Correspondence - R. F. Flint. 1942-1946

Thwaites, F. T. (Fredrik Turville), 1883-1961
[s.l.]: [s.n.], 1942-1946

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41 Roby Road,
Madison, Wis.
Jan. 6, 1942

Prof. Richard Foster Flint,
Dept. of Geology,
Yale University,
New Haven, Connecticut

Dear Flint:

Yours of Dec. 23 has been on my desk for some time waiting reply but I knew you must have been busy with the meetings. We had intended to come after all but cancelled all plans when war was declared. Our feeling is that we are all in the same boat. This country is in a tougher spot than most people realize. If we do not help to win, and we can't win unless all that have anything do help, then everything we have will be worth just nothing. I feel that we should not make any expenditures or ask for any work which directly or indirectly hinders an all-out effort towin. This is the reason that I do not favor the completion of the glacial map now. I think it all right to finish editing but printing will take material and labor better devoted to defense. Besides the schools which would benefit from the map will probably not need it for some time. I suggest that you think the matter over very carefully before embarking on an engraving and printing job. Today it was 12 below but my older boys were out collecting waste paper to sell for defense stamps! Every little bit helps.

With regard to the material for footnotes:
The Two Creeks locality was described by L. R. Wilson and the titles of his two papers have allready been sent you. It is also described in Alden, W. C., Glacial geology of the central states: Internat. Geol. Cong. XVI, 1933, Guidebook26, pp. 31-47, 1932 (paper in part by Bean, E. F., and Thwaites, F. T.)
The locality near Neenah and Forest Junction was described by Lawson, P. V., Preliminary notice of the forest beds of the lower Fox: Wisconsin Nat. Hist. Soc., Bull., vol. 2, pp. 170-173, 1902
The Woodville cut is described by Leverett, Frank, Quaternary geology of Minnesota and parts of adjacent states: U. S. Geol. Survey Prof. Paper 161, p. 16, 1932 Also by Koehler, Arthur, Wood older than the hills: Am. Forestry, vol. 22, pp. 92-93, 1916
The localities near Marshfield have not been described in detail but Hole has been working on them by drilling.

I do not know just what things I could discuss further except as noted above. My kicks on nomenclature and correlation have been taken up in previous letters. You might reread some of these before the meeting. I am sorry I cannot be there but the authorities here just can not see the point of change in date! I have not seen Hole back. Maybe he has been put into a concentration camp for he is a Quaker! No new tires probably mean no more field work but we will do our best if he is still at liberty.

Best wishes for the new year,

Sincerely,

YALE UNIVERSITY
DEPARTMENT OF GEOLOGY

NEW HAVEN, CONNECTICUT

January 19, 1942

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

Dear Thwaites,

As you requested, I read to the members of the Committee on Glacial Map of North America the first paragraph of your letter of January 6 to me and asked for an expression of opinion. There was considerable discussion, during which it was brought out that our map is in certain respects actually useful in the war effort, and that in no respect has it yet been shown to be hindering the war effort. Those present expressed by a unanimous vote the wish to continue the effort to complete the project, and to consider postponing it only when and if it appears that it would interfere with war activities.

Although I did not vote I confess I am fully in sympathy with the point of view expressed by the group.

I am sure you will be glad to know that every State map, legend, footnote list, and bibliography was submitted before the meeting, and all the material is in Ottawa today. That is a very fine record of group effort.

Yours sincerely,

Flint

Richard Foster Flint

YALE UNIVERSITY
New Haven, Connecticut

Letter No. 11 May 26, 1942

To members of the COMMITTEE ON GLACIAL MAP OF NORTH AMERICA:
Messrs. Alden, Apfel, Bostock, Capps, Goldthwait, Gould, Kay, Leighton, Leverett, MacClintock, Nichols, Norman, Thwaites, White, Young (and Flint):

1. New Haven meeting

At the last meeting of the Committee, held in New Haven on Jan. 17 and 18, the following were present: Apfel, Gould, Kay, Leighton, MacClintock, Nichols, and Flint. In addition, Max Demorest and A. L. Washburn sat with us by invitation. The entire compilation for the United States was assembled for the first time, and necessary adjustments were made at State boundaries. Final conventions were adopted, and solutions of outstanding problems of correlation, for purposes of the map, were agreed upon. A title and standard legend were adopted. Nichols exhibited samples of the Canadian maps and reported on the excellent progress of the final draft.

2. Conference in Ottawa

I spent March 25-27 in Ottawa in conferences with Canadian members of the Committee and in ironing out, with Nichols, problems arising in the final draft. The quality of the work on the finished sheets was impressive. Nichols and I are in constant touch concerning map details as they arise.

3. N.R.C. Meeting

I attended the annual meeting of the Division of Geology and Geography of the N.R.C. in Washington on May 2 and reported that 27 months after the creation of our Committee, the compilation of glacial data was 100 percent complete, and that as of May 1 the final draft was about 70 percent complete. That is an excellent record, and it was received with commendation. A colored photostat of Sheet 6 of the final draft, a progress map, and a layout for title and legend were exhibited and drew favorable comment.

4. Completion of the final draft

As a result of a careful estimate by Nichols, that the final draft can be completed by September 30, I have succeeded in obtaining from the American Geographical Society a supplementary grant of $250 to cover the salary of our draftswoman in Ottawa through that date. The generous interest taken in our project by the Society is, I know, gratifying to all of us.

5. Text material

Typescript copy for all necessary text material to accompany the published map (footnotes, references to the literature, and general explanation) except for Canadian areas is in my hands and has been fully edited. It is hoped that the Canadian copy will be available shortly.

6. Publication

Preliminary inquiries and discussions regarding publication of our map as soon as the final draft has been inspected and edited by the members of our Committee, have been undertaken. The prospects at present are very good, and I hope in the next Committee letter to be able to make a definite announcement.

Although we all have an important job of editing still to do, the bulk of our task is accomplished, and we may well take satisfaction in the results we have achieved.

Sincerely yours,

Richard Foster Flint

Richard Foster Flint, Chairman

1. Photo 11-17 FL 15 - Sawyer Co.
for Kettle-hole esker

2. Photo 4-10, 4-9, 4-8
Flight 20 Rusk Co.
for Pseudo esker

3. Photo 8-31 FL 4 - Price Co.
Stream bed being converted
to pseudo-esker

4. Esker - NW 1/4 Sec 6 R. 6 T 35 N
Rusk Co.

5. Cravasse Filling
NW Corner Sec 20, T 38 N R 7 W
Sawyer Co.

May 1, 1942

Prof. Richard Foster Flint,
Dept. of Geology,
Yale University,
New Haven, Connecticut

Dear Flint:

After a long delay I got the boys to bed early enough tonight to be able to write you (Mrs. Thwaites being busy with sugar rationing I was left in charge.)

Enclosed is the criticism of your paper with Demorest. Both copies are carbons as the original was injured the file during the long delay while I was teaching Military Geology as well as ordinary Mapping.

May I ask you to send one of the copies to Demorest as I do not know his present address?

I have a student at work on the drumlins and oskers of northwestern Wisconsin. He has some interesting data which will be in time for the Glacial Map proof or no copy. I still feel that it really ought to be deferred for the duration. Maybe you will yet be forced to do just that! My report on northeastern Wisconsin is almost ready to go to press, that is if!

Best regards,
Sincerely,

YALE UNIVERSITY
New Haven, Connecticut

Letter No. 12 July 31, 1942

To members of the COMMITTEE ON GLACIAL MAP OF NORTH AMERICA:
Messrs. Alden, Apfel, Bostock, Capps, Goldthwait, Gould, Kay, Leighton, Leverett, MacClintock, Nichols, Norman, Thwaites, White, Young (and Flint):

1. Wisconsin stratigraphic nomenclature

Under date of July 29 Leverett writes that he wishes to lay before the Committee his views on this subject, and asks for a statement of opinion. I quote from his letter:

"There are three definite groups of moraines in the Labradorian Wisconsin series which I have been in the habit of terming the Early, Middle, and Late Wisconsin groups. These terms are self-explanatory, and seem to me much better than the terms Tazewell, Carey, and Mankato introduced by Leighton. Tazewell seems especially unsuitable as it is a county name, seldom seen in atlases, and its area falls far short of covering the whole Early Wisconsin group. That group is now interpreted to embrace all the Wisconsin moraines down to the Lemont moraine that underlies the Valparaiso and associated moraines in northeastern Illinois. As you probably know, Bretz has found that the Valparaiso deposit is only a relatively thin sheet spread over the more bulky Lemont moraine. The Valparaiso and associated moraines fall in the Middle Wisconsin group, and Leighton has applied the name Carey to the group.

"One reason given for discarding the term Early Wisconsin has been that the Iowan may fall in the Wisconsin stage. My answer to this is that if the Iowan does fall here it is in the early part of the Wisconsin and can be put in the first group. I would, therefore, suggest 'Early Wisconsin including Iowan' as a name for the group. In my paper in the current (July-August) number of the Journal of Geology I have presented data showing that the Iowan drift has markedly less leaching and weathering than the Illinoian, an amount similar to that of the Early Wisconsin of the Labrador ice sheet. You probably have noted that in Monograph 38 I have an Iowan drift in northern Illinois that I took to be a correlative of the Iowan drift of northeastern Iowa. But I am now following Leighton in regarding it as Early Wisconsin, and a probable extension of the Shelbyville moraine. It may be the Iowa Iowan is also a close correlative of the Shelbyville sheet. If so, this will give a correlation such as was made in Monograph 38, but using the name 'Early Wisconsin' instead of 'Iowan.'

"There appears to have been considerable change in orientation in the lobes occupying the Laurentian Great Lakes when they readvanced to the limit of the second or Middle Wisconsin group. This shows in the overriding of the Lemont moraine on the west side of the Lake Michigan Basin. It shows also in the overriding of Early Wisconsin Saginaw moraines by the Lake Michigan lobe in southwestern Michigan. The recent advance maps in the northeast corner of Indiana also show that the Erie Lobe in this readvance covered ground that had been occupied by the Saginaw lobe. This all goes to support the interpretation of a real Middle Wisconsin group distinct from the Early Wisconsin group.

"The name Carey applied by Leighton to this Middle Wisconsin group seems to me pertinent only for a single individual moraine. The group occupies a wide belt from Minnesota eastward into New York State. Some of its members have been encroached upon and covered by a Late Wisconsin ice advance. This is strikingly the case with the Grantsburg lobe in eastern Minnesota. It may be more extensive in the readvance to the Port Huron moraine in the Lake Huron Basin, and to its correlatives in the eastern end of Lake Erie.

"The name Mankato pertains to a central rather than marginal part of the Late Wisconsin group, thus differing from Tazewell and Carey which are marginal. It seems very remote from the moraines formed by the Labradorian ice sheet in Late Wisconsin time, being well inside the limits of the Keewatin Late Wisconsin. It seems, therefore, of doubtful application to the Labradorian ice movement."

Leverett asks that each member be requested to signify his preference whether we shall (1) continue the use, adopted by the Committee in January 1941, of the names Iowan, Tazewell, Cary and Mankato, or, instead, (2) adopt the terms Early Wisconsin (including Iowan), Middle Wisconsin, and Late Wisconsin.

A postcard is inclosed for the convenience of members in the United States.* Will you please give this matter your thoughtful consideration and return your preference, together with any comment you wish to make, on the postcard at once? As the coloring of the map in Ottawa depends on the Committee's action, there is no time to be lost.

2. Progress of the final draft

I have just returned from a visit to Ottawa where Nichols is very hard at work. The final draft is approaching completion. Each member will receive a hand-colored photostat of the part of the final draft that covers his region, on which he will be asked to read proof. The first photostats, covering the Central States, will go out about August 15.

Sincerely,

Richard Foster Flint

Richard Foster Flint, Chairman

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* But we should like a vote or some kind of statement from Canadian members as well.

TELEPHONE, EXECUTIVE 8100

CABLE ADDRESS
NARECO, Washington, D.C.

NATIONAL RESEARCH COUNCIL

2101 CONSTITUTION AVENUE, WASHINGTON, D. C.

Established in 1916 by the National Academy of Sciences under its Congressional Charter and organized with the cooperation of the National Scientific and Technical Societies of the United States

July 1, 1942

TO MEMBERS OF COMMITTEES, DIVISION OF GEOLOGY AND GEOGRAPHY

Dear Mr. Thwaites:

At the June meeting of the Administrative Committee, formal approval was given to the membership of the Division and its Committees for the coming year, 1942-43, as indicated in the enclosed mimeographed list. Please note that you are a member of the Committee checked on the list. (No. 12)

During the past year, you have been a member of the Committee on:

* GLACIAL MAP OF NORTH AMERICA.

Information concerning the status and latest report of the above named Committee for the past year is below below. * The Chairman's report, the Annual Report of the Division, and the complete reports of the Committees on the Measurement of Geologic Time, and Marine Ecology as related to Paleontology, all for 1941-42, are expected to be completed during the next few months and available in the autumn. Enclosed is the latest Publications List issued by the Division, dated June 1, which supplements the list of February 15, 1941, previously distributed. If you wish any of the reports listed, kindly note the source of distribution, and the cost of the reports. It is regretted that it is no longer possible for the Division to continue widespread complimentary distribution of its bound mimeographed reports.

Attention is called to the appointment this spring of the Committee on War Projects of the Division under the chairmanship of Dr. C. R. Longwell of Yale University, and to the opportunity offered you for sending in suggestions for projects to be undertaken under the auspices of the Committee.

I wish to take this opportunity to thank you for your cooperation and service during the past year, and to express the wish that it may continue during the coming year.

Sincerely yours,

Walter H. Bucher

WALTER H. BUCHER, CHAIRMAN
DIVISION OF GEOLOGY AND GEOGRAPHY

WHB:J
Enclosures

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* Committee continued with the same personnel. Report for 1941-42 (Appendix I) enclosed.

June 1, 1942 SUPPLEMENTARY LIST to that of February 15, 1941 **

PUBLICATIONS OF THE NATIONAL RESEARCH COUNCIL, WASHINGTON, D. C.
OF INTEREST TO GEOLOGISTS OR GEOGRAPHERS

Bulletin Series (Printed)

* No. 106. HANDBOOK OF SCIENTIFIC AND TECHNICAL SOCIETIES AND INSTITUTIONS OF THE UNITED STATES AND CANADA. 4th ed. Jan. 1942. 389 pages. Cloth, $4.00. *

Other Printed Publications Issued with the Sponsorship of the Division of Geology and Geography, National Research Council
(See page 3 of the February 15, 1941 list) **

HANDBOOK OF PHYSICAL CONSTANTS. Edited by Francis Birch, Chairman, J. F. Schairer, H. Cecil Spicer. G.S.A. Special Paper No. 36, 1942. 325+vii pages. $1.40

BIBLIOGRAPHY OF MILITARY GEOLOGY AND GEOGRAPHY. Prepared under the direction of W. H. Bucher, Chairman, Division of Geology and Geography, National Research Council. The Geological Society of America. Dec. 1941. 18 pp. No charge.

THE ROLE OF GEOLOGY IN THE FIRST WORLD WAR. By Douglas Johnson. The Geological Society of America. April, 1942. 18 pages. No charge.

CORRELATION CHARTS PREPARED BY THE COMMITTEE ON STRATIGRAPHY OF THE NATIONAL RESEARCH COUNCIL, Carl O. Dunbar, Chairman. G.S.A. Bull., Vol. 53, pp. 429-434. CORRELATION OF THE OUTCROPPING CRETACEOUS FORMATIONS OF THE ATLANTIC AND GULF COASTAL PLAIN AND TRANS-PECOS TEXAS, by Lloyd W. Stephenson, et al. G.S.A. Bull., Vol. 53, pp. 435-448. CORRELATION OF THE SILURIAN FORMATIONS OF NORTH AMERICA by Charles K. Swartz, et al. G.S.A. Bull., Vol. 53, pp. 533-538. Separates of the above - 10¢ each.

IN PRESS: ORE DEPOSITS AS RELATED TO STRUCTURAL FEATURES. Edited by W. H. Newhouse. About 330 pages, 250 illus. $6.50 (pre-publication price $5.75). For sale only by the publishers, Princeton University Press, Princeton, N.J.

Latest Reports of the Division of Geology and Geography
Issued in bound Mimeographed Form

* REPORT OF THE COMMITTEE ON THE MEASUREMENT OF GEOLOGIC TIME, 1940-1941. Alfred C. Lane, Chairman; John Putnam Marble, Vice-Chairman. Sept. 1941. 121 pages. 15¢ in stamps (to cover mailing and handling cost). *

* REPORT OF THE SUBCOMMITTEE ON THE ECOLOGY OF MARINE ORGANISMS. Harry S. Ladd, Chairman. November, 1941. 52 pages. 15¢ (Stamps preferred). *

* REPORT OF THE COMMITTEE ON SEDIMENTATION, 1940-1941. Parker D. Trask, Chairman. With Charts for the Determination of Detrital Minerals. March, 1942. 110 pages. $1.00. Separates of the Charts - 50¢. *

* ANNUAL REPORT OF THE DIVISION OF GEOLOGY AND GEOGRAPHY, 1940-41. Walter H. Bucher, Chairman, with Minutes and Committee Reports (Appendices A-V). 15¢ (Stamps.) *

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* For sale by the National Research Council, 2101 Constitution Ave., Washington, D.C.
** February 15, 1941 list furnished on request.
# These publications are not distributed or for sale by the National Research Council but may be obtained from The Geological Society of America, H. R. Aldrich, Secretary, 419 West 117 Street, New York, N. Y.

(o v e r)

* Latest and final volume of the Physics of the Earth Series, National Research Council

PHYSICS OF THE EARTH. IX. HYDROLOGY. Edited by Oscar E. Meinzer. 703 pages. $7.50. For sale only by the publishers, McGraw-Hill Book Co., Inc., New York.

* CONTINUATION OF OTHER PUBLICATIONS
(originally sponsored by the N.R.C.)

ANNOTATED BIBLIOGRAPHY OF ECONOMIC GEOLOGY. Volume XIII, Nos. 1 and 2 (for 1940). $5.00 per year in the United States and U. S. Possessions. Published and sold only by the Economic Geology Publishing Company, Urbana, Illinois, U.S.A.

DOCTORAL DISSERTATIONS ACCEPTED BY AMERICAN UNIVERSITIES. No. 1, 1933-34; published every year since. Price of last volume (1940-41), $2.50. Sold only by the publishers, The H. W. Wilson Co., New York. (Reprint and Circular Series, No. 105, of the National Research Council was for the year 1932-33.)

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* For previous volumes, see Publications List of February 15, 1941, furnished on request, by the Division of Geology and Geography, National Research Council, 2101 Constitution Avenue, Washington, D. C.

Note: A complete list of the National Research Council's publications in the Bulletin and Reprint and Circular Series, with Supplementary List and Index to Titles, will be furnished on request.

For information regarding the Transactions of the American Geophysical Union, address inquiries to: The General Secretary, American Geophysical Union, 5241 Broad Branch Road, Northwest, Washington, D. C.

NATIONAL RESEARCH COUNCIL - WASHINGTON, D. C.

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July 1, 1942 - June 30, 1943

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Vice-Chairman, Richard Hartshorne

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G. Arthur Cooper	T. S. Lovering
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(For Committees and Representative, see separate list)

* Date of expiration of term of office.

