far too
many toys but with this war on
maybe things will be changed.
He is a bit nervous - living a few
miles out the direct route to the
largest naval air-base in the U.S.
It begins to look bad. It just
have to take the children home.

Little James goes to kindergarten
this year. None here so we send
him to a private school. He will
go to first grade as soon as he is six.
He has a Spanish ^{house} teacher & a music
hour each day so has done very well
for a 5-year old. With all the oil
people & the navy coming in the
schools are all over-jammed as is

everything else.

Ike enjoys his work with the Sun Oil Co. Has his office out in our servants quarters which makes it nice. We built a 5-room house when we came here but sold it & built a six-room ranch type about the time we had Charles. So we are very comfortable & happy here.

We have been doing a good bit of fishing this year. Ike & another fellow caught 80 lbs one evening not so long ago.

Don't see many of the people. Clickmisons are in Houston, Bakers in Louisiana, then Powells in Beeville & also Gensler & some name like that is in Beeville. His wife a French girl from Wis Univ. contracted J.B. here last winter & pregnant at same time. Becuars here with Texas Co. had a daughter last summer. Palmer in San Antonio.

Don't get to spend much time in North anymore. Am very fond of Texas so hope I can stay here rest of days.

With best regards

Gertrude, Ike, Charles & James Jr

Providence, Utah
July 2, 1942

Mr. Fred Thwaites
Department of Geology
University of Wisconsin
Science Hall
Madison, Wisconsin

Dear Mr. Thwaites:

Because I have accepted a job, I am returning by express the instruments that I checked out from you this Spring. These items include:

One alidade
One Brunton compass
One hand level
Stadia tables

I trust that they will arrive there safely. I would appreciate it if you would drop me a card and let me know if they arrive in good shape.

Very truly yours,

Alvin M. Hansen

July 7, 1943

Mr. Alvin M. Hanson
Providence
Utah

Dear Mr. Hanson:

This is to acknowledge receipt of your letter of July 2d
and to say that the instruments (alidade, compass, level and stadia
tables) arrived in good condition.

I hope you will like your work in San Francisco.

Very truly yours,

FTT:n

Frederik T. Thwaites

Tomah, Wisconsin

702 Kilbourne Ave

July 29, '42

Dear Mr. Thwaites,

Since I last saw you I have had only one day off and in addition I have worked a great deal of overtime each day. Therefore, let us say, my geology has suffered. However I did manage to get over to the library and hunt for your bulletin, without success. I feel the bulletin will aid me very much, and I would appreciate your sending me it

Professor
Professor

F. V. Hoffman

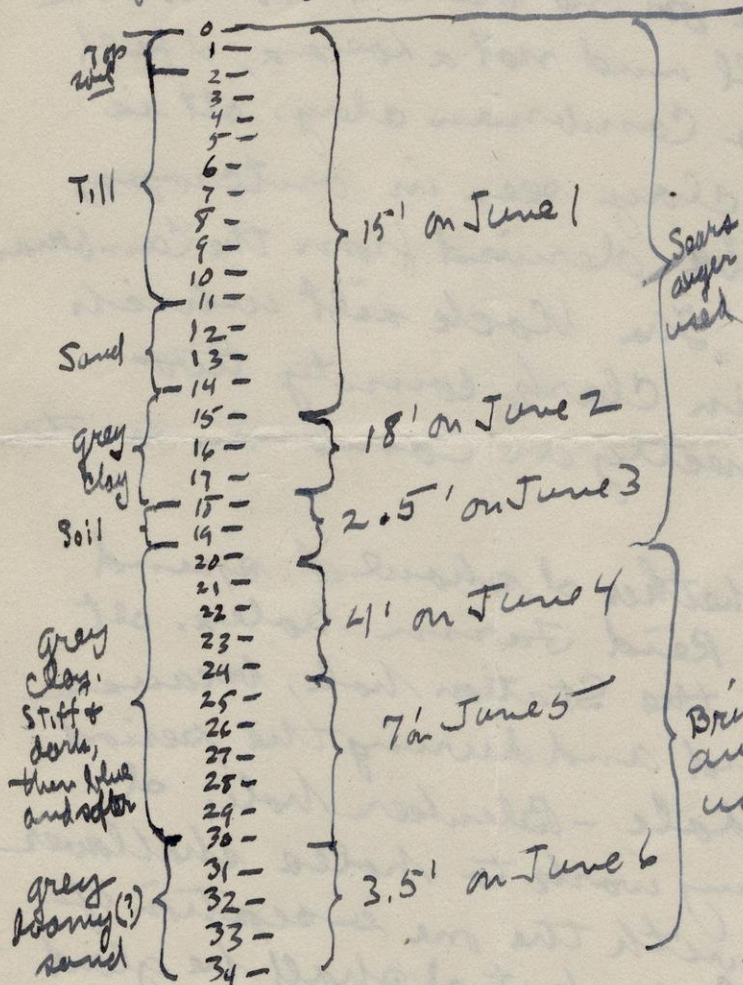
Prof. F. J. Zuurwate, 411 Roby Road,
Madison, Wisc.

Dear Professor Zuurwate:

1001 So. Cherry St.,
Marshfield, Wisc.
June 7, 1942

Thank you for your letter of June 4.
I am glad that the N.E. Wisc. report is done.

I spent the week on the hole at the Station with the
following result:



On June 4, after lunch I began the practice of raising the auger about 5 feet and plunging it back to the bottom of the hole. This plunging pounded clay up into the auger and caused the blades to bite into more clay. This speeded up the rate of deepening the hole.

On June 6 I was working in sand.

I could not bring up more than a cup-full at a time no matter how much I plunged. I suspect

that the sand ("loamy" sand) which did come up was held

together by clay slumped in or scraped down from the hole above. Mr. Carlson and Mr. Smith and Mr. Reid think that after about 6 more feet of sand I would hit granite, if I could go through the sand. I think it is a hopeless task to try to go on with the sand. I also do not wish to drill another hole at the

Reid Farm since I have already gone 27 feet there and hate to think of spending a solid week on another hole there. I do plan to start a new hole between Auburndale and Blender tomorrow (Monday).

Of course my reluctance to deepen the holes further at the Station and at the Reid Farm is chiefly a result of the fact that I don't like to spend a week or two on one hole. Also it is very hard work! I am also convinced, at present, that there is only one till and that is on the buried soil. The clay below that is not a till and not a loess, I feel sure, but is very probably Cambrian clay. It is the same color as the grey clay seen in outcrops, though it might possibly be derived from the Cambrian and redeposited in a lake. The black silt which I found in a ditch-cut in Clark county two summers ago rested directly on Cambrian sandstone and "clay".

Please let me know whether I should spend more time on the Station and Reid Farm holes. It ~~would~~ take a day to clean out the Station hole, because of slump over the week-end and during the period I am drilling the Auburndale - Blender hole. I should prefer to restrict my work to holes shallower than 16 feet, from now on, with the one exception of the Auburndale - Blender hole, but I shall be glad to do what seems best to you.

It is still in the habit of raining once in 24 hours, sometimes heavily. Friday evening 1.2" fell. A month of such rains is considered very unusual here and is preventing ploughing, sowing of corn, mowing, and is causing floods.

Very sincerely yours,

Francis D. Hole

41 Roby Road,
Madison, Wis.
June 10, 1942

Mr. F. D. Hole,
1001 So. Cherry St.,
Marshfield, Wisconsin

Dear Mr. Hole:

Your very interesting letter of the 7th was at hand last night but I had no time to answer it.

The slow drilling is certainly not encouraging. I think we ought to have made a different sort of bit, one like the original rotary cutter that is a tube with teeth just on the edge. Sticky clay would then enter better, I think. A slight constriction of the bottom would hold it, I hope.

With regard to the bottom material I have a few suggestions to make. Cambrian shales below the Eau Claire are rarely calcareous or dolomitic. The basal Cambrian sandstones are generally quite coarse-grained and could not be drilled at all. If you are in a soft sandstone the samples may be contaminated with clay from above. Cambrian sandstones are nearly all quartz grains and can easily be distinguished from drift sands.

You will recall that the Marshfield water works tests disclosed a lot of sand and gravel below the till. May not these fluvial deposits include some lake sediments? Possibly these are outwash from an older till which ends somewhere to the north. Judging from the test holes the chances of finding a pre-soil till are remote but it may be present farther north.

I agree that it is not advisable to deepen either of the two holes at least just now. It would seem better to get more data on depth of leaching and patches of till in Weidman's Driftless Area. Possibly if time can be spared and a good site chosen a deep test within the Cary drift might disclose some more buried soil. I am afraid that the Neillsville soil report is something which lies too deep for you to check. I have not heard anything from Bertward this year since I gave him a reference for a job with T. V. A.

We have not had so much rain here although it is quite wet. I am trying to catch up on well records. Mary Jane is doing the bottling. Almost everyone is gone now except Schoenicke and Dickson. I must get down to the building as morning is the only time to examine samples. We can't find the little hammer for opening boxes. Have you seen it? We had to put your material on the floor and cover it over so as to be able to use the table. A lot of samples accumulated even before Seeger left.

The Auburndale test may prove interesting. Anyhow we will hope you may find another soil!

With best regards to both of you and best wishes for better luck with not so much hard labor,

Sincerely,

1001 S. Cherry St.,
Marshfield, Wis.
June 14, 1942

Professor F. J. Thwaites,
41 Roby Road,
Madison, Wisc.

Dear Professor Thwaites:

We spent Friday taking samples in the "driftless" area. This included drilling a hole 6 feet deep with the post-hole auger about 3 miles south of Marshfield. The till is full of granite boulders, below 2 feet, and I was unable to go deeper than 6 feet because of them. We drove to the patch of Colby soil North-West of Moinee and took samples with a soil auger and spade. This seems to be "loess" or "rotten" gravelly material full of stones & boulders, perhaps bed-rock. I could penetrate only 3 feet.

Saturday we took samples to a depth of 3 to 6 feet in ditches, of till, west of Marshfield on the "moraine" and north near Spencer.

I am inclined to think that there is only one till here. The shallow depth of leaching near Auburndale is explained by the impervious grey clay substratum. Judging from leaching, where drainage is better, I should say this till is early Wisconsin.

image.

I might summarize my ideas about the essential characteristics of the materials in this area, thus:-

1. Waxy material in the tills. (Stiff clay?)
2. "Rotten" material in tills. (Spots of yellow, green, red, blue colors, decayed pebbles, "mealy" residual-looking materials.)
3. Variety of stones in tills.
4. Sand prominent in tills.
5. Velvety top-soil.
6. Variability of materials, depth to bedrock etc.
7. Shallow depth of till, especially near streams and most especially near the Wisconsin River.

I think that the material in the till at any one locality is at least 75% local pre-glacial material. Thus near Marathon stone piles are nearly all granite, while s. e. of Marshfield about 12 miles, stone piles are largely sandstone. In the Auburndale area few stones, relatively, were encountered and clay, perhaps calcareous clay, was encountered by the glacier, while west of Marshfield gravels were incorporated into the waxy clay till.

It is never-the-less not clear where the "waxy" material in the till came from. It was evidently wide-spread in north-central Wisconsin. I suggest it occurred as ~~pre-glacial~~ ^{Cambrian} clay. The source of the CaCO_3 also is a mystery. It may have been Cambrian (?) or outwash & lake deposit. Both clay and CaCO_3 might be from pre-Wisconsin outwash, glacio-fluvial and glacio-lacustrine deposits. The "driftless area" certainly lacks the variety of pebbles which characterizes the till of the "glaciated" area. I think the velvety topsoil is less in most places, and colluvium and alluvium in low places.

Nelson suggested that the actual terminal moraine of Cary till is north of Weidman's boundary, since Weidman's boundary includes a lot of outwash in the Cary. I think that is probably very true. Perhaps air photos will show where pitted outwash leaves off and Cary moraine begins.

We drove over a low marshy area in the flat country west of Spencer. Except for Rice Lake, east of Marshfield, this area has no lakes, which Weidman thought was an indication of the ^{great} age of the drift. However

there are numerous marshy areas which are poorly drained. Since the till is a thin veneer, lakes can hardly be expected to ~~have~~ been deep. Evidently they have filled up and become marshy areas.

With best wishes, I am

Very sincerely yours,

Francis D. Hobbs

P.S. At the place where we bored 3 miles south of Marathon, boulders were numerous in the subsoil below 2 feet, but were not present in the upper 2 feet. This fact and the silty, "velvety" feel of the top soil makes me favour the loess hypothesis. If this loess blanket came after a considerable period of erosion, the loess blanket would cover up lag-gravels on the uplands in the "Driftless area" and elsewhere. This blanket would also cover outwash and bare bed-rock. It may be that in the "Driftless Area" erosion went so far as to remove all traces of till, even the stones and boulders, and that much of the Marathon soil is loess on eroded granite terrain.

F. D. H.

type and then into calcareous limestone.
Louis Nelson was here last night and
while I am wishing for a Cambrian marine
deposit to account for the waxy fine material
of the till, and for the CaCO_3 , Nelson is
wishing for a lake, a pre-Cary lake
extending from Lake Winniebagos to Clark
County. This lake would account for
the clays & silts in the till there, and
also for the Superior soils which he says
are mapped from L. Winniebagos up toward
Steven's Point. We both agreed, however,
that it is more important to get samples and
record facts than to theorize.

Wednesday A.M. early, I twisted one prong
of the Brinkman auger nearly off and
crumpled the other prong. I thought I was
pushing a stone aside in the green clay, but
I guess the stone was too large. It may have been
bed rock, but these soils augers are unable to
bring up bed rock samples! I plan to continue ^{elsewhere} with
the Sears auger, which is quite satisfactory.
We will put down a 15-to-20-foot hole near
Marathon tomorrow.

There were 2 hammers in the well record
room, one a geology pick and the other, a
small wedge-handled metal one. The former
I thought I left out in plain view on a table,
the small one I believe I left among my
stuff, covered up by sacks and paper, on the
little table where I worked. I hope you can find
it among my things.
With best wishes from both of us to all of you,
I am, very sincerely yours, Francis D. Hole

Professor F. J. Shwartz,
41 Ruby Road, Madison.

1001 So. Cherry St.
Marshfield, Wis.
June 11, '42

Dear Professor Shwartz:-

Thank you for the letter of

June 10.

The last two days we have been driving over parts of Wood and Clark Co.'s, collecting samples in ditch exposures, to depths of 5 feet at most. Mech. analyses of these samples will be of interest in regard to the "loess" problem, as well as to the nature of the till in the beached zone. I am convinced again that this is till up here, for the most part! I believe that the sand we ran into at 34 feet at the Experiment Station is probably not Cambrian. Today we went to the place in Clark County where I said I found "black silt" under till. I found that it was a layer 3 inches thick of black "wavy clay", under 5 feet of typical wavy ruddy brown till, and lying on blue-grey sand, which I took for rotten Cambrian sandstone, two years ago. Today, however I spaded up 3 chalcedony round stones in that sand, and so I suppose it is fluvial. The black clay looks like a seam of coal, appearing in the ditches on both sides of the road. Locally it splits into three horizontal seams (1" thick) with till between. Yesterday (Wednesday) we collected some ^{more} red-brown "wavy clay" at a small pit in Cambrian beds about 12 miles south of Marshfield. It would simplify the problem of this area if it were true that the basal Cambrian once graded northward into "wavy clay" of this

1001 South Cherry St.,
Marshfield, U.S.S.
June 9, 1942

Professor F. J. Shwaites,
41 Roby Road,
Madison, U.S.S.

Dear Professor Shwaites:

We spent Monday and today boring at the roadside south-east of Auburndale where you and I once stopped to see calcareous till at 3 feet. The material was much softer than at the Experiment Station, apparently. The log, to date, is:

0' - 10' = "Calcareous type till" Water Table at 10'

10' - 29' = "Gray clay"

29' - 30' = "Green clay"

} Brunken auger used from 21' to 30'.

We plan to continue tomorrow to see whether the green clay is residual on rotten granite or not, hoping to reach bed rock in the next few feet.

Some ideas on the "gray clay" are:

1. It is Kansan till under Iowan till.
2. It is a lake deposit, from drainage from various remote ice lobes.
3. It is residual soil from granite
4. Locally it is Cambrian clay.

These last two days have been fair, ~~to~~ cool, ideal for work.

Agnes joins me in sending greetings to you and your family.

Very sincerely yours,

Francis D. Hale

June 17, 1942

Mr. F. D. Hole,
1001 South Cherry St.,
Marshfield, Wisconsin

Dear Mr. Hole:

Your letters of June 9, 11, and 14 have been in my file at home waiting a chance to answer them. I certainly am glad to hear how you are getting along. Today I despaired of getting a chance to answer the letters at home so brought them to the office where I get more "peace and quietness."

I will try to give you some of my ideas so far as they have occurred to me. It looks as if there must be lake and stream deposits under the Marshfield till. These deposits must be of glacial age I should think. They are calcareous and are separated from the till by a soil zone which involved considerable leaching. Weidman gives an analysis of the Milladore clay on page 559 and says it is at least 33 feet thick. I should think it possible that the till got its carbonate from such older clays which in turn derived it from a calcareous drift from either northwest or northeast. This only shifts the problem in age.

As for the Cambrian clays so far as I know the shales of the Mt. Simon are free of carbonate. There is little dense clear clay in these shales but for the most part much sand and silt. In the Eau Claire horizon carbonate is present but the physical nature of the shales is much the same.

I have some difficulty in figuring a proglacial lake but after allowing for subsequent earth movements such might be a possible explanation.

I am much interested in your recognition of a supertill loess. This would help explain a lot of things. I do not recall seeing much in the way of lag gravels, however. They are very abundant in Iowa and you remember seeing them in Minnesota last fall.

We found the hammer as you described. Had not wanted to move your material before. Catching up on the samples is slow work as there have been many interruptions. Tomorrow I will have to stay home all day as Billy is going to have his tonsils removed. We hope it will improve his eating. I am working with Bobby trying to teach him to read. He is so much interested in learning that I think we will try to push him ahead and improve his speech at the same time.

Twenhofel, Newell, Emmons, Kummel and Scheonicke are around and seem to be about all those left. Bailey has a job in the iron country.

Calcareous clays are widely distributed in the north. I have found them almost everywhere even in the Lake Superior basin. I have also found Niagaran pebbles at several widely scattered localities, the last near Ashland.

With best wishes for your finding a solution to the problems,

Sincerely,

address until June 27:
1001 South Cherry St.
Marshfield, Wis.
June 21, 1942

Professor F. J. Thwaites,
41 Roby Road,
Madison, Wisc.

Dear Professor Thwaites:

Thank you for your letter of June 17. I hope Billy is doing well and that Bobby is learning rapidly.

Since I wrote you on Wednesday, we have been to Rib Hill (on Friday) and have dried sample bags and tied them up, for ~~two~~ two days (Thursday and Saturday). I was able to find 3 boxes around the Experiment Station which I patched up with boards and nails and filled with samples. We have collected quite a lot of sacks of soil and till, far more than can ever be analyzed, but providing a good variety to choose from. After looking for the peat at the Reid Farm, on Monday, I plan to send pipe, mast and boxes by freight to Mrs. Nelson at Science Hall and then spend the remainder of the week in the "Driftless Area" and drilling to get depth of leaching.

