

SEPARATION SHEET

THE FOLLOWING ITEM WAS REMOVED FROM THIS COLLECTION:

6 photos of Cranberry Lakes & New York State Ranger School to
photo archives

DISPOSITION: To photo archives 3/1/90 J. Searcy

UNIVERSITY OF NEVADA
AGRICULTURAL EXPERIMENT STATION
RENO, NEVADA



Delaware Water Gap

"NATURE'S WONDER" *The*
DELAWARE
WATER GAP
-PA.-





DELAWARE WATER GAP FROM MT. MINSI.

NATURES WONDER Delaware Water Gap, Pa.

Three miles from Stroudsburg, 78 miles to New York.
On leaving the city of Stroudsburg, you descend into the valley of the famous Gap.

Here you see before your eyes the great Mountain Chain, which seems to have been cut through by some great machine.

On the Jersey side rises Mount Tammany, a frowning fortress of granite, over 1600 feet high.

Just opposite on the Pennsylvania side rises "Mount Minci", 1700 feet high, but having sides less perpendicular. At the base of these high mountains flows the Delaware River.

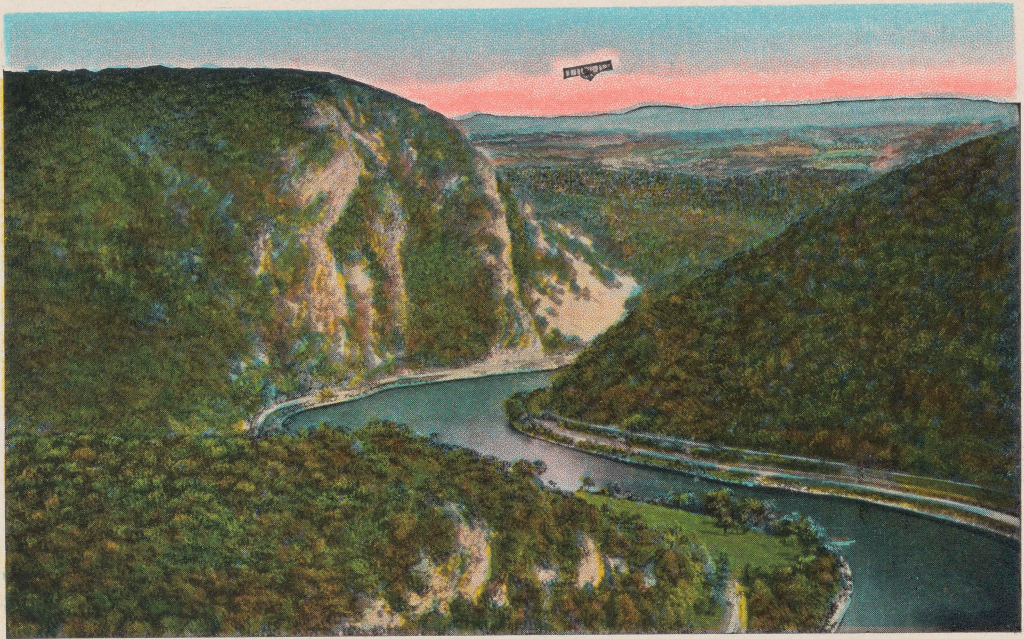
The scenery surrounding the Gap is wonderful and incomparable.

Most modern hotels may be found there for the accommodation of visiting tourists.

The Kittatinny
The Bellevue
Valley View
River Farm House
The Glenwood
Laurel Ridge
Bridge View House
Karamac
The Central
Delaware House

The Willow Dell
The Anatok
Maple Inn
Shawnee-on-Delaware
The Hillcrest
Reenleigh Hotel
Courtenay Lodge
River View House
Riverside Hotel
Golden Rule Farm House

The Mountain House
Forest House
The Del Ray
The Broadhead
Castle Inn
Van Horn Inn
Mount Vista Cottage
North Gap Cottage
Buckwood Inn



THE DELAWARE WATER GAP.