INDEX TO COMMITTEES AND *SUBCOMMITTEES

Administrative and Advisory

Research - Geology

Liaison and Educational - Geology

Research - Geography

Liaison and Educational - Geography

- - - - -

Numbers refer to alphabetical list on succeeding pages.

NATIONAL RESEARCH COUNCIL

COMMITTEES OF THE DIVISION OF GEOLOGY AND GEOGRAPHY, 1942-1943

July 1, 1942

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* Activity considered suspended for the present.

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* Activity considered suspended for the present.

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Wilmot H. Bradley	K. C. Heald	W. W. Rubey
		Robert B. Sosman

Subcommittee on the Relation of Geology to Radio Communication

James T. Wilson, Chairman	Richard Jahns	W. G. Keck

REPRESENTATIVE OF THE DIVISION ON

27. Committee D-5 on Coal and Coke, American Society for Testing Materials
Taisia Stadnichenko

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Note: The Chairman of the Division is, ex officio, a member of all Committees of the Division.

(For Members of the Division, see separate page)

APPENDIX I

REPORT OF COMMITTEE ON GLACIAL MAP OF NORTH AMERICA

May 2, 1942

Objective

The objective of the Committee, organized late in 1939, is to create a large glacial map of North America that will help to stimulate and guide research in North American glacial geology.

Meetings

The Committee held three meetings during the year: on September 27, 1941, in Chicago; on December 30, 1941, in Boston; and on January 17-18, 1942, in New Haven. In addition the Chairman held conferences with the Canadian members of the Committee in Ottawa on May 10-12, 1941, and again on March 25-27, 1942.

Progress of Work

During the year the preparation of the Glacial Map of North America has made rapid progress. Compilations for all regions within the United States have been submitted by members of the Committee on a uniform base, scale 1:2,500,000, and all necessary adjustments have been made at the State lines. Canadian compilations are still necessarily on various bases, but are rapidly being transferred to the final base, as explained below.

Six of the field projects outlined by the Committee in January, 1941, and mentioned in the Report of May 3, 1941, were carried out during the 1941 field season, and their results have been incorporated on the map compilations. The cordial support of the Geological Society of America, through grants from the Penrose Bequest for important parts of this work, is hereby gratefully acknowledged.

Compilations of topographic and glacial data for Iceland and Greenland, and of topographic data for eastern Siberia have been completed, as well as a compilation of North American loess distribution for an inset map. A standard legend and a list of map conventions have been worked out and approved by the Committee.

Final Manuscript Map

No existing map was found suitable for a base; consequently it was decided to prepare an entirely new base on a Lambert conformal conic projection with standard parallels at 45° and 78° (maximum error 5.8%, at Lat. 35°), manuscript scale 40 miles to the inch, to be reduced to a published scale of 60 miles to the inch. This projection makes easy the plotting and measurement of striae and keeps distortion to a very small figure.

The projection was calculated especially for us by the Canadian Bureau of Geology and Topography, Ottawa, and was plotted by them on a series of 11 sheets with 2° latitude-longitude grid. Base data and glacial data are being plotted on these sheets under the direction of D. A. Nichols of the Bureau of Geology and Topography. The actual drafting is being financed by a generous contribution from the American Geographical Society. The drafting, which was begun on July 1, 1941, and has since been in continuous progress, is well advanced, and completion of the final manuscript map is already in sight.

The base data on this map consist of the following:

1. Coastline (black) revised to date from the latest information available in Ottawa, and including many significant changes from published maps.

2. Drainage (black).

3. Form lines on the land (brown) at 500, 1000, 2000, 4000, 6000, and 8000 feet east of the Continental Divide and at 2000, 4000, 8000, and 12000 feet west of the divide. Vast areas in the northern part of North America are here contoured for the first time, from unpublished data that have been accumulated over many years.

4. Form lines on the sea floor (blue) at 500, 1000, and every thousand feet. Much of the basic information has been supplied by the U. S. Coast and Geodetic Survey.

The glacial data are shown by a series of 15 symbols in blue, and by 14 areal colors or patterns. Occurrences of interglacial deposits and other specially significant stratigraphic features are shown by footnote symbol. It is intended to publish the footnotes and an extensive bibliography, both arranged by States and Provinces, in a booklet that will accompany the published map.

A list of the items prepared for the legend is given herewith, in the hope that helpful comments that may lead to its improvement will be forthcoming:

Symbol Legend

Striae
(Center of shaft marks location)
Two sets of crossing striae
(The earlier set, where determined, is shown by a broken shaft)
Striae in three or more directions at a single locality
(Figures represent numbers of striae recorded, by directions)

Groups of drumlins
(Long axes shown by arrows)
Linear boulder trains
Fan-shaped boulder trains
Direction of glacier flow through mountain valleys
Eskers
(Drawn to scale; small eskers not shown)
Isolated erratics beyond the drift sheets
(Each symbol denotes a locality in which one or more erratics occur)
Occurrence of fossil-bearing interglacial and interstadial deposits
Occurrence of varved sediments
(Where not mappable as a body)
Occurrence of glacial-marine sediments
(Where not mappable as a body)

Outlets of extinct glacial lakes
Altitudes of highest observed marine features (in feet)
Footnote reference to special features
(Listed by States, Provinces, and Territories in accompanying test)

Areal-Pattern Legend

Existing glaciers
Areas of marine submergence
(Normally postdating the drift in the locality)
Areas of marine submergence
(Interglacial and interstadial)
Extinct glacial and extraglacial lakes
(Represented by deposits of significant area and thickness; outlets, where determined, indicated by inclosed arrow)
Outwash
(Includes some inwash, consisting in part of nonglacial sediments washed against glacier ice or against outwash. Also includes some areas eroded by meltwater streams, and some alluvium.)
Wisconsin glaciation: undifferentiated
(Includes Valders drift in Michigan, Wisconsin, and Minnesota. May include older glaciation in Arctic region.)
Wisconsin glaciation: Mankato substage
(Includes Valley Heads drift in New York, Pennsylvania, and northeastern Ohio)
Wisconsin glaciation: Cary substage
(Includes Binghamton drift in New York and Pennsylvania)
Wisconsin glaciation: Tazewell substage
(Includes Olean drift in New York and Pennsylvania)

Wisconsin glaciation: Iowan substage
(Includes variously interpreted pre-Mankato drifts in North Dakota and South Dakota. Includes drift in Montana that may be Illinoian.)
Pre-Wisconsin glaciation: undifferentiated
Illinoian glaciation and probable correlatives
Kansan glaciation and probable correlatives
(Includes Jerseyan drift in New Jersey and Pennsylvania)
Nebraskan glaciation and probable correlatives

Symposia on Glacial Geology

Both the September meeting of the Geological Society of America in Chicago (held jointly with the University of Chicago in celebration of its Fiftieth Anniversary) and the December meeting in Boston featured symposia in Glacial Geology. Both events, which were largely attended, were directly stimulated by the work of the Committee on Glacial Map of North America.

Exhibits

At the Chicago meeting of the Geological Society of America in September 1941, large parts of the compilations were exhibited, and at the Boston meeting in December 1941 the whole of the United States compilation was assembled for the first time and was exhibited in assembled form. In addition sample sheets of the final manuscript map, covering regions chiefly in Canada, were exhibited. Both exhibits attracted wide attention and brought forth a number of useful suggestions which were incorporated in the map. The Committee will also have an exhibit at the annual meeting of the Division on May 2.

Recommendations

It is recommended that the Committee be continued without change in personnel.

Conclusion

The work of the Committee during the past year has proceeded according to plan and at the expected rate, with splendid cooperation among widely scattered individuals and organizations. The resulting final manuscript map will unquestionably be a contribution of the first importance to glacial geology, and in detail, accuracy, and usefulness, will exceed the expectations expressed by the Committee at the time the work was begun.

Committee Members

W.C.Alden	L. M. Gould	D. A. Nichols
E.T. Apfel	G. F. Kay	G. W. H. Norman
H.S. Bostock	M. M. Leighton	F. T. Thwaites
S.R.Capps	Frank Leverett	G. W. White
J.W.Goldthwait	Paul MacClintock	G. A. Young

Richard Foster Flint,
Chairman

YALE UNIVERSITY
New Haven, Connecticut

Letter No. 13 October 27, 1942

To members of the COMMITTEE ON GLACIAL MAP OF NORTH AMERICA:
Messrs. Alden, Apfel, Bostock, Capps, Goldthwait, Gould, Kay, Leighton, Leverett, MacClintock, Nichols, Norman, Thwaites, White, Young (and Flint):

1. Our map completed

I am very proud to announce that the final draft of our map is completed. The map is now being edited and some additional lettering is being placed on it in preparation for publication. Mrs. Betts, our draftswoman in Ottawa, has ended her employment by the Committee after having done a splendid piece of work under Nichols' direction. Nichols has been working against time all summer, as I can testify from having visited Ottawa twice during this final period to do some joint trouble-shooting with him. No one who has not seen the final draft can appreciate how vast a job it has turned out to be, nor how useful and impressive it will be when published.

2. Publication

I am equally pleased to announce that the Geological Society of America has undertaken to publish and distribute our map without delay, and has made available a grant of $10,000 for this purpose. I am sure every member of the Committee will agree that the Geological Society is an ideally appropriate publisher, because its interests cover both the United States and Canada, because it has shown a real interest in our project by financing field studies designed to further our compilation, and because its publications represent a very high standard of excellence. Personally, I consider the arrangement fortunate from every point of view, -- and I may add that the G.S.A. will be placing its name on a very high-class map!

Any suggestions you care to make regarding any aspect of the publication process will be welcome.

3. Editing

Colored photostatic copies of the final draft are being sent to the compilers, one by one, with instructions for detailed editing. When the map of your region reaches you, please edit it with great care and return it promptly. We are entering on the final stage of our job, and a final piece of speedy cooperative work is necessary if we are to put it over without delay.

4. Wisconsin stratigraphic nomenclature

The response of the members to the request for an opinion contained in Letter No. 12 was heavily in favor of using on the map the names Iowan, Tazewell, Cary, and Mankato. Accordingly this usage is continued.

Sincerely yours,

Richard Foster Flint

Richard Foster Flint, Chairman

YALE UNIVERSITY
DEPARTMENT OF GEOLOGY

NEW HAVEN, CONNECTICUT

January 5, 1943

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

Dear Thwaites,

Thank you for so promptly returning the proofs which reached me yesterday. It was a great help to have them so soon. Taking up your points in order:

1. The final colors for Illinoian and Kansan will show adequate contrast.

2. I regret that your compilations had to be redrafted last January, but Nichols insisted on it, saying that he could not read your drafts in many places. You are right in saying that the base map used for the compilation was unsatisfactory; if we had it to do again we would certainly do it very differently.

3. Submerged moraines are distinguished from other moraines on the original map. They did not show up properly on the photostat.

4. All of the glacial symbols shown in blue are perfectly clear on the original copy. It is only on the photostat that they appear blurred and faint.

5. White and Thornbury refuse to separate Carey from Tazewell in Indiana and Ohio, and MacClintock and Apfel, who were here with me all day yesterday, now agree. It is unfortunate for the appearance of the map but I am afraid it cannot be helped.

6. The new drumlin axes from Michigan were supplied recently by Bergquist.

7. The outwash convention, as stated in the legend, includes some in-wash and some alluvium. This takes ~~parts~~ care of Lugn's mapping in Nebraska.

8. It seems unwise to put lines about the scattered boulders outside the drift border because there is really no basis for accurately placing such lines. It was because of this that the committee decided to use crosses in place of a colored pattern.

9. The term used in the legend for the Pleistocene marine features along the Atlantic Coast south of New York is not "glacial marine" but "areas of marine submergence, interglacial and interstadial."

I have noted your corrections and additions, and will see that they and your map showing the 1000-foot contour reach Ottawa within the next few days.

With best New Year wishes,

Sincerely,

Richard Foster Flint

Richard Foster Flint

ab
that this line will show best in the Driftless Area but will probly not be distinguishable in the glaciated region because of colors.

Hole and I discussed the age of the drift in central Wisconsin. He has just finished his Doctor's thesis on this and has prepared a paper to submit to American Journal of Science soon. He will probably be interned for the duration after the semester is over. He had a report from L. R. Wilson on the pollen in the buried soil at Marshfield. Hole concludes that the drift south of the moraine in central Wisconsin is possibly no older than Cary and certainly is no older than Iowan. Reasons: The soil profile is immature and the minerals in the soil are not much altered; the overlying thin loess (ought to be shown on the Apfel map) seems to be the same as on the known Cary to north and seems to have been weathered along with the drift as one unit; there is no definite boundary to the area of constructional land forms. Hole wishes this marginal drift shown as "Undifferentiated Wisconsin". We decided to change the suggested Iowan in St. Croix County to the same but not to change other colors, despite the weakness of Mathiesen's correlation of Iowan in Barron County. As he has published on this in Wisconsin Academy we will make no change. I fixed this on the photostat.

We did not at all like the failure to discriminate Cary and Tazewell in Ohio and Indiana. Is not the work of Leverett, Thornbury and White enough to permit this? Remember, Hole is from Indiana and is familiar with this region. As is the effect strikes us as bad though you will have to make the break somewhere to the east.

I put in the drumlin axes worked out by Ray Dickson from aerial photos. Also a single striation recorded by Bean. These are in red on the photostat.

We wondered where you got some of the new drumlin axes I did not show in Michigan. I failed to find them on published maps.

We also were puzzled by your inclusion of all Lugns "outwash-inwash" in Nebraska as outwash only. Does he agree to this?

Why not put tentative lines around the scattered boulders along the drift border to call attention to them? I did this north of the Dri ftless Area in our state.

I also received copy of several letters by Leverett to whom I am sending a carbon of this. We were interested in his change of front on the Iowan but will not try to discuss its merits here as Leighton can best do that.

I do not like the term "glacial marine" for the Pleistocene terraces along the Atlantic. Some will say these are interglacial?

I rerolled you maps so they will stay flat when you look at them. This is a hard ting to teach most people.

Someday I want to write about your paper on the Ozark drainage. We have the same problem in this state and I offer another explanation.

We hope the above suggestions or some of them will help. I will apparently have to teach physics next semester as almost all our students are gone.

Wishing you a Happy New Year, Sincerely

Dec. 31, 1942

Dr. Richard Foxter Flint,
Dept of Geology,
Yale University,
New Haven, Connecticut

Dear Flint:

Yours of the 25th with maps reached me duly but these holidays are the only time Mrs. Thwaites can get away from the house so I simply had to loose some time at home with the "Wild Indiana". It is simply out of the question to do any work there and some days I had to bring from one to three along to the office as it was. I am sorry if there was any serious delay.

In reply to your points it was impracticable to check drainage on the photosta because there are no county lines or other guides and the exact amount of generalization your drafsman desired is not evident at once. I think you ought to be able to do this part all right.

Hole and I went over the maps and I noted down the following points. Having no asbestos paper and keeping in mind the rules of the Post Office I will not try to give full expression to my thoughts on some of them°.?

The colors for Illinoian and Kansan are much too nearly the same on your hand colored copy. We trust this will be corrected in printing.

I was shocked to see you had to redraft my copy after telling Hole at Chicago that it was O. K. Every such redrawing adds so much to the chance for error. I would have been glad to make corrections or to check the new copy had I received it earlier. As is, there is not enough time and I also fail to recognize just what some of the pencil notes mean. Besides, the original for Minnesota was not sent so checking og that was impossible even if time allowed. Several changes were made on the originals after the photostat was taken. It was hard to color some parts of these maps because of underlying colors along state lines. Please recall my difficulty in understanding some directions.

Are you going to distinguish submereged moraines from those which made islands in the lakes. I can not tell from the changed conventions on the redrawn copy. Some submerged moraine near Marquette, Michigan has been noted on your photostat in red ink.

lake outlets,

My opinion in regard to the confusion of drumlin axes, eskers and striae due to use of same color on so small a scale is----------!******! Due to the lack of the kind of paper mentioned above, I will let it go at that° It was entirely impossible to check your copy.

I noted an esker left out at Green Bay.

Your request to check contours was a headache. The 1000 foot line along the shores of Lake Wisconsin was the worst. After wondering what to do I got out the Denoyer-Geppert map of Wisconsin for which we supplied all of the unpublished data here and promptly found some errors in that. Then I copied the 1000 foot line as best I could on a state map but did not take time to put it in where the area is covered with quadrangles. I will have to leave further generalization and change on your map to your draftsman. I will add

carbon to Tazewell

1 colors for Iowan Illinoian & Kansan too near alike

2 why redraft maps when you said they were O.K.

Data added after photostat much increases chance of error - original Mss not returned

3 How dominate submerged moraines?

4 outlet marks confused with strial, eskers, drumlins — Red my best for this scale, paper etc

5 Eskers near Green Bay

6 contours - impossible to check on map - will have new map of northeastern soon. write Alden for proof copy

Clearly error and Lake Wisconsin but can't change it here

Renoyer - Geppert. Harloff - send copy?

7 Border drift - Wilson report on Marshfield (Wis. probably not as old as Iowan)

Hole thinks all drift young because

- Immature soil profile - + moderate leaching & alteration

covered by loess same as Cary

gradation to Cary topog with no marginal features

Should we make it a border Wis or 16 Cary ground moraine

This should not include Mathemaus Iowan - an area not resurveyed

8 Why not subdivide Indiana and Ohio as per work of Leverett Thornbury, White !!! (Jour. of G., Senior)

a very bad effect likely to discredit all sub. of Wis.

No reason you should flunk out on this

9 Add new work of Ray Bertrand in northern Wis - Bean strictiru

10 Submerged moraine S of Marquette area & elsewhere

11 Where did you get new drumlins??

12 outwash in Nebraska?? does Lugn agree "outwash + inwash"

~~Impossible to check~~

13 Why not put tentative lines around the strong evidences of drift borders?

(16) Someday will get after your paper on Ozarks

Miss. problem

~~Bean strictiru in Baraboo Hills~~

(14) Way to roll maps ! X X !!!

(15) Leveretts letter - Iowan leached more than Tazewell - see Leighton

NEW HAVEN
JAN 3
12 M
1943
CONN.

THIS SIDE OF CARD IS FOR ADDRESS

BUY
WAR SAVINGS
BONDS AND STAMPS

Dr F. T. Thwaites
41 Roby Road
Madison
Wisconsin

Jan 2 1943

Dear Thwaites,

At the risk of incurring your profound irritation (!) this is to ask that if you have not already done so, you return the maps at once if it is in any way possible. I know you are being given very little time, but there is a special reason why no time can be lost, which I will explain when I write next. MacClintock & Appel are having a conference with me here on the 4th, & as soon thereafter as yours and Capps' proofs are returned, I can take the whole batch to Ottawa for drafting. About ten days after that we should be ready for publication. Try to bear with me & shoot the stuff back soon. With New Years greetings, Sincerely

Flint.

YALE UNIVERSITY
New Haven, Connecticut

January 21, 1943

Letter No. 14

To members of the COMMITTEE ON GLACIAL MAP OF NORTH AMERICA:
Messrs. Alden, Apfel, Bostock, Capps, Goldthwait, Gould, Kay, Leighton, Leverett, MacClintock, Nichols, Norman, Thwaites, White, Young (and Flint):

1. Editing of map completed

The editing of the photostatic proofs of the map has just been completed. I want to thank all members for the promptness with which the proof sheets were examined and returned.