I feel that the solution of the Driftless area problem, like that of many of the problems of this area, is not at hand. I found a waxy material adjacent to a broken granite or other cryptocrystalline outcrop in the

Driftless Area, which I consider to be residual material. The waxy nature of the material is like that of till prevalent south of the sandy-stony till area, and I now think that the source of the waxy material in the till is in the residuum, and not in Cambrian clay. If the glacier came from the N.E., crossing the Wisconsin Valley, it is easy to see how the waxy residual clay was carried west over the sandstone country to Neillsville and Thorpe.

On Friday I bored three places to a depth of 18 feet with the soils auger, about 6 miles west and then north of Edgar, in the upland area there. I found no calcareous material! I was surprised to find at 2 of the places that the waxy till is only 6 feet thick and lies on a velvety buff silt, which definitely resembles water-laid silts which I have seen on the Black River flats near Medford, and north of Neillsville in cuts, and around Marshfield at depth. I am more and more impressed with the idea that the glacier came over an area of residual clays and outwash, including much silt and much gravel. The water-laid deposits were on the flat uplands, just where flat marshy uplands now occur, as well as in some if not all valleys. Locally the water-laid deposits were calcareous, very much so in the "calcareous strip" from

Auburndale to Marshfield, less so to the north-north-west, and not at all calcareous at many places.

I wonder if the glacier came from the N.E. across the Wisconsin River Valley which may have been pretty full of outwash. A thin veneer of till was laid down on bedrock, on residual clay, on outwash, on soils on outwash, and on "kames", which may be erosion features in gravel deposits. Strangely, all traces of till are gone from the Wisconsin Valley. If the valley were full of outwash when invaded, and if the outwash has been removed since glaciation, to a large extent, the present driftless area might result. But it does seem odd that no remnants of ice contact terraces, or kames or morainal ridges survived erosion.

The Spencer soil is caused by the two to three foot blanket of silty material, irrespective of the substratum. Probably wind is not the only agency involved in the deposition of this blanket, which makes it a complex problem in itself. Mechanical ~~analysis~~ ^{analysis} of this topsoil, and of the soil from the top of Rib Hill, and of river silts which resemble them, should be interesting.

I think that Weidman's Milladore clay is the same as the calcareous till of the "calcareous strip". I shall bore at Weidman's locality to check this.

If we had a well-drilling outfit and could go to bedrock many places, it would be a help. The complexity of this area, however, may be a result of a fairly simple set of circumstances such as I have suggested above. The major contribution in my thesis, however, will be facts gathered in the field and analyses made in the soils lab., I believe.

With best wishes from us both to all of you,

I am,

Very sincerely yours,

Francis D. Hole

1001 So. Cherry,
Marshfield, U.S.S.,
June 17, 1942

Professor F. J. Thwaites,
41 Roby Road,
Madison, Wisc.

Dear Professor Thwaites:

Monday we were as far as Medford, 12 miles from Merrill, and through Athens and vicinity. Tuesday we worked north and west of Medford, and today went to Prentice, Hawkins, Neillville and 12 miles south-east thereof.

Two miles S. W. of Dorchester I bored 18 feet in till with a soils auger and found it to be faintly to fairly calcareous below 8 feet. at 18 ft. I still had not reached the water table.

It may be that there are 2 tills in Weedman's area. One, south of the "term. moraine", has a "waxy" matrix, while the other, north of the "term. moraine" has a sandy matrix. A simple field test is that of the use of a soils auger. It is impossible to bore into the sandy-matrix till while it is possible, though sometimes more difficult than at other times, to drill into waxy-matrix till. The till ~~at~~ ⁱⁿ the "Marshfield moraine" near Marshfield is a stony phase of the waxy-matrix till. I am not at all sure that the differentiation

Of waxy and sandy tills is valid, but it seems to me that mechanical analyses of samples from north and south of the "terminal moraine" will show two distinct classes. If this is true, then Weedman's boundary for the "term. mor." is far from exact, since the change in materials is not ^{closely} connected with obvious changes in topography, apparently. Some sandy-matrix till occurs in Weedman's III Drift area, and I found waxy-matrix till near Gilman today, which is about 7 miles North of Weedman's "term. mor." boundary. I think that much of the "term. mor." is pitted outwash.

The job of boring widely over the area to a depth of 13 feet or so, for backing data, would be a long, hard job, since only 4 to 5 such holes can be made with a soil's auger in a day, and out of 20 or more holes only one, at best, would be likely to show calcareous material.

We plan to leave for Madison Saturday noon, June 27, at the end of the 4th week here. ~~After~~ ^{After} a day in the "Drifters area" & at Reid Hill, and collecting days in this marshfield vicinity, I plan to put down test holes with the soil auger, at the Reid Farm. If I find the "peat", I shall go down with the post-hole auger and get large samples. This Saturday we shall dry samples at the Ex. Sta.

With best wishes, I am, Very sincerely yours,
Francis W. Hole

Professor F. J. Thuwates,
41 Roby Road, Madison.

Marshfield, Miss.

June 25, 1942

Dear Professor Thuwates:

Monday we drilled 23' with a soils auger at the Reid Farm and found no peat. The till stopped at 19'6". The auger broke off the pipe once, but at the top of the hole, and so was not lost and could be taken to town for rethreading.

Tuesday ^{A.M.} we shipped the large pipe, mast, platform, and 4 boxes of samples, prepaid. We spent the afternoon zig-zagging across the Marshfield moraine as far as Granton. Near Granton I found a patch of "till" which is extremely calcareous at a depth of 6'6". It is of the same color as the Auburndale - Reid Farm material. This color is also strikingly duplicated in some of the alluvial silts, both above and below the till. It suggests to me that an alluvial deposit furnished the main ingredients for the "gray-brown calcareous till".

Since the car brakes were getting so weak that it was difficult to stop quickly on the moraine, I spent Wednesday in a garage helping a mechanic to put on new brake linings, and bolts connected with steering apparatus. Today, Thursday, the starter ceased to function, in the middle of the afternoon, but is now repaired. We have had only one leak in an inner tube, to date.

We spent today looking at the Driftless Area from Milwaukee to Marathon. It is well named, apparently. I could not find Weidman's calcareous clay, though I dug at only two places along the road, both within $\frac{1}{2}$ mile of his locality. The deposit to which he refers must be of small areal extent. His statement that the non-calcareous clay above is 4 to 6 feet thick, agrees with my measurements of beaching which now extend from Plunker to Granton and Darchester and the "Terminal Moraine" adjacent to Medford.

I shall see you on Monday, next, probably.

Very sincerely yours,

Francis D. Hole

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MARTHA WHEELER, CUSTODIAN AND SECRETARY

September 23, 1942.

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

Dear Dr. Thwaites:

I am leaving tomorrow for Iowa City for a little study of the Iowian under the guidance of Dean Kay. I shall probably go from there to Lincoln and on my return am hoping to go by way of Madison. It will probably be at the end of the week. I should like to stop off at Madison and have a talk with you and also have you show me some of the etched boulders which you have recently located.

I have asked the University to order one of your "Outlines" and it has already been put on the list. I shall also be glad to acquire one for myself when I see you.

If you are to be in Madison at the end of the week, will you please send a note to me in care of Dean Kay at Iowa City.

Very sincerely yours,



W. H. Hobbs

UNION COLLEGE
SCHENECTADY
NEW YORK

October 17, 1942

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

Dear Professor Thwaites:

Thank you very much for your prompt reply to my letter. Both your "Outline of Glacial Geology" and the G.S.A. bulletin are on order.

I agree with you that field observations are absolutely necessary to a thorough understanding of eskers since generalisations, especially on this matter, seem extremely dangerous. However, in view of the fact that field work is out of the question at this time, I believe that laboratory experiments could produce forms comparable to certain eskers, esker deltas and even esker systems by approximating conditions which must accompany the recession of an ice sheet.

Yours very truly,

George F. Hanson

George F. Hanson
Assistant in Geology

UNION COLLEGE
SCHENECTADY
NEW YORK

October 9, 1942

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

Dear Professor Thwaites:

I am assembling data on the various hypotheses of esker formation, prior to research on this subject.

I noticed that Professor Lobeck had written that experimental evidence had shown the plausibility of deposition under hydrostatic pressure, but I was unable to find satisfactory references to this theory in the literature at hand. He referred me to you for information on the subject and I would be very grateful if you could let me know if such data is obtainable.

Yours very truly,

George F. Hanson

George F. Hanson
Assistant in Geology

Oct. 12, 1942

Mr. George F. Hanson,
Union College,
Schenectady, New York

Dear Mr. Hanson:

Yours of the 9th is at hand. The reference of Professor Lobeck is probably to some work done here about 20 years ago. This study was for a bachelor thesis and I do not think it was directly under my supervision. The student made some paper tubes a few inches in diameter and placed them in a box. He then fed sand and gravel in one end and by slowing the flow was able to make a deposit in the bottom. Most generally there was either very coarse gravel or a break just below the upward hump in the tube. With the experience of the years since that time I can truthfully say that I now realize that the scale of the experiment was so small that it really proved nothing of importance. I have seen two small eskers which do really cross over minor drumlins. However, I feel that accurate surveys of eskers in the field and examination to prove actual direction of flow would do more to clear up the problem than anything else.

The subject is discussed at more length in my "Outline of Glacial Geology" and in a paper now in press with the G. S. A. In both I stress that not all esker-like ridges had the same origin.

Sincerely,

May 18, 1942

Lieut. Port
Military Science Department
University of Wisconsin

Dear Sir:

Francis Hoffman was employed inquired geology field work under my supervision on the 11th, 18th, and 25th of April and the 9th of May.

Very truly yours,

Fredrik T. Thwaites

Inman Hotel

FIREPROOF

DELIA BROWN, MANAGER

CHAMPAIGN, ILLINOIS

Sept. 28, 1942

Dear Dr. Thwaites:

My plans had to be changed
and I am leaving for Ann Arbor
today. Please let me know your
localities for ribbed boulders not-
withstanding differences of interpretation.
I enclose \$2.50 for a copy of the
"Outlines" to be sent me at Ann
Arbor.

Very sincerely,
Amos

Dec. 28, 1942

Dr. William H. Hobbs,
Dept. of Geology,
University of Michigan,
Ann Arbor, Michigan

Dear Dr. Hobbs:

Yours of Sept. 23 has been in my file a long time. I tried to locate boulder localities but there are so many it was hard to list them and I could not travel around very far because of the tire question.

One of the best boulders is that with the Henry quadrangle tablet on it; this is on University Ave. A very good example is in the lawn at 1717 Summit Ave. Another carries the tablet for Olive Jones Field at Randall School. Chamberlin Rock just west of the Observatory (tablet stolen for the Scrap Drive) is very instructive. It has ribs only on the sides which were buried in the earth before it was stood on edge a few years ago. There are none on top or bottom. The top only could have been exposed to the wind. Bottom was kept dry. The Summit Ave. example shows clean sharp-edged ribs which could not have been made by wind. It is only in fresh deep excavations we find boulders with any polish or striae and then only the more resistant kinds of rocks preserve these features. There is so little dune sand on the drift hereabouts that wind etching must have been slight despite the loss.

Sincerely,

KENNETH K. LANDES, CHAIRMAN
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J. T. WILSON, GEOPHYSICS
J. T. GREGORY, VERTEBRATE PALEONTOLOGY
EMELINE DELABAR, CUSTODIAN AND SECRETARY

Dec. 31, 1942.

Dear Dr. Thwaites:

I was very glad to get your note with new localities for ribbed or recessed ventifacts. Among the campuses now with many such memorials are Illinois, Iowa, Purdue, Oberlin, Michigan and Wisconsin; often with cut-in inscriptions. Because a new face is exposed to the sand-blast each succeeding winter season, they tend to take an ellipsoidal form, which is very common. One-sided ones like the Chamberlin memorial are quite rare, and for the reason you give. Strange that we were not before impressed by the variety of faceted and striated boulders, except in deposits of moraine material.

I have a large monograph now going into print in the Proc. Amer. Phil. Soc. (Glacial anticyclone and North American glaciation)
Sincerely, Ames Starks

Earlham College,
Earlham, Indiana,
January 26, 1943

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

Dear Professor Thwaites:

Agnes and I had a pleasant trip from Madison to Richmond on Friday. We spent Saturday morning at Earlham College and took an afternoon bus to Indianapolis where we visited with relatives for a few days.

The decision from the appeal board concerning my status has not yet come. I shall write you again when my plans become definite.

With best wishes for you and your family and for everybody in the Department, at Science Hall,

I am,

Very sincerely yours,

Francis D. Hole

Earlham College,
Earlham, Ind.,
February 7, 1943

Professor F. J. Thwaites,
41 Roby Road,
Madison, Wisconsin.

Dear Professor Thwaites:

I have just time enough
to write you a hasty note, enclosing a card
from Dorothy Full concerning the paper.
Thank you for sending the paper to New Haven.

I am teaching the following courses:

COURSE	NO. of STUDENTS
① Historical geology	23
② Mineralogy	3
③ Petroleum geology	1
④ Physiography of the E. U. S.	1

We are using Dr. Winchell's new mineralogy
text in mineralogy class and laboratory. Mr.
Peters taught sedimentation here last year
and used Dr. Twenhofel's text then. I have
used and shall use your "Outline...", and
so Wisconsin - produced texts are in favor
here. I used Twenhofel & Shrock one year here.
Enrollment is still fairly good here...

Morale is surprisingly high
with respect to academic work. I have some
very outstanding students, but no senior
geology majors.

I shall teach here until I am called.
I have not heard from my board.

I often think of you. This brings greetings
from Agnes and me to you and your family,
and to our friends in Science Hall.

Very sincerely yours,

Francis D. Hole

Feb. 12, 1943

Dr. Francis D. Hole,
Earlham College,
Earlham, Indiana

Dear Hole:

I was very glad to get your two letters but a bad cold, no, I mean two of them for Billy was also the same, plus a case of German measles (Boboy) have rather cut into spare time. I note you are giving some courses with only one student each. We refused that and as a result both Physiography and Glacial were cancelled. I have 9 in Mapping which keeps me rather busy although not excessively so. Besides this I have 11 in Geology 17 lab and 16 in Geology 1 lab. If Gekking is called out as rumor suggests he will be, then I will have to take a section in Geology 19 as well. So many of the boys expect to be called at once that they are no longer going to classes. Besides I have two quiz sections in Physics and have to go to two lectures as well. So far I do not seem to have been able to get into their methods of teaching which include a lot more written and board work than we have. But I will get used to it in time and, well, I just don't always see their methods. Its mass production there and the morale is not all it might be as I see it.

Bullock is the only grad left now. The mapping machine works fine. Bradley has just finished a big job with it.

Best regards to both, Sincerely,

Feb. 12, 1943

Miss Rollin Hunter,
4541 Teus,
Bellaire, Texas

Dear Rollin:

I have been meaning for a long time to write and thank you for the bottle of relish. Of course, we are not able to do any canning that late in the year up here!

But the three boys keep us pretty busy with no maid any more. However, I doubt if we could have kept a maid any more since rationing for they waste so much food. Our bills were cut in half when the last one left about a year ago. Just now we have had two in bed, one German measles and the other a cold.

The University is very dull with students leaving in great numbers to go to the war but so many of the faculty have left that the work for those left is heavier than ever. I have two physics classes besides as the Army seems to favor that and to regard geology as unimportant. They have more students than ever there.

Bobby is a great talker now. Often he asks me to "Tell me a story about Uncle George."

With best regards from both of us,
Sincerely,

Feb. 12, 1943

Miss Rollin Hunter,
1501 Elgin, Apt. 3,
Houston, Texas

Dear Rollin

AMERICAN JOURNAL OF SCIENCE. Published at New Haven, Conn., in MONTHLY Numbers, two volumes a year; \$6.00 a year in advance, 60 cents a number, \$6.35 to Canada, \$6.60 abroad.

501 Sterling Tower

New Haven, Conn. January 29, 1943.

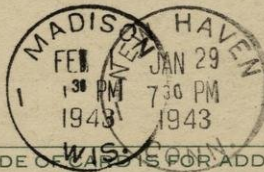
My dear Mr. Hole:

The paper entitled, "Correlation of the Glacial Border Drift of North Central Wisconsin," which you so kindly sent to the above address, has been received by the American Journal of Science, and will be given immediate attention.

Most sincerely yours,

Dorothy Lull-

Dorothy Lull, Editorial Secretary



THIS SIDE OF CARD IS FOR ADDRESS

Mr. Francis D. Hole,
Department of Geology,
The University of Wisconsin,
Madison,
Wisconsin.

*Earlham College
Earlham, Ind*

Feb. 24, 1943

Dr. F. D. Hole,
Earlham College,
Earlham, Indiana

Dear Hole:

A letter from the American Journal of Science to

Prof. Tenhofel was given to me for reply. It states that your paper cannot be published free unless figure 1 and the plate of photographs are cut out. I do not recall just what figure 1 is but think it was important and I am sure the photos are. Cost of including these items will be \$20.00 Now I feel so strongly that these should be included that I am willing to pay part or all if need be of the \$20. Please let me know what the figure is before I reply.

I still have 8 mappers but the physics classes are all shot by withdrawals and illness. Had only half the original in one last Friday. It sure takes a lot of work but I am learning a lot both of Physics but also of how they teach over there. Comments have been struck out by the censor! We have had two cases of German measles at home. I had some more sore throat but it is better tonight. Every time I figure our income tax I make it bigger but hope to have something left! Oetking left this week. Now Hoffman is our only assistant. I am kept busy making up new exercises. I have worked out a new method of figuring Polaris improved from an old one and very simple. Hope to make a device to measure hour angle from the sky. Will send you copy.

Sincerely,

March 1, 1943

Dr. Richard S. Lull, Editor,
American Journal of Science,
501 Sterling Tower,
New Haven, Connecticut

Dear Sir:

Your letter of Feb. 17 to Doctor Twenhofel in regard to the manuscript by F. D. Hole was given to me as the work had been done under my direction. I was unable to reply until I had consulted Dr. Hole at Earlham, Indiana.

He feels that it would be a shame to omit the photographs and Figure 1 is so small that it would not make much difference to leave it out. He asked me to advance the \$20.00 so I am enclosing check for that amount. I have been handling these matters for as Hole is a Quaker he may be interned at any time.

Very truly yours,

OFFICE OF
The American Journal of Science
501 Sterling Tower

New Haven, Conn. February 17, 1943.

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

My dear Doctor Twenhofel:

The paper you so kindly sent to the above address, entitled, "Correlation of the Glacial Border Drift of North Central Wisconsin; by Francis D. Hole", has been accepted for publication in the American Journal of Science.

While all of the figures and photographs are interesting, may we ask in the interest of economy for the omission of figure 1 and the plate of photographs? If, however, the author can aid in the cost of the illustrations, and wishes to contribute \$20.00 toward the total cost, we will be able to afford the space.

We hope to be able to publish the article sometime during the latter part of the summer season.