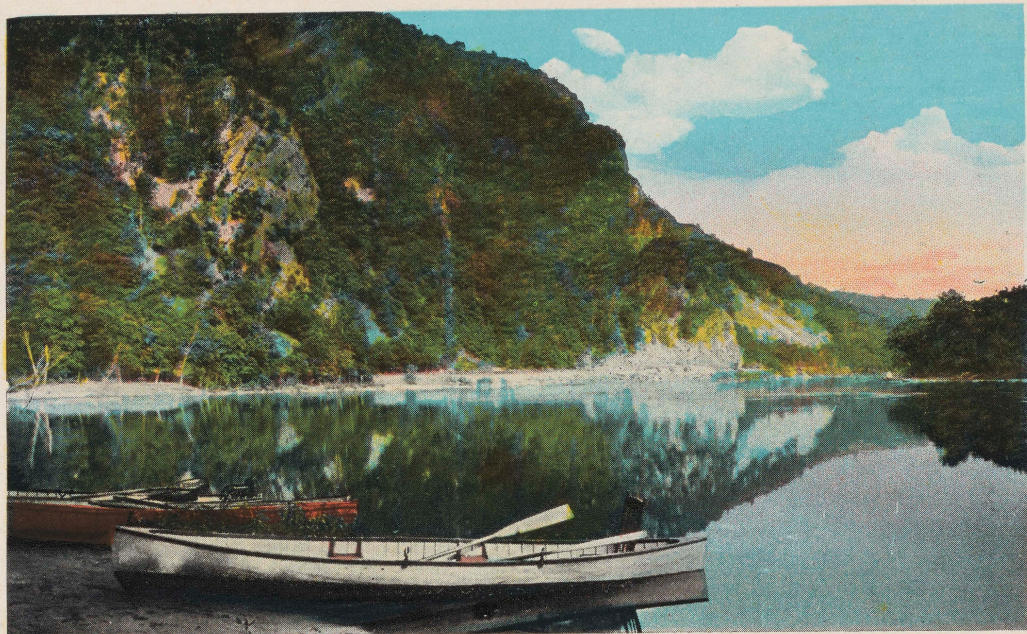


MT. MINISI—1600 FEET HIGH ON THE PENNSYLVANIA SIDE.

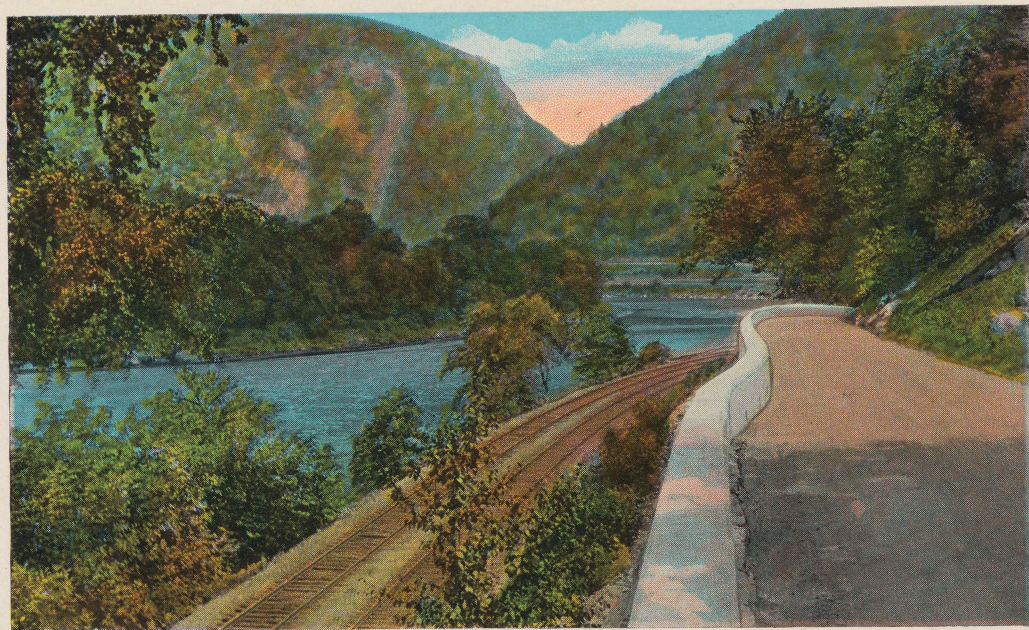
The Central
Delaware House

Riverside Hotel
Golden Rule Farm House

Duckwood Inn



THE INDIAN PROFILE, MOUNT TAMMANY ON THE JERSEY SIDE.