The corrected proofs are now in Nichols' hands, and as soon as the corrections have been transferred to the manuscript map, the latter will be delivered to the Geological Society of America for publication.

2. Text of pamphlet

The explanatory text of the pamphlet that will be published with the map has been prepared and delivered to the G.S.A. It consists mainly of an explanation of the map and its compilation, special acknowledgments, and a bibliography. (Footnotes and the names of contributors of data will appear on the face of the map itself.) Any member wishing to see a carbon copy of the text may have it for the asking, if he will return it promptly.

3. Temporary defection of chairman

Your chairman regrets (from the point of view of carrying the map to published completion) to announce that he has just been commissioned in the Army Air Corps and has been ordered to active duty. Arrangements have been made, however, to carry on liaison work among Nichols, the Geological Society, and Williams and Heintz, the reproducing firm in Washington. MacClintock has generously consented to act for me should the necessity arise. Communications concerning the manuscript map should go to Nichols; those concerned strictly with the reproduction of the map to Dr. H. R. Aldrich of the G.S.A.; others to MacClintock, who will have access to the Committee's correspondence file. With this arrangement, it seems certain that the publication process can go on without delay or interruption.

I wish to thank every member for the cooperation given me as chairman. I am recommending to the National Research Council that our committee be continued in being until the map shall have appeared in published form.

Most sincerely,

Richard Foster Flint, Chairman

Leighton, Sheet 2.

Carbon copy for Gould and Thwaites as to use of a distinct Iowa pattern.

It now seems a matter of some consequence to decide whether the conflicting lobes in the Green River basin should be shown on the North America map by the same, or instead by distinctly different patterns. I suggest that if the Iowan is given a separate pattern, it might be stated that the separate pattern is used because it is a Keewatin substage of early Wisconsin. I have written Flint that if the majority of the Committee cling to the original view, as adopted a year ago, that the Iowan is older than the Tazewell, I should wish to have a footnote on the map saying; "Leverett considers the Iowan a close correlative of the Shelbyville part of the Tazewell substage. It was not so evident to me a year ago, as it is now, that the Iowan is a close correlative of the Shelbyville, and it is rather interesting to state that it was the data you presented in your paper in Vol. 31 of the Journal of Geology, that had much weight in bringing me to my present view. This being the case, I realize that some members of the Committee have not had attention called to your data, or do not recognize its weight as I do, I am charitable enough to excuse them. Some of them are too fully occupied with other matters to take time to think the matter out fully. I have the advantage of being retired, and at leisure to mull over such matters.

I found that your limit of the Illinoian below East St. Louis needs shifting westward clear to the east bluff of the Mississippi River the entire length of Monroe County. I have worked that area carefully, and was surprised to find the Illinoian till so well preserved there. As you probably know, the Illinoian drift, which crossed the Mississippi and is present in a small area in the north part of St. Louis County, near the Waterworks. You may not know that the Kansan drift made a similar crossing of the Mississippi (into Illinois, near Batchtown in Hardin County, over a small space.)

Boulders are scattered widely over St. Louis County, Missouri. I have indicated them on Sheet 10 by the X X X symbol. They seem likely to pertain to an extension of the Labradorian icesheet, rather than a flotation in ponded waters, for a slight amount of deeply weathered till is also present for several mies back from the Mississippi River bluff in St. Louis. Its occurrence has been noted by several geologists, Tenneman, Todd, Shipton and Hanley. I have seen it in a couple of places.

With best wishes, and the Season's Greeting,

Very truly yours,

(Signed) Frank Leverett.

Dear Thwaites:- I wrote Flint as follows concerning your mappind of the Michigan part of the North America map;

"Thwaites seems to have done a very good piece of work on the moraine and glacial lake features of Michigan. My recent work near Port Huron makes a slight revision necessary. The Yale moraine, in a waterlaid extension, passes under the Port Huron moraine.. The Adair moraine of Taylor should be taken out. He based it on boulders, but they are not numerous. It now seems to me probable that the Port Huron morainic system passes into Lake Michigan near Manistee, instead of staying on the land farther south. The ice border may however have been near the east side of the lake for some 50 miles south from Manistee.

With greetings and best wishes, Leverett.

Carbon copy for Gould an Thwaites as to use of distinct Iowa pattern.

Ann Arbor, Michigan, Dec. 24 1942.

Dr. M. M. Leighton,
Illinois Geol. Survey,
Urbana, Illinois.

Dear Dr. Leighton:-

Evidently we shall have to give up having a field conference in northern Illinois this year, but our differences of interpretation are so slight as to not noticeably affect what should be put on the glacial map of North America, now in preparation.

I received Sheet 10 of the map early in the month, and mailed it back to Flint on Dec. 12, with pretty full explanation of needed changes. I noticed that Illinois had been worked up, so I infer that it went to you before coming to me. I made the following statements in notes accompanying the sheet which pertain to the Illinois part:-

"The Green River basin in western Illinois was invaded fron the west by the Iowan ice, as indicated in my recent paper in the Journal of Geology, and whose paha ridges are found as far east as the northwest part of the Prophetstown quadrangle, as well as in the southwest part of the Morrison quadrangle. I therefore shifted the Iowah a little farther into Illinois than had been shown on sheet 10. A till fresh enough to be classed as Iowan is present near Morrison and Round Grove, Illinois, and paha are present for several miles south of these towns.

"The Green River basin was invaded from the east, as you have interpreted, by a Labradorian ice lobe at an earlier time than the Bloomington morainic system was formed, and which you consider a representative of the Shelbyville part of the Tazewell (Jour. of Geology, Vol. 31, 1923). You there present a table showing that the degree of leaching is similar to that in the Iowan drift, but is more largely loess in one case than in the other. You raise the question whether loess is more rapidly leached than till, as bearing on the correlation of the Keewatin and Labradorian lobes in this Green River basin, but do not decide the matter, and do not discuss the correlation further.

"There is a large amount of sand around the termini of these lobes, not mentioned in your paper, but seemingly due, in my opinion, to interference of drainage discharge from the conflicting ice lobes. The sand covers most of the Prophetstown quadrangle and parts of adjoining ones. It is classed as "Alluvial" on Sheet, No. 10. This I consider a wrong term. It should be classed as "Outwash" from the conflicting lobes, and made an Early Wisconsin product. I wrote Flint to this effect.

I have left the moraines of the Labrador lobe as you have them, not only in the Green River basin, but all the way to the Wisconsin State Line, except for the introduction of a moraine leading southeast from Belvidere. This moraine shows clearly on the Kirkland topographic map. The Wisconsin ice may have had a tempory extent clear to Rockford, as I suggested in our previous correspondence, but its main stand at the position you have shown here, and as shown in Bretz' bulletin on the Kings quadrangle (Bull. 43, Illinois Geol. Survey).

YALE UNIVERSITY
DEPARTMENT OF GEOLOGY

NEW HAVEN, CONNECTICUT

Dec 25 1942

Dear Thwaites,

I inclose

1 copy G.M.N.A., sheet 10, photostat proof, in two pieces, hand colored like original
1 copy ditto, uncolored
5 pieces compilation maps of Minn.–Mich.–Wis.

Will you please check these for (1) geography, especially drainage, contours (500 + 1000 ft) + place names. (2) glacial geology — accuracy of drafting your compilation, + any new additions you may wish to make. Several of us aided last January in copying your compilations for Wis. and Mich., as Nichols had had a hard time reading some parts of them.

You can make corrections + comments (in red) on the uncolored photos, or if you prefer on a sheet of tracing paper.

The striae, lake outlets, drumlins, &c., being in blue, photographed poorly, but we cant help it. The Ottawa people have carefully proofread them.

Leverett has seen + studied these proofs, + he complimented you on the high quality of your compilation. He had almost no criticisms to offer.

Please return this material just as soon as possible — within a few days if you can. The War Dept wants the map for its N. Canadian data, + the GSA is asking for copy. I am here on Xmas day, as you see, getting this off to you + to two others. Any comments of any kind will be welcome. Now is the time to make them.

With Christmas greetings,

Sincerely,

Richard F. Flint

Sept. 22, 1943

Dr. Paul MacClintock
Princeton University,
Princeton, New Jersey

Dear MacClintock:

Yours of the 17th is at hand on one of my visits to the Geology Department. I am now teaching physics to over 100 sailors and about half that number of civilian students. This keeps me so busy that I can hardly get time to recall that there is such a thing as geology!

Now that the three boys are safely in bed and Mrs. Thwaites is out I will take time to look up letters to Flint and Leverett in regard to the glacial map. I found that my last letter was sent in duplicate to both. It was dated the last day of 1942 and said that Hole thought the extra-morainic drift of central Wisconsin should be called "Undifferentiated Wisconsin". I am sure I changed this area to such on the proof which was sent me then. Space and time both forbid an extensive discussion of this problem just now. Hole is still at Earlham College, Earlham, Ind. if you want to write him about his paper. All things considered I feel it would be best to leave this area as shown at that time. I think Hole really thinks it is Cary drift right out to the edge but depth of leaching does not check well with that idea. I really have no way of checking on Leverett's suggestion but it seems as if it would introduce several new problems and further confuse the issue.

Sincerely,

PRINCETON UNIVERSITY
PRINCETON NEW JERSEY

DEPARTMENT OF GEOLOGY

September 17, 1943.

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

Dear Thwaites:-

Leverett writes urging that we use the correlation proposed by F.D.Hole for the drift north of the Driftless Area. What is your opinion in the matter? Since you compiled this part of the map your opinion is paramount, though if you are in favor of making the change I presume I should take it up with the rest of the committee. I've written to Aldrich asking how far the engraving has progressed to see if there might be a chance to work in a change if it was desired.

Leverett submits a manuscript map proposing to correlate this drift area of Hole's with the Patrician Red Drift and consider it Tazewell. Is this idea acceptable to you?

Very truly,

Paul MacClintock

PM:ML

APPENDIX K

*REPORT OF THE COMMITTEE ON GLACIAL MAP OF NORTH AMERICA

May 1, 1943

*Copy of Letter of January 21, 1943

Letter No. 14

To members of the COMMITTEE ON GLACIAL MAP OF NORTH AMERICA:
Messrs. Alden, Apfel, Bostock, Capps, Goldthwait, Gould, Kay, Leighton, Leverett, MacClintock, Nichols, Norman, Thwaites, White, Young (and Flint):

1. Editing of Map completed

The editing of the photostatic proofs of the map has just been completed. I want to thank all members for the promptness with which the proof sheets were examined and returned.

The corrected proofs are now in Nichol's hands, and as soon as the corrections have been transferred to the manuscript map, the latter will be delivered to the Geological Society of America for publication.

2. Text of pamphlet

The explanatory text of the pamphlet that will be published with the map has been prepared and delivered to the G. S. A. It consists mainly of an explanation of the map and its compilation, special acknowledgments, and a bibliography. (Footnotes and the names of contributors of data will appear on the face of the map itself.) Any member wishing to see a carbon copy of the text may have it for the asking, if he will return it promptly.

3. Temporary defection of chairman

Your chairman regrets (from the point of view of carrying the map to published completion) to announce that he has just been commissioned in the Army Air Corps and has been ordered to active duty. Arrangements have been made, however, to carry on liaison work among Nichols, the Geological Society, and Williams and Heintz, the reproducing firm in Washington. MacClintock has generously consented to act for me should the necessity arise. Communications concerning the manuscript map should go to Nichols; those concerned strictly with the reproduction of the map to Dr. H. R. Aldrich of the G.S.A.; others to MacClintock, who will have access to the Committee's correspondence file. With this arrangement, it seems certain that the publication process can go on without delay or interruption.

I wish to thank every member for the cooperation given me as chairman. I am recommending to the National Research Council that our committee be continued in being until the map shall have appeared in published form.

Most Sincerely,

Richard Foster Flint,
Chairman

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*In the absence from Washington at this time, on duty with the Armed Forces, Major Flint asked that the above letter be used as his report to the Division at its annual meeting, May 1.

PRINCETON UNIVERSITY
PRINCETON NEW JERSEY

DEPARTMENT OF GEOLOGY

June 8, 1943

LETTER NO. 15

To members of the COMMITTEE on Glacial Map of North America:

Messrs. Alden, Apfel, Bostock, Copps, Goldthwait, Gould, Kay, Leighton, Leverett, MacClintock, Nichols, Norman, Thwaites, White, Young (and Flint).

1. Nichols completed the map and sent it to the G.S.A. on March 11, 1943. To him we owe a great deal for it has taken real scientific fortitude to make the changes necessary as our ideas took shape through the joint conferences.

2. After inspection the manuscript map has been taken to Williams and Heintz in Washington. Dr. Aldrich writes me June 1, "There is a very considerable problem facing us in separating the various colors. It remains to be seen whether this separation can be done photographically or whether some of the work will have to be redrafted. The lithographers are still working on the problem and will submit their recommendations and estimate at an early date."

I am sending out this letter with Flint's approval and good wishes.

Very truly,

Paul MacClintock

Paul MacClintock

a

Mr. Thwaites

TELEPHONE, EXECUTIVE 8100

CABLE ADDRESS
NARECO, Washington, D. C.

NATIONAL RESEARCH COUNCIL

2101 CONSTITUTION AVENUE, WASHINGTON, D. C.

Established in 1916 by the National Academy of Sciences under its Congressional Charter and organized with the cooperation of the National Scientific and Technical Societies of the United States

December 10, 1943

MEMBERS OF THE DIVISION OF GEOLOGY AND GEOGRAPHY AND ITS COMMITTEES

I send you herewith a circular of information about the N.R.C. Fellowships and recent business of the Division, together with several other reports of possible interest.

Because of the war, the number of exceptionally well-qualified students and research workers who are free to apply for these fellowships is much less now than in normal times. However, many of you may know individuals whose attention should be called to these opportunities.

The Committee on War Projects of the Division was set up under the chairmanship of Dr. C. R. Longwell in April, 1942, and Dr. Earl Ingerson was appointed Vice-Chairman in July, 1943. You will recall that the purpose of this committee is to stimulate and examine research projects of possible usefulness in the war effort and that several ad hoc sub-committees, appointed for the purpose, have studied the possibilities of certain suggestions. The war seems likely to continue for several years longer and you are invited to bring to the attention of this committee any war projects that you think merit consideration.

Today we are all preoccupied with winning the war. But the eventual outcome is beyond question and it is appropriate that we give some thought to the problems that will confront this nation and the sciences of geology and geography when peace returns. Dr. Guthe and I will be interested and pleased to receive suggestions from any of you about activities that the Division might consider undertaking in the near future.

Most sincerely yours,

W. W. Rubey

WWR:J

Enclosure

William W. Rubey
Chairman, Division of
Geology and Geography

DIVISION OF GEOLOGY AND GEOGRAPHY
NATIONAL RESEARCH COUNCIL
2101 Constitution Avenue
Washington 25, D. C.

December 1, 1943

CIRCULAR OF INFORMATION FOR MEMBERS OF THE DIVISION AND ITS COMMITTEES

1. Fellowships in the Natural Sciences

The following announcement appeared in Science for Nov. 12, 1943, page 430:

"The National Research Council announces that fellowships in mathematics, astronomy, physics, chemistry, geology, paleontology, physical geography, zoology, botany, agriculture, forestry, anthropology and psychology will be available for the year 1944-1945. These fellowships are awarded as a rule to persons under thirty-five years of age who are citizens of the United States or Canada, and who have met all the requirements for the doctor's degree. Applications must be filed on or before December 31, on forms obtainable from the secretary of the Fellowship Board in the Natural Sciences, National Research Council, 2101 Constitution Avenue, Washington 25, D.C. A handbook describing the fellowships - stipends, conditions and tenure - will be furnished upon request." (Undersocring added here.)

It may be of interest to add that the minimum stipend for these Postdoctorate Fellowships is at the rate of $1800 per year, and that larger stipends may be granted according to the status of the applicant.

Summary Statement since Participation of the Division of Geology and Geography in the National Research Council Fellowships

No. of Applicants	Awarded N.R.C. Fellowships for Years	
(1936-37) - 13	(1937-38) - 2:	James F. Bell John R. Schultz
(1937-38) - 6	(1938-39) - 3:	J. F. Bell (reappointment) Arthur F. Hagner Raymond B. Montgomery
(1938-39) - 11	(1939-40) - 4:	John N. Adkins Daniel I. Axelrod John B. Peterson George P. Woollard
(1939-40) - 5	(1940-41) - 4:	J. N. Adkins (reappointment) D. I. Axelrod (reappointment) Max Demorest Felix Webster McBryde
(1940-40) - 5	(1941-42) - 1:	Hubert K. Stephenson
(1941-42) - 4	(1942-43) - 2:	Elizabeth Jean Armstrong *Hubert K. Stephenson (reapp't.)
(1942-43) - 1	(1943-44) - 1:	Aureal T. Cross

* (Mr. Stephenson could not accept this reappointment due to defense work.)

2. Membership of recently organized Committees, or other Committee changes, (approved during the summer by executive action of the Chairman of the NRC or at the October meeting of the Administrative Committee):

(a) Committee on Geological Personnel, H. B. Heroy, Chairman; Henry R. Aldrich, Charles H. Behre, Jr., K. C. Heald, A. I. Levorsen.

(For information concerning the objectives of this committee, see enclosed copy of Mr. Heroy's report).

(b) Committee on Training and Standards in the Geographic Profession, Richard Hartshorne, Chairman; Meredith F. Burrill, Charles C. Colby, Vernor C. Finch, Preston E. James, Charles E. Kellogg, K. C. McMurry, Arthur Robinson, Victor Roterus, Kirk Stone, J. Russell Whitaker.

(For details, see heading No. 1 of Dr. Guthe's report, enclosed).

(c) Committee on Cartographic Techniques, Arthur H. Robinson, Chairman; Oscar S. Adams, Wallace W. Atwood, Jr., Russell K. Bean, S. Whittemore Boggs, R. M. Coffin, P. G. Downes, Carl E. Foss, Reginald C. Hainsworth, Richard E. Harrison, Charles B. Hitchcock, A. B. Hoen, H. V. B. Kline, Jr., Henry M. Leppard, A. K. Lobeck, Clifford H. McFadden, O. M. Miller, Irwin Raisz, C. E. Riddeford, Guy-Harold Smith, Lt. Commander Paul A. Smith.

(For details, see heading No. 2 of Dr. Guthe's report, enclosed.)

(d) Vice-Chairman of the Committee on War Projects - Earl Ingerson. (C. R. Longwell, Chairman).

(e) Committee on Physiographic Studies of Critical Areas (formerly Committee on Methods of Presentation of Physical Features of Military Importance, Samuel Van Valkenburg, Chairman), Wallace W. Atwood, Jr., Otto H. Haas, H. E. Vokes.

(f) Committee on Common Problems of Genetics and Paleontology (G.G.Simpson,Chrm.) Walter H. Bucher, Acting Chairman of the whole committee, and Chairman of the Eastern Group; Ernest B. Babcock, Chairman of the Western Group; G. Ledyard Stebbins, Jr., Vice Chairman of the Western Group; and Walter H. Bucher, Bruce L. Clark, and Carl O. Dunbar, members of the Section on Paleontology. (For complete membership of the Committee, see No. 5 in the list of Committee members, enclosed.)