Trusting to hear from you in the near future concerning the matter of the illustrations,

I remain yours most sincerely,

AMERICAN JOURNAL OF SCIENCE

Richard S. Lull

Richard S. Lull, Editor

RSL/dl

Earlham College,
Earlham, Ind.
Feb. 25, 1943

Professor F. J. Thwaites,
University of Wisconsin,
Madison, Wis.

Dear Professor Thwaites:

Thank you for your
letter concerning the paper.

Fig. 1 is the small index map showing
where North Central Wisconsin is.

I think that all figures and photographs
should go in. After all the work which
has gone into such a paper, it would be
foolish to omit anything at the last minute,
in my opinion.

Will you please pay the \$20.⁰⁰ now,
and I shall send you a money order
for \$20.⁰⁰ within two months. The delay
seems necessary since I shall need a
couple of salary checks from the College
before I can catch up. I do not expect or
wish you to pay any of the \$20.⁰⁰ when all
accounts are settled, but I should
appreciate your paying the \$20.⁰⁰ for me
just now, with the understanding that
I shall reimburse you before May.

next quarter I plan to teach:

- (1) mapping
- (2) Economic geology (with some structural)
- (3) History of geology.

I shall be indebted to you for your ideas concerning mapping techniques, such as in regard to polaris, which you mention.

I am still uninformed by my draft board. We have nevertheless moved into my parents' old home, on the edge of the campus.

I do not like the one-student classes, but have to continue them for this quarter since Mr. Peters began them. The quarter ends in the middle of March.

Thanks you for taking care of the paper.

Very sincerely yours,

Francis D. Hole

March 1, 1943

Dr. F. D. Hole,
Earlham College,
Earlham, Indiana

Dear Hole:

Thank you for yours of Feb. 25. I have sent check to the American Journal of Science. If you are interned just let it go for the duration.

Things have been rather hectic at home. We have had four cases of German measles at home now, the last starting this noon. When I will make the fifth is a problem! This program has been varied with several flu attacks also well distributed. Most of the neighbors are in the same situation, however.

Classes are being reduced daily. Now Bradley has been called and is trying to rush his thesis through. My Physics classes seem hardest hit but there has been so much illness that ~~that~~ it probably accounts for for some of the missing. I am getting out new directions for Polaris (much simpler, I hope) and for the use of the mapping machine. Will send you copies soon, maybe not until I have had the measles, however!

Sincerely,

March 9, 1943

Miss Dorothy Lull,
The American Journal of Science,
501 Sterling Tower,
New Haven, Connecticut

Dear Miss Lull:

In reply to yours of the fifth Dr. Hole appeared
anxious to retain Figure 1 in his paper. It was to be
reduced to a very small size so will not cost very much.

Very truly yours,

OFFICE OF
The American Journal of Science
501 Sterling Tower

New Haven, Conn. March 5, 1943.

Dr. F. T. Thwaites, Geologist,
41 Roby Road,
Madison, Wisconsin.

My dear Doctor Thwaites:

We have on hand your kind letter of March 1,
with the enclosure of \$20.00 as against the reproduction
of the full tone plate to go with the paper entitled, "Corre-
lation of the Glacial Border Drift of North Central Wisconsin,"
by Francis D. Hole, for which we are most grateful. We will
therefore use the full tone. We are still uncertain concerning
figure 1. Do you wish us to use this also. You rather left
it to our decision. We will gladly cooperate with you in this
important matter. May we have your final word concerning figure
1 by returned post, so that we may go ahead with the papers
routine.

Most sincerely yours,

AMERICAN JOURNAL OF SCIENCE

Dorothy Lull

Dorothy Lull, Editorial Secretary

March 17, 1943

Dr. F. D. Hole,
Earlham College,
Earlham, Indiana

Dear Hole:

Thank you for yours of the third with money order for cost of the paper. I did not expect you to send this so soon. I have not looked up about separates. I will try to send you one of mine as soon as possible. They wrote again about Fig. 1 and said to put it in.

Enclosed are some of the new mapping problems. I still have 8 in the class and am making plans to take them to Devils Lake if it is possible to get enough to feed them. We have one and possibly two cars promised so transport will be all right. It is mainly the food problem now.

I was just getting my Physics classes under control when a lot more were wickered onto me. I am getting hardened to the different atmosphere and hope to make good. Anyhow, I have not had any kicks myself. Attendance is improving and I have hopes that the worst is over now.

I put a lot of work on the new problems and then no sooner were they run off than I began to find typographical errors!

Sincerely,

Earlham College,
Earlham, Ind.,
March 3, 1943.

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

Dear Professor Thwaites:

Please find enclosed a money order for twenty dollars (\$20.00) in payment of the extra expense on the paper for the American Journal of Science. I suppose the charge for separates will come up later. Thank you for taking care of this for me.

I am extremely busy, getting settled in the house as well as in the laboratory, museum, and class rooms at the College. I hope to be able to make room in my program for research by summer.....all depending on whether or not I am deferred.

A student found a specimen~~x~~ in the Richmond beds, this week, of about 1 1/2 inches of the arms of a crinoid.

I hope your physics students have settled down by now to work the rest of the semester and to be regular in attendance! Attendance here is good, at classes, but morale is higher, I think, than at the University, just now.

With best wishes from us both to you and your family,
I am,

Very sincerely yours,

Francis D. Hale

Department of Geology,
Earlham College,
Earlham, Indiana,
April 22, 1943.

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

Dear Professor Thwaites:

Thank you for the two
separates of the report on Stratigraphic Work in N.
Michigan and that on N.E.Wisconsin. I have enjoyed
both, which represent a tremendous amount of care-
ful work.

Mapping class~~x~~ consists of 7 students. On rainy
days we map in the Museum, following a great Wisconsin
tradition.

We are starting out to have a garden, this year,
which takes considerable time, but seems necessary.
It might be considered as a practical application of
soil science.

With best wishes,

I am,

Very sincerely yours,

Francis D. Hole

April 30, 1943

Dr. F. D. Hole,
Earlham College,
Earlham, Indiana

Dear Hole:

I am sending proof of your paper under separate cover. I found only one mistake which is corrected. I also thought the word "Text" could be left out in front of "Figure" but as we did nothing about this before I will not insist.

I will take 50 reprints with covers but wish you to fill out the blank for order yourself. I think each galley will make about $2\frac{1}{2}$ pages and then you have to add the cuts. I did not figure it out. Please send on the proof as soon as possible. I am afraid I was slow but there have been many interruptions. Even tonight I have films in the wash water now.

I did pull off the Devils Lake trip in spite of all restrictions. We had the old C. C. C. camp and lived in luxury compared to the 20 other trips! But there will be no trips in either General or 17. The girls promised to neither vamp anyone or to fight one another and kept the promise! Billy went along and was guard for one of the girls.

Best regards,

Sincerely,

May 10, 1943

Mrs. A. C. Holscher,
22 West Wilson St.,
Madison, Wis cousin

Dear Mrs. Holscher:

At last I have finished the Devils Lake photos including three by Mees and am sending them enclosed.

I was pretty sleepy for over a week this time and it also took some time to get over my cold. Then I had some trouble getting developer and the first prints I made a mistake and got too weak a solution. Besides we have been spading up our lawn for a garden which keeps me very tired. Nothing is planted yet but it has been so cold and dry that we have not missed anything.

Had a letter from Phil Oetking of the 1941 party. He is a Knoxville, Tenn. It is reported that Townsend is now caring for insane patients in an eastern hospital. Dorothy is with him, we heard.

Billy still talks of going to see Nancy Oestreich. Not a single map has yet been finished in final form and here it is the last full week of school!

Sincerely,

OFFICE OF
The American Journal of Science
501 Sterling Tower

New Haven, Conn. July 16, 1943.

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

My dear Mr. Thwaites:

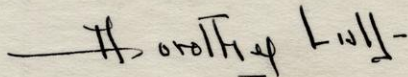
Mr. Hole's paper is to appear in print in the
August 1943 issue of the American Journal of Science.

You mentioned the fact of his possible internment
because of his religious convictions, and that all correspondence
should take place with you. Do you wish to have his reprints (and
bill) sent to you at the above address, or shall they be sent to
him at Earlham College, Indiana. That address was given us by him in
a letter dated May 4.

May we hear from you by return mail concerning this
important matter.

Most sincerely yours,

AMERICAN JOURNAL OF SCIENCE

A handwritten signature in dark ink, appearing to read "Dorothy Lull", with a horizontal line extending to the left.

Dorothy Lull, Editorial Secretary

July 31, 1943

Miss Dorothy Lall,
The American Journal of Science,
501 Sterling Tower,
New Haven, Connecticut

Dear Miss Lall:

In reply to yours of the 16th I have had no further information in regard to Dr. Holo. He promised to inform me if he had to go to a Conscientious Objectors Camp. As I have not heard I think it will be all right to send his reprints to Earlham College, Earlham, Indiana. There will certainly be someone there to look after them if he has gone.

Very truly yours,

Earlham College,
Earlham, Indiana,
August 9, 1943.

Professor F.T. Thwaites,
411 Roby Road,
Madison, Wisconsin.

Dear Professor Thwaites:

I have received 100 copies of reprints of my paper. I believe that 50 of these are for you. Kindly let me know whether or not you have received your copies under separate cover. Since I can not remember just how many I ordered for myself, I am not sure but that 50 of these are those which I ordered for you.

Work progresses here very well this summer. We have about 100 students, and all of them are here for a reason, so work is of high calibre. I have only three students in physical geology and 1 in paleontology but they are the best students I have ever had. They are a pleasure and a stimulus to teach. I am also teaching German to some of the conscientious objectors who are studying here this summer. There is a unit of 20 ~~men~~ of them here, who were ~~xxx~~ selected out of the 7,000 men in the Civilian Public Service (C.P.S.) camps to continue graduate work in preparation for reconstruction service abroad. One of these 20 men has a PhD, several have an MA and all have at least a BA. They are worked very hard here, studying French, German, Economics, culture and geography and geology of France, nutrition, reconstruction administration, and skills (mechanical, agricultural, etc.). I lectured in French on the geology of France, at the beginning, and subsequent lecturers, especially the economics professor, have built on the geologic foundation in a fine way, making clear to the men how basic the bedrock pattern of a country is.

Enrollment prospects are very good for next autumn. Apparently many people are finding out that Earlham is one of the few places where armed forces have not encamped. We thought that the decision not to apply for a military unit would cause the college to suffer greatly for its ideals, but it seems that the absence of a war atmosphere here, and the presence of a peaceful constructive atmosphere is proving to be an asset, in more than one way. I am deferred to teach until Nov. 1. It is quite possible, perhaps even likely, that I shall be called to a CPS camp after that, though I should consider myself ~~more~~ useful here teaching geology and some soils.

Concerning the Civilian Public Service Unit, I meant to say that congressional action has cut short that program so the men will have to return to camps at the end of this month instead of studying for 9 months as the former plan had been. Some of the congressmen felt that the C.P.S. men

should not be given a college education free. Of course the facts are that the men are paying \$35.00 a month here, as well as at the camps, that their educational expenses are being paid by the peace churches, not by the government, that the men are not getting any college credit, that the men are working as hard as the soldier students do at the Universities. I fail to see anything soft about this CPS program, and fail to see how it is costing the government anything. In fact it is saving the government money by preparing men at private expense for a job which will have to be done soon.

I am preparing a course on weather and climate, which interests a great many students, especially the young women, now. It is good to know something about those subjects in connection with geology.

In the Museum work, I have opened the Museum to the public several times, the first times for 20 years. We have a new temporary exhibit room now. We plan to have a large room or so, as large as that at Science Hall, when our new Science Hall is built, which we hope will be within the next 10 years. I am going over my collections, arranging study collections for the geology courses. There are also thousands of birds skins and mounted birds, which are used for the biology classes. I have the new grinding equipment going, and we have made some thin sections of Richmond limestone, and are going to make some of granite erratics, etc. I hope I can send some students to Madison, when the war is over.

Agnes joins me in sending all good wishes to you and Mrs. Thwaites and your boys.

Very sincerely yours,

Francis D. Hole

Francis D. Hole

Enrollment prospects are very good for next autumn. Apparently many people are finding out that Durham is one of the few places where armed forces have not encamped. We thought that the decision not to apply for a military unit would cause the college to suffer greatly for its ideals, but it seems that the absence of war atmosphere here, and the presence of a peaceful constructive atmosphere is proving to be an asset, in more than one way. I am deferred to teach until Nov. 1. It is quite possible, perhaps even likely, that I shall be called to a CPS camp after that, though I should consider myself most useful here teaching geology and some soils.

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Aug. 13, 1943

Dr. F. D. Hole,
Earlham College,
Earlham, Indiana

Dear Hole:

Yours of the 9th is at hand but I delayed answering until I could see if any separates came here. None have come so I conclude that they sent them all to you. They wrote to know if you were still at Earlham and I replied that so far as I knew you were.. Thank you for the copy you sent me. If you will kindly send me my share (whatever part of the 100 you will not need) I will pay you for them and the cost of mailing. They will have to go parcel post rate..

We were much interested in your account of what you are doing. You must certainly be busy and seem to be doing valuable work.

Life is greatly changed for me. I was called back to Physics on July 5 and now have seven sections with about 160 students. Of these 105 are in the Navy. Of these quite a number are older boys who have seen several years service and are sent here to study Engineering. The rest are new recruits and so are freshmen. They only get 6½ hours sleep most nights so are tired and sleepy especially in hot weather. It is quite a problem to keep up their interest. Prof. Winans gives the lectures. Most of them find he goes much too fast for them. But I trust some of the troubles will iron themselves out shortly. Morale is much better than in the last war when we had the terrible flu epidemic. I have an office in Sterling along with Prof. Ramsperger of Eng. Philosophy. That is a joke because when I volunteered to try Physics I said that Philosophy was one of the things I drew the line at! Well, I am getting used to it but seven times over the same assignment is really a job.

Then our garden keeps me busy. In the spring I had to strip sod before planting which made us late. But things have grown well and we have had lots of things from the garden. My hands are turning brown from so much contact with the earth!

In late May Mrs. Thwaites had a serious operation followed by radium and x-ray treatments. She is feeling fine now but effects of the treatments are annoying. She is going to take Tommy up to Houghton on the bus in about a week on account of his hay fever. Of course, I cannot go. Bobby has learned to read and we hope he will now do all right in school if he can bring himself to following orders and doing what the others do. Failure to do that is his greatest trouble.

The others are in bed or on the way so will close with best wishes to both of you,

Sincerely,

Sept. 5, 1943

Dr. F. D. Hole,
Earlham College,
Earlham, Indiana

Dear Hole:

I am afraid that I have been slow in answering yours of Aug. 25 but we had an exam and have just recovered from that rush. Meantime a lot of well samples came in and I had to put in extra time on them trying to catch up. Besides Amy and Tommy were up at Houghton for a week during which I just had no time at all.

I can't explain the bill except that it is probably simply a misprint so am sending my check for \$4.45 covering my half and postage to me. I have not yet used any of them because I think you sent copies to the others here. I also had a letter from Laverett but have had no time to think over the matter. I just dream physics problems at night and geology with the exception of well records is rather out of my thoughts. This afternoon was mainly devoted to the Sept. 15 income tax return but then I am getting used to figures!

Rebeck and Seeger were in town recently. I also saw the Wilcozes. Mrs. McKinstry was in town recently. Trenchel is back from Oregon. They are working some of his discoveries already and typical of the times, running the gold into the tailings. Con was up north for a while and was said to have been looking for molybdenum. I have not seen him. The boys start in school this week. Bob has learned to read. He promises to attend strictly to business in school.

Sincerely,

Department of Geology,
Earlham College,
Earlham, Indiana
August 25, 1943

Professor F.T.Thwaites:

I have received the bill from the
American Journal of Science, as follows:

100 reprints...	\$5.25
130 covers...	2.55
Postage	0.75
	<u>\$8.55</u>

428
18
446

I don't understand about the difference in number of covers from the number of reprints. Can you explain that to me?

I enclose a copy of a sketch map and letter which I received from Leverett today. I am keeping the original to put on file here. If you wish to see the original I can send it to you. I thought it would be best to have two copies kept at two separate places, to be sure one, at least, survives.

I am glad that Mrs. Thwaites is getting along alright after her illness. Agnes joins me in sending her our good wishes.

Your job in the physics department sounds like a lot of repetition, but the subject is interesting, certainly. Here we are winding up the summer quarter. I gave a short talk on the geology of Belgium and Holland today in one of the economics and history classes, by invitation of the professor. I found some interesting material in the French encyclopedia, Larousse, and the German encyclopedia, Der Grosse Brockhaus. They both consider the Zuider See to have been produced by a sinking of the coast, and do not refer to the theory of the rise of the ocean level with the melting of the continental glaciers.

I am sending two more copies of the paper to R.J.Muckenhirn, who wrote me, expressing approval of the diagrams. He says that Dr. Iver Nygard at St. Paul and Mr. Alex Robertson of Marathon County are doing soil survey work in the north central Wisconsin area and wish copies.

Next ~~quarter~~ ^{quarter} I am offering Glacial geology and soils, mapping, Physical geology, seminar in petroleum geology. We are getting many applications for admission here, naturally from many women, but also from men under 18.

With I should be interested in your reactions to Leverett's map. I am not familiar enough with areas to the west to criticize

his suggested correlation. I am writing to him to thank him for his new contribution, and I shall state that I have put a tracing of his map in your hands.

With best wishes, I am

Very sincerely yours,

Francis D. Hole
Francis D. Hole

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I am glad that Mrs. Thwaites is getting along alright after her illness. Agnes joins me in sending her our good wishes.

Your job in the physics department sounds like a lot of recreation, but the subject is interesting, certainly. Here we are winding up the summer quarter. I gave a short talk on the geology of Belgium and Holland today in one of the economics and history classes, by invitation of the professor. I found some interesting material in the French encyclopedie, Larousse, and the German encyclopedie, Der Grosse Brockhaus. They both consider the latter to have been produced by a thinking of the coast, and do not refer to the theory of the rise of the ocean level with the melting of the continental glaciers.

I am sending two more copies of the paper to R. L. Mendenhall who wrote me, expressing approval of the diagrams. He says that Dr. Ivan Hyslop at St. Paul and Mr. Alex Robertson of Karthaus County are doing soil survey work in the north central Wisconsin area and wish copies.

Next summer I am offering Glacial Geology and Soils, replacing Physical Geology, seminar in petrology and geology. We are getting many applications for admission here, especially from many women, but also from men under 16.

With I should be interested in your reaction to Everett's map. I am not familiar enough with areas to be able to criticize

(Carbon copy)

Ann Arbor, Michigan, August 29 1943.

Mr. Francis D. Hole,
Earlham College,
Earlham, Indiana.

Dear Mr. Hole:-

Your letter of August 26 is received, and I am glad to learn that you have sent a copy of my map to Thwaites. He will probably be able to determine from the soil profile of the Patrician red drift whether it is as recent as the Iowan, or as the drift you have described in your recent paper in the American Journal of Science.