VIEW FROM HIGHWAY

THE Central
Delaware House

THE Golden Rule
Golden Rule Farm House

THE
Delaware House



DELAWARE WATER GAP, PA., SHOWING PROMONTORY.



VIEW SHOWING RIVER DRIVE

The Central
Delaware House

Riverside Hotel
Golden Rule Farm House

Backwood Inn

From _____

DELAWARE WATER GAP, PA.



THE GAP



THE KITTATINNY—"ALONG THE DELAWARE."

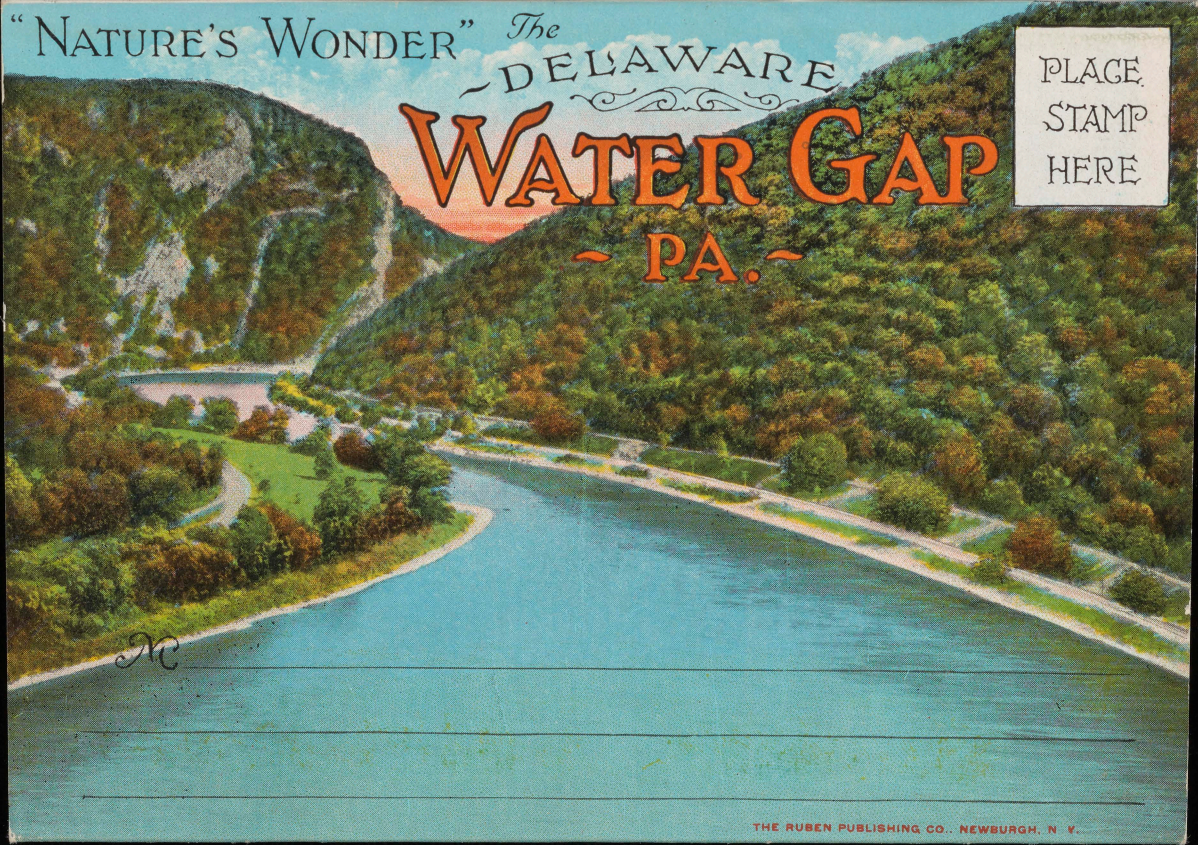
The Central
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Riverside Hotel
Golden Rule Farm House