(g) Committee on Asiatic Geography, Jan O. M. Broek, Acting Chairman, in the absence of George B. Cressey, Chairman.

(h) Committee on Analyzing and Presenting Land Forms (new title of Committee on Landforms), George B. Cressey, Chairman.

(i) Discontinuance, rather than reorganization, of the Committee on Research in Areas of International Concern, Derwent Whittlesey, Chairman, resigned.

3. Conference Grants approved during the summer or early fall:

(a) For use of the Committee on Geological Personnel, in holding meetings $500.00

(b) For use of the Committee on Training and Standards in the Geographic Profession, for meetings or travel expense of Subcommittee Chairmen $500.00

4. Committee Meetings during the summer:

(a) Committee on Common Problems of Genetics and Paleontology
Western Group - Berkeley, California, June 14-16, 1943.
Eastern Group - New York City, July 24-25, 1943.

(b) Geographic Committees - informal meetings held at the time of the annual meeting of the Association of American Geographers, Washington, D. C., September 17-18, 1943.

5. Committee Reports recently issued, and copies available on request (no charge)

(a) Report of the Committee on Paleobotany for 1942-43, Erling Dorf, Chrm.
21 pages (mimeographed).

(b) Report of Meetings of the Committee on Common Problems of Genetics and Paleontology
Part I - Berkeley meeting; Part II, New York meeting;
Part III - Abstracts of papers presented at New York meeting.
15 pages (mimeographed).

6. Committee Reports in process of mimeographing:

(a) Report of the Committee on the Ecology of Marine Organisms, as related to Paleontology for 1942-43, Harry S. Ladd, Chairman.
32 pages (to be issued as a bound report). Price $0.50, but with free distribution to contributors and libraries.

(b) Report of the Committee on the Measurement of Geologic Time, 1942-43, Alfred C. Lane, Chairman; John Putnam Marble, Vice-Chairman.
40 pages (to be issued as a bound report). Price $0.50, but with free distribution to contributors and libraries.

(over)

7. Contact with the War Manpower Commission

Starting in July, C. R. Longwell, W. B. Heroy, C. H. Behre, Jr., and I have been in contact several times with Dr. H. T. Briscoe, Chief of the Professional and Technical Training Division, War Manpower Commission, about problems of wartime training of geologists. On November 11, Heroy and Behre could not be present but Longwell and I met with the Professional and Technical Service and Personnel Committee of the War Manpower Commission, at which time various aspects of the shortage of geologists and training problems were discussed. Vice-Chairman Guthe is in contact with the National Roster of Scientific and Specialized Personnel, WMC, which has recently initiated a special study of the personnel situation in geography.

8. Progress Reports

At the bimonthly meetings of the National Research Council, Division Chairmen are requested to give brief reports concerning activities of their respective Divisions since the previous bimonthly meeting. In preparation for the October 2nd meeting, Miss Johnson, during my absence on field work in the West, wrote to the Chairmen of the active geologic committees, asking for reports of progress in connection with their activities; and Dr. Guthe, Vice-Chairman of the Division, got in touch with the Chairman of the active geographic committees, and summarized their work. I was glad to have these progress reports and presented a brief summary of several of the geologic reports at the October meeting of the Administrative Committee. To keep such a report brief, I mentioned at that time the work of only a few of the committees, and at the December 4th meeting will mention the work of several others.

Dr. Guthe, Vice-Chairman of the Division, was invited to attend the Administrative Committee meeting and was called upon to present the report on the geographic work of the Division. He, too, limited his remarks to mention of the work of two or three committees. However, for your information, and with his consent, I am enclosing a copy of his complete report to the Division. I am also enclosing a copy of my written report on behalf of the Division, which was called for following the meeting for use by the Chairman of the National Research Council in reporting on the activities of the Council during the summer period.

9. New Progress Reports

Having so recently asked Committee Chairmen for progress reports of their committees, it does not seem appropriate to present so soon another request for such reports. However, should any of you have any new committee accomplishments to report, I should be most happy to learn of them. Please keep in mind that following the December 3d meeting, the next bimonthly meeting of the Administrative Committee will be held on February 5, at which time, we will again be called upon for information concerning new business or accomplishments.

WWR:J
Enclosures

William W. Rubey, Chairman
Division of Geology and Geography

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DIVISION OF GEOLOGY AND GEOGRAPHY, NATIONAL RESEARCH COUNCIL
2101 Constitution Avenue, Washington 25, D. C.

* INTERIM REPORT OF THE DIVISION FOR THE PERIOD
June 5 - October 2, 1943

By William W. Rubey, Chairman

Since the outbreak of hostilities, geologists and geographers along with workers in other scientific and technical fields have been putting aside their normal peacetime work and entering war activities in ever increasing numbers. Hundreds are now in military service and many more are engaged in technical assignments for governmental agencies and in the search for new sources of the minerals required to sustain this country's huge industrial production. Current demands for trained geologists and geographers exceed the supply of available individuals; and as a result increasingly less time is left for purely scientific studies.

The activities of the Division reflect these wartime conditions. Many of the peacetime committees have been compelled by force of circumstance to suspend work for the duration of the war. Others have been able in varying degree to complete projects that have been many years in preparation. New activities of the Division undertaken during the past four months relate largely to problems and to opportunities for national service that have arisen as a result of the war.

The Glacial Map of North America and the Tectonic Map of the United States were completed in manuscript form last spring by the two committees that have had these long time projects in hand. During the summer progress was made toward final publication of both maps — the Glacial Map underwent final correction of copy for publication by the Geological Society of America and the contract was let for printing the Tectonic Map under auspices of the American Association of Petroleum Geologists.

Of the twelve correlation charts of North American sedimentary formations under preparation by the Committee on Stratigraphy, three have already been published by the Geological Society of America - the Silurian, the Devonian, and the Cretaceous of the Atlantic and Gulf Coastal Plain. During the summer three more of these charts have been completed by the committee - the Cenozoic of the Atlantic and Gulf Coastal Plain, the Cenozoic of the West Coast, and the Pennsylvanian.

The Committee on Common Problems of Genetics and Paleontology was organized last February as a joint committee of the Divisions of Geology and Geography and of Biology and Agriculture. This Committee has been active during the summer and the eastern and western groups held well-attended meetings in New York (July 24-25) and Berkeley (June 14-16). Dr. W. H. Bucher, who initiated and organized this committee during his chairmanship of the Division, has been chosen by the committee as acting chairman during the absence of the Chairman, Dr. George Gaylord Simpson of the American Museum of Natural History, now on active duty with the Army Air Forces.

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* Prepared for the Chairman of the National Research Council.

A Committee on Geological Personnel was organized during the spring and came into official existence July 30 under the chairmanship of W. B. Heroy, Director, Division of Reserves, Petroleum Administration for War.

This committee aims to coordinate the personnel activities of various geological societies and organizations and will endeavor to provide data on geologists to the War Manpower Commission and other interested organizations.

Because of the manpower situation that has developed in geology, the Office of Scientific Personnel of the Research Council now includes geology among the critical professions that it assists with advice on problems of wartime personnel. Dr. Homer L. Dodge, Director of this Office, advises with the Division's Committee on Geological Personnel on specific problems. The Committee on War Effort of the Geological Society of America has joined with a number of other scientific societies and organizations in helping to defray the expense of the Office of Scientific Personnel.

Dr. S. Van Valkenburg, Chairman of the Committee on Methods of Presentation of Physical Features of Military Importance, and the Chairman and Vice-Chairman of the Division met with representatives of several military and civilian intelligence agencies on July 7, and perfected plans for a program of this committee's activities. Partly as a result of this conference, the name of Dr. Van Valkenburg's committee was simplified to the Committee on Physiographic Studies of Crtical Areas.

Plans have been made for the organization of a new Committee on Cartographic Techniques, under the chairmanship of Arthur M. Robinson, Chief, Map Division, Office of Strategic Services. Rapid development in the use of cartographic techniques as a result of war needs has left a large part of the geographic and geologic profession far behind in its knowledge of improvements in cartographic presentation and in the use of faster and simpler methods of map compilation and reproduction. The new committee is to assemble and publish authoritative explanations of these new techniques.

Organization is also recommended of a new Committee on Training and Standards in the Geographic Profession under the chairmanship of Dr. Richard Hartshorne, Board of Analysts, Office of Strategic Services. This committee is to outline the objectives and to suggest personnel for sub-committees that will review the opportunities and assess the accomplishemtns of geographers during the war, investigate other lines of work in which geographers are or might be employed, re-value the present training of professional geographers and recommend whatever changes seem to be needed.

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DIVISION OF GEOLOGY AND GEOGRAPHY, NATIONAL RESEARCH COUNCIL

* INTERIM REPORT CONCERNING THE GEOGRAPHIC WORK OF THE DIVISION

By Otto E. Guthe, Vice Chairman

September 30, 1943

In order to clarify the activities of the geographers in relation to the National Research Council, I am submitting the following brief report:

1. The Committee on Training and Standards in the Geographic Profession was recommended at the May 1 meeting by the geographers attending. The functions of such a committee had been discussed from time to time during the summer months among professional geographers, and several assembled together at the time of the annual meeting of the Association of American Geographers were enthusiastic as to the potential accomplishments of such a committee.

The committee now recommended for establishment is in a sense the steering and reviewing committee. It is charged with the duty of organizing procedure and defining functions of the sub-committeeswith the added responsibility of critically reviewing the results of the work of these sub-committees. One sub-committee will assess the accomplishments of geographers during this war period and will also investigate other lines of work in which geographic methods are now employed or in which it foresees opportunities for better operation by utilizing the services of trained geographers. It will also try to point out the inadequacies in previous training. The results of the investigations of this sub-committee will be reported to the main committee and to another sub-committee which will, in turn, be responsible for the re-evaluation of present training required of professional geographers. It is believed that this second sub-committee may find it necessary to recommend some changes in the academic training previously required and may also recommend greater specialization in both undergraduate and postgraduate work to meet specialized demands in the academic as well as in the non-academic fields. It is hoped that the results of this committee will be issued as one or more reports and that an outgrowth of these reports may be a brief handbook which will be made available to prospective students of geography.

With few exceptions, the professional geographers of the country have been occupying important and responsible positions during the present war emergency. The public in general has recognized the need for a greater understanding of geographic facts and it is the responsibility of the profession to meet more fully the demands made upon it.

2. A new Committee on Cartographic Techniques was recommended at the May 1 meeting of the Division with the original suggestion received from Mr. Robinson. Since several geographers hold very responsible positions in

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* Prepared for the Division Chairman.

the cartographic field and in view of the importance of maps in the geographic and geologic profession, it was thought opportune to initiate action which would aid in clarifying and systematizing the field of cartography. Rapid development in the use of cartographic techniques, as a result of war needs, has left a large part of the profession far behind in its knowledge of improvements in cartographic presentation and in the use of faster and simpler methods of map compilation and reproduction.

At present the content and potentialities of the field of cartography are not clearly set forth in written form or understood by the majority.

The membership of the committee is made up of geographers, geologists, and other trained men, all of whom have specialized in one or more phases of cartography. The committee will be broken down into sub-committees, each concerned with closely related phases of cartography. Every member will have the opportunity to contribute a brief report on the developments and improvements in those technical phases of cartography with which he is most directly concerned. He will be asked to explain and evaluate such improvements and to point out their limitations. It is anticipated that an annual or bi-annual contribution of the Division will be a report composed of an introductory chapter followed by edited reports of the committee members.

3. The membership of the Committee on Methods of Analyzing and Presenting Land Forms (formerly the Committee on Land Forms) carried on extended correspondence during 1941 and 1942, but had to restrict its activities during 1943 because of the demands of the war effort. This situation will probably continue until the end of the war. Several sub-projects, primarily composed of testing proposed methods of describing land surfaces in quantitative terms, were under way and the chairman of the committee desires that the organization of the group be retained with the expectation that the results of the work to be completed can be brought together in the form of a report to the National Research Council soon after the emergency is over.

No definite action has been taken regarding the establishment of a Sub-committee on Military Aspects, although it is felt that such a sub-committee could perform very useful functions.

4. Through the Committee on Latin American Studies, the Division continues to be actively represented on the Joint Committee on Latin American Studies. This latter committee and its sub-committees hold regular meetings to discuss problems of research in the Latin American field.

5. The most active project of the Committee on Geographic Research is that of the Sub-Committee on Census of Professional Geographers. A comprehensive census of all professional geographers is currently maintained and kept up to date by this sub-committee. Governmental agencies, especially those directly concerned with the war effort, have made innumerable calls for the data assembled by the census in efforts to recruit qualified personnel. The data have been roughly classified for ready reference purposes and further

analysis is under way. In order to gain a picture of the present status of the geographical profession in the United States to the extent that it is reflected in such matters as the numerical strength of geographers at various levels of training and experience, the pattern of their specialization, and the role of the institutions at which they received their training as expressed in number and level of trainees, the work of this project is being actively pursued and there is no question but that the sub-committee should be continued.

6. The Committee on Asiatic Geography at present has a balance of $430, of the total sum of $1,000, $500 of which was obtained from the National Research Council and $500 from the American Council of Learned Societies. The committee cooperates closely with the Ethnogeographic Board and stands ready to assist the American Council of Learned Societies whenever it is asked. It is also at the service of the war and civil agencies, as requested. Many requests for advice, detailed information, and suggestions regarding trained personnel have been handled by the committee. The committee is also interested in promoting the training of some professional geographers in the Asiatic field in order more adequately to fill the serious need that has become so apparent as the general interest in Asiatic areas has increased.

Mr. Jan O. M. Broek has been appointed as acting chairman of this committee by Dr. George Cressey, chairman, who will be in China until late next spring. Dr. Broek intends actively to assume his new duties in the near future.

7. The two Committees on Cooperation with the Bureau of the Census and with the Soil Survey, respectively, have been relatively inactive during the last year or two, but stand ready to render service when requested. In view of the many geographical aspects of the work of the Bureau of the Census and of the Soil Survey, it is felt that both committees should be continued in case new developments bring requests for suggestions or for more comprehensive consideration of mutual problems.

8. No report has been received from the Committee on Southern Studies, and it is believed that this committee has been inactive during the past year.

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NATIONAL RESEARCH COUNCIL

Division of Geology and Geography

Report of the Committee on Geological Personnel

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The Committee on Geological Personnel was created by approval of the Chairman of the Council on July 30, 1943, and upon recommendation of the Executive Committee of the Division of Geology and Geography. Following the general policies of the Council the Committee will function primarily for purposes of survey, planning and coordination. It will endeavor to develop close contacts with the activities in personnel matters of the various societies, institutes, foundations and other agencies operating in the field of geology. It will not seek to duplicate or to supersede their work and will undertake specific projects only if it will appear that a cooperative arrangement under the Council is advantageous.

During the short period in which the Committee has been at work it has made no noteworthy accomplishment. It has been engaged chiefly in surveying its field and collecting information as to present personnel activities of the organizations connected with the Division of Geology and Geography. A brief summary of the recent activities of these organizations follows.

The National Service Committee of the American Association of Petroleum Geologists, created in April, 1941, has functioned vigorously under its Chairmen, F. L. Aurin and K. C. Heald. The Committee has kept the membership of the Association informed on such matters as changes in rules and regulations governing qualifications for military service; the operation of the Selective Service; the possibilities for geologists in the various branches of the armed forces, in essential industries, and in the Government agencies concerned with the war program. Questionnaires concerning specific qualifications and experience were sent to the members of the Association and about 3,000 of these were returned and have been classified.

By contact with the military authorities, efforts were made to acquaint them with the usefulness of geology in military operations and to interest them in the efficient use of geologists who are serving in the various branches of the armed forces. The Army Air Corps has proved to be the most interested branch of the service and is using many geologists in the interpretation of aerial photographs. The report of this Committee, published in the Bulletin of the Association for May, 1943 (Vol. 27, No. 5, pp. 688-693), is an excellent summary of its work.

The Committee on War Effort of the Geological Society of America, under the chairmanship of W. O. Hotchkiss and of C. R. Longwell, has devoted its energies primarily to acquainting authorities in various Governmental agencies with the kind of wartime service geologists can perform. It has also been instrumental in placing a large number of geologists in organizations engaged in war activities. The Committee sponsored and

distributed a paper "Utilization of Geology and Geologists in Wartime". Details of the work of the Committee on War Effort are contained in the report of Dr. Hotchkiss published in the Proceedings of the Geological Society of America for 1942, page 40.

The agency of the Government, apart from the military branches, which is chiefly concerned with manpower administration is the War Manpower Commission. The Selective Service is a Bureau of this Commission. The National Roster of Scientific and Specialized Personnel, of which Dr. Leonard Carmichael is Director, is now a Division in the Bureau of Placement. The Roster has compiled a very complete file of records of personnel engaged in earth science which has been of great service in the placement of geologists in Government agencies.

The Selective Service, acting on recommendations from other bureaus of the Commission, has recently established a list of critical occupations, those which are highly essential to the functioning of war industries and in which there are serious shortages of manpower. Geologists and geophysicists are included in this critical list. To assist the War Manpower Commission Mr. W. W. Rubey prepared a full report on "Geologists Employed by the U. S. Geological Survey". A report on "Manpower Shortage in Exploratory Activities in the Petroleum Industry" was prepared for the War Manpower Commission by the Division of Reserves of the Petroleum Administration for War with the assistance of the American Association of Petroleum Geologists.

The National Research Council has established an Office of Scientific Personnel, of which Dr. Homer L. Dodge is Director. This Office functions for the Council as a whole and Dr. Dodge has been engaged in a large range of activities concerned with the procurement of scientific personnel for various war agencies, the placement of scientific workers, and the administration of the War Manpower Commission. The Division of Geology and Geography, through the assistance of the Geological Society of America, will share in the activities of the Office of Scientific Personnel and will obtain the valued assistance of Dr. Dodge in specific personnel problems.

Committee Members
Henry R. Aldrich
Charles H. Behre, Jr.
A. I. Levorsen
K. C. Heald

William B. Heroy,
Chairman

October 2, 1943

NATIONAL RESEARCH COUNCIL - WASHINGTON, D.C.

ORGANIZATION OF THE DIVISION OF GEOLOGY AND GEOGRAPHY

July 1, 1943 - June 30, 1944

OFFICERS

Chairman, William W. Rubey
Vice-Chairman, Otto E. Guthe

EXECUTIVE COMMITTEE

William W. Rubey, Chairman	Otto E. Guthe, Vice-Chairman
Marland Billings	G. Arthur Cooper
Monroe G. Cheney	Richard J. Russell

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MEMBERS OF THE DIVISION

Representatives of Societies

Geological Society of America
Marland Billings (46)*
T. S. Lovering (44)

Mineralogical Society of America
Paul F. Kerr (45)

Paleontological Society
G. Arthur Cooper (44)

Association of American Geographers
Otto E. Guthe (46)
Richard J. Russell (44)

American Geographical Society
Raye R. Platt (45)

Society of Economic Geologists
Charles H. Behre, Jr. (46)

American Association of Petroleum Geologists
Monroe G. Cheney (46)

American Ceramic Society
George W. Morey (45)

American Geophysical Union
John A. Fleming (46)

Members at Large

Ralph H. Brown (45)
William W. Rubey (46)
Joseph T. Singewald, Jr. (44)

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(For Committees and Representatives, see separate list)

* Date of expiration of term of office.