In case he finds it to be as recent as these drifts, it seems important to have this shown on the ^{Glacial} map of North America now in process of publication, under the direction of Mr. Nichols of Ottawa, Canada. Prof. Paul MacClintock of Princeton University is now the Chairman of the Glacial Map Committee, and so is informed as to the state of the publication of this map, and in correspondence with Mr. Nichols, or with the publishers. I think it is being handled through the Geological Society of America, and financed from the Penrose Fund allotted to that Society. I think you ~~may~~ may do well to send MacClintock a tracing of my map, and call his attention to your paper in the Am. Jour. of Science, and send him a reprint of it. Ask him if it is too late to get this correlation and new interpretation put on the map. If it is a true and clearly made interpretation it will be a pity not to have it presented as thus established, instead ~~of~~ in the way it had been interpreted by Weidman.

I will send Thwaites a copy of this letter, and ask him to report promptly to MacClintock whether it seems to be a probable correlation. ^{In case it is,}
I think the name Iowan is the best one to be given it on the map.

Very truly yours,

Frank Leverett

Ann Arbor, Mich. August 29 1943.

Dear Professor Thwaites;-

I am glad Mr. Hole sent you a tracing of the map I had made which carries the suggestion that the drift on which he has a paper in the August number of the American Journal of Science will correlate with the red drift of the Patrician, and also with the Iowan gray drift of the Keewatin ice center.

Can you not determine from the soil profile of the red drift of the Patrician center whether it is as recent as the Iowan, and whether it seems likely to correlate with the drift discussed by Hole.

I am wondering if you have not made a more detailed map of the limits of the red drift of the Patrician center than I made. If so, it will be important to show it as you have it, rather than to use the line I have drawn on my map that I sent to Hole.

The Iowan is exceptionally strong in the northwest township of "abasha County, Minn. as a kame moraine for a distance of 7-8 miles, with knolls up to 30-40 feet in height, rather closely aggregated. Farther south the border is somewhat less definite, and is obscured by a capping of loess. But on the whole is better defined than in Iowa. Its most prominent feature in Minnesota is the kame belts that radiate toward its margin and occupy some of the large valleys that had been formed in the Kansan drift in the long Yarmouth interglacial stage. If Hobbs could have gone up into Minnesota and seen these features, he would not have made the queer interpretation of the Iowan that appears in his recent monograph published by the American Philosophical Society. I will have a review of this publication in the next number of the Journal of Geology.

Please report to MacClintock your findings as to the correlation
(over)

that I suggested of the red drift of the Patrician center with the
Iowan drift of the Keewatin center and with the drift discussed by
Hole. I have asked Hole to send Macclintock a tracing of my map.

Very truly yours,

Frank Leverett

Feb. 7, 1944

5

Miss Rollin Hunter,
4541 Tenth, P. O. Box 428,
Bellair, Texas

Dear Rollin:

I have been intending to write and thank you for the bottle of Pickles you sent us a month ago but the combined pressure of teaching for the Navy V-12 program, income tax and the three "wild Indians" at home just kept me from it. Today most of the latter are outside in spite of the cold, the second is nearly licked and the first bids fair to ease up in about three weeks. So I am going to try to catch up a bit on matters which were laid aside before as not so pressing as others.

The Navy teaching (physics and not my own field) started July 5 and has gone on with only a few days off ever since. I have enjoyed it although results are not up to standards of normal times. The boys are well. Tommy is in Junior High now and feels quite grown up. He audits the physics and astronomy classes at the University whenever he can. Billy took the Spanish class to school where it was much appreciated. Bob is learning to read and takes much interest in his school and in learning to dance. Amy had a serious operation last May but is feeling better now.

With best regards,

Sincerely,

zone 5

April 10, 1944

Dr. Francis D. Holo,
Civilian Public Service Camp,
Big Flats, New York

Dear Holo:

The enclosed proof of abstract of your thesis came the other day and I am sending it to you as requested. I sent back the other copy marked O. K.

I assume from your last letter that you are already interned albeit not behind barbed wire as it would be across the water. We trust you will find things to keep you busy during your stay. I'm kept busy here. Mrs. Thwaites went to the hospital for a gallstone operation. We had Mrs. Holscher staying with us. Then she worked too hard and got another heart attack. So I was left alone to keep house and still do my work at the U. W. Amy is back now but the woman I had to clean just called up that she is ill so that's that. I have Bill down at his aunt's for the week and end her daughter will try to help us during the vacation this week. I have only two mappers so it's Picnic Point and not the Lake this year. The Navy has no spring vacation anyway.

Sincerely,

EARLHAM COLLEGE
RICHMOND, INDIANA

The Department of Geology and Geography

March 12, 1944

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

Dear Professor Thwaites:

Since I am closing up my teaching work here for the duration, I wish to write to you about how things have been going since I left Wisconsin before I get involved in details of moving. I am selling our old house and furniture and am going to Civilian Public Service Camp at Big Flats, N.Y. (Chemung County).

I enclose some articles on the geology of this area here which are being published in the local newspaper. Richmond is a town of 35,000 people, so geology is before the eyes of quite a number of people by this means. If popularization of the subject is necessary, as some geologists think, seeing that geology is so ignored by large sections of the nation, perhaps these articles are a help. There are 9 of them in the series.

When I came back here a year ago I had 2 student majors in geology. Now I have 4 majors, which is excellent considering a total student enrollment in the college of only 250, and with a geology dept. enrollment of only 18 students each quarter. Most students here are taking medical and business preparation courses during the war, so some of us in little departments have few, though excellent, students.

I have converted the geology dept. into a Dept. of Geology and Geography, which was quite a step, I thought. But whether I come back to teach here after the war or not, the college is going to need a set of geography courses to better care for the needs of future high school teachers. The curriculum which I have drawn up for the new dept. is geological in emphasis and could be handled by a geology man with a minor or the equivalent in geography.

I have the satisfaction of having placed one man in soils work of the government before leaving here. Nobody was prepared to go into geological survey work. The man whom I am placing is 4-F because of stuttering, but is otherwise a fine man.

What do you think about the prospects for teaching geology in a University after the war? 1) Will positions be open which pay enough more than colleges to make it worthwhile? 2) Do those positions lead to enough accomplishment in research to make up for the lack of the kind of independence which is to be found in small departments in colleges?

I have spent a lot of time working in the Joseph Moore Museum, opening up 2 display rooms which were just storage before. Labor shortage has made it necessary for me to do most of it myself, but it has been good experience. The exhibits include passenger pigeons, a mastodon, a fossil beaver (*Castoroides ohioensis*), a good array of Richmond fossils, hundreds of bird skins and mounted birds, minerals, (over, please)

EARLHAM COLLEGE
RICHMOND, INDIANA

some mammals...a giant panda skin, for example. I have been getting the public interested again in the Museum, which was closed from 1924 (date of the fire) until 1943.

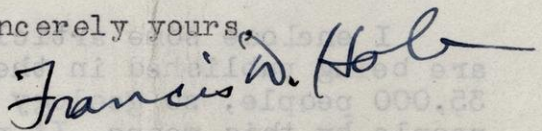
I sold my Ford last week, and was sorry to see it go. It had been on blocks for one and a half years. It was a faithful companion in North Central Wisconsin.

I trust that you and Mrs. Thwaites and the boys are in good health despite the rigors of winter. We appreciated your Christmas card.

With best wishes,

I remain,

Very sincerely yours,



Francis D. Hole

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Yale University, New Haven, Conn.

Past President, E. L. BRUCE

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THE GEOLOGICAL SOCIETY OF AMERICA

OFFICE OF THE SECRETARY

March 21, 1944

Dear Fellow:

The Geological Society maintains at headquarters a photographic record of its members. The collection, started in 1939, is fairly complete, about 78% of the Fellowship being represented; but the Secretary is constantly campaigning to bring the degree of completeness nearer 100%. The photographs are by no means to be considered as inactive file material. We receive calls each year for loans to other organizations or extra copies for publicity or other purpose, where our ability to meet requests is of personal service to our people.

This letter is directed to the newly elected Fellows and those others who are not represented in the collection. Won't you please send us a photograph. A glossy print will be quite acceptable. The standard size is 7" x 9", but we will be glad to receive any size which you have available.

Very sincerely yours,

H. R. Aldrich

H. R. Aldrich,
Secretary

March 16, 1944

Dr. Francis D. Holo,
Earlham College,
Earlham, Indiana

Dear Holo:

Yours of the 12th is at hand and we are all sorry you have to go to the concentration camp. But the war has disrupted the lives of almost everyone. For me it has meant a shift to Physics where most of my students are in the Navy.

I can see why you sold the car as it would not be worth anything after the war but I do not quite get the matter of the house. However, as long as you owned it it would be a lever to get you back at a lower salary than otherwise. I always advise young people not to purchase real estate for this reason. With regard to other jobs I for one do not like to speculate on what things will be like after the war. After the last one there were many unexpected changes and I strongly think that we can have no accurate idea of what it will be like after this one. Our geology department here will be entirely different with Leith, Winchell, Twenhofel and Howell all gone. I think Tyler plans to return but of course he may not. I know less about McKinstry but surmise it is about the same with him. A hostile new administration might force me out for as you know I never went on to get a doctor's degree. On the whole I should think that Earlham would still be your best chance, although it is true that in larger schools more time can be given to research.

We were much interested in what you have done with the museum and in changing the department. I have not yet had time to read all of your newspaper articles. The idea of such is excellent.

Last May Mrs. Thwaites had an operation to remove a tumor followed by radium and X-ray treatments. Now she has gall stones and another operation is advised. How we will get along while she is in the hospital remains to be seen. It will be tough to say the least. The boys will have to take lunches to school and stay all day. I can handle the meals but not the cleaning. The woman we had last spring was taken ill and after two months is still unable to return. The boys have kept reasonably well and so have I but are so full of life that it is hard to get anyone else to look after them. Bill is the biggest problem. Although at home with a cold he had to throw pepper in Bobbie's eyes after supper! What for, well to create excitement I suppose. We have decided that he must be sent away to school next year if it is at all possible. Tom has just joined the Boy Scouts but his last report card! Bob is coming along all right but is a terrific talker. All of them now have crystal radios because of the shortage of tubes. That is a help as they do not disturb the rest of the family!

Tomorrow will be well records again. I have three in physiography and two in mapping. Now I have only two physics quizzes and one lab.

It's bed time so must close with hopes that thing soon will be better.

Sincerely,

5
May 23, 1944

Dear Mrs. Holterman:

Robert has been home Monday and Tuesday of this week with an abscessed ear. As I want to take him up to Dr. Nesbit to have it checked, I am asking you to excuse him at 10:00 this morning. Dr. Nesbit is not in his office on Tuesday afternoon.

Yours very truly,

Amy M. Thwaites

zone 6

Oct. 9, 1944

Dr. Francis D. Hole,
Civilian Public Service Camp No. 83,
Coshocton, Ohio

Dear Hole:

I am afraid yours of Sept. 6 has been in my folder a long time but this morning I have a few minutes to myself before I have to go to the Physics Lab. I was laid off from the V-12 program when new contingents got small. However, I was recalled this fall and put in a civilian section along with a girl who took physics just last year and is an undergraduate. Besides this I have two sections in Geology I laboratory and 8 students in Physiography. There has been another deluge of well samples. I worked mornings on them much of the Summer and afternoons revising the Outline of Glacial Geology. That is a big job for there have been so many new ideas since I wrote it that mention must be made of those which appeal to me as worthy. Of course, I ignore the flood of papers by the late Charles Keyes. One can scarcely mourn his passing any more than the recent decease of Ulrich! Both were monkey wrenches in the wheels of progress.

Oct. 13

I had to close my typewriter and am now able to open it again. I had to move to another office in Sterling and the lock on that jammed so that I can not get in! I hope it will be fixed before Monday when I go over there again. I heard that they expected some advanced students in geology but if any arrived they did not come my way. We lost one of the girls who intended to major. She took mapping and made a terrible fuss because she did not get an A. Now she has gone to another school but nobody seems to regret that! If there are any majors left I have not seen them.

I am glad you have been able to get into work which seems to be preferable. Let us hope the war will not last so much longer and we can then begin to get back to normal. That was why I started the revision of the Outline so as to get ready for the expected rush of students. Already we have several discharged soldiers, some good, others terrible. By the way, I have an unpaid account of \$2.50 for an Outline sent to A. R. Lundahl, Standard Materials Corp., 612 Illinois Bldg., Indianapolis. If you know anyone there who wishes to collect this account they can have it all.

I have been doing some reading on the mathematical treatment of erosion and hope to soon begin working up something along the line of analysis of slopes. I also want to get time to read Bagdolt's Physics of sand dunes. My review of physics and algebra make it better for me in understanding these things! My time in Physics was not all wasted effort, you see. I also got out the map of Lake Michigan and obtained some new data for it in a conference with Cohee who is working on the geology the the deeper formations in Michigan. Trask is to come here after the war and they have not yet anyone to take Howell's place. McKinstry also will not return having obtained a much better job.

We are glad to hear from you at any time.

Best regards,
Sincerely,

Civilian Public Service Camp #46,
Big Flats, New York,
April 12, 1944.

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

Dear Professor Thwaites :

Thank you very much for your letter and enclosure. I am taking advantage of your suggestion that I may simply say the summary is OK as far as I can see. However, I shall not destroy the copy which you sent me for a week or so, in case you should wish me to send it in with my OK written on it.

Agnes, who is living in Indianapolis, and I are very sorry indeed to hear of Mrs. Thwaites' illness. We send our best wishes for better months and years ahead, after the operation. It is certainly unfortunate that help problems are so difficult just at this time.

I arrived here on March 25. I understand that the Chemung River here used to flow north-east to Horseheads, and there joined a Susquehanna River which flowed north before the glacial times; that the ice ponded these rivers, and as a result the Chemung spilled across a divide between Big Flats and Elmira and cut that valley deeper than the original Big Flats-Horseheads valley. The hills here are made of the grey facies of the Upper Devonian Series. I suppose the rocks here are about Chemung in age, though I don't know. I wish it were possible for me to identify the fossils here. Some are spirifers, I know, but that's as far as I have gotten. I am in process of planning a relief model of this township. It will be about 3 feet by 3.5 feet in size. The highest hill, Quackenbush, is approximately 1,000 feet above Big Flats, and it will be only an inch high on the model. I do not intend to exaggerate the vertical scale. I plan to enlarge the horizontal and vertical scale of the US topographic map 5 times. This will make errors considerable, I know, but the educational value of the model will not be spoiled for most of the ~~xxx~~ men here, who know nothing about geology. I plan to paste the enlarged topographic map on the board, and put in nails along the contour lines, pounding them in to the right height according to scale. Then I shall fill in between with paper maché, and paint it all. I trust I shall have time enough.

The "work of national importance" here, for which we are here, is tending the government soil conservation service nursery ^{one mile west of Big Flats} ~~here~~, which supplies trees to the north-eastern states. Also grasses are grown here. The first two weeks I spent in the state forests on these hills, thinning out the sugar maples. I ~~guess this~~ hear that this place was lumbered over just as North Central Wisconsin was. Stumps make fences around many fields, still. We used the axe pretty hard those two weeks. Since then we have come in from the woods, where work was done in the winter months, and are pulling up small Norway Spruce, white Spruce, hard maples, willows, poplars, etc. by the thousands, tying them in bundles of 50 each, and healing them into ~~xx~~ trenches, ready for shipping out. Rain interrupts our work this week, a good deal. The rain is thawing out the ground, which remained frozen until this week. I was interested to note cavities in the frozen ground, where we dug some trenches for healing in, which cavities were lined with ~~xxxx~~ needles and blunt knobs of ice, looking very much like calcite crystals lining cavities in fossils and limestone at Richmond, Indiana. Ants and earthworms occupied some of these cavities.

(over)

Summer work hours are from 7:30 to 12:00 and 1st to 5:00, 6 days a week. We get 2.5 days furlough for each month in camp, provided we work and obey rules. We are under Selective Service, and although the camp director is a Quaker, and the Project superintendent is a Soil Conservation Man, a uniformed army man from Selective Service Staff checks up on the camp at intervals, and penalties are controlled by Selective Service. Half the men here are married. The level of education is very high, most men being college men if not college graduates. There are about 6 Ph.D.'s in this camp of 140 men. There are 6 negroes. One of the men is a professional violinist, there are accountants, cooperative store managers, YMCA directors, teachers, insurance salesmen, farmers, recreation leaders, etc., etc.

Selective Service points out that a large number of men have come into CPS camps and have decided to go into the army. No mention is made, usually, of the few men in the army who find they are conscientious objectors, and who prove to be so useless to the army that they are finally sent to one of these camps. Most conscientious objectors in this country are in non-combatant service (1-A-O) in uniform in the army.

Well, I hope I haven't bored you with all these details. I should appreciate any suggestions from you about the geology of this area. I looked up the soil report for this county. Most of the soils are gravelly, containing much sandstone bedrock. There are so few obvious erratics, that I would have difficulty in proving that the glacier was here. In the glacial outwash and valley trains in the valleys there is a lot of Canadian stuff, and limestones as well as crystallines. But up on the hills there is little but local rock in the drift. Moraines are absent or at least scarcely discernible.

Before leaving Earlham I compared the Tioga Quadrangle, Pa. maps with soil maps of the same area, and noted that the bedrock pattern is, in general, repeated in the soil pattern, because the topography varies with the bedrock and topography has great influence on soil types.

I think of you often, and hope that you are not going to have to continue working so hard, considering family complications, no vacation with the navy.

Very sincerely yours,

Francis D. Hole

P.S. - You might be interested to know that only about 0.4 % of the drafted men ^{in the U.S.A.} were given conscientious objector classification. 7,000 men are in C.P.S. camps or are in "detached service" in mental hospitals, agriculture, experiment stations, etc. In England 0.7 % of the drafted men were classified as C.O.'s. The figures are approximate. F.D.H.

Christmastide 1943

109 PRICE STREET
JAMESTOWN, NEW YORK

My dear Friends, all:

The great task that has absorbed me since I retired in 1938, is finished! In other words the manuscript for the new edition of Anniversaries and Holidays; A Calendar of Days and How to Observe Them is in the hands of the publisher, the American Library Association, and I shall enjoy the holidays and the use of free time until proof begins to come.

This revision of a first edition, published in 1928, was undertaken lightly for it did not appear either a long or difficult task. But with the cataclysm of a world war and the constantly changing emphasis in the world that we have always known, it became a complicated undertaking. For who could tell what of the old might still be worth recording, how much of the new would bear recording?

The search for complete (day, month, year) and accurate dates of birth and death was often a merry chase, and identifications including nationality, not always obvious, and brief characterizations which make up the entries for some 1500 names were time absorbing but necessary material for the Anniversaries. Fuller yet succinct information was necessary for the Holidays, as librarians say, there is never enough to meet the increasing demands for their various celebrations in a world with more leisure and more money to spend as these days come in the calendar.

Gathering and editing the material and presenting it for ready reference use in a world that must read as it runs have kept me busy day and night for five years, including the last year and more in preparing the manuscript for the publisher, with typists either non-existent or so unskilled that they were almost hopeless. But with all it has been a fascinating piece of work. My only regret is that it was so demanding of time and thought that it deprived me of other activities, including letter writing and becoming re-acquainted in the old home community. With this explanation of my long silence, I am hoping to begin where I left off five years ago.