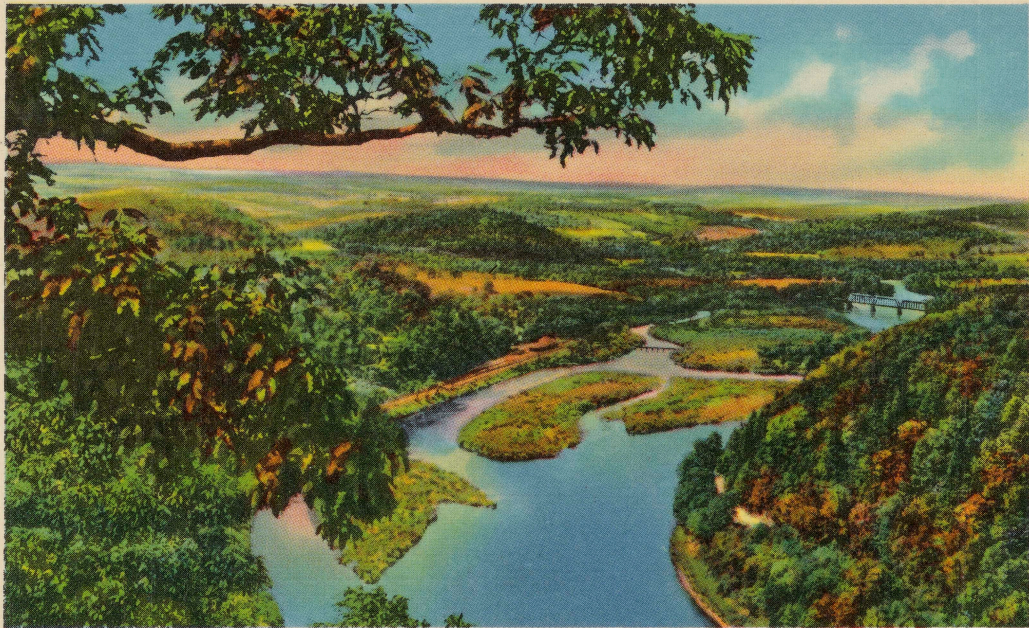
Backwood Inn

"NATURE'S WONDER" *The*
- DELAWARE
- PA. -
WATER GAP

PLACE
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MC



THIS SPACE FOR WRITING MESSAGES

A. B. WYCKOFF, STROUDSBURG, PA.

“C. T. ART-COLORTONE” REG. U.S. PAT. OFF. MADE ONLY BY CURT TEICH & CO., INC., CHICAGO

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2:—PICTURESQUE DELAWARE WATER GAP, PA.



Published by Stroudsburg Glass Co., Stroudsburg, Pa.

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MASS



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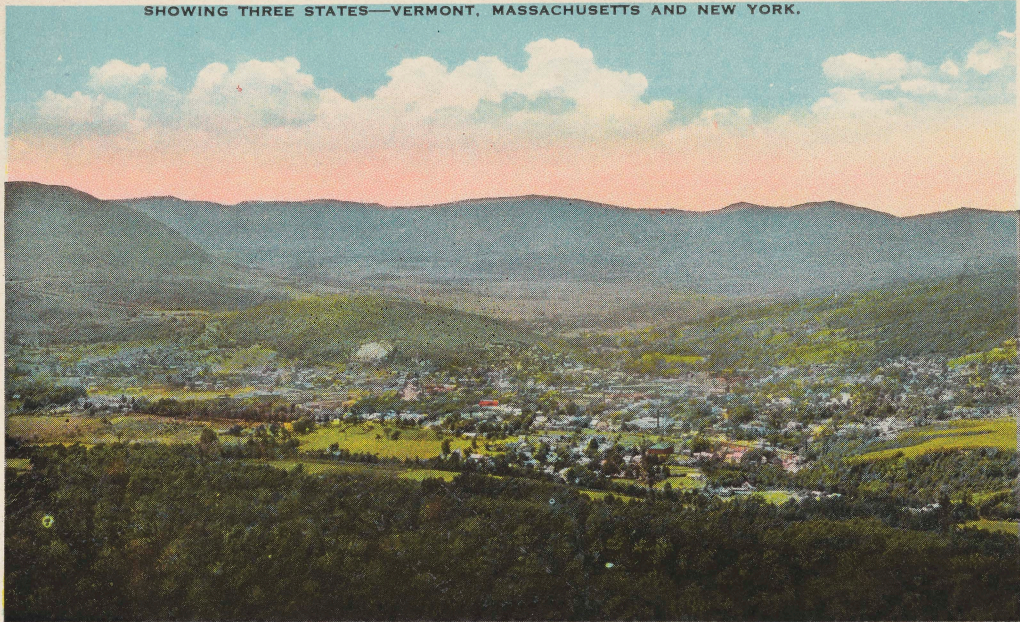
AFTER 5 DAYS RETURN TO