INDEX TO COMMITTEES AND *SUBCOMMITTEES

- - - - - - - - -

Numbers refer to alphabetical list on succeeding pages.

* Designates Subcommittees.

- - - - - - -

** No. 5 - Joint Committee with Division of Biology and Agriculture.

NATIONAL RESEARCH COUNCIL

COMMITTEES OF THE DIVISION OF GEOLOGY AND GEOGRAPHY, 1943-1944

December 1, 1943

a. Executive Committee

William W. Rubey, Chairman	Marland Billings	G. Arthur Cooper
Otto E. Guthe, Vice-Chrm.	Monroe G. Cheney	Richard J. Russell

b. Advisory Committee to the Division (Present and Former Chairmen)

William W. Rubey, Chairman	Nevin M. Fenneman	Chester R. Longwell
Edson S. Bastin	Arthur Keith	Edward B. Mathews
Walter H. Bucher	Andrew C. Lawson	W. H. Twenhofel

c. Advisory Committee on National Research Council Post-Doctorate Fellowships in Geology, Paleontology, and Physical Geography

		James Gilluly
William W. Rubey, Chairman	Kirk Bryan	T. S. Lovering
Otto E. Guthe, Vice-Chrm.	G. Arthur Cooper	John L. Rich

d. National Committee of the United States, International Geographical Union

John K. Wright, Chairman	Preston E. James	Lawrence Martin
S. Whittemore Boggs	W. L. G. Joerg	

Technical Committees

1. Committee on Advising Prospective Geology Students

Charles H. Behre, Jr., Chrm.	W. T. Thom, Jr.	A. C. Waters
E. C. Dapples	George A. Thiel	

2. Committee on Asiatic Geography

George B. Cressey, Chairman	Robert B. Hall	John E. Orchard
Jan O. M. Broek, Acting Chrm.	Wellington D. Jones	Joseph E. Spencer
		Glenn T. Trewartha

3. Committee on Authors' Abstracts

Marcus I. Goldman, Chairman	U. S. Grant, IV	Raymond C. Moore
		F. M. Van Tuyl

4. Committee on Cartographic Techniques

Arthur H. Robinson, Chrm.	Carl E. Foss	A. K. Lobeck
Oscar S. Adams	Reginald G. Hainsworth	Clifford H. McFadden
Wallace W. Atwood, Jr.	Richard E. Harrison	O. M. Miller
Russell K. Bean	Charles B. Hitchcock	Irwin Raisz
S. Whittemore Boggs	A. B. Hoen	C. E. Riddeford
R. M. Coffin	H. V. B. Kline	Guy-Harold Smith
P. G. Downes	Henry M. Leppard	Paul A. Smith

5. Committee on Common Problems of Genetics and Paleontology (see page 2)

6. Committee on Cooperation with the Bureau of the Census

Guy-Harold Smith, Chairman	Stanley D. Dodge	Lawrence Martin
O. E. Baker	W. L. G. Joerg	C. W. Thornthwaite
		John K. Wright

7. Committee on Cooperation with the Soil Survey

W. Elmer Ekblaw, Chairman	K. C. McMurry	L. R. Schoenmann
Wellington D. Jones		

5. Committee on Common Problems of Genetics and Paleontology (Joint Committee with (Division of Biology (and Agriculture)

George Gaylord Simpson, Chairman
Walter H. Bucher, Acting Chairman
* Th. Dobzhansky, Chairman, Section on Genetics
Glenn L. Jepsen, Chairman, Section on Paleontology

Eastern Group		Western Group
Walter H. Bucher, Chairman		* Ernest B. Babcock, Chairman
Kenneth E. Caster	* H. J. Muller	* G. Ledyard Stebbins, Jr., Vice-Chrm.
Edwin H. Colbert	Bryan Patterson	* Edgar Anderson
G. Arthur Cooper	F. P. Phleger	D. I. Axelrod
* Kenneth W. Cooper	Alfred S. Romer	Ralph W. Chaney
* M. Demerec	G. G. Simpson	Bruce L. Clark
* Th. Dobzhansky	* W. P. Spencer	M. K. Elias
Carl O. Dunbar	* Curt Stern	* Carl Epling
* Myron Gordon	Horace E. Wood, 2d	Herbert L. Mason
Glenn L. Jepsen	* Sewall Wright	Chester Stock
* Ernst Mayr		

* - Members of the Section on Genetics.

#8. Committee on Cryptovolcanic Structures

Charles W. Wilson, Jr., Chairman
Kendall E. Born — Walter H. Bucher — A. I. Levorsen

9. Committee on Deformation of the Ross Shelf Ice

Walter H. Bucher, Chairman — F. Alton Wade
Laurence M. Gould — François E. Matthes — Paul A. Siple

#10. Committee on Density Currents

Herbert N. Eaton, Chairman	G. A. Hathaway	C. S. Scofield
J. H. Bodine	P. V. Hodges	F. P. Shepard
Reginald A. Daly	C. S. Howard	J. K. G. Silvey
C. C. Elder	Chancey Juday	H. U. Sverdrup
M. M. Ellis	Robert T. Knapp	C. P. Vetter
N. C. Grover	L. M. Lawson	A. H. Wiebe
Raymond A. Hill	W. C. Lowdermilk (G. C. Dobson, alternate)	

(10a) Subcommittee on Elephant Butte Revervoir
C. S. Scofield, Chairman

(10b) Subcommittee on Lake Mead
C. P. Vetter, Chairman

11. Committee on Geographic Research

Richard Hartshorne, Chairman	Charles C. Colby	J. Russell Whitaker
S. Whittemore Boggs	Otto E. Guthe	Derwent Whittlesey
Ralph H. Brown	Preston E. James	

(11a) Subcommittee on Census of Professional Geographers
W. L. G. Joerg

(11b) Subcommittee on Geographical Research in New York State
Eric H. Faigle, Chairman

12. Committee on Geological Personnel

W. B. Heroy, Chairman — Charles H. Behre, Jr. — A. I. Levorsen
Henry R. Aldrich — K. C. Heald

#13. Committee on the Geology of Ceramic Raw Materials

Herbert Insley, Chairman — Clarence S. Ross — Robert B. Sosman

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Activity considered suspended for the present.

14. Committee on Glacial Map of North America

R. F. Flint, Chairman	J. W. Goldthwait	Paul MacClintock
W. C. Alden	L. M. Gould	D. A. Nichols
E. T. Apfel	G. F. Kay (deceased)	G. W. H. Norman
E. S. Bostock	M. M. Leighton	F. T. Thwaites
S. R. Capps	Frank Leverett (deceased)	G. W. White
		G. A. Young

15. Committee on Methods of Analyzing and Presenting Land Forms

George B. Cressey, Chairman	Arthur B. Cozzens	Erwin Raisz
Wallace W. Atwood, Jr.	Robert M. Glendinning	C. F. Stewart Sharpe
	Henry M. Kendall	Louis A. Wolfanger

16. Committee on Latin American Studies

Preston E. James, Chairman	Robert S. Platt	Joseph T. Singewald, Jr.
Clarence F. Jones	Carl O. Sauer	

17. Committee on Map Sketching from Aerial Photographs

O. M. Miller, Chairman	Walter H. Bucher	Louis Desjardins

18. Committee on Marine Ecology as Related to Paleontology

Harry S. Ladd, Chairman	Remington Kellogg	F. W. Rolshausen
C. H. Edmondson	Kenneth E. Lohman	Henry C. Stetson
Gordon Gunter	Roger Revelle	T. Wayland Vaughan

19. Committee on the Measurement of Geologic Time

Alfred C. Lane, Chairman	Frank L. Hess	W. J. Mead
J. P. Marble, Vice-Chrm.	Arthur Holmes	Charles S. Piggot
Gregory P. Baxter	Adolph Knopf	Roger C. Wells
H. V. Ellsworth	A. F. Kovarik	

20. Committee on Meteorites

W. F. Foshag, Chairman	E. P. Henderson	Stuart H. Perry
J. W. Greig	Robert F. Mehl	

21. Committee on Physiographic Studies of Critical Areas

Samuel Van Valkenburg, Chairman	Otto H. Haas	H. E. Vokes
Wallace W. Atwood, Jr.		

22. Committee on Micropaleontology

Joseph A. Cushman, Chairman	G. Dallas Hanna	M. L. Natland
Carey Croneis	Henry V. Howe	Helen J. Plummer
Alva C. Ellisor	B. F. Howell	T. Wayland Vaughan
	Raymond C. Moore	W. P. Woodring

23. Committee on Paleobotany

Erling Dorf, Chairman	Charles B. Read	J. M. Schopf
H. D. MacGinitie		

#24. Committee on Problems of Ore Deposits

T. S. Lovering, Chairman	B. S. Butler	Earl Ingerson
L. H. Adams	Ralph Cannon	Adolph Knopf
C. H. Behre, Jr.	Michael Fleischer	Edwin T. McKnight
W. S. Burbank	John W. Gruner	

25. Committee on Sedimentation (see page 4)

26. Committee on Southern Studies
W. Elmer Ekblaw, Chairman

25. Committee on Sedimentation

Parker D. Trask, Chairman	H. B. Milner	L. G. Straub
Carl B. Brown	F. J. Pettijohn	Allen C. Tester
Carl W. Correns	F. W. Rolshausen	A. C. Trowbridge
Ralph E. Grim	R. Dana Russell	W. H. Twenhofel
W. C. Krumbein	Francis P. Shepard	T. Wayland Vaughan
P. D. Krynine	Henry C. Stetson	

(25a) Subcommittee on Beach Erosion and Shore Processes
Francis P. Shepard

(25b) Subcommittee on Compilation of Statistical Data on Sediments
W. C. Krumbein

(25c) Subcommittee on Diagenesis
Ralph E. Grim, Chairman

(25d) Subcommittee on Finance
Parker D. Trask, Chairman

27. Committee on Stratigraphy
Carl O. Dunbar, Chairman; also Chairman, Subcommittee on Permian System
G. Arthur Cooper, member; and Chairman, Subcommittee on Devonian System
Carey Croneis, member; and Chairman, Subcommittee on Mississippian System
B. F. Howell, member; and Chairman, Subcommittee on Cambrian System
Raymond C. Moore, member; and Chairman, Subcommittee on Pennsylvanian System
John B. Reeside, Jr., member; and Chrm., Subcom., Triassic & Jurassic Systems
Lloyd W. Stephenson, member, and Chairman, Subcommittee on Cretaceous System
Charles K. Swartz, member; and Chairman, Subcommittee on Silurian System
W. H. Twenhofel, member; and Chairman, Subcommittee on Ordovician System
C. E. Weaver, member; and Chairman, Subcommittee on Cenozoic System

28. Committee on Tectonics

Chester R. Longwell, Chairman	G. Marshall Kay	George W. Stose
Philip B. King, Vice-Chrm.	Eleanora B. Knopf	J. T. Pardee
Charles H. Behre, Jr.	A. I. Levorsen	W. T. Thom, Jr.
Walter H. Bucher	T. S. Lovering	A. C. Waters
Eugene Callaghan	George R. Mansfield	Eldred D. Wilson
D. F. Hewett	W. H. Monroe	A. O. Woodford

29. Committee on Training and Standards in the Geographic Profession

Richard Hartshorne, Chairman	Preston E. James	Victor Roterus
Meredith F. Burrill	Charles E. Kellogg	Kirk Stone
Charles C. Colby	Kenneth C. McMurry	J. Russell Whitaker
Vernor C. Finch	Arthur H. Robinson	

30. Committee on War Projects

Chester R. Longwell, Chairman	Wilmot H. Bradley	K. C. Heald
Earl Ingerson, Vice-Chrm.	James Gilluly	Sidney Paige
		Robert B. Sosman

(30a) Subcommittee on the Relation of Geology to Radio Communication

James T. Wilson, Chairman	Richard Jahns	W. G. Keck

REPRESENTATIVE OF THE DIVISION ON

31. Committee D-5 on Coal and Coke, American Society for Testing Materials
Taisia Stadnichenko

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Note: The Chairman of the Division is, ex officio, a member of all Committees of the Division.

Mr. Thwaites

TELEPHONE, EXECUTIVE 8100

CABLE ADDRESS
NARECO, Washington, D. C.

NATIONAL RESEARCH COUNCIL

2101 CONSTITUTION AVENUE, WASHINGTON 25, D. C.

Established in 1916 by the National Academy of Sciences under its Congressional Charter and organized with the cooperation of the National Scientific and Technical Societies of the United States

April 14, 1944

TO MEMBERS OF THE DIVISION OF GEOLOGY AND GEOGRAPHY AND ITS COMMITTEES:

As previously announced, the annual meeting of the Division of Geology and Geography will be held on Saturday, April 29, at 9:00 A.M. in the building of the National Academy-Research Council, Washington, D. C. (Board Room - east end of first floor; separate session of Geographers later in the Reading Room - west end of first floor.) Those associated with the Division through membership or Committee membership, or through special invitation, are invited to attend the annual meeting (morning session), but this meeting is not open to the general public. The morning session is to be devoted mainly to the presentation of Committee reports, and it is hoped that the Committee Chairmen can be present to give their reports personally. The afternoon session is to be a business meeting, open only to present Division Members and members of the Advisory Committee (former Division Chairmen and Vice-Chairmen).

The Division meeting will be followed by a Smoker at the Cosmos Club (Assembly Hall) at 8:00 P.M., to which both those associated with the Division and others interested are cordially invited. The speaker of the evening will be Dr. Frank W. Notestein, Director, Office of Population Research, Princeton University, and his subject will be the "Changing Balance of World Population." Light refreshments will be served following the address. Tickets for the Smoker (50¢) will be on sale in advance of the meeting through the Division office (Miss M. L. Johnson, Secretary) and at the Cosmos Club (7:30-8:00).

Dr. Guthe, Vice-Chairman of the Division, informs me that wartime conditions make it impracticable to hold the usual Friday evening dinner and meeting of the Geographers. No general luncheon for the Division is planned for Saturday, April 29, but it is assumed that some Committee Chairmen will find it desirable to hold brief meetings of their committees either during or following luncheon. The morning session will probably last until about one o'clock. Exhibits will be welcome as usual.

Committee Chairmen and representatives who have not done so, are again reminded to send in short Committee reports or summaries of their longer reports as soon as possible, in order that they may be mimeographed for distribution at the meeting. We also wish to have each Committee Chairman's recommendations concerning (1) continuance or discontinuance of his Committee, and (2) if continuance is recommended whether any changes in personnel are desired. The policy of continuing inactive committees will be discussed at the afternoon business session.

Out-of-town Division members and Committee Chairmen who attend the annual meeting will be reimbursed for railroad and Pullman expenses between their normal headquarters and Washington. It is regretted that the Division

can not pay the expenses of Subcommittee Chairmen or Committee Members who attend the meeting. If in doubt as to whether or not you are entitled to financial reimbursement, please consult the enclosed list of Division Members and Committee Chairmen. Those desiring hotel reservations in Washington should make them well in advance.

Most sincerely yours,

W. W. Rubey

WWR:J

Enclosure

William W. Rubey
Chairman, Division of
Geology and Geography

NATIONAL RESEARCH COUNCIL - DIVISION OF GEOLOGY AND GEOGRAPHY
LIST OF DIVISION MEMBERS AND COMMITTEE CHAIRMEN
April 14, 1944

*	Behre, C. H., Jr.	(Div. Memb. & Com. Chrm.) - Columbia University, New York, N.Y.
*	Billings, Marland	(Div. Memb.) - Harvard University, Cambridge, Mass.
*	Broek, J. O. M.	(Act. Com. Chrm.) - Amer. Council Pacific Relations, New York.
*	Brown, Ralph H.	(Div. Memb.) - University of Minnesota, Minneapolis, Minn.
*	Bucher, Walter H.	(Com. Chrm.) - Columbia University, New York, N.Y.
*	Cheney, Monroe G.	(Div. Memb.) - Coleman, Texas.
	Cooper, G. Arthur	(Div. Memb.) - U.S. National Museum, Washington, D.C.
*	Cressey, George B.	(Com. Chrm.) - Syracuse University, N.Y.
*	Cushman, Joseph A.	(Com. Chrm.) - Sharon, Mass.
*	Dorf, Erling	(Com. Chrm.) - Princeton University, Princeton, N.J.
*	Dunbar, Carl O.	(Com. Chrm.) - Yale University, New Haven, Conn.
	Eaton, Herbert N.	(Com. Chrm.) - National Bureau of Standards, Washington, D.C.
*	Ekblaw, W. Elmer	(Com. Chrm.) - Clark University, Worcester, Mass.
	Fleming, John A.	(Div. Memb.) - Carnegie Institution, Washington, D.C.
*	Flint, R. F.	(Com. Chrm.) - Yale University, New Haven, Conn.(ADTIC,N.Y.C.)
	Foshag, W. F.	(Com. Chrm.) - U.S. National Museum, Washington, D.C.
	Goldman, Marcus I.	(Com. Chrm.) - U.S. Geological Survey, Washington, D.C.
	Guthe, Otto E.	(Div. Memb. & Com. Chrm.) - Department of State, Washington,DC.
	Hartshorne, Richard	(Com. Chrm.) - Univ. of Wisconsin, and Washington, D.C.(OSS).
	Heroy, William B.	(Com. Chrm.) - Petroleum Reserves Div., PAW, Washington, D.C.
	Insley, Herbert	(Com. Chrm.) - National Bureau of Standards, Washington,D.C.
	James, Preston E.	(Com. Chrm.) - University of Michigan, and Washington,D.C.(OSS)
*	Kerr, Paul F.	(Div. Memb.) - Columbia University, New York, N.Y.
*	Ladd, Harry S.	(Com. Chrm.) - U. S. Geological Survey, Rolla, Mo.
*	Lane, Alfred C.	(Com. Chrm.) - 22 Arlington Street, Cambridge, Mass.
*	Longwell, C. R.	(Com. Chrm.) - Yale University, New Haven, Conn.
*	Lovering, T. S.	(Div. Memb. & Com. Chrm.) - Univ. of Michigan (Eureka, Utah).
*	Miller, O. M.	(Com. Chrm.) - American Geographical Society, New York, N.Y.
	Morey, George W.	(Div. Memb.) - Carnegie Geophysical Laboratory, Washington,DC.
*	Platt, Raye R.	(Div. Memb.) - American Geographical Society, New York, N.Y.
	Robinson, Arthur H.	(Com. Chrm.) - Office of Strategic Services, Washington,D.C.
	Rubey, William W.	(Div. Memb. & Com.Chrm.)-U.S. Geological Survey, Washington,DC.
*	Russell, Richard J.	(Div. Memb.) - Louisiana State University, Baton Rouge, La.
*	Simpson, George G.	(Com. Chrm.) - Amer. Museum of Natural History, New York,N.Y.
*	Singewald, Jos.T.,Jr.	(Div. Memb.) - Johns Hopkins University, Baltimore, Md.
*	Smith, Guy-Harold	(Com. Chrm.) - Ohio State University, Columbus, Ohio.
	Stadnichenko,Taisia	(Div. Repre.)- U.S. Geological Survey, Washington, D.C.
	Trask, Parker D.	(Com. Chrm.) - U.S. Geological Survey, Washington, D.C.
*	Van Valkenburg, S.	(Com. Chrm.) - Clark University, Worcester, Mass.
*	Wilson, Chas. W.,Jr.	(Com. Chrm.) - Vanderbilt University, Nashville, Tenn.
*	Wright, John K.	(Com. Chrm.) - American Geographical Society, New York, N.Y.