Dear Fred and Benj:

This is my Christmas card for 1943, though you would never suspect it was it not so labeled - an explanatory introduction prepared for all with a special note added for each. I am so far behind in all my human relations that this seemed the only way to catch up.

All the cordial greetings of the season to you and your fine, sturdy kids. How you must cherish them and what joy they must bring you. May all the joys of this happy season be with you, is the wish of your friend who thinks so much of you,
Mary Emogene Hageltime

Sept. 18, 1945

Dr. F. D. Hole,
Civilian Public Service Camp No. 23,
Coshocton, Ohio

Dear Hole:

I am writing you at the last address known to me which is that of Sept. 6, 1944.

We received a letter from H. F. Raup, Chairman of Department of Geograph and Geology of Kent State University, Kent, Ohio asking for someone to teach geology. The courses include general, historical and economic geology, physiography, and possibly also mineralogy. I know nothing whatever about the place but you were the only one I could think of who might be interested. If so please contact them.

We are just getting ready to start class Monday. The enrollment will probably be small in advanced work but a large class in general is to be expected. Cline is here to take Howell's place and Trask will soon be here to take Iven's. The latter is here now having returned early from Newfoundland. Tyler is to come back, I hear.

I spent part of the summer in the hospital with two operations, the last one a double hernia. It was only recently that I have been able to work full time. I had to push through the revision of the glacial book because of the early arrival of V-J Day. I have had a girl typing on it for nearly a month and it is almost done so far as that goes. The big remaining job is the illustrations which are to go in the text as far as possible instead of in plates. Most of these have been roughed out in pencil already. There will be two plates of photographs.

We have a bus strike on with no busses at all the last week so I have to drive to the office when I can have the car. There are a lot of samples now in to keep me busy but since Jerry was discharged from the Army I get a little help. Of course, I can do no lifting as yet. My typist is ill today so I am working alone on the porch because Amy needs the car this morning.

With best regards,

Sincerely,

Civilian Public Service Camp #23,
Coshocton, Ohio,
Sept. 6, 1944

Professor F.T. Thwaites,
Geologist,
41 Roby Road,
Madison, Wisconsin.

Dear Professor Thwaites:

This is to let you know that I am now located in the soils laboratory at a Soil Conservation Service research station near Coshocton. This is certainly hill country, a good place for run-off and erosion control studies such as are carried on here. I am having a chance to observe the operation of instruments in rain gages, run-off gages, and lysimeters, to observe methods of assembling data recorded on the charts on those instruments, and to learn procedures used here in the soils laboratory. I work in the lab. most of the time, but am in the field after each rain to collect samples of run-off water and sediment, collected at the bottoms of slopes in concrete tanks, below flumes. You are no doubt familiar with all this. I think there is a similar station at LaCrosse.

Before I left the SCS nursery at Big Flats, I completed my proposed relief map of the Chemung Valley in that vicinity. The narrows of the cut-off between Big Flats and Elmira is shown in the map, which measures a yard on a side. The scale is an inch to a thousand feet. The highest point on the map is Quackenbush Hill, 1,000' above the valley floor. I painted on the soil patterns and cultural features. The map can be used to illustrate the relation between distribution of soil types and topography, valley and upland areas. I shipped the exhibit, which had specimens of local rocks and fossils fastened below on the legend panel, to the Museum at Earlham.

Please give my regards to Drs. Twenhofel, Winchell, Emmons, Mrs. Neilson, and any and all other geologists or near relatives in and about Science Hall. I think of you all frequently.

I hope that you and Mrs. Thwaites and the boys are well.

Sincerely,

Francis D. Hole

Francis D. Hole

C.P.S.#23,
Coshocton, O.,
September 27, 1945.

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

Dear Professor Thwaites:

Thank you for your letter of
September 18. It is good to hear from you.

I am glad to know about the Kent State University opening. Although I am not interested at the moment, I might be, as the employment situation changes.

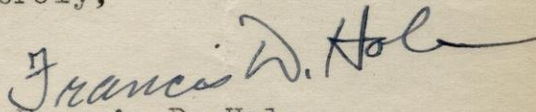
It is fine that you have made such progress on your glacial book. That is a great contribution to science. I am glad that the operations are happily over.

This should be an interesting year for you, with slowly growing classes, and with some new men on the geology faculty, and with some help on the samples. It is nice to have Jerry back.

We have no idea when we shall be allowed to leave. I have profited by the experience in the Soil Conservation Service research laboratory here, and by study in the evenings.

This brings greetings from my wife and little boy and from myself to you, Mrs. Thwaites, and the boys.

Sincerely,


Francis D. Hole

Sept. 18, 1945

Dr. H. F. Raup, Chairman,
Department of Geography and Geology,
Kent State University,
Kent, Ohio

Dear Mr. Raup:

In reply to yours of the 14th I talked over the request you made for someone to teach geology with Dr. Emmons who is now Chairman here. We could only think of one former student, F. D. Hole, who took his doctors degree here about 1943. I am writing him at the last address known to us to see if he is interested. I asked him to write you if he is. He has had considerable experience in teaching, and specialized in soils. You will find a paper by him in American Journal of Science, vol. 241, p. 498, 1943. If you fail to hear from him please write again and we will try further among the returning soldiers.

Very truly yours,

F. T. Thwaites,
Asst. Professor of Geology

Christmastide 1944

109 PRICE STREET
JAMESTOWN NEW YORK

My dear Friends, all:

Again I am sending Greetings for the Holiday Season collectively to all of you by the mimeographed way, but individually in thought to each as the envelope is addressed. A year ago at this very time I sent to the publisher the manuscript of the book on which I had been at work since 1938. Its preparation had absorbed me completely to the neglect of all human relations and I looked forward to free time for the amenities of living. But I failed to realize that the writing of a considerable Introduction, the making of a General Index, and a summer of proof reading would take the best part of a year, to the further neglect of friends and a comfortable way of life.

At last Anniversaries and Holidays; A Calendar of Days and How to Observe Them, is announced for December 15, and I am eagerly awaiting the first copy, after these six years of research. The American Library Association, Chicago, is the publisher, and as it is a reference book for libraries, public speakers, preachers, teachers, editors, and commentators, you will in due time find it in the reference department of various libraries. It was made for the use of all who are interested in gathering information on and in planning programs celebrations and entertainments around the major holidays, distinguished people, and great events. It represents an effort to link the present with the notable past. If you do look for the book in a library, ask for the edition of 1944, as the earlier one of 1928 is now superseded. My Jamestown friends and neighbors long ago ceased to believe that the book would materialize, hence these details for you at a distance, who had every reason to think likewise.

But a Holiday Letter should not be devoted to the work and trials of days that are gone but should be forward looking with the hope of those to come; to a time, when as Wendell Wilkie said, there shall be established "the great franchise of the mind, the universal franchise that is bound neither by color nor by creed, nor by social status," and to this I would add, nor by time and distance. The present crisis demands that all of our efforts should be focused on winning the war and the peace. To this end, everyone is carrying on to help prepare in America an understanding of the new world that is now being forged.

We pause, however, to celebrate the gracious season that emphasizes anew the hope of the world in the Christmas promise, "on earth peace, good will toward men." May it bring you joy and comfort, a Merry Christmas Day and a Happy New Year.

Faithfully yours

Nancy Eugene Hazeltine

Wednesday, June 13, 1945

Dear Sir,

Recently we completed another move, this time farther or deeper into the Alps and very near the Italian border. Our new location is in a large V-shaped valley and has many evidences of glaciation. For the first time since I took your Glacial Geology course, I've had an opportunity to witness the glacial material we discussed and studied. I've seen end moraines, hanging valleys, eskers, cirque fillings, moulin sours, glacial fill, glacial outwash, alluvial fans, boulder deposit, glacial milk, the degrees of stream carry, cirques, needles, and others.

I try to tie things together and derive
the big picture, the chronological story.

How are things in your department
this summer? Are any courses being
offered. Also, is there an increased
enrollment due to returning veterans?
I sure wish I could be back there,
a student once more.

Our job here seems to be a
Temporary police duty although I have
applied for a job or assignment with
the German Economic Control Agency,
something that could give me much
needed experience.

Bye for now. Give my regards to
all.

Sincerely,

Francis V. Hoffman, Lt.

0537962
502 Para Inf)
53 Bn-H

APO 472 Postmaster, New York NY

July 5, 1945

Lt. Francis V. Hoffman, 0537962,
502 Para. Inf., 3 Bn-H,
A. P. O. 472,
Postmaster, New York, New York

Dear Hoffman:

I was pleased to get your letter of June 13. It sure takes a long time for mail to come through now.

Things were very quiet around Science Hall during most of the war. I was with Physics for 5 semesters, I think I told you when you were last here. Now with Winchell gone to another job in the east, Tvenhofel in Newfoundland and me going to the hospital Monday for a double hernia operation the place will be almost deserted again. Gon is teaching in summer school. I found my old room taken by a class for blind students in Education when I went up there this morning. It was a busy place as long as school lasted for I had three lab sections in Geology 1 and had them up there where there is some light. But most were miserable students, far inferior to the average in Physics 1. That is because we draw the ones who did poorly in high school science. Of course there were a few exceptions such as a girl who made Phi Beta Kappa in her junior year. I also had 6 in Mapping. We did not even try to get to Picnic Point but worked more on photos and around the campus. I was quite lame from an abscess, I think. At least I have been better since it was removed in May.

In the fall Trask is to come and I think Gline also. If there are enough students Tyler will also return. But we do not seem to get such many veterans as yet. I have had a few for two semesters but some were very poor. Carter is back but unable to work because of illness. Tennant was the same but I have not heard from him recently. Marsden was back from the Japanese prison camp in Manila. He seemed to be pretty fair and has taken a job with Tyler. So you see our enrollment has not improved. We had a few 4-Fs and expect some of them back in the fall. Things will be much different then, just how much remains to be seen but the old days are definitely gone. Lieth is back for a time having left the War Production Board but he has to go back to Washington sometime. He also retires this year.

Tom and Bill are at the Scout camp leaving us with Bob only. He is going to Edgewood summer school and seems to like it very much. They would not let him work at Randall, so he lost interest. He reads very well and is improving since we let him work at home. Tom is leader of his patrol and is also delivering papers for the Capital Times. He has a substitute for the two weeks at camp. I have been working afternoons in the garden and on a revision of the Outline of Glacial Geology.

Well, If you volunteer to stay on the other side I expect you will be there for some time to come as such offers cannot be many.

With best wishes,
Sincerely,

STUDENT BOARD
OF
THE WISCONSIN STUDENT ASSOCIATION
MEMORIAL UNION BUILDING
MADISON, WISCONSIN

STUDENT AND PUBLIC RELATIONS COMMITTEES

November 18, 1945

Prof. F. T. Thwaites

Science Hall

University of Wisconsin

Madison, Wisconsin

Dear Prof. Thwaites:

I meant to write weeks ago thanking you for sending
the check for my book.

I appreciate very much your selling it for me; I would
not have done nearly as well at the book stores.

Thanks again.

Sincerely yours,

John J. Hebal
John J. Hebal

117 West Hampton Drive
Indianapolis 8, Indiana

July 24, 1946.

Dear Mrs. Thwaites,

I saw a letter from Francis today he wrote that he had written to you asking if we might stay with you August 1 to 6. On the same mail a note came from Selia Bascom, inviting us to use her apartment at that time since she will be out of the city.

Since our coming would probably involve preparation for us, we feel it would be more convenient for you if we stayed in Miss Bascom's apartment. We appreciate so very much your kindness in considering us, and since our plans for moving to Madison are most uncertain, it may be necessary to ask you for shelter at some later date. Francis will keep in touch with you about that.

We hope to see you while we are in Madison. It doesn't seem possible that all of your sons are old enough for Scout camp.

Sincerely yours,
Agnes C. Hale

Room 10, Hotel Quigley,
Antigo, Wis.,
July 23, 1946.

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

Dear Professor Thwaites:

Since writing you my letter of
July 22, I have received an invitation from Miss Lelia
Bascom, a good friend of ours, for Agnes and me to occupy
her apartment August 1-6 in her ^{Miss Bascom's} absence from the city.
Since the apartment is close to the University, I am
accepting the invitation.

My desire to rent the room at your home beginning
August first is unchanged, however, since your room is
the only one to which I can go on other occasions than
the Aug.1-6 week-end, pending possession of the house
we are purchasing. I should like to store some clothing
in the room early in August.

Today we have been doing office work on aerial photos,
transferring the mapping done in the early 1930's of this
county on the photos, ready for field checking. We note
on Photo BHW-16-16(taken 5-12-39), in Sec. 21, T 31 N, R 13 E
just south of the village of Elton, much pitted outwash with
longitudinal pits roughly parallel. Photo BHW-16-14, Sec. 9,
T 31 N, R 13 E shows what appears to be an old glacial river
channel. I regret that we do not have time to map details
of this sort, which would surely yield significant information
if carefully mapped.

With best wishes,

Sincerely, *Francis D. Hole*
Francis D. Hole

July 25, 1946

Dr. F. D. Hole,
Quigley Hotel,
Antigo, Wisconsin

Dear Hole:

Your two recent letters of the 22nd and 23rd are at hand. Doubtless you will find Mess Bascom's apartment much more pleasant for your visit here. We will look forward to seeing both of you and to having you here later. The room is now painted, curtains up, and almost all of our things removed ready for you.

I once looked over the aerial photos for Langlade County and noted many things I would have liked to check on the ground. I found that much of Aldrich's terminal moraine was really ground moraine with drumlins. I think that we checked pretty well on discrimination of till and sandy subsoils, however. Parallel pits in outwash seem to be fairly common as shown in illustrations in my report on Northeastern Wisconsin and in the new Outline. I hope that I will be able to do more work on the Pleistocene of northern Wisconsin.

Just now I am devoting what time I can get to geomorphology using a quantitative approach wherever possible. I want particularly to study up on the resistance of soils to erosion which I feel must set an end point to effective erosion. I have been rereading Horton's paper on erosion but cannot agree with him on all matters.

Hoping to see you when in Madison,
Sincerely,

10, Hotel Quigley,
Antigo, Wisconsin,
July 22, 1946.

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

Dear Professor Thwaites:

Thank you for your kind letter about the room. Agnes writes me that she can be in Madison the night of August 1, Thursday, through the night of August 5, Monday. I can be in Madison for the same period. We will appreciate renting your room for that time, and I should like to continue renting the same room until our house is ready which might be six months from now. Please feel free to let me know if the dates Aug. 1 - 6 are not convenient for you.

We have been working on the Antigo flats some. The topsoil is so similar to that of the Spencer and Marathon and Ackley. The silty topsoil is absent or full of gravel in draws (whereas in Indiana in Cary drift areas silt is thickest and most muck-like in draws). There seems to be a topographic unconformity at the edges of the draws on the Antigo Flats. The HCl bottle doesn't seem to do me much good up here. Sandy drift refuses to effervesce as one might expect.

With best wishes for you and your family,

Sincerely, *Francis D. Hole*
Francis D. Hole

July 18, 1946

Dr. F. D. Hole,
Ogigley Hotel,
Antigo, Wisconsin

Dear Hole:

Yours of the 13th has been on hand several days but have delayed answering because we were taking advantage of the boys being at Scout Camp to make several trips which are impossible when everyone is at home.

We have just finished the painting of the room but have not as yet found out the rate for it. We still do not know whether or not there will be an O.P.A. However, we should know soon.

I am glad you have a house in a better part of the city than the first one you mentioned. I just heard of a small house not far from here which may be on sale soon but am afraid it is too late for you. The house is very small and has no garage so might not suit you anyway.

We will be glad to see both of you and make final arrangements. Rate will be for room only with no meals or cooking .

When you check my map please remember

that I did not do all the county myself!

Sincerely,

Room 10,
Quigley Hotel,
Antigo, Wisconsin.
July 13, 1946.

Professor and Mrs. Thwaites,
41 Roby Road,
Madison, Wisconsin.

Dear Friends:

After spending nearly a week with headquarters at the Muskie Inn, Elcho, Wis., we are now stationed here. There were four of us surveyors, but now we are three.

The work brings up many interesting problems concerning soil classification. We depend a great deal on the work of F.T.Thwaites, with regard to the separation of outwash from moraines. Even so, the ~~str~~traditional usages of soil names resists change.

Agnes thinks that she may be able to come to Madison about August-3-4, and I plan to be in the city at the same time. We shall write again as soon as we know definitely about dates. We are buying a house, through Mr.W.W.Rider, at 2201 Center Ave. Possession,however, may not be until January, since the house is now occupied by tenants and since the regulations concerning rental property are at present indefinite. Agnes and I would like to occupy your room during our stay, and arrange with you about rental of the room pending possession of the house on Center Ave.

I hope that this finds you and the boys well. Agnes and I look forward to seeing you again before long.

Sincerely, *Francis D. Hole*
Francis D. Hole

CPS 108, Gatlinburg, Tenn.,
March 19, 1946.

Professor F.T.Thwaites,
Madison, Wisconsin.

Dear Professor Thwaites:

I have recently arrived at this camp in the Great Smoky Mountains. My job as cook keeps me in the dining hall every other day, and leaves me entirely free from camp work on alternate days.

The Friends' church has withdrawn from financial and administrative cooperation with the CPS system, on the grounds that the war ended six months ago, and that there is no longer a justification for conscription to meet an emergency. The government (Selective Service) therefore closed the Coshocton, Ohio camp, and moved us down to this camp, which the government has taken over in place of the Friends. The Methodists, Baptists and Catholics have also withdrawn. Unfortunately the Brethern and the Mennonites, who are in charge of most of the camps, are still willing to support and administer them.

During my furlough, which I took while moving from one camp to another, I attended the meetings of the Soil Science Society of America and of the Amer. Soc. of Agronomy in Columbus. It was fortunate that my furlough and transfer happened at the same time. Representatives from the Soils Dept. of Wisconsin confirmed by word of mouth an arrangement previously made by correspondence for me to take over the Soil Survey work under the Wisconsin Geological and Natural History Survey, upon my release. I hope that my release will not be long delayed. However every newspaper war scare gives conscription officials an excuse to postpone our releases that much longer, so nothing is certain at present. However, it looks as if I shall have the pleasure of working with you and Mr. Bean in the years ahead. I hope soon.

Our camp is on the West Prong of Little Pigeon River, about a mile south-east of the Park Headquarters. I have hiked up Mt. LeConte, and have been on the Chimneys. I do not have a conception of the structure of the rocks yet. Thus far I see beds dipping roughly southeast at about 30° . The Chimneys, between LeConte and Sugarland Mt., seem to be made of slaty argillite (though I may be wrong), with nearly vertical cleavage. I don't understand the relationship between the rocks in the Chimneys and the gently dipping quartzites and schistose quartzites round about. I am told that there is no geologist here. A party of USGS men is supposed to "do" the Park some time.

I have some books on soils here, including Whitson's "Soils of Wisconsin", and the Purdue Bulletin called "The Story of Indiana Soils", so I try to improve my time.

No doubt you have fairly large classes by now and are very busy.