Names underscored = Division Members (14).

Names with * = Out-of-town Division Members or Committee Chairmen (26).

MR. THWAITES - Committee Member.

TELEPHONE, EXECUTIVE 8100

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NATIONAL RESEARCH COUNCIL

2101 CONSTITUTION AVENUE, WASHINGTON 25, D. C.

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March 8, 1944

NOTICE to DIVISION MEMBERS, COMMITTEE CHAIRMEN, and COMMITTEE MEMBERS

Preliminary Announcement of Annual Meeting of the Division of Geology and Geography - April 29, 1944

The annual meeting of the Division of Geology and Geography of the National Research Council will be held at the Academy-Council Building on Saturday, April 29, 1944, following the meeting earlier in the week of the National Academy of Sciences. It is understood that the annual meeting of the American Geophysical Union is to be held in Washington, D.C. on June 1-2.

You are cordially invited to attend the Division meeting and the Smoker to be held that evening at the Cosmos Club. Details will be sent later. Some financial reimbursement toward traveling expenses can be rendered Division members and Committee Chairmen in coming to the meeting, but not to others. Out-of-town members planning to attend the meeting and stay overnight should have no great difficulty in securing hotel reservations provided they write well in advance. They may find it convenient to write directly to the hotel of their choice or to the Hotel Clearing House, Room 204 Star Building, Washington, D. C.

Committee Reports *

Committee Chairmen are asked to send in their Committee reports of the year's activities by April 10, or as soon thereafter as possible, in order that they may be mimeographed for use at the annual meeting. In the case of the longer reports, it is recommended that summary statements of a page or two be sent by April 10, and the full reports either then or later. Due to shortage of help and restriction of paper, it may not be possible to mimeograph for the meeting committee reports of more than a few pages in length. Chairmen of Geographic Committees may send their reports to Dr. Guthe, Vice-Chairman of the Division, for his information and transmittal to this office. The Division Chairman also wishes to have each Committee Chairman's recommendations concerning (1) continuance or discontinuance of his Committee, and (2) if continuance is recommended - whether any changes in personnel are desired.

WWR:J

WILLIAM W. RUBEY, CHAIRMAN
DIVISION OF GEOLOGY AND GEOGRAPHY

* Enclosure (1943 Committee report for Chairmen concerned)

COPY

Annual Meeting
April 29, 1944.
Smoker: Cosmos Club
8:00 P.M.

NATIONAL RESEARCH COUNCIL
DIVISION OF
GEOLOGY AND GEOGRAPHY

A G E N D A

Board Room - 9:00 A.M.
Joint Meeting.
Board Room - 10:30 A.M.
Geology Section Mtg.
Reading Room-10:30 A.M.
Geography Sec.Meeting.

CALL TO ORDER ..... REGISTRATION ..... ANNOUNCEMENTS:
Exhibits....Smoker Tickets..... Vouchers....Luncheon....Committee Meetings.

REPORTS OF THE CHAIRMAN AND VICE-CHAIRMAN - William W. Rubey, Otto E. Guthe.

MEMORIALS: Elizabeth T. Platt, Edward B. Mathews, Arthur Keith, Douglas Johnson, George F. Kay, Frank Leverett, Roger C. Wells.

NOMINATIONS and ELECTIONS (Nominating Committee - W. L. G. Joerg)

RESEARCH AND WAR ACTIVITIES OF CONSTITUENT SOCIETIES (Informal Reports)
GSA, Mineral.Soc.Am., Paleon.Soc., AAG, Am.Geog.Soc. (Appendix I),
SEG, AAPG (Appendix II), Am.Ceramic Soc., Am.Geophysical Union.

JOINT COMMITTEE REPORTS

Cartographic Techniques - Robinson	Appendix III
Methods of Analyzing and Presenting Land Forms - Cressey	" IV
Map Sketching from Aerial Photographs - Miller	" V
Physiographic Studies of Critical Areas - Van Valkenburg	" -

NEW BUSINESS

SECTION MEETING: GEOLOGY (Board Room)

War Projects - Longwell...	(App.A)	Marine Ecology - Ladd	(App. K)
Geol. Personnel - Heroy...	(" B)*	Meteorites - Foshag	(" L)
Glacial Map - Flint.....	(" C)	Ross Shelf Ice - Bucher	(" M)*
Tectonics - Longwell.....	(" D)	Cryptovolc. Structures - Wilson..	(" N)
Meas. Geol. Time - Lane...	(" E)	Ore Deposits - Lovering	(" -)
Stratigraphy - Dunbar.....	(" F)	Ceramic Raw Materials - Insley...	(" O)
Sedimentation - Trask.....	(" G)	Density Currents - Eaton	(" P)
Genetics & Paleon.-Bucher.	(" H)	Advising Geol. Students - Behre..	(" Q)
Micropaleontology-Cushman.	(" I)	Authors' Abstracts - Goldman.....	(" -)
Paleobotany - Dorf.....	(" J)	Coal and Coke, ASTM - Stadnichenko	(" -)

NEW BUSINESS

SECTION MEETING: GEOGRAPHY (Reading Room)

GeogResearch-Hartshorne...	(App.1)	Training & Standards in the Geog. Profession - Hartshorne..	(App. 6)
Census Prof.Geog.-Joerg.	(Exh.a)	Manpower in the Geographic Profession - Guthe	(" 7)
N.Y.State Geog.-Faigle..	(" b)	Coöp. Bur. Census - Smith	(" 8)
Southern Studies - Ekblaw..	(App.2)*	Coöp. Soil Survey - Ekblaw	(" 9)*
Internat.Geog.Union-Wright.	(" 3)		
Latin Amer. Studies-James.	(" 4)		
Asiatic Geography - Broek	(" 5)		

* Written report expected later.

NEW BUSINESS
(Luncheon)

AFTERNOON EXECUTIVE MEETING - 2:30 P.M.
(Div. Members & Advisory Com. Members)

INTERIOR DEPT., C & 18th. ALLIES INN, 17th & N.Y.Ave. ALL STATES, 514-19th St. COMMUNITY INN, N.Y. & Va.Aves. DRUG STORE: GOV. SHEPARD, 2121 Va. Ave.

APPENDIX C

REPORT OF THE COMMITTEE ON GLACIAL MAP OF NORTH AMERICA

April 29, 1944

As stated in the last annual report, completed final copy for the map was transmitted by the Committee to the Geological Society of America, publishing agency, in March 1943. Copy for the accompanying text was transmitted to the Society in January 1943.

Contract for reproducing the map was awarded to Williams & Heintz, Washington, D. C., and work on reproduction was begun in May 1943. With great foresight the Society early made arrangements for the necessary paper. However, quite understandably, unavoidable delays in reproduction have been encountered owing to the pressure of priority work on other maps. In consequence, through no fault of Williams & Heintz, reproduction has been slower than had been anticipated. Proofs of the black plate (coastlines, drainage, and culture) are now in hand, and it is expected that color proofs will be forthcoming in the near future. It is expected that the map will be available for distribution before the end of the current calendar year.

At the suggestion of Williams and Heintz, the scale of the published map has been reduced from 60 miles to the inch, as originally contemplated, to 72 miles to the inch. This reduction effects a material saving in publication costs, and makes the map easier for the user to handle; yet it does not sacrifice readability.

The American Geographical Society will take an edition of 1000 copies for distribution to its Fellows. The Geological Society plans to issue an edition of 1500 copies. The plates will be held, so that when and if the demand develops, a further edition (with alterations if necessary) can be produced.

It is a satisfaction to the Committee that the Glacial Map has already been furnished to one of the War Department agencies, by special request, for use as source material for a military map.

The deaths of two members of the Committee during the past year are recorded with deep regret. George F. Kay and Frank Leverett took active parts in the compilation of the map, and their deep and continued interest in the project contributed greatly to the accuracy and usefulness of the result.

It is recommended that the Committee be continued without change in personnel until the map has been published.

Richard Foster Flint
Chairman

Committee Members

W.C. Alden
E.T. Apfel
H.S. Bostock
S.R. Capps
J.W. Goldthwait
L.M. Gould
M.M. Leighton
Paul MacClintock
D.A. Nichols
G.W.H. Norman
F.T. Thwaites
G.W. White
G.A. Young

Mr. Thwaites.

TELEPHONE, EXECUTIVE 8100

CABLE ADDRESS
NARECO, Washington, D. C.

NATIONAL RESEARCH COUNCIL

2101 CONSTITUTION AVENUE, WASHINGTON 25, D. C.

Established in 1916 by the National Academy of Sciences under its Congressional Charter and organized with the cooperation of the National Scientific and Technical Societies of the United States

30 June 1944

MEMORANDUM to DIVISION AND COMMITTEE MEMBERS:

Enclosed is copy of the Agenda of the Annual Meeting of the Division, held on April 29, together with a copy of the report of any Committee of which you are a member, if such report was presented in written form at the meeting. As you know, many of the committees of the Division are inactive at present because their members are fully engaged in war problems. Therefore, while some committees presented formal reports of progress, or outlined future work to be undertaken when time would permit, other committees either presented no reports or had little progress to mention.

Whether or not it is the best policy in wartime to continue all committees of the Division with their present full membership is a debatable question and was discussed at some length at the annual meeting. Following such discussion, it was voted that the Chairman and Vice-Chairman be authorized to review thoroughly all Division committees with a view to modification, decrease in membership of inactive ones, and expansion of a few that are most actively engaged in wartime projects. Both the Vice-Chairman and I believe that such action is something which needs to be gone into fully and carefully and with the chairmen of all Committees concerned. Because of pressure of other duties, we have not had the necessary time to devote to this subject but we plan to go into the matter fully during the summer, and to report to you later.

Attention is called at this time to the election of officers, members, and Executive Committee of the Division for terms beginning July 1,1944,as follows:

Vice-Chairman for one-year term - Otto E. Guthe
Members-at-Large for three-year term - W. Storrs Cole (Ohio State Univ.)
Executive Committee for one year:
(William W. Rubey, Chairman, ex officio - U. S. Geological Survey)
Otto E. Guthe, Vice-Chairman," " - State Department
Marland P. Billings - Harvard University
Ralph H. Brown - University of Minnesota
Monroe G. Cheney - Coleman, Texas
Paul F. Kerr - Columbia University

Representatives of Constituent Societies for 1944-47
Geological Society of America - G. Marshall Kay (Columbia University)
Paleontological Society - L. W. Stephenson (U. S. Geological Survey)
Assoc. of American Geographers - Glenn T. Trewartha (Univ. Wisconsin)

I wish to take this opportunity to thank you for your cooperation and service during the past year, and to express the wish that you will continue to do all you can to assist in present work of the Division, and to propose new work that you believe should be undertaken now or as a post-war project.

William W. Rubey

WWR:J
Enclosure

William W. Rubey, Chairman
DIVISION OF GEOLOGY AND GEOGRAPHY

Mr. Thwaites - Committee Member.

TELEPHONE, EXECUTIVE 8100

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NARECO, Washington, D. C.

NATIONAL RESEARCH COUNCIL

2101 CONSTITUTION AVENUE, WASHINGTON 25, D. C.

Established in 1916 by the National Academy of Sciences under its Congressional Charter and organized with the cooperation of the National Scientific and Technical Societies of the United States

April 5, 1945

MEMORANDUM to MEMBERS OF COMMITTEES, 1944-45, DIVISION OF GEOLOGY AND GEOGRAPHY and former Members of certain 1943-44 Committees. *

Cancellation of tentative plans to hold an Annual Meeting of the Division this year.

In January, following approval of the Executive Committee of the Division, tentative plans were made to hold the Annual Meeting of the Division at the Academy-Council Building on Saturday, May 5, 1945, and reservations were made for three rooms needed for the usual meetings and exhibits. However, at the February meeting of the Administrative Committee of the Research Council, the question of whether or not any division meetings should be held this year was discussed at some length. In view of the request from the Office of Defense Transportation that meetings be held only when there is a strong necessity for them, it was decided to suspend the NRC regulation requiring Annual Meetings of Divisions. The consensus of opinion of those present seemed to be against holding Division meetings this year unless there is urgent reason to do so. However, the official action of the Administrative Committee was that the matter of holding divisional meetings this spring be left to the discretion of the Chairmen of Divisions.

As a result of this discussion and action of the Administrative Committee, all Divisions of the Research Council have been reconsidering their previous plans. A majority of them now either plan not to hold annual meetings this spring or do not think they will do so. Two Divisions had previously sent out announcements of their annual meetings and these two will probably carry out their original plans. In view of the attitude of the Research Council toward Division meetings this year, Dr. Guthe and I reconsidered our previous recommendation to the Executive Committee to hold the annual meeting on May 5. As perhaps you know, our Division is one of those which has the largest attendance at such meetings, because we have customarily invited both Division members and Committee chairmen, and in addition, for a number of years, local Committee members. This practice seems to me eminently desirable in normal times, but Dr. Guthe and I now feel that there is not sufficient urgency to justify our recommending an annual meeting this year. We accordingly recommended that no annual meeting of the Division of Geology and Geography be held this year, and this recommendation has now received approval of the Executive Committee of the Division.

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* For the year 1944-45, following recommendations of the Committee Chairmen concerned and with the approval of the Executive Committee of the Division, several 1943-44 Committees that were more or less inactive because of war work of their members, were either (a) discontinued; (b) reduced to a "skeleton" membership; or (c) placed on a "stand-by" status with the Committee Chairman the only member.
(See list on page 3.)

Committee Meetings and Reports

We feel, however, that any active committees that wish to do so, should hold meetings this spring or later at places of their own choosing, and I have informed Committee Chairmen that I will be glad to ask for such conference funds as seem necessary.

Other Divisions of the National Research Council that do not hold annual meetings this year will receive and distribute their Committee reports by mail, and conduct their business, including nominations, by mail vote of their Division members. Dr. Guthe and I have recommended that our Division do likewise in so far as possible.

I have asked all Committee Chairmen to report by April 15 on the status of their committees. Chairmen of active Committees have been asked to send summary reports of their activities for the year 1944-45, and all Chairmen have been asked to send (a) their recommendations concerning continuance or discontinuance of their committees for the following year; and (b) if continuance is recommended, whether any changes in personnel are desired. Chairmen of Geographic Committees have been informed that they may send their reports to Dr. Guthe, Vice-Chairman in charge of Geographic work of the Division, who will forward them to me. Chairmen of Geological Committees have been asked to report to me.

The date for receipt of such reports and recommendations - April 15 - was selected to enable Division Chairmen of the National Research Council to report on activities of their Divisions for the year 1944-45 at the annual meeting of the National Academy of Sciences, April 23. Committee Chairmen can furnish much the most important information for such summary statements by Division Chairmen. Division Chairmen will also be asked by the Chairman of the National Research Council for a more extensive report on the activities of the Division for the year. Enclosed is (a) copy of the report prepared last year.

Enclosed also are the following lists or publications:

(b) Membership List of the Division for 1944-45, and of the Committees to date. (Following recommendation of Dr. Eleanora B. Knopf, Chairman of the Committee on Experimental Deformation of Rocks, and approval of the Executive Committee, I am recommending for formal approval of the NRC at its April 7 meeting, addition to the above named committee of Drs. L. H. Adams, P. W. Bridgman, Ernst Cloos, and H. W. Fairbairn.)

(c) Latest Publication List (Jan. 1, 1945) issued by the Division, including (1) Publications prepared by the Division or its Committees and published elsewhere; and (2) Latest reports of the Division or its Committees issued in bound mimeographed form.

(d) Contents of the 1943-44 Report of the Committee on Marine Ecology as related to Paleontology, together with an order blank for this and other bound mimeographed reports.

(e) List of present Division Members and Committee Chairmen.

Distribution of Reports of Committees, including Nominating Committee

Upon receipt of Committee reports, they will be mimeographed as promptly as possible for distribution in May. The report of the Nominating Committee will be circulated for mail vote of Division members, and formal action by the Research Council, either at the Executive Board meeting in April or the June meeting of the Administrative Committee. After distribution of Committee reports and recommendations of Committee Chairmen concerning continuance or discontinuance of their committees, it may be desirable to call a meeting of the Executive Committee for consideration of these recommendations and of other matters that may require discussion and formal action before next year. I would welcome your suggestions and recommendations concerning present work of the Division or proposed new activities. #

In closing I wish to say that I regret the apparent advisability of cancelling the annual meeting this year, and trust that circumstances will permit it to be held next year.

Most sincerely yours,

W. W. Rubey

WWR:J
Enclosures

William W. Rubey, Chairman,
Division of Geology and Geography

(continuation of footnote from page 1)

(a) Committees discontinued for 1944-45:
Physiographic Studies of Critical Areas - S. Van Valkenburg, Chairman
Problems of Ore Deposits - T. S. Lovering, Chairman
War Projects - Chester R. Longwell, Chairman

(b) Committees continued with reduced or "skeleton" membership:
Density Currents - Herbert N. Eaton, Chairman
Sedimentation - Parker D. Trask, Chairman

(c) Committees continued in "stand-by" status with Chairman as only member:
Authors' Abstracts - Marcus I. Goldman, Chairman
Cartographic Techniques - Arthur H. Robinson, Chairman
Cryptovolcanic Structures - Charles W. Wilson, Jr., Chairman
Methods of Analyzing and Presenting Land Forms - George B. Cressey, Chairman.

Two new Committees, listed below, have been organized to date during the present year, 1944-45:

(a) Experimental Deformation of Rocks - Eleanora B. Knopf, Chairman
(b) U. S. Committee for the Study of Paricutin Volcano - Richard E. Fuller, Chairman.

* ANNUAL REPORT OF THE DIVISION OF GEOLOGY AND GEOGRAPHY, 1943-44

William W. Rubey, Chairman; Otto E. Guthe, Vice Chairman

The Division of Geology and Geography has made its most significant contribution to American science over the years by encouraging the development of new or neglected fields of research, but this function is an exceedingly difficult one to maintain in time of war. Yet at such time, other less fundamental but more urgent obligations and opportunities for national service arise. The unprecedented wartime demands for mineral raw materials and for trained personnel have disclosed certain needs for co-ordination that are not met by the existing machinery of governmental agencies, industry, educational institutions, or national scientific societies; and the Division has endeavored to fill some of these gaps.

Geology. - The shortage of trained geologists, which threatened during the first year of the war, became real by the spring of 1943 and grew more acute through the following year. Hundreds of younger geologists had joined the armed forces, many of them as photo-interpretation specialists but others in capacities that make little use of their scientific training. With almost no new recruits entering geology from the universities, it became increasingly difficult to man the intensified programs of exploration for essential raw materials being carried on by government and industry and to meet the growing demand for civilian geologists in terrain studies for military intelligence. Advances in theoretical aspects of the science came almost to a standstill because geologists largely turned their hands to applied science, for which the demand was urgent, and because many of the experienced teachers who remained at their schools were needed to instruct military students in elementary meteorology, physics, cartography, photogrammetry, and other related subjects.

To meet needs and to answer specific questions arising from the manpower shortage, a Committee on Geological Personnel was established in July 1943, to co-ordinate the personnel activities and records of the national geological societies and to provide data to interested governmental agencies. Largely as a result of evidence assembled and presented by this co-operative committee, the War Manpower Commission in August 1943 included geology among the critical occupations for which draft deferments were authorized. The Commission also added geology to the small number of scientific fields in which students could be deferred, but this means of relieving the shortage of trained personnel came to nothing a few months later when National Selective Service placed all deferments on an age rather than an occupational basis. This committee, together with the Committee on Advising Prospective Geology Students, began collaboration with representatives of the War Manpower Commission in preparation of a bulletin describing the educational requirements for, and the nature of the work and the professional opportunities in the field of geology. In many questions that have arisen from the constant changes in the national manpower situation and deferment policies, the Committee on Geological Personnel and the Chairman of the Division have worked closely with the Office of Scientific Personnel of the National Research Council. The committee has amply demonstrated its usefulness, and the need for its services is likely to continue through the remainder of the war and the period of reconversion and

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* Prepared for use of the Chairman of the National Research Council in compiling the Annual Report of the Council for the year July 1, 1943-June 30, 1944.

demobilization. If the proposed federation of geological societies now under consideration is established sometime in the near future, the functions of this committee might appropriately be transferred from the Division to the new federation.

In spite of the distractions of war, several research committees have been able to make substantial progress toward completion of projects undertaken years earlier. The Tectonic Map of the United States, to be published by the American Association of Petroleum Geologists, and the Glacial Map of North America, to be published by the Geological Society of America, are the work of Division committees. The two maps are now in process of engraving and final revision before printing sometime within the next year.

Of the thirteen correlation charts of sedimentary formations of North America being prepared by the Committee on Stratigraphy, eight have now been completed and either have been or are being published in the Bulletin of the Geological Society of America. Five of these (on the Cambrian, Pennsylvanian, Cretaceous of Mexico, Cenozoic of the Coastal Plain and Caribbean region, and marine Cenozoic of western North America) were completed during the past year. Three of the five remaining charts are now nearing completion. Each chart in this series has been prepared by a sub-committee of individuals especially familiar with the formations involved.

Interest continues to be manifested in the work of several of the older research committees, the annual reports of which are in wide demand. The Committee on Marine Ecology as related to Paleontology performs a valuable service by stimulating co-operation between ecologists and paleontologists and by making more widely available new developments in paleoecology. The third annual report of this committee includes a bibliography for the year and three brief papers on paleo-ecologic subjects. The reports of the Committee on Paleobotany include annual lists of published and unpublished work in American paleobotany and serve to bring together the specialists in this important borderline field. The bibliographies and original papers that appear regularly in the annual reports of the Committee on the Measurement of Geologic Time have proven very useful in recent years as a result of wartime interest in certain technical aspects of radioactivity and nuclear physics.

At the time when the war has stopped almost all research on fundamental problems of geology, it is gratifying to report the keen interest being shown in one of the new committees of the Division. As the result of a suggestion made by Dr. W. H. Bucher, then Chairman of the Division of Geology and Geography, in a paper entitled "National Research Council and co-operation in geological research," Bull. Geol. Soc. Amer., vol. 53, pp. 1331-1354, 1942, a Committee on Common Problems of Genetics and Paleontology was organized in February, 1943, under joint auspices with the Division of Biology and Agriculture. The purpose of this committee is to bring about a meeting of minds in the fields of genetics and paleontology - two highly technical disciplines which have much to contribute to one another regarding the complex problems of speciation in plants and animals. The committee has grown to a fairly large membership; it has held well-attended meetings in New York and Berkeley, Calif., and published an annual report of abstracts of the papers presented and two "round-robins" of the written discussion that followed; and it has laid specific plans for holding, as soon as circumstances permit, a symposium which is to be published in book form. The accomplishment of this much in

in times so difficult for pure research demonstrates that the committee has met and is filling an active and now well-recognized need.

Preliminary plans for organization of an Arctic Institute of North America, the purpose of which would be to further scientific research in America after the war, were encouraged and supported by a small grant of funds.

Geography. - During the year 1943-44 the majority of the members of the geographic committees were engaged in work directly relating to the war and to the training of men in the armed forces. It was therefore with difficulty that even those committees oriented to war-time needs were able to conduct their work.

New committees, recommended at the annual meeting in 1943, or requested later, were organized during the first part of the year and took initial steps in carrying out their functions.

The Committee on Cartographic Techniques was formally appointed on October 2, 1943. It was found that the members were unable, for security reasons, to describe fully current technical innovations in cartographic techniques, but several topics are being prepared for issuance after the war. The purpose of this committee is the exchange of information on technical developments and the issuance of reports on such developments to interested persons.

The Committee on Training and Standards in the Geographic Profession was approved in October 1943. This committee was active in developing procedures for reviewing the accomplishments of persons with geographical training, for investigating opportunities for the employment of geographers in fields for the most part outside academic and governmental spheres, and later for formulating recommendations for improvement in academic training in the geographic field.

The Committee on Manpower in the Geographic Profession was approved on February 5, 1944 for the purpose of cooperating with the War Manpower Commission in matters dealing with professional geographers. This committee furnished advice and reports to the Commission during the remainder of the year and issued a special release on the subject of the manpower situation in the geographic profession for distribution by the National Research Council.

Other committees were active during the year although at a reduced scale. The Sub-Committee on the Census of Professional Geographers of the Committee on Geographic Research, encouraged by requests from government agencies, actively continued its organized analysis of the status of geographers in the United States. Three of the seven members of the Committee on Asiatic Geography, including the chairman, were in Asia for most of the year. During this time, the chairman worked closely with geographers and geologists in China and in India, discussing their research needs and supplying them with extensive lists of recent publications and with names of fellow scientists. The Committee on Latin American Studies continued its active cooperation with the Joint Committee on Latin American Studies of the three councils, especially in regard to a field project of the National Planning Association.

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NATIONAL RESEARCH COUNCIL

2101 CONSTITUTION AVENUE, WASHINGTON 25, D. C.

Established in 1916 by the National Academy of Sciences under its Congressional Charter and organized with the cooperation of the National Scientific and Technical Societies of the United States

August 14, 1945

To Members of the COMMITTEE ON GLACIAL MAP OF NORTH AMERICA

This is to inform you that following indorsement of the Committee Chairman's recommendation by the Executive Committee of the Division, the Chairman of the National Research Council has approved continuation of the Committee for the current year 1945-46, with the following membership:

R. F. Flint, Chairman
W. C. Alden
E. T. Apfel
E. S. Bostock
S. R. Capps
J. W. Goldthwait
L. M. Gould
M. M. Leighton
Paul MacClintock
D. A. Nichols
G. W. H. Norman
F. T. Thwaites
G. W. White
G. A. Young

Enclosed is a copy of the Committee's report for the past year (Appendix B).

W. W. Rubey

William W. Rubey, Chairman
Division of Geology and Geography

J:cb
Enclosure

APPENDIX B

COMMITTEE ON GLACIAL MAP OF NORTH AMERICA

Annual Report, April 1945

During the year elapsed since the last annual report, the Chairman has closely followed the progress of publication of the glacial map. He has corrected proofs of both map and accompanying pamphlet, and has visited both the Geological Society headquarters in New York and the engraving firm in Washington in order to consult on problems of reproduction and distribution.

The publication is to appear as Special Paper Number 58 of the Geological Society of America, (Part 1 - Glacial Map of North America; Part 2 - Bibliography and Explanatory Notes). The pamphlet (Part 2) is printed and is awaiting the map (Part 1) which has been further delayed by reproduction difficulties. Thanks to the thoughtful effort and material aid of the Geological Society staff these difficulties have been ironed out, so that printing and distribution of the map can be expected at an early date.

It is recommended that the Committee be continued without change in personnel until publication has been completed.

Richard Foster Flint,
Chairman

Committee Members

W. C. Alden
E. T. Apfel
E. S. Bostock
S. R. Capps
J. W. Goldthwait
L. M. Gould
M. M. Leighton
Paul MacClintock
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August 14, 1945

TO MEMBERS OF THE DIVISION OF GEOLOGY AND GEOGRAPHY AND ITS COMMITTEES

Dear Mr. Thwaites:

Enclosed are copies of the following:

1) Summary report of activities of the Division of Geology and Geography for 1944-45, prepared by the Chairman, William W. Rubey, and the Vice-Chairman, Otto E. Guthe.

2) "Contents" or list of Summary reports of Committees, three of the Constituent Societies, and the Arctic Institute of North America.

3) Report of the Committee or Committees of which you are a member, if a written report was presented, together with "Notice" of Committee membership for 1945-46, if such action has been taken. /Action on a few Committees has been temporarily postponed pending completion of correspondence or conferences concerning them but will probably be completed in time for formal action by the NRC at the October 6 Administrative Committee meeting./

4) Report of the Nominating Committee /unanimously approved by mail vote of the Division members, in lieu of annual meeting/, together with list of Members of the Division for 1945-46. Please note that Dr. Lester E. Klimm, of the University of Pennsylvania, is Vice-Chairman of the Division for the current year, and thus is in charge of its geographic work.

Under separate cover is being sent you a complete set of the reports listed in the "Contents" (No. 2 above). However, many of you are doubtless away from your regular desks during the summer and thus may not receive promptly this 4th class mail. It is thought, therefore, that you may like to have the material enclosed with this letter sent you by 1st class mail. It is regretted that there has been unexpected delay in sending you the complete set of reports, due to the delay in receiving a few of them and the desire on our part to send them all out at one time.

Both Mr. Rubey and Dr. Guthe wish me to express to you at this time their appreciation of your interest and services to the Division during the past year, and their hope that the current year may prove to be one of renewed Committee activity and accomplishment on the part of the Division.

Sincerely yours,

M. L. Johnson

Margaret L. Johnson, Secretary
Division of Geology and Geography

Enclosures
(Complete set of reports,
separate cover)

SUMMARY REPORT OF THE DIVISION OF GEOLOGY AND GEOGRAPHY, 1944-1945

/by William W. Rubey, Chairman, and Otto E. Guthe, Vice-Chairman/

General Activities

The last year of the European phase of the war brought with it changes in the duties of the civilian scientists and technologists of this country, but chiefly it added new responsibilities. The war-work on which nearly every scientist was fully engaged did not lighten appreciably; but the realization dawned that, although war duties still come first, it is now essential to devote time and thought to some of the problems of reconversion that lie ahead.

The demand for many essential materials has slackened, but the need for other mineral resources, notably petroleum and certain rare metals, has increased greatly; and thousands of geologists are now employed in exploration for new sources of supply in this and other countries. The use of geologists in terrain studies for military intelligence, though on a much smaller scale than in the search for raw materials, has likewise changed in character rather than diminished in amount. Earlier in the war the Army and Navy used such geologic information chiefly for strategic planning, but during the past year the demand increased for the use of geologists in operational intelligence and for technical investigations of German mining industry. On the whole, these applications of geology to problems of the supply and conduct of modern war are being handled most effectively by the petroleum and mining industries and by the appropriate governmental agencies; and the Division of Geology and Geography, unlike certain other Divisions of the National Research Council, has not been called upon to participate directly in the work.

Likewise, in the geographic field, Federal agencies have made only minor requests of the Division of Geology and Geography. The large number of geographers in the War, Navy, and State Departments and in the war agencies participate with men from other fields in the preparation of strategic reports, terrain studies, and regional analyses of areas within the war theaters or critical in the consideration of international problems of a political or economic character. Several operating units of these agencies, including cartographic offices, are composed chiefly of personnel secured from the ranks of professional geographers.

As the war passes into its final stages and as countless problems of reconversion loom ahead, the Division is trying to carry on its traditional role of helping to fill gaps between the work of others.

Scientific personnel, - With the continued drafting of younger men into military service, the shortage of technical and scientific personnel has remained acute. Even more alarming is the fact that the virtual cessation of all technical training during the war means that this shortage will continue for at least several years after peace returns. In view of the essential place of scientific work in modern technological civilization, in order

to insure national security, economic welfare, and the advancement of knowledge, this shortage of scientific personnel will be felt acutely when the difficult transition to a postwar world demands our utmost efforts and ability. The Division of Geology and Geography has worked closely with the Office of Scientific Personnel of the National Research Council and with the Geological Society of America, the American Association of Petroleum Geologists, and the Society of Economic Geologists in what have thus far proved fruitless efforts to relieve this threatened shortage of scientists. It has also co-operated with national societies in the preparation of descriptions of technical fields and of vocational bulletins to be published by the War Manpower Commission for the use of local draft boards, employers, and returning service men. The Division also participated in a study, conducted by the Office of Scientific Personnel, in which data were gathered on civilian scientists whose graduate studies were interrupted by the war. This study resulted in a grant of funds from the Rockefeller Foundation for the establishment of a new group of NRC pre-doctoral fellowships, as announced in Science, March 30. Presumably because qualified applicants were engaged in war work, no applications for the older series of NRC post-doctoral fellowships were received this year from geologists or geographers.

Postwar plans for science, - As most of the scientists of the country were and still are fully occupied with urgent duties, planning to meet postwar problems of science has been difficult. Because of their unique position, the National Academy of Sciences and the National Research Council, and with them the Division of Geology and Geography, have been able to help in the formulation if not in the solution of some of these postwar problems that called for attention. During the past year, scientists and legislators have given much attention to the continuation after the war of scientific investigations that are vital to national defense. At the request of the Secretaries of War and Navy, the President of the National Academy of Sciences appointed a Research Board for National Security to carry forward such military research. Plans were laid to integrate the facilities of the Division of Geology and Geography with the Research Board promptly upon passage of legislation granting funds for such work. The Chairman of the Division also served as an advisor to a special committee which considered problems of Federal support of research and of the training of scientists.

Release of scientific information collected during the war, - An enormous amount of scientific research has been done and scientific information, such as maps and aerial photographs, collected during the war. The great bulk of this information remains inaccessible to the scientific public because it was, quite properly at the time, classified as secret or confidential. However, as the war moves on to different theaters and to new weapons, much of this information might now properly be made available for general distribution were it not for the fact that the very bulk of it discourages those responsible from attempting the immense task of its declassification. Simple procedures for the release of this information should be set in motion while an adequate staff that is qualified to assume the responsibility of declassification is still available, that is, before the

end of the war. This problem was discussed at the Annual Meeting of the Division in April 1944 and has received considerable attention from other scientists and from military authorities during the past year, but it is still far from a completely satisfactory solution. A step in the right direction was taken by the Army Map Service in designating 45 depositories to receive the thousands of maps expected to be released by that agency at the close of the war. The Division of Geology and Geography, upon request, recommended, on the basis of geographic distribution and proximity to teaching facilities, 50 additional institutions as suitable depositories. During the year, plans were well advanced to organize a new committee in the Division to consider problems of the release of scientific information collected during the war that is of special interest to geologists and geographers.

International co-operation in science, - The improvement of international co-operation in science as soon as possible and the eventual renewal of international scientific meetings were the subjects of conferences and correspondence in which the Chairman of the Division participated as a member of the Division of Foreign Relations of the NRC. The Chairman of the National Committee of the United States International Geographical Union reports that there have been recent exchanges of correspondence which show a general interest in the future reconstitution of the International Geographical Union, although not necessarily in its prewar form. A bibliography of American scientific books and monographs is being prepared by a special committee of the NRC for distribution to libraries and universities in Central and South America. Effective international co-operation in science during wartime is exemplified by two activities of the Division of Geology and Geography: (a) the cordial working relations that have been established between the Comité Mexicano para el Estudio del Volcán de Paricutin of the Comisión Impulsora y Coordinadora de la Investigación Científica and the U. S. Committee for the Study of Paricutin Volcano, (the scientific work of which is mentioned more fully below); and (b) the establishment, under joint sponsorship of the National Research Councils of Canada and the United States, of the Arctic Institute of North America to study scientific problems of the North American arctic (See Science, pp. 291-293, Sept. 29, 1944). The preliminary organizational expenses have been borne equally by the two Research Councils; and funds thus far granted by a private individual, a company, and the War Technical and Scientific Development Committee of Canada are now sufficient to permit opening the Institute in Montreal in October, 1945.

Reorganization of Divisional committees, - The war brought many changes in the work of all Divisions of the NRC. A few committees with programs closely related to the war expanded their activities greatly. A few others engaged in long-term research somehow managed to remain fully active. But most of the research committees of the Division of Geology and Geography were compelled to curtail their activities drastically or to suspend entirely. In maintenance of the NRC policy of annual review and appointment of committees, the Division at its Annual Meeting in April 1944 authorized and instructed the Chairman and Vice-Chairman to review and, if necessary, to reorganize the committees for the ensuing year, expanding old or adding new

ones where the needs warranted, retaining only skeleton memberships in those that had maintained some activity and that clearly would resume work as soon as peace returns, and discontinuing those with programs that had been postponed indefinitely by the war. These instructions were carried out in principle if not in detail: two new committees were appointed during the past year, three old ones expanded, twenty continued with little if any change, six reduced in membership to an essentially "stand-by" status, and three discontinued. Even with this reorganization, many of the existing committees are still relatively inactive because of wartime conditions.

Assignment of Government representative to the Division, - The Executive Order of 1918, under which the National Research Council operates, provides that, upon nomination by the National Academy of Sciences, representatives of the Government shall be designated by the President of the United States as members of the Research Council. For a number of years these Presidentially-appointed representatives of the Federal scientific bureaus constituted the Division of Federal Relations of the NRC. In 1938 the Executive Board of the NRC abolished the Division of Federal Relations and directed that these Government representatives be assigned to membership in the other Divisions of the Council. Several Divisions acted accordingly but others took no action. Realizing the probability of some postwar adjustment in the relation of the Federal Government to science, the NRC has had under consideration the question of how best to maintain effective liaison with the Federal scientific agencies. In July 1944, a special committee representing all Divisions of the NRC was appointed to bring specific recommendations for action. As a result, at the October meeting of the Administrative Committee, the five Government representatives appointed by the President within the preceding three years who were not yet members of any Division of the Council were assigned to membership in the Divisions most interested in the work of their bureaus. By this official action, the Division of Geology and Geography gained one member, Dr. W. E. Wrather, Director of the U. S. Geological Survey, effective November 1, 1944. The Chairman is sure that all members of the Division join in welcoming Dr. Wrather to official membership in the Division. In February 1945, the special committee further recommended that representatives of several other Federal scientific bureaus be appointed to membership in the NRC and similarly assigned to the appropriate Divisions. The Administrative Committee has not yet acted on this recommendation but it seems likely that the Division of Geology and Geography will eventually gain two or more additional Government representatives.