This brings warm greetings to you and your family from me and Agnes Hole, who is still at her parents home with our little boy in Indianapolis.

Please give my greetings to Mr. Bean, Dr. Emmons, Dr. Tyler, Mrs. Nelson, Jerry and others.

Sincerely,

Francis D. Hole

P.S. Letters to Congressmen appear to be the only means of speeding up discharges and eliminating peace-time conscription and extension of the Sel. Service Act.

F. D. H.

April 21, 1946

Dr. Francis D. Hole,
C.P.S. Camp 108,
Gatlinburg, Tennessee

Dear Hole:

I was very glad to get yours of March 19 but have been unable to answer it before. It is a good thing that you are to come here and I wish I could do something to hasten that event. Sentiment in Congress seems to be toward ending the draft soon which may release you. But unfortunately feeling is not so favorable toward the C. O. camps due to several circumstances which I need not discuss here. It is true that the fighting is over but so long as American troops remain on foreign soil we are legally engaged in war until Congress declares otherwise. In this case the legality of keeping up the camps is evident. I doubt that the war scares, which have now subsided, have much to do with the matter. Anyhow, we all hope you can be released soon.

I have fair-sized to large classes, all large enough to keep me plenty busy. We have only 5 days at Devils Lake but put in 18 hour days most of the time. Our cook deserted at the last minute but the veterans pitched in and we did not starve. I have 15 in Glacial and we start field trips this week on a pre-war schedule. We obtained two commercial stereoscopic mapping machines but they are not much if any better than the one I had built. Most of the veterans seem to be much better stuff than those of the other war. They are older and morale is on the whole very much better.

I lost a lot of time this semester because of an infected wisdom tooth. Had to go to the hospital to have it removed. But I am now much better than before and my sides seem to have healed up all right. However, I am still catching up on sleep after Devils Lake but there is nothing new in that!

The 1946 edition of the Outline of Glacial Geology is out and the first 200 almost all sold. I will have to get another supply before long and will make a few minor corrections in that. I had to rush the first so hard that some things were overlooked. I now have in mind a text of geomorphology with a mathematical slant. Ken Bertrand has also written me that he is interested in doing some glacial work east of the area I surveyed. When this will be started remains to be seen. The U. S. G. S. is here to take over the ground water survey on which I labored so long at \$25.00 per and as they have their own ways of doing things I may excuse myself in favor of the other projects.

Our family is well. Tom is in High School, Bill in Junior High but we had to send Bob to Blessed Sacrament school. He is getting along much better there and is becoming a good speller. They would not let him do anything at Randall and discouraged home help. We find the parochial school much superior in efficiency and cooperation although we do not belong to their church. Maybe they hope that Bob will join some day!

With best wishes to you and your family and hopes for your early coming here,

Sincerely,

zone 6

April 21, 1946

Hotel Hamilton,
Two Rivers, Wisconsin

Gentlemen:

After a lapse of four years I hope to again bring my class to Two Rivers for the night of May 4. There are 16 in all, all men. Can you take care of us the same way as before the War, that is supper, rooms, ^(some menu for all) breakfast and sandwiches for lunch on Sunday? Lunch is to include coffees for which I will furnish a jug and tinned milk. I would like a room with bath for myself. If you can take care of us please advise me as to prices so that I can collect in advance and pay in a lump sum.

Very truly yours,

F. T. Thwaites

Assistant Professor of Geology

April 30, 1946

Hotel Hamilton,
Two Rivers, Wisconsin

Gentlemen:

Over a week ago I wrote you asking if you could take care of my class, numbering 16 in all, as in pre-war years but have received no reply. Date of the trip as proposed in this coming Saturday arriving in time for dinner at about 6 P. M.

If unable to take care of us please advise me at once, by wire if necessary at my expense and tell me if possible where we might be accommodated.

Very truly yours,

SERVICE

a full-rate
or Cable-
gram, unless its de-
ferred character is in-
dicated by a suitable
symbol above or pre-
ceding the address.

WESTERN UNION

A. N. WILLIAMS
PRESIDENT

1201

SYMBOLS

DL = Day Letter

NL = Night Letter

LC = Deferred Cable

NLT = Cable Night Letter

Ship Radiogram

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

AU338 15 NL COLLECT=TWORIVERS WIS 1 PM 9 32

=S T THWAITES GEOLOGIST=

:41 ROBY RD MADISON WIS:

=ROOMS RESERVED DINING ROOM CLOSED ON SATURDAY WILL SERVE
BREAKFAST AND LUNCH ON SUNDAY=

=HOTEL HAMILTON=

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TELEPHONE CO.
TELEPHONED TO
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WILLIAM HERBERT HOBBS
1705 HILL STREET
ANN ARBOR, MICHIGAN

May 17, 1946

Dear Professor Thwaites:

In a letter written several years ago, you referred to having found ventifacts in great numbers. I have many photographs of the ribbed type, but almost none of the faceted glacial type (blinckante), such as have been found near the Devil's Lake region. Have you such, and could you spare me one with the permission to publish with credit?

Yours very truly,

Wm. H. Hobbs

May 22, 1946

Prof. William H. Hobbs,
1795 Hill St.,
Ann Arbor, Michigan

Dear Professor Hobbs:

Thank you for yours of the 17th with
enclosed separate.

I am afraid that I have never given
much attention to the matter of wind-worn stones. The
few I have examined I am positive are not of that origin.
As to the faceted ones, I am afraid that I am also
"from Missouri". Anyhow I have no photos nor so far as
I know has anyone else here.

The 1946 edition of the "Outline of
Glacial Geology" is nearly all sold out and I am planning
a reprint at an early date.

Sorry I cannot help you.

Sincerely,

Nov. 4, 1946

Dr. William H. Hobbs,
1005 Berkshire Road,
Ann Arbor, Michigan

Dear Dr. Hobbs:

In reply to yours of the 30th we have many well records on file here. You will be welcome to examine them in the office of the State Geological Survey. Most are controlled by samples. Blueprint logs can be obtained of many although some you would have to copy. When Dr. Cohee was over here a month ago he stayed at the Park Hotel but wrote for reservations before coming. The Belmont Hotel is also good. The Loraine Hotel is very expensive; others are not worth considering.

Hoping to see you,

Sincerely,

Barron, Wis.

10-11-46

Professor & Mrs. F. J. Thwaites,
41 Roby Road.

Dear Friends:

I sent off a letter to the company in Indianapolis threatening to collect in person. I hope it does the trick. I expect to go to Indiana next week to get my family.

Work up here has been quite satisfying. Soil Survey is very detail about the surface 3 feet or less. The general impression ^{among soils men here} is that there is no distinct difference between Cary and so-called pre-Cary till. From what I have seen of the county, there is less contrast between Cary ~~to~~ till topography and so-called Iowan till topography than there is in Langlade County. But of course soils work emphasizes the surface soil.

We have found a good bit of stratified silt areas around some lakes in the

north central part of the county.

Best wishes.

Sincerely,

Francis W. Hale

Hotel Swoboda,
Sturgeon Bay, Wis.
September 10, 1946

Dear Professor and Mrs. Thwaites:

We have had
an interesting trip to Door County. Professor
J. O. Veatch of Michigan was there. He
is interested in quantitative geomorphology.
I think he would be pleased if you
would list ^{in your new books} an article of his published
about ten years ago in the Journal of the
American Soc. of Agronomy (I believe it is called)
on slope definitions.

I talked to Agnes by phone after leaving
your house. A phone call builds up one's
morale! Among other things we talked
about was her plans for moving to
Madison before the house is empty,
since we can hardly bear to wait until
January. Agnes has been corresponding
with Mrs. Nilsson about the possibility
of moving to her house with the baby. If
it should turn out that she could do
that by November 1, and if it works out
that there will be room for me at Mrs.
Nilsson's, then I would leave ^{your} room free
again, much as I should miss your

home and the convenient location. I thought I'd mention this possibility, since it now seems to be a definite possibility. If things do work out that way, I should like to pay you for the room at \$7.00 a week for the period I have had the benefit of the room.

I seem to be getting over the spell of indigestion which I got at Elcho. I think it was due to prolonged stereoscope work, because food doesn't usually disagree with me!

I wonder if Bobby has caught any rain in his gage. I suppose the other two young fellows are keeping the dark room busy. Perhaps they'll develop some pictures for me, some time, on a business basis!

Sincerely,

Francis D. Hole

P.S. In case I should move out by November 1, I could recommend to you a quiet graduate student from a circle of friends of mine at the Baptist Church. He would be glad to have my room. F. D. H.

August 22, 1946

Dr. F. D. Hole,
418 5th Ave.,
Antigo, Wisconsin

Dear Hole:

Thank you for your card of the 18th. Somebody will be here whenever you want to come down. Mrs. Thwaites and Tom are going to Colorado for the latter's hay fever and will be gone over Labor Day but that will not affect you.

When you get in will be time enough to talk about rent. Some tomatoes are now turning red or almost red. I looked at the angle through which we get sunlight and decided we are getting less than half of what we should because of trees on both sides. Next year may see the garden put back to grass again.

I had another impacted wisdom tooth taken out Tuesday and it is still painful. Well, three are gone now so it is only one to go!

With best regards from all of us,

Sincerely,

113 Locust Avenue,
Bethesda 14, Maryland.
February 18, 1947.

Dr. Frederick T. Thwaites,
41 Roby Road,
Madison, Wisconsin.

My dear Dr. Thwaites:

For about six years I have been making extensive research on the Lewis and Clark Expedition preparatory to writing a historical narrative of this epic in our history. The eight volume set, "Original Journals of the Lewis and Clark Expedition 1804-1806", edited by your distinguished father is the basic source for reference data on this expedition.

At my request the Copyright Division of the Library of Congress has informed me the copyright on volume 1 of this set was renewed on November 19, 1932 and volumes 3 and 4 on January 24, 1933 by Jessie Turnwill Thwaites as widow of the author. This places the other volumes in "the public domain."

The real original journals in the Library of the American Philosophical Society in Philadelphia have been consulted but it would be most convenient if I might use the material from the set edited by your father, Reuben Gold Thwaites.

As the possible owner of the copyright on volumes 1, 3 and 4, I should like to ask permission to use this material giving acknowledgment to you for this permission and to the full set for its great help. If you are not the owner of the copyright on these volumes and if you know who is, will you please disclose the proper party for me to address.

Thanking you for such help as you may give me, I am.

Very sincerely,

(Mrs) *Madge E. Harkness*
Madge E. Harkness.

Feb. 24, 1947

Mrs. Wadge E. Harkness,
113 Locust Ave.,
Bethesda 14, Maryland

Dear Mrs. Harkness:

Yours of the 18th is at hand. In reply I took over all of the copyrights outstanding in my mothers name when I took over the estate on Jan. 15, 1939 following her death the year before. I have not checked up but am under the impression that the entire edition of the Lew and Clark journals was long ago sold out. I fail to find my father's copy in the house so think that my mother sold it long ago as new ones could not be obtained.

In view of these circumstances I cannot see that it will do any harm for you to make such quotations as you see fit. So far as my rights are concerned you have permission to use the material as you see fit, provided only that due credit is given.

Very truly yours,

UNIVERSITY OF MISSOURI
COLUMBIA

COLLEGE OF ARTS AND SCIENCE
DEPARTMENT OF GEOLOGY AND GEOGRAPHY

202 Swallow Hall

March 17, 1947

Professor F. T. Thwaites
41 Roby Road
Madison 5, Wisconsin

Dear Professor Thwaites:

I am assembling photographic illustrations for an elementary text in geology and should like very much to include the picture of varved clay which you show in the Outline of Glacial Geology. It is Figure 3, Plate I, opposite page 58. If it is possible to secure a glossy print of suitable size I should be glad to defray any expense in connection with it. I may state that my text is under contract with Macmillan. It is essentially complete, but due to general post-war conditions, the date of publication is still relatively unpredictable. However, I hope it will be out within another year.

With best personal regards,

Sincerely yours,

Chauncey D. Holmes

Chauncey D. Holmes

CDH:s

March 24, 1947

Prof. Chauncey D. Holmes,
202 Swallow Hall,
University of Missouri,
Columbia, Missouri

Dear Professor Holmes:

In reply to yours of the 17th I am enclosing a print of the photograph of varved clay at New London, Wisconsin which you requested. I had this on hand and it was made by Herman Newell for the text book which Ewenhofel and he were preparing. This book has never been published. Hope you have better luck! I have not tried to get the glacial book published. Sold over 400 in a year which is not bad. I can make more out of the book lithoprinted than I could if it were printed.

If this print is not all right I can get another made or send the identical one used in the Glacial text.

Best regards,

Sincerely,

UNIVERSITY OF MISSOURI
COLUMBIA

COLLEGE OF ARTS AND SCIENCE
DEPARTMENT OF GEOLOGY AND GEOGRAPHY

202 Swallow Hall

March 27, 1947

Professor F. T. Thwaites
41 Roby Road
Madison 5, Wisconsin

Dear Professor Thwaites:

Thank you very much for sending the photograph of varved clay for my text. The work of getting such a book together is far greater than would seem necessary, and it not likely to be a money-making proposition. However, I shall do my best to see that it is finally published.

With best regards,

Sincerely yours,

Chauncey D. Holmes
Chauncey D. Holmes

UPPSALA UNIVERSITETS MINERALOGISK-GEOLOGISKA INSTITUTION

Uppsala, Sweden, January 29th, 1947.

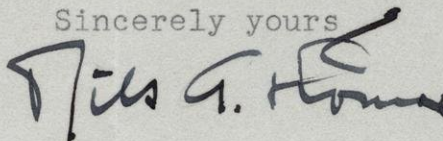
Professor F. T. Thwaites,
Dept. of Geology
University of Wisconsin
MADISON, Wisconsin. U.S.A.

Dear Professor Thwaites,

Hoping that you may remember me from the International Geological Congress Excursion of 1933, I take the liberty of introducing to you Professor R. Tavernier of the University of Ghent, Belgium, authority on the Quaternary of Western Europe not least its periglacial phenomena. I am sure you'll give Professor Tavernier the benefit of your unequalled knowledge of the Glacial Geology of the Middlewest.

Hoping to meet you again at some International gathering in the ~~next~~ few years, I am

Sincerely yours

A handwritten signature in dark ink, appearing to read 'Nils G. Hörner', with a stylized, flowing script.

Nils G. Hörner

CL Hamilton 830502

April 22, 1947

Hotel Hamilton,
Two Rivers, Wisconsin

Gentlemen:

I am again planning to bring my class to your hotel for the night of May 3 . We would like dinner, lodging and breakfast with lunch put up for us like last year. If possible we would like same meal served to all as they used to do under the old management. The party will probably number about 22, two of them girls. If at all possible I would like them to have a room with bath, also same for myself but with them given preference. Please let me know if you can take care of us and the rates so that I can collect in advance and pay in lump sum. Enclosed is stamped envelope for reply.

Very truly yours,

F. T. Thwaites,
Assistant Professor of Geology

April 22, 1947

Mr. C. L. Harrington,
830 State Office Bldg.,
Madison 2, Wisconsin

Dear Mr. Harrington:

I had been meaning to ask for a long time if there are any facilities for picnic parties in the southern part of the Kettle Moraine State Forest not far from Eagle. I am taking a class down there this coming Saturday and on account of the phone strike could not reach you. Any information will be appreciated if received by Friday. The next Saturday I intend to stop at the ski-slide picnic ground near Greenbush and on the Sunday at Maute Lake. These places are a great help to us especially when the weather is bad.

Sincerely,

6-24-47

P.O. Box 356,
Barron, Wis.

June 22, 1947

Dear Professor Thwaites:

It was thoughtful of you to send prints of your pictures taken in Barron County. We may wish to use your negatives next winter, if we may. Thanks to Bill for printing.

Thank you also for nominating me ^{to the AAAS} to write a review of Flint's book. Do you have any suggestions for the review?

Beginning on June 16 we have had one beautiful day after another, so that mapping has progressed rapidly. I am enjoying the opportunity to see complex topography in glaciated country. We are working north-west of Rice Lake, now. ~~in many places it is~~ ^{It is} often difficult to determine where outwash stops and till begins. There are some very level areas of till both in old drainage channels and on otherwise choppy uplands. These level areas have deep silt on them. The topography is that of outwash, but we find till below.

I hope your teeth come out nearly
painlessly.

We all enjoyed your visit up here.

Sincerely,

Francis D. Hole

June 30, 1947

Dr. F. D. Hole,
Box 356,
Barron, Wisconsin

Dear Hole:

Yours of the 22nd is at hand but I delayed answering it because while the older boys were away at Green Lake we made a number of trips.

I am glad you are having better weather for your work. We have a man from the local Soil Conservation rooming here. He was turned out of the house they had rented since before the war. I was wondering about your publishing the glacial map of Barron County separately. You know Mathiesen never got any separates of his paper so that its circulation was very limited. Anyhow, you might think about it as a project for next winter.

With regard to the review of Flint's book I was offered the job but turned it down because of the commercial angle, namely it competes with my "Outline". However, you will find the approach to the problem quite different. I really have never read it, only glanced through so can make no full comparison. Amy looked at it and thought that it stressed the very aspects which I purposely avoided as of little value to our students. It would probably pay you to look it over in comparison with my new edition and see how our attitudes differ.

The teeth are not to come out until the 11th so meantime I can enjoy life!

Sincerely,

June 19, 1947

Prof. F. D. Hole,
Box 356,
Barron, Wisconsin

Dear Hole:

I developed the photos right away, then waited until I could get Bill to print them. I am sending you one copy of each although some have slight defects. The cloudy weather did not make for the best results for many of the negatives lack contrast. However, I hope you find them of interest. I have been having Bill do the printing for it keeps him busy and then he cannot tease Bob.

Had one tooth out on the 6th and now have to eat on front teeth only. Will have the rest of these out on the 11th of July and then it will be tough. Otherwise I have been fine although just swamped with well samples. We are now out of storage space and pending new cases must stack in trays. We have been on several short trips on days when it did not rain much. This is the first day that I could work on the porch.

Expect you have been dealyed by rain also.
Best regards to all those who I met up there and to you.

Sincerely,

May 10, 1948

Mr. Allen J. Hudson,
Box 253,
Mortlach, Saskatchewan,
Canada

Dear Sir:

Reply to yours of April 19 has been delayed by
reason of spring field trips.