Cancellation of Annual Meeting, - This year the Office of Defense Transportation requested that meetings of all kinds be held only if the need for them is clear, even if they involve the travel of less than 50 persons. As a result of this request, the National Research Council suspended the regulation requiring Annual Meetings of its Divisions. The Annual Meetings of the Division of Geology and Geography normally have a larger attendance than the meetings of other Divisions because of the useful custom in the Division of Geology and Geography of inviting Committee Chairmen as well as Division members. After consultation with a number of geologists and geographers, it appeared that the needs were not sufficiently urgent to justify holding

an Annual Meeting of the Division this year. Consequently the meeting was regretfully cancelled and the necessary business of the Division, including the election of new members and officers, was transacted by mail. Committees that wished to hold meetings were encouraged to do so.

GEOLOGIC SECTION
/by William W. Rubey/

After many delays caused by the war, the Tectonic Map of the United States was published by the American Association of Petroleum Geologists in November 1944. The Committee on Tectonics began planning this map in 1922 and active compilation of it in 1934. Hundreds of individuals contributed published and unpublished data: members of petroleum and mining companies, university faculties, private research organizations, various State agencies, and the U. S. Geological Survey. The completed map is a monument to the industry and patience of a group of loyal workers, and it is one of which the Division of Geology and Geography may well be proud. Requests have already come from users of the map that the Committee be continued in order to undertake a revision that will incorporate new data that have accumulated. The Glacial Map of North America, a project of somewhat similar scope, was prepared by a Division Committee of that name and is now in press for publication by the Geological Society of America.

Of the thirteen correlation charts of sedimentary formations being prepared by the Committee on Stratigraphy, eight have now been published in the Bulletin of the Geological Society of America since the outbreak of the war, two others will be published soon, and two more are well advanced toward completion. In the face of the difficulties of carrying on pure research in wartime, this Committee has established a remarkable record of productive scientific work.

The Committee on Common Problems of Genetics, Paleontology, and Systematics has continued with plans for a symposium and the preparation of a book after the war. Within the year it distributed the third and fourth mimeographed reports of discussions among its members. Several members have also published recent papers or books on problems within the scope of the Committee. The fourth annual report of the Committee on Marine Ecology as related to Paleontology, issued in mimeographed form during the year, includes a summary of current activities and bibliography for the year and five brief papers in the field of paleo-ecology. At a meeting of this Committee on June 6, plans were laid for preparation of a treatise on the application of marine ecology to the interpretation of conditions in the geologic past.

The Committee on Geological Personnel has been relatively inactive during the year because of the pressure of other work on its members. A meeting of the Committee was held in Washington December 11, and Committee members have cooperated with the National Roster of Scientific and Specialized Personnel of the War Manpower Commission and with the Office of Scientific Personnel of the NRC in preparation of data for various purposes.

The Chairman of this Committee attended a meeting in New York March 29 to discuss personnel needs of the newly formed Research Board for National Security. The Committee on Advising Prospective Geology Students has likewise collaborated with representatives of the National Roster, particularly in preparation of a vocational bulletin for returning servicemen on the educational requirements, nature of work, and professional opportunities in the field of geology.

The revised Committee on Geology of Ceramic Raw Materials circulated a questionnaire among technologists in the ceramic industries and, on the basis of replies, has projected a plan for a treatise on the occurrence of various types of ceramic raw materials. During the year the Committee on Deformation of the Ross Shelf Ice was able to resume work on the preparation of maps from aerial photographs showing the effects of deformation of the floating ice. This deformation strikingly resembles that of the rocks of the earth's crust.

In times as difficult as these for the maintenance of research that is unrelated to the war, it is a pleasure to be able to report the splendid record of the U. S. Committee for the Study of Paricutin Volcano, which was appointed by the Division in July 1944 with Dr. R. E. Fuller as Chairman. The Committee was organized, at the suggestion of officers of the Section of Volcanology of the American Geophysical Union, to assure collection of accurate data while activity continues at the new volcano and before the record of the eruption is lost. It aims to co-operate with Mexican scientists in investigations of the volcano and to encourage and facilitate geological, geophysical, chemical, meteorological, and other scientific studies related to the eruption. Before the U. S. Committee was formally established, assurance was recieved that a parallel Mexican committee would be formed to co-operate in these investigations. Thanks largely to the energy and enthusiasm of its Chairman, the Committee has been highly successful in obtaining the assignment of personnel, equipment, and funds from various governmental agencies and private institutions for investigations needed while the volcano is in eruption. The Geological Society of America has been especially generous in granting funds for a wide variety of investigations and for the construction of shelters and trails needed by scientists working near the volcano. In large part as a result of the Committee's efforts, new aerial photographic, magnetic, and gravimetric surveys, topographic and geologic maps, and geochemical and paleobotanical investigations have been completed; and at the close of the year, new projects were starting on transportation and erosion by the ash-choked streams and on lightning and storms above the volcano. It is evident that the formation of the Committee was timely and that it served to focus attention on the rare opportunity that might be lost because of the war unless special efforts were made.

A second new committee was appointed in December 1944 with Dr. Eleanora B. Knopf as Chairman. This Committee on Experimental Deformation of Rocks will plan and institute a program of experiments on rock deformation under controlled conditions of pressure, temperature, and other variables and with

precise information on the petrofabrics of the materials deformed. The investigations of these problems of rock deformation by Griggs and others have been interrupted by the war and it is the purpose of the Committee to assure the continuation of this fundamental work. In the few months that it has been in existance, the Committee has made a good start toward formulating lines of attack on some of the problems that must be solved.

Several activities outside the field of the regularly constituted committees of the Division pertain particularly to geology. At the request of the War Production Board and under the auspices of the War Metallurgy Committee of the NRC, the Division Chairman called a conference on October 7 of mineralogists and technologists to discuss the relation of the "power factor" of mica to its crystal structure and other properties. Several other informal conferences were held, in the course of which a method of attacking the problem was formulated. The project was then assigned by the Office of Production Research and Development to a private research institute for experimental investigation.

In cooperation with the Office of Scientific Personnel of the NRC and with officers of several national geological societies, the Chairman of the Division advised officials of the Civil Service Commission regarding a proposed lowering of educational requirements for geologists and other scientists entering the government service.

The Committee on Processes of Ore Deposition was discontinued in 1940 but its report, "Ore deposits as related to structural features", published in 1942 by Princeton University Press, has been in continuous demand. The royalties from sale of this publication have averaged $400 to $500 annually and have now met all obligations against the project. On the recommendation of Dr. W. H. Newhouse, Chairman of the Committee that prepared the report, future royalties will be transferred from the National Research Council to the Society of Economic Geologists for support of the Annotated Bibliography of Economic Geology, a journal started by another committee of the Division of Geology and Geography in 1928 and now in its 16th annual volume.

JOINT GEOLOGIC AND GEOGRAPHIC COMMITTEES

Two of the three Joint Geologic and Geographic Committees were compelled, by force of circumstances, simply to stand by during the year in order to resume their work after the war. One of these, the Committee on Cartographic Techniques, looks forward to the important task of making available to geologists and geographers throughout the country a report on the many and varied adaptations and improvements that have taken place during the war years in the field of cartography. However, there is practically no opportunity at the present time for men active in this field to contribute to the work of the Committee. The third of the three, the Committee on Map Sketching from Aerial Photographs, made gratifying progress toward its objective of preparing a practical manual on the construction of maps from aerial photographs by simple methods that require little or no special equipment.

GEOGRAPHIC SECTION
/by Otto E. Guthe, Vice-Chairman/

During the year 1944-1945, as in the previous year, most of the members of the geographic committees have been actively engaged in work directly related to the war effort or to activities associated with problems arising from the progress of the war.

No new committees were established during the year, and the Committee on Southern Studies was the only one placed in a "stand-by" status awaiting opportunities for the resumption of research studies following the cessation of the war.

The two advisory committees on "Cooperation with the Bureau of the Census"and "Cooperation with the Soil Survey" have stood ready to assist and advise should matters of geographical importance be referred to them by the respective bureaus. The Committee on Manpower in the Geographic Profession has also maintained its advisory function toward the War Manpower Commission and has supplied the National Roster of the Commission with a description of the profession of geography which was printed and distributed by the Bureau of Placement.

During the war period geographers have gained wide experience in conducting studies which have involved consideration of problems associated with the progress of the war and with economic developments in all parts of the world. Techniques have been improved to meet the demands of the government agencies and private concerns that have employed geographers, but at the same time certain weaknesses in basic geographic training have appeared. The Committee on Training and Standards in the Geographic Profession, which was established last year to study developments in the field of geography and to formulate recommendations on the basis of these studies, met in a three-day conference in October, 1944. A forthcoming report based on discussions at this conference will describe certain deficiencies in training that require correction, increasing opportunities of employment for professionally trained geographers, and recommendations for modifications in geographic training and standards foreseen as necessary to meet future trends.

The chairman of the Committee on Asiatic Geography was fortunate in having been able to discuss common problems with many geographers and geologists in the countries of Asia during his last visit to that area. Through his efforts the Committee has promoted cooperation and exchange of information between Asiatic and American geographers. The Committee is continuing its efforts to increase the number of trained men in this field of specialization and to encourage geographical publication on specific parts of Asia.

Except for continued progress in the maintenance and proper indexing of the census materials by the Subcommittee on Census of Professional Geographers of the Committee on Geographic Research, the remaining geographic committees of the Division have been relatively inactive during the past year, although the chairmen of these committees anticipate acceleration of work as soon as research workers are released from war assignments.

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NATIONAL RESEARCH COUNCIL - WASHINGTON, D. C.
DIVISION OF GEOLOGY AND GEOGRAPHY

Summary Reports for 1944-1945

Contents

In view of cancellation of the Annual Meeting of the Division, tentatively planned for May 5, 1945, these Committee Reports, which otherwise would have been distributed at the meeting, are mailed to those connected with the Division. W.W. Rubey, Chairman.

REPORT OF THE NOMINATING COMMITTEE
DIVISION OF GEOLOGY AND GEOGRAPHY
NATIONAL RESEARCH COUNCIL

* Nominations - May 5, 1945

COPY

Mr. William W. Rubey, Chairman
Division of Geology and Geography
National Research Council

Dear Mr. Rubey:

On behalf of the Nominating Committee of the Division for the year 1944-1945, I submit the following nominations:

(1) Vice-Chairman, Member-at-Large and Executive Committee:

VICE-CHAIRMAN for one-year term, 1945-46 - - - - Lester E. Klimm

MEMBER-AT-LARGE for three-year term, 1945-48 - - Lester E. Klimm

EXECUTIVE COMMITTEE for one-year term, 1945-46 - Lester E. Klimm (Vice-Chairman
Charles H. Behre, Jr.
Monroe G. Cheney
Otto E. Guthe
Marshall Kay

Note: The term of the Chairman of the Division, W. W. Rubey, continues for another year, and he is Chairman, ex officio, of the Executive Committee.

(2) Nominations from Constituent Societies of the Division for the three-year term, 1945-46:

AMERICAN CERAMIC SOCIETY - - - - - - - - - - - - L. H. Adams
(succeeding George W. Morey)
AMERICAN GEOGRAPHICAL SOCIETY - - - - - - - - - - Raye R. Platt
(succeeding himself, having served but 2-yr. term)
MINERALOGICAL SOCIETY OF AMERICA - - - - - - - - J. F. Schairer
(succeeding Paul F. Kerr)

Sincerely yours,

(S) Robt. S. Platt
Robert S. Platt, Chairman of Committee
S. W. Boggs
Earl Ingerson
Ross G. Harrison, ex officio (Chairman, NRC)
William W. Rubey, ex officio (Division Chrm.)

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* Due to cancellation of the Annual Meeting of the Division, tentatively scheduled for May 5, 1945, these nominations were submitted by the Division Chairman for mail ballot of the Division members, and unanimously approved.

O V E R

NATIONAL RESEARCH COUNCIL - WASHINGTON, D. C.

ORGANIZATION OF THE DIVISION OF GEOLOGY AND GEOGRAPHY

July 1, 1945 - June 30, 1946

OFFICERS

Chairman, William W. Rubey
Vice-Chairman, Lester E. Klimm

EXECUTIVE COMMITTEE

William W. Rubey, Chairman	Lester E. Klimm, Vice-Chairman
Charles E. Behre, Jr.	Otto E. Guthe
Monroe G. Cheney	Marshall Kay

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MEMBERS OF THE DIVISION

Representatives of Societies

Geological Society of America
Marland Billings (46)*
Marshall Kay (47)

Mineralogical Society of America
J. F. Schairer (48)

Paleontological Society
L. W. Stephenson (47)

Association of American Geographers
Otto E. Guthe (46)
Glenn T. Trewartha (47)

American Geographical Society
Raye R. Platt (48)

Society of Economic Geologists
Charles H. Behre, Jr. (46)

American Association of Petroleum Geologists
Monroe G. Cheney (46)

American Ceramic Society
L. H. Adams (48)

American Geophysical Union
John A. Fleming (46)

Representative of the Federal Government assigned to the Division

W. E. Wrather (46)

Members at Large

W. Storrs Cole (47)
Lester E. Klimm (48)
William W. Rubey (46)

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(For Committees and Representatives, see separate list)

* Date of expiration of term of office.

YALE UNIVERSITY
New Haven, Connecticut

January 25, 1946

Letter No. 16

To members of the Committee on Glacial Map of North America:
Messrs. Alden, Apfel, Bostock, Capps, Goldthwait, Gould, Leighton, MacClintock, Nichols, Norman, Thwaites, White, Young (and Flint):

1. In view of the unexpected delays involved in the publication of the map, I feel obligated to bring the members of the Committee up to date on the status of the reproduction process. The manuscript map was delivered to the GSA in April 1943. The GSA contracted with the firm of Williams & Heintz, Washington, D.C., for photo-engraving and printing. Many delays were encountered by this firm, owing to priority war-map contracts and to the labor problems that all map makers experienced during the war. In addition, the first proofs submitted to the GSA (in July 1944) were unsatisfactory; on investigation this proved to be in large part the result of the manuscript having been drafted in colors on a single sheet, instead of separate sheets having been prepared, one for each color. Accordingly it was decided to redraft the map. This was contracted for by the GSA with a skilled cartographic draftsman.

The redrafted map was photo-engraved, and to date two sets of color proofs have been furnished, both of them unsatisfactory, owing, as far as I can determine, mainly to careless work on the part of Williams & Heintz. The "line" proofs (of the black-brown-blue-line base map) were checked by me in July 1945. The first color proofs were checked by MacClintock and me late in October 1945. These proofs were exhibited at the GSA meeting in Pittsburgh in December 1945, with a placard calling attention to the fact that they were defective. The appearance and arrangement of the map called forth much favorable comment; the printer's errors were obvious to anyone familiar with any particular region.

The second color proofs were examined by me on January 18, 1946, and by MacClintock on January 23. I shall work on them further on January 28. New printer's errors, not previously present, have been made on this set of plates, and drastic revision will have to be made. A third set of proofs will be required before we can O.K. the plates for printing.

MacClintock, as the geographically nearest member, acted as Chairman while I was in the Army, and more recently has been called upon for close and difficult proof-reading. He has given his time generously for this work, and I am sure has the Committee's thanks.

2. The pamphlet to accompany the map has been printed and is ready for distribution with the map as G.S.A. Special Papers No. 60. An edition of 1000 copies will be printed for the GSA for distribution to its Fellows, and an overrun of 1000 copies will be printed for the American Geographical Society. Additional copies, beyond those furnished free to Fellows, will be sold by the GSA at a price to be fixed - probably about $2.00. The plates will be held so that when the first edition is exhausted, a revised edition can be prepared at relatively small expense. All these arrangements have been carefully made by the GSA, which has made great efforts on behalf of insuring that the final map shall be as fine as possible.

3. It is my hope that when the Division of Geology and Geography of the National Research Council next meets, presumably early in May, the map will have been printed and distributed and the affairs of our Committee thereby will have been wound up, so that the Committee can be discharged. I thank you all for the work you did earlier and for your long-held patience of more recent date.

Sincerely yours,

Richard Foster Flint

Richard Foster Flint, Chairman

YALE UNIVERSITY
New Haven, Connecticut

May 7, 1946

Letter No. 17

To members of the COMMITTEE ON GLACIAL MAP OF NORTH AMERICA:
Messrs. Alden, Apfel, Bostock, Capps, Goldthwait, Gould, Leighton, MacClintock, Nichols, Norman, Thwaites, White, Young (and Flint):

1. Our map was published on April 20. A copy of the map and accompanying pamphlet is being sent by the G.S.A. to each member of the Committee. The map and pamphlet will be sold by the G.S.A. at $2.00 for both.

2. On May 3, at the annual meeting of the Division of Geology and Geography, National Research Council, I made the final report of the Committee, showing that our group has fulfilled the task for which it was set up on October 7, 1939. I recommended that the Committee be discharged; presumably it will cease to exist on June 30.

3. Questions and corrections on specific areas are certain to appear after the map has been distributed and has been examined in detail by other geologists. In order to simplify correspondence on such matters I have taken the liberty of stating on page vi of the pamphlet "...responsibility for the actual compilation for each region rests with the...individuals named on the inset index map, and correspondence concerning the detailed mapping should be addressed to them." Most questions can probably be answered directly by the compilers. If the compilers will forward to me any specific corrections or additions arising out of such inquiries, I will file them for later use.

4. The G.S.A. is tentatively contemplating the preparation, within a few years' time, of a revised edition of the map. Although we will have no responsibility, as members of the committee soon to be discharged, for any future edition of the map, I hope that as individual geologists you will send in such additions, corrections, and suggestions for improvement as are bound to occur to you from time to time. I shall be glad to act as repository pro tem for such material, and will keep it carefully filed and classified for future use.

5. I want to take this final opportunity to thank each member for the ingenuity, thoughtful consideration, and plain hard work that have been devoted to the compilation. Each member has played his part; without the combined effort of all, the result would not have been what it is. To work with this group has been a pleasure and a stimulus to me, as I hope it has been to others. We have turned out a tangible result that marks a definite step forward in American glacial research.

6. Finally, I want to thank those who, though not members of the Committee, nevertheless gave much time and effort to various aspects of compilation, drafting and reproduction. Included among these are F. J. Alcock, H. H. Beach, Margaret Betts, Eliot Blackwelder, W. H. Bucher, Gertrude Goodman, C. K. Howse, E. D. Kindle, A. H. Lang, Lawrence Martin, F. E. Matthes, H. W. Murray, L. L. Ray, P. A. Smith, G. W. Stose, and R. T. D. Wickenden. Copies of this letter are being sent to them to express the thanks of the Committee.

Hoping that our map will stimulate Pleistocene study in North America,

Sincerely yours,

Richard Foster Flint

Richard Foster Flint,
Chairman

American Association
for the Advancement of Science

1515 MASSACHUSETTS AVENUE, N. W., WASHINGTON 5, D. C.

SCIENCE
EDITORIAL OFFICES

May 22, 1947

Dear Mr. Thwaites:

I am wondering if you would be willing to review for Science "Glacial Geology and the Pleistocene Epoch" by Richard Foster Flint. Your review should not exceed 300 words, and we would like to have it within about a month, if that is convenient to you...if not, you may take more time as needed.

We will send you a copy of the book if you are willing to review it.

We are enclosing a self-addressed postcard for your answer, and we do hope that it will be in the affirmative.

Sincerely yours,

Mildred Atwood

Mildred Atwood
Assistant Editor

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

pbw