I checked on Flint's glacial map of North America
and found that the latest Canadian information which he used
does not recognize any unglaciated areas within the drift
border in the region you mention. I have run across papers
which do mention such. But my experience is that although
there are locally small areas which display no glacial drift
such can be explained on other grounds than non-glaciation.
Botanists have been active in proposing such minute "driftless
area" but every one I have checked must certainly have been
glaciated. One when checked proved to be nowhere over 25
feet wide. I am afraid that I cannot offer any more
suggestions at present for the spring season is so much
taken up that I cannot do any reading. Perhaps I can
follow up the matter later

Very truly yours,

Box 253, Mottlach, Sask H-22-48

J. T. Thwaites

April 19th '48

Madison, Wisconsin

Dear Sir

In a short article by R. T. D. Wickenden there is a description of a small driftless area in Southern Sask. along the border between long. 105 d. 30 m. + 107 d. He quotes Alden as mapping the area as "Thin drift of the Keewatin ice-sheets overlying Flaxville gravel". Also later he states that it is only a few miles from the border of the early Wisconsin drift at the head of a great reentrant in the ice border in N.E. Montana. The diagram (after Antevs) on page 90 in "Glacial Geology" doesn't give any reentrant in the precise region, though it does show reentrants east & west. Antevs also shows as two dots unglaciated areas in S. Sask. which I take to be in the Cypress Hills region but nothing of the area mentioned above. I was thinking perhaps the area didn't stop at the boundary and that there was probably an adjacent area on the U.S. side to correspond. The only feasible explanation that Wickenden offers is that for some unknown reason while the area may have been covered with ice, the ice was stagnant. My interest in the matter is something else again. Over most of southern Sask. large quantities of artifacts are found, mainly surface finds due to wind erosion.

Some of these certainly do resemble paleoliths closely and the romantics of a local Sask archaeological society, amateurs be it said, like to label them in such cases as Chellean hand-axes, Mousterian side-scrapers etc. It is an obvious attempt that as it is impossible to date them by location it is hoped to date them by type, which I am of opinion is unsound for various reasons.

Those unglaciated areas in Southern Sask offer possibilities of more scientific examination it would seem to me.

Yours Truly
Allan J. Hudson.

P.S. Meaning just what information can be gathered both geologically & archaeologically about the area mentioned

a. J. H.

May 9, 1948

Mr. Robert Harris,
West High School,
Madison 5, Wisconsin.

Dear Sir:

Dr. Wilm advises Bill to omit
showers for the remainder of the year.

Yours very truly,

Mrs. F. T. Thwaites

41 Roby Road
Madison 5, Wis.
Aug. 21, 1948

The Heath Company, Dept. B.
Benton Harbor, Mich

Dear Sirs;

Please send me one of your amplifier kits
advertised on page 75 of the April 1948 issue
of Science Illustrated. Enclosed please find
a check covering kit and postage. \$(14.95+.36)
\$15.31

Yours truly,

Bill Thwaites

Oct. 1, 1913.

Mr. E. C. Hingston,
707 Alworth Bldg.,
Duluth, Minn.

Dear Sir:-

Your letter of the 25th arrived during my absence. I am sending you under separate cover a copy of the Bulletin describing the recent discoveries of ore in eastern Wisconsin. Most of this ore lies at a considerable depth beneath the surface as you will find described, but there are places where it is at no great depth.

Very truly yours,

Heath Company
Benton Harbor, Mich

41 Roby Road
Madison 5, Wis.
Sept. 20, 1948

Dear Sirs;

in payment for

Enclosed please find check for \$7.20 including 12" speaker for Heathkit Amplifier & estimated postage. -

Yours truly,

Bill Thwaites
41 Roby Road
Madison 5, Wis.

Copy to Miss Kittleson, Registrars office, Bascom

January 20, 1949

Registrar, University of Houston,
3801 St. Bernard,
Houston 4, Texas

Dear Sir:

In response to a telephone message from Miss Kittleson, in charge of records here, Mr. August O. Kirchner took Geology 130, Physiography of Eastern United States in first semester, 1938-39 and made a grade of C (82). I was ill for six weeks and during that time Arnold Mason took over the work.

Very truly yours,

F. T. Thwaites

Jan. 8, 1949

Miss Rollin Hunter,
4541 Teas,
Bellaire, Texas

Dear Rollin:

I have been wanting to write and tell you how much we all enjoyed the box of candy you sent for Christmas. It certainly did not last long after that date!

There is not much new here to tell about. Amy had another operation last summer but seems better now. Her sister and family were all snowbound at Rawlins, Wyoming and just got home last night. We did not get any of the big blizzards here and at present it is just like spring with nearly all the snow gone again. But we did have two bad ice storms.

or hear of

Of course, we never see the old place over the lake. Last spring I had Henry^{II} in two classes for about a month. Then he was dropped from school because of a fail in mathematics. Since then all contact has been lost.

This is Tom's last year in Highschool. Bob is still in grade school and requires a lot of urging to finish his work which keeps me busy almost every evening and much of the vacation.

Thanking you again,
Sincerely yours,

Niagara, Wis.

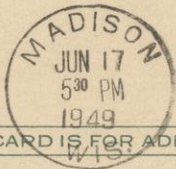
Dear Mr. Thwaites,

Received my grade Monday. Thank you very much for sending it.

I'm disappointed with myself for doing so poorly on the examination. However, despite the poor showing, I feel as though I benefited greatly from the course.
Your efforts are fully appreciated.

Sincerely,

Richard Higgins



THIS SIDE OF CARD IS FOR ADDRESS



Mr. F. T. Thwaites
Geology Department
U. of W.
Madison, Wisc.

February 18, 1949

Dr. Esa Hyypä,
Bulevardi 29,
Helsinki, Finland

Dear Dr. Hyypä:

I wish to thank you for the copy of your paper on "Tracing the source of the pyrite stones from Vihti on the basis of glacial geology" which arrived recently.

This year I have a class of about 30 students studying glacial geology. We use the 1948 edition of my "Outline of Glacial Geology" as a text.

Sincerely yours,

Box 230
Boulder Colo

Oct 24 1950

Dr F. Thwaites
Geol. Dept
Univ. Wis.

Dear Dr. Thwaites.

During a recent visit with Dr. C. W. Tomlinson the subject of ^{by ice} superficial deformation of sedimentary beds, was discussed. He mentioned that somewhere in Wisconsin Pleistocene ice action deformed the bed rock.

Do you know just where this is?

Do you know if this has been described? If so what is the publication?

The reason for this query is I am writing a discussion of a recent article in the Aug issue of the G.A.P.G. bulletin ~~on~~ entitled "Deformation of Ft Union Formation near Lignite, N. Dak" which the author concludes is of deep seated diastrophic origin. This case seems quite similar to that described in 1923 Vol 34 G.S.A. by Dr. O.B. Hopkins entitled "Some structural features of the Plains area of Alberta caused by Pleistocene glaciation" also like the case in the Kevin Simburst oil field which I am familiar with. Thank you. CHAS. J. HARES

C. J. Hares

The subject of deformation of ~~bedrock~~ ^{underlying material} by ice motion is discussed by Alder in U.S. Geol. Survey Professional Paper 106: 206-208, 1918. However, subsequent exploration has disproved his explanation of line (now bluffs) Bluff Sanderson describes folding of subjacent strata in Journal of Geology 14: 226-232, 1906 you will also find incidental mention of

this phenomenon in many geological reports on glaciated districts. It is now recognized that the folded strata of some of the New England islands are due to ice shove. I suggested the origin of some structural features at Ripon, Wisconsin. But later developments cast doubt on the theory. See Journal of Geology 29: 57-65, 1921 Fuller in writing on the geology of Long Island, New York

in Prof. Paper 82 gives many instances of folding due to ice. The phenomenon depends on the coefficient of friction between ice and the ground, which ^{varies} ~~varies~~ in time topography, thickness of ice, and nature of underlying material. Resistance of underlying masses to deformation including disruption and carrying off en masse is very important.

October 27, 1950

Mr. C. J. Hares
Box 230
Boulder, Colorado

Dear Sir:

The subject of deformation of underlying material by ice motion is discussed by Alden in U.S. Geol. Survey Professional Paper 106:206-208, 1918. However, subsequent exploration has disproved his explanation of Lime (now Glovers) Bluff. Sanderson describes folding of subjacent strata in Journal of Geology 14:226-232, 1906. You will also find incidental mention of this phenomenon in many geological reports on glaciated districts. It is now recognized that the folded strata of some of the New England islands are due to ice shore. I suggested ice origin of some structural features at Ripon, Wisconsin, but later developments cast doubt on the theory. See Journal of Geology 29:57-65, 1921. Fuller in writing on the geology of Long Island, New York in Prof. Paper 82 gives many instances of folding due to ice. The phenomenon depends on the coefficient of friction between ice and the ground which varies with topography, thickness of ice, and nature of underlying material. Resistance of underlying masses to deformation including disruptions and carrying off en masse is very important.

Sincerely yours,

F. T. Thwaites

FTT:ao

July 16, 1951

Dr. L. M. Halverson,
606 W. College Ave.,
Marquette, Michigan

Dear Dr. Halverson:

It's a long time since you were here in so of my classes but I am venturing to write and see if you can possibly furnish some aid to a project I have promised to carry through some time this summer. That is to visit with a boat the exposures of the igneous rock along the lake side of Presque Isle Park. This is in connection with a project of a student of mine the importance of which was not realized until too late for him to get to the spot.

What I would like to know is where and how close to the project can I rent a small boat? I presume the best time to go out is early in the morning before the wind has risen.

Second, where can I secure living quarters, cabin, room, or camp site as close as possible to where I would start the boat trip?

I will bring an assistant with me but to secure the above information would undoubtedly take some time and effort which is serious in a project of a limited objective with limited time available. Hence any suggestions you can supply will be greatly appreciated.

You may be interested that the Mapping trip to Devil Lake on which you once went has recently had over 90 students

Sincerely yours,

Aug. 10, 1951

Mr. L. H. Halverson;
606 W. College Ave.,
Marquette, Michigan

Dear Halverson:

I thought you might be interested in the results of my hurried mission to your city although they only confirm what is given the old monograph. But since the question of age of the Jacobsville sandstone is now in question once more I felt that no point should be neglected or taken simply on the say of others.

We neglected to get the name of the maker of the outboard motor we rented. If you happen to find out this fact I would be glad to know on the off chance that we might like to buy one. The two-cycle racing motors do not suit my ideas at all.

With best regards,

Sincerely yours,

NORTHERN MICHIGAN COLLEGE
OF EDUCATION
MARQUETTE, MICHIGAN

17 July 1951

Professor F.T.Thwaites
Madison, Wisconsin.

Dear Professor Thwaites:

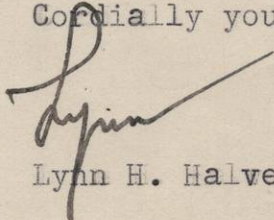
Will be glad to see you here and will be of any assistance possible. Boats are for rent at the Island, and I believe you can rent a motor as well. It would be quite a row out there, but of course you may bring your own motor.

There is a city tourist camp with electric plates and sites for camps (tents) or trailers about two miles from the boat landing. There are a number of cabin camps in and just outside the city.

The Upper Cambrian- peridotite contact is about half way along the east side of Presque Isle, and north of that the peridotite comes to the water's edge. Since most of the distance the cliff is about vertical a landing is impossible even with calm water. There are caves in some places. The boat rental establishment is so situated that you have to go around the north end of the island, which would expose you to a northwest breeze in getting to your destination. Early morning would be the best time to get out there, and you would as well have the sun at your back.

You might let me know when you expect to come up. It is 320 miles from Madison here, going to Fond du Lac and then on the east side of Lake Winnebago.

Cordially yours,



Lynn H. Halverson

11-7-51

PRINCETON UNIVERSITY
PRINCETON NEW JERSEY

DEPARTMENT OF GEOLOGY

Dr. Frederick T. Thwaites
41 N. Roby Road
Madison 5
Wisconsin

Dear Dr. Thwaites:

Do you still have a separate of your paper, "Well Logs in the Northern Peninsula of Michigan Showing the Cambrian Section", which was published in 1934 in volume 29 of the Papers of the Michigan Academy of Science, Arts and Letters, that you can give to me? I need one in my working library.

If you do still have a copy and will be good enough to send it to me, I shall be very grateful to you for it.

With sincere regards,
Very truly yours,

B. F. Howell

B. F. Howell
Professor of Geology and Paleontology

*Sent also
late paper*

PRINCETON UNIVERSITY
PRINCETON NEW JERSEY
December 5, 1951

DEPARTMENT OF GEOLOGY

Dr. Frederick T. Thwaites
Department of Geology
Science Hall
University of Wisconsin
Madison
Wisconsin

Dear Dr. Thwaites:

Thank you very much for sending to me copies of your papers, "Well Logs in the Northern Peninsula of Michigan Showing the Cambrian Section" and "Stratigraphic Work in Northern Michigan." I am happy to have them in my working library. It was good of you to send them to me.

With sincere regards,

Very truly yours,

B. F. Howell

B. F. Howell

H
Hunt
Dec. 18, 1951

Dear Pollin:

At last we are at the Christmas cards and turned up your letter of last year which we never got to answering. But you know the first of the year is a busy time, in fact all the second semester is for me. Anyhow, there were a lot overlooked for which we are sorry.

Since Harry Turvill passed away last summer we are able to go over to the old place once again. We visited Margaret and Henry and they showed us around. The growth of brush and trees since we left is simply astounding. Talk about the tropical jungle obliterating the work of man! It has nothing on the rate at which the old park-like area between the houses and the lake has grown up. In summer you can no longer see the water from our old house. The reason was the stopping of pasturage in large part but a similar growth confronts one even in areas where the cattle never were so that such is not the entire story. In all it made us sad to see the changes. We learned that the place is left in trust so that the management is out of the hands of Harry's heirs.

Yes, the boys have grown. Tom will reach his majority next August and is already a candidate for a commission in the Signal Corps. His girl friend was up to visit us this past week end. Bill has just signed up to enlist in the R. O. T. C. Bob is still in High school.

With best wishes of the season, sincerely yours,

October 15, 1951

Mr. Henry Hamusa
Route 1
Loganville, Wisconsin

Dear Mr. Hamusa:

I expect to take my class of about
a dozen on the annual field trip this coming
Saturday, October 20, and would like to take
them down to see the Falls as usual.

With best regards.

Sincerely yours,

F. T. Twaites

FTT:b

LYNN H. HALVERSON
606 WEST COLLEGE AVENUE
MARQUETTE, MICHIGAN

24 August 51.

Mr. Fred T. Thwaites
Madison 5, Wis.

Dear Professor Thwaites:

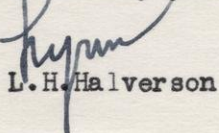
Thanks for the report on your findings here as well as the pictures.

The motor you used was a Lauson 4-cycle air cooled outboard, with oil in the pan and so no mixing of oil and gas. It is made in New Holstein, Wisconsin. A friend of mine has one which he has found very satisfactory, though as you say it is not as fast as some.

I have just gotten home from a trip to Milwaukee and other points in Wisconsin. My son was discharged from the Marine Corps and I met him and brought him home. He is attending Ripon College this fall, and we made all the necessary arrangements.

We have many spots of geologic interest near Marquette, and I hope that you can come up again some time and spend more time.

Cordially yours,


L.H. Halverson



The First Baptist Church

KENNETH L. HOLMES, PASTOR - FIRST AND JACKSON STREETS - MOSCOW, IDAHO

September 7, 1951

Mrs. Jessie Thwaites or person responsible for the copyright
for Early Western Travels,
Madison, Wisconsin

Dear Friend:

I have written an article on "Idaho's First Farmer" about the missionary Henry Harmon Spalding. It is to be published in a rural paper, "The Idaho Farmer". I would like to quote from a letter that is printed in full from the missionary in volume xxx of "Early Western Travels", Palmer's Journal, pages 283-298. The quotations are very brief and occasional and credit will be given at the conclusion of the article. Would you please grant me permission?

I am a member of the American Society of Church History and try to make competent evaluations of historical materials. Of course, the entire set of Early Western Travels is simply invaluable to the history student of the northwest.

Yours sincerely,

Kenneth L. Holmes
Kenneth L. Holmes

P. S. An airmail envelope is enclosed for your reply.

Sept. 17, 1951

Rev. Kenneth L. Holmes,
P. O. Box 350,
Moscow, Idaho

Dear Sir:

In reply to yours of Sept. 7 in regard to the quotation from the "Early Western Travels" by my late father you are entirely welcome to make whatever selection you please provided only that due credit is given. I think the edition has long been out of print.

Sincerely yours,

December 2, 1953

Mr. A. H. Mitchell
The Carter Oil Company
Box 801
Tulsa 2, Oklahoma

Dear Sir:

In reply to yours of November 30 I failed to find the form which was to have been enclosed.

Mr. J. R. Hecht has been in my classes for the past year. I have found him not only a good student and pleasant to get along with but he has always given the impression of reliability. I had a good opportunity to observe him in the week field trip in mapping last spring where I rated him as about the best in a class of 35. Hence, I have no hesitation in recommending him although I must admit that I know nothing of him previous to entering the University.

Sincerely yours,

F. T. Thwaites



THE CARTER OIL COMPANY

PERSONNEL AND INDUSTRIAL RELATIONS DEPARTMENT
NATIONAL BANK OF TULSA BUILDING

TULSA 2, OKLAHOMA

November 30, 1953

A. H. MITCHELL
MANAGER

POST OFFICE BOX 801

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

Dear Mr. Thwaites:

Joseph Richard Hecht has given us your name as a personal reference. We shall appreciate your frank comments as to his character, habits, personality, community interest, hobbies and ability.

It is important to the success of our operations that we have as much information as possible about each person we employ. All information you furnish us will be regarded, of course, as confidential.

Because of the large number of inquiries we must make for references, we find it convenient to use this form letter. If you wish, you may place your reply on the lower portion or reverse side of this letter. A stamped envelope is enclosed for your convenience.

Thank you for your cooperation and prompt reply.

Yours very truly,

A. H. MITCHELL

By: *S. M. Van Eaton*
bay

BVE: bay

Encl.

FL 23-D

Harrell

Aug. 26, 1953

Dear Ike:

George Grandbouche he is going to call at your office looking for a job is one of my students and has worked the past summer on bottling well cuttings for me. He has always been a very energetic worker as well as pleasant to get along with. I can recommend him highly and hope you can do something for him. He is a World War II veteran and is married. He is dependable and has a good head, that is can think for himself.

I note from the A. A. P. G. that you have been ill and we hope you are fully recovered by now.

With best regards from both of us,

Sincerely yours,



The State of Wisconsin

STATE HISTORICAL SOCIETY

816 STATE STREET

Madison 6, Wisconsin

September 4, 1952

CLIFFORD L. LORD
DIRECTOR

Prof. F. T. Thwaites
41 Roby Road
Madison, Wisconsin

Dear Prof. Thwaites:

Under separate cover we are sending you
fifty free reprints of your article which appeared
in the summer issue of the Wisconsin Magazine of
History.

Very truly yours,

Lillian Kuegel
Managing Editor

LK/mw



The State of Wisconsin

STATE HISTORICAL SOCIETY

816 STATE STREET

Madison 6, Wisconsin

11 August 1953

CLIFFORD L. LORD
DIRECTOR

Professor F. T. Thwaites
211 Science Hall
University of Wisconsin
Madison, Wisconsin

Dear Professor Thwaites:

I have an inquiry from Mrs. Thomas Tolan of Milwaukee who has been to Two Creeks to locate the glacial forest about which you wrote for the Magazine. She asked me for some recommended readings on the glacial age, particularly in Wisconsin.

She is after "an elementary course in Geology" and I wonder what recommendations you would make as to readings.

Regards,

A handwritten signature in cursive script, appearing to read "Clifford L. Lord".

Clifford L. Lord

CLL/g

August 18, 1953

Dr. Clifford L. Lord
Historical Library
816 State Street
Madison 6, Wisconsin

Dear Dr. Lord:

Yours of 13 August had me stumped for a time for most of the books with which I deal presuppose a knowledge of some geology. However, I think I can recommend (without knowing it very well) the book "Down to earth" by Croneis and Krumbein, Univ. of Chicago Press, 1936, for a starter. Of course, almost any elementary text might do as well so far as I can tell. About Wisconsin: Bulletin 36, State Geological Survey (\$1.25) sold at room 115, Science Hall, is good. On the glacial period alone I suggest my book, "Outline of Glacial Geology", (\$2.75) sold at 41 Roby Road, Madison 5, Wisconsin. The second two books presume some understanding of the subject of geology in general. The State Survey also has "A brief outline of the geology, physical geography, geography and industries of Wisconsin", Bulletin 67 (15 cents) sold at 115 Science Hall, Madison 6, Wisconsin. Sheldon Judson is working on a new elementary text but when it will be out I do not know.

Sincerely yours,

F. T. Thwaites

The University of Wisconsin
UNIVERSITY EXTENSION DIVISION

Department of Engineering
5-3311 Ext 4322

3030 Extension Offices - Stadium
Madison 6, Wisconsin

May 6, 1955

Professor Fredrik T. Thwaites
Assistant to State Geologist
211 Science Hall
The University of Wisconsin

Dear Professor Thwaites:

Enclosed is a program for the engineering institute on Water Conditioning in which you are to participate. I am sorry that we did not learn that Dr. Hanson would not be able to be with us until the programs were being printed; it was then impossible to insert your name in the program.

You will notice that the topic "Water Supply in the Wisconsin Area," on which you have consented to talk and lead a discussion, is scheduled for 9:20 to 10:20 the morning of Tuesday, May 24. This talk should cover the water supply available in the state of Wisconsin with special consideration to the type of minerals and other dissolved materials which the various types of water supply would be likely to contain. I would suggest that you plan your talk to take about fifty minutes, and allow the other ten minutes for questions from the floor.

4513
You will notice that the institute is to be held in Room 2016 of the new Electrical Engineering building. This is a typical classroom and we will have projection equipment available. I would appreciate knowing, however, if you do plan to use slides, movies or other aids in connection with your talk.

We hope to have forty or fifty men from various industries in Wisconsin and this vicinity attend this institute. If you have any questions regarding it, I can be reached on University extension phone 4513.


Sincerely yours,

Leonard F. Hillis

Leonard F. Hillis
Associate Professor
of Civil Engineering

LFH:w
Enclosure

P.S. - We intend to issue a leaflet giving biographies of each of the speakers. In order to prepare this, it would be a great help to me if you will fill out the enclosed questionnaire. As an example of what we want, I am enclosing the biography of Professor Grogan which is used in this leaflet. If you would prefer to write your own, rather than fill out the questionnaire, it would be more than satisfactory to us.



THE UNIVERSITY OF WISCONSIN
**ENGINEERING
INSTITUTES**
MADISON, WISCONSIN

WATER CONDITIONING

may 24 and 25
1955

UNIVERSITY EXTENSION DIVISION
AND THE
COLLEGE OF ENGINEERING

Send to: ENGINEERING INSTITUTES
University Extension Division
The University of Wisconsin
Madison 6, Wisconsin

Please enroll the following:

Name	FIRST	INITIAL	LAST	Position
Company				
Address				

A fee of \$15.00 should be enclosed for each enrollment. This will cover the cost of the course and materials. Make checks payable to the University Extension Division.

SEPARATE ALONG THIS LINE

RETAIN PROGRAM INFORMATION FOR YOUR FILES

TUESDAY, MAY 24, 1955

A.M.

- 8:30 Late Registration
- 9:00 Welcome
- 9:10 Opening Session - Introduction of Enrollees
- 9:20 *Water Supply in the Wisconsin Area*
(a) Surface Water
(b) Ground Water
George F. Hanson
State Geologist for Wisconsin
Madison, Wisconsin
- 10:20 Minutes for Milk
Informal Discussion
- 10:30 *Desirable Characteristics of a Boiler
Water Supply*
Paul J. Grogan, Chairman
Engineering Department
The University Extension Division

12:20 Lunch

P.M.

- 1:30 *Methods of Water Treatment for Industrial
Uses*
Gerard A. Rohlich
Professor of Civil Engineering
The College of Engineering
- 3:00 Minutes for Milk
Informal Discussion
- 3:10 *Problems of Corrosion*
(a) Boiler
(b) Condenser
(c) Return Lines
Wayne K. Neill
Professor of Chemical Engineering
The College of Engineering
- 4:30 Adjourn for Day

WEDNESDAY, MAY 25, 1955

A.M.

- 8:30 *The Minerals in Water and Their Deter-
mination*
M. Starr Nichols
Professor of Sanitary Chemistry
Ass't Director, State Laboratory of Hygiene
Madison, Wisconsin
- 9:30 Minutes for Milk
Informal Discussion
- 9:40 *Panel Discussion*
*Prescribing Treatment Based on
Interpretation of Water Analysis*
L. G. Hatfield, Chicago Office
W. H. and L. D. Betz
Philadelphia, Pennsylvania
Selden K. Adkins
National Aluminate Corporation
Chicago, Illinois
W. F. O'Brien, Jr. and J. M. Maloney
Chicago Office, Hall Laboratories, Inc.
Pittsburgh, Pennsylvania

12:20 Lunch

P.M.

- 1:30 *Special Clinic*
An opportunity to present your problem for
group discussion with the specialists.
- 3:30 *Awarding of Certificates*



GENERAL INFORMATION

The conditioning of water for industrial use will be studied at this institute. Water will be considered as a raw material, and tests for determining impurities present in the water will be summarized. Methods of modifying or eliminating harmful or undesirable substances will be discussed. There will be an opportunity to present your special problem for group discussion.

Enrollment should be made at once so that arrangements can be made to accommodate the group.

A fee of \$15.00 should accompany each application for enrollment. This fee will cover the cost of the course and materials but not the cost of room or meals.

Housing will be the responsibility of the enrollee. Reservations may be made directly with any of the following:

Hotel/Motel	Phone	Address
Belmont	AL 5-7221	31 No. Pinckney
Edgewater	AL 6-9071	666 Wisconsin Ave.
Hamacher	CE 3-5357	5101 University Ave.
Loraine	AL 6-0231	123 W. Washington
Mayflower	AL 5-1333	S. Park & Beltline
Park	AL 5-6711	22 South Carroll
Vikingtown	CE 3-5432	4354 W. Beltline Hy.

All sessions will be held in Room 2016 of the Electrical Engineering Building, which is located off Randall Avenue at the end of West Johnson Street, Madison, Wisconsin.

A certificate will be awarded to each person regularly enrolled who attends all sessions and satisfactorily completes the course.

Leonard F. Hillis
Institute Coordinator

INSTITUTE STAFF

University Extension Division

Paul J. Grogan
Director of Engineering Institutes

Leonard F. Hillis
Associate Professor of Civil Engineering
Coordinator of This Institute

College of Engineering

Wayne K. Neill
Professor of Chemical Engineering

M. Starr Nichols
Professor of Sanitary Chemistry; Assistant
Director, State Laboratory of Hygiene

Gerard A. Rohlich
Professor of Civil Engineering

OTHER ENGINEERING INSTITUTES

Engineering Organization May 12, 13

Industrial Heating Applications May 18, 19, 20

Power System Protection.....June 1, 2, 3

THE UNIVERSITY OF WISCONSIN
**ENGINEERING
INSTITUTES**
MADISON, WISCONSIN

WATER CONDITIONING

may 24 and 25
1955

UNIVERSITY EXTENSION DIVISION
AND THE
COLLEGE OF ENGINEERING

May 26, 1955

Professor Fredrik T. Thwaites
211 Science Hall
The University of Wisconsin

Dear Professor Thwaites:

We appreciate very much having you talk to the men at the Water Conditioning Institute on the subject of "Water Supply in the Wisconsin Area." Your talk certainly was of interest to the men and to me.

I am enclosing a certificate to formally acknowledge your part in this Institute. Under separate cover I am sending you the map and profile showing the soil structure and wells in the Manitowoc area.

Sincerely yours,

Leonard F. Hillis
Associate Professor
of Civil Engineering

LFH:w

The University of Wisconsin
UNIVERSITY EXTENSION DIVISION

Department of Engineering
5-3311 Ext 4322

May 26, 1955

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Madison 6, Wisconsin

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Sincerely yours,

Leonard F. Hillis

Leonard F. Hillis
Associate Professor
of Civil Engineering

LFH:w

16 Jan. 55

Miss Rollin Hunter,
4535 Teas,
Bellaire, Texas

Dear Mother:

I saw from looking over the Christmas cards that I had never told you of Tom's marriage in June, 1953 when he graduated from the U. W. They are in Rochester, New York where he is studying atomic physics and expects to come up for his Masters in a few days. They have a nice basement apartment right across the street from one of the roads in the higher part of the city. Barbara is teaching First Grade in the suburban school northwest of the city. Tom has a more or less indefinite postponement of active duty with the Signal Corps.

Bill expects to go in at once when he graduates although there are no easy postponements now that this remains to be seen. Just what Bob will do is also a problem.

Am. if figuring on going to Europe after the
Woman's Club convention in Philadelphia in May if she can get
somebody else to go along, that is someone from here.
I was there twice long ago and Christianity is not encouraging for me
for me to ever go again. The awful places we stayed at and
the art galleries! No! No! No!

Sincerely yours,

January 13, 1955

Dr. Leland Horberg, Editor
Journal of Geology
University of Chicago
Chicago 37, Illinois

Dear Professor Horberg:

Reply to yours of October 28 was delayed because I was reviewing many other works for the use of my class in Geomorphology. At last I was able to revise and shorten the review of Penck's book, of which I sent you a mimeographed copy. If this is still too long, you can use your judgment in cutting it. Possibly you will not agree with all of my conclusions, for it is a hard book to follow. If there is any radical disagreement, please let me know and I will reread the disputed part. Personally, I was disappointed with the book so far as the presentation of new ideas goes.

With best regards,

F. T. Thwaites

FTT/lmg

Manuscript enclosed

THE UNIVERSITY OF CHICAGO

CHICAGO 37 • ILLINOIS

THE JOURNAL OF GEOLOGY

Editorial Office

January 18, 1955

Dr. F. T. Thwaites
Department of Geology
University of Wisconsin
Madison 6, Wisconsin

Dear Dr. Thwaites:

Many thanks for your review of Penck's
Morphological Analysis of Land Forms. We are
very pleased to have it for publication in the
Journal of Geology.

Sincerely yours,

Leland Horberg
Leland Horberg
Editor

lh/m

October 19, 1956

Mr. Leonard Hall, Chairman
Republican National Committee
1625 Eye Street, NW.
Washington 8, D. C.

Dear Sir:

Inasmuch as suggestions from the "grass roots" are supposed to be wanted, I am taking the liberty of writing my impression; namely, I think each party lacks a slogan. For the Republican party I would suggest:

~~REPUBLICAN~~

Eisenhower beat the Cold War

COLD

OR

Eisenhower keeps the Cold War

COLD

Such a slogan might sway votes of parents who have sons in service. I have a son in Korea!

Yours very truly,

COMMITTEE
GEO. NYGAARD, CHASEBURG
FOSTER PATCH, VIOLA
HARRY SCHUYLER, FISH CREEK
ORRIE SHIFFER, EAU CLAIRE
H. L. AHLGREN, MADISON
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EXECUTIVE SECRETARY

The State of Wisconsin
STATE SOIL CONSERVATION COMMITTEE
SOILS BUILDING
MADISON

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N. O. STEPHENSON, WASHBURN

R. M. DE MUTH
OFFICE SECRETARY

Dear Prof. Shwarts:

Thought you might
be interested in these photo as
a memo in your personal
files. When we need to look at
the Geology of the State we like
to turn to you.

We may call on you
again Prof. Thanks for your
fine help

I. O. Hembre
Soils Dept

Received 5 Aug
July 31 1915



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13 December 1956

EDUCATIONAL
DEPARTMENT

Dr. F. T. Thwaites, Geologist
Geological and Natural History Survey
Science Hall
University of Wisconsin
Madison 6, Wisconsin

Dear Dr. Thwaites:

Thank you for your letter of November 21 enclosing a picture of varves. Dr. Moment has decided to use this photo in his general zoology text, and as soon as we have finished with the print it will be returned to you, as you request.

We shall be glad to credit you as the source for the picture.

Thank you again for your help.

Sincerely,

Jean M. Earley
Jean M. Earley
College Department

Copper Harbor, Michigan
July 14, 1957

Dr. F. T. Thwaites
University of Wisconsin
Geological and Natural History Survey
Science Hall
Madison 6, Wisconsin

Dear Dr. Thwaites:

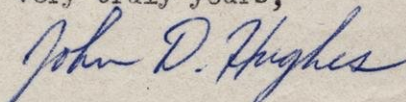
I appreciated very much your reply to my letter of May 31, 1957 concerning the physiography of the Keweenaw Peninsula of Michigan.

Since arriving in the Keweenaw this summer I have had access to Calumet and Hecla Mining Company's aerial photos and have traced quite a few beaches intermittently for considerable distances on the north shore. For some reason (perhaps a residual ice mass) there is no trace of the higher Algonquin or lower Duluth shores on the southeastern side. I have listed the elevations below of shorelines on the slope north of Hancock. These elevations of course are very approximate since I have not done any leveling yet and the values are only derived from contour maps. The shorelines below 640 have not been differentiated.

640	strong wave cut cliffs
740	
760	
850	
960	
1060	strong bars and spits
1120	strong bars
1260	
1290	

Calumet and Hecla will lend me a soil sampling kit that will make possible borings to a depth of 25 feet. With this apparatus I hope to take peat samples from behind some of the strong elevated baymouth bars for C-14. Calumet and Hecla inform me that while recently sinking a shaft they passed through a 12 inch bed of peat interbedded in sand at a depth of about 20 feet.

Very truly yours,



John D. Hughes

THE UNIVERSITY OF WISCONSIN
GEOLOGICAL AND NATURAL HISTORY
SURVEY
SCIENCE HALL
MADISON 6, WISCONSIN

July 2, 1957.

Dear Fred:

This is just a line to express my thanks, albeit quite inadequately, for the great help that you have been to me personally. It has been a privilege to be able to work with you. I could not begin to express the debt of gratitude that the survey owes to you for your professional contributions.

Gene Cameron, as I told you, was emphatic in his wish that you retain your office and we are sorry that you decided not to do so. We felt that this small courtesy was not only thoroughly deserved but also that it would be by no means ~~an~~ unproductive utilisation of space.

I am confident that you will maintain your creative interest in the geology of the state, and am sure that you will be able to put your great knowledge to

good financial use.

Should the survey be able to give you any help at any time in the way of typing, drafting, temporary office space etc. I hope that you will feel free to utilise these services as always.

With very sincere and fond personal regards,

George.

13 April, 1959

Prof. J. L. Hough,
Dept. of Geology,
University of Illinois,
Urbana, Illinois

Dear Prof. Hough:

Thank you for the reprint of your paper on the origin of iron formation. I think Twenhofel had some ideas which involved a different composition of the atmosphere at that time but do not recall if the same was published or the details.

I gave the duplicate copies of the prints of your maps of the Great Lakes to Prof. Black as I thought they would be more used there. I never got started on redrawing the contours of the bottoms of Huron and Superior although I suppose the more recent surveys are more detailed. However, my eyes are now very weak and I shrank from that job of changing scale. I have been wondering about drawing some physiographic diagrams of the lake bottoms on the Lebeck, Guy-Harold Smith style and giving on them my suggestion of sublake structure based in Huron on well records. I published the maps for Superior in 1933 in the Guidebook of the Kansas Geological Society and feel that they should receive wider publicity before I must leave the ~~work~~^{field}. If I did this I would use your 1955 maps to correct those I made previous to that date. If you have any comment or objection to this tentative plan please let me know.

I am enclosing herewith my recent paper on the Baraboo District. I hope its departures from conventional description of peneplains, etc. does not shock you too much. It seems to horrify some. But I have spent a lot of time prowling over the district on foot through the woods and feel that my suggestions should receive fair treatment. This again is a reworking of a paper published in the Kansas Society Guidebook of 1935. The ideas of origin of peneplains I found very vague in the text books some of which confuse plains of deposition with peneplains which I do not think was the original idea. I just visited a river flat in Pennsylvania which instead of being underlain by gravel is floored with a rubble of clay and stones. Surely weathering and mass movement of residuum occurred there. I feel that former students who postulated partial peneplains with high ridges standing intact above may have ignored better hypotheses. See Hack, Prof. Paper U. S. G. S. 294-B.

My eldest son is teaching physics at State College now and I got around a bit while visiting his home over Easter. He was away ^{and} so we had to stay home most of the time for weather was unfavorable to exploring poorer roads and trails.

A paper on peneplains of the Driftless Area is in New York and getting the expected rough treatment. I follow Martin's views of 1916. Another on the base of the St. Peter sandstone based largely on well records is in Chicago and may also get unfriendly treatment. Such reception is always to be expected when one comes up with ideas that others overlooked or ignored perhaps because not taught when they went to school.

With best regards, I am,

Sincerely yours,

F. T. Inwaites



The State of Wisconsin

STATE HISTORICAL SOCIETY

816 STATE STREET

Madison 6, Wisconsin

September 12, 1958

CLIFFORD L. LORD
DIRECTOR

DONALD R. McNEIL
ASSOCIATE DIRECTOR

Mr. F. T. Thwaites
19 Roby Road
Madison, Wisconsin

Dear Mr. Thwaites:

Back at the turn of the century, Reuben Gold Thwaites, then superintendent of the State Society, established the pattern of autonomous, affiliated local historical societies which is so successfully and widely followed today. The State Society, organized in 1846, two years before Wisconsin became a state, could not meet the task of preserving local Wisconsin history alone. Occasionally local societies would appear on the scene, but with a few exceptions their activities were limited and their duration short. It was not until after the pioneering efforts of Mr. Thwaites that the modern concepts of local historical societies caught on with any great success. Today there are more than seventy such societies in the state. Each in its own way is doing a great job in the preservation and dissemination of local history.

As recognition of this great work, one society will be selected to represent the local societies in the state in an award ceremony at the Annual Institute on Local History. The trophy bears the name of the pioneer in this field, Reuben Gold Thwaites. The presentation this year will be the first and will take place at our Ninth Annual Institute on Local History during the banquet session at Tripp Commons in the Memorial Union. We felt that you would be pleased to learn of the trophy and might want to be present when it is awarded to the first of the recognized societies. We have taken the privilege to enclose a mimeographed copy of the program for the Institute on October 18. On the reverse side of the program is a reservation form which you may use for yourself and any friends or guests you would want to be in attendance at the ceremony during the banquet. We also invite you to the luncheon and any of the sessions in which you might be interested.

We would consider it an honor if you would be able to attend this event.

Sincerely yours,

William J. Schereck
William J. Schereck (BW)
Field Supervisor

WJS:lk

Enc.