RENO, NEV.

*Views on
Taconic and Mohawk Trails*

BIRD'S-EYE VIEW OF NORTH ADAMS FROM MOHAWK TRAIL, MASS.
SHOWING THREE STATES—VERMONT, MASSACHUSETTS AND NEW YORK.

No Adams



THE MOHAWK TRAIL.

No section of the country is so noted in historic interest, which makes it interesting for sight-seers, and these were the frequent and much loved hunting grounds of the famous Mohawk Indians. Geographically, the greater part of the trail was a part of New York State, while politically it was a part of Massachusetts. Long before the coming of the white man to America, how many years nobody knows, it was this barrier that separated two powerful divisions of the Indians inhabiting the country.

114166



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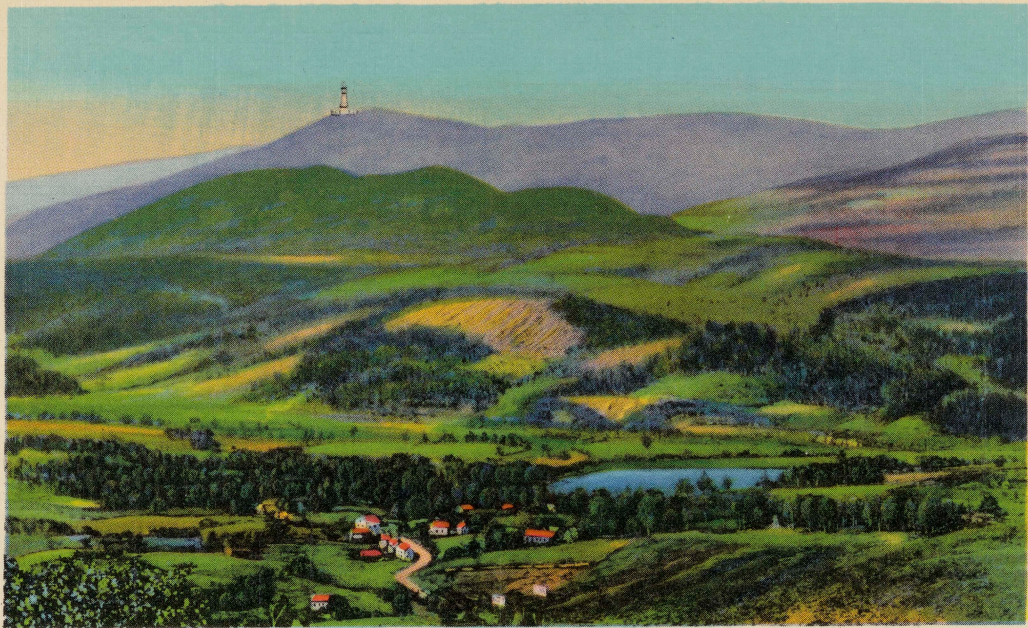
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MT. GREYLOCK AS SEEN FROM THE MOHAWK TRAIL, MASS. 115 MT



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"C. T. ART-COLORTONE" REG. U. S. PAT. OFF. MADE ONLY BY CURT TEICH & CO., INC., CHICAGO

LOOKING UP MOHAWK TRAIL, MASS. NEAR STATE CAMP 40MT

Postcard



6A-H2724

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UNIVERSITY OF NEVADA
AGRICULTURAL EXPERIMENT STATION
RENO, NEVADA



Mount Washington

WEBSTER PROFILE, DIXVILLE NOTCH, WHITE MTS., N. H.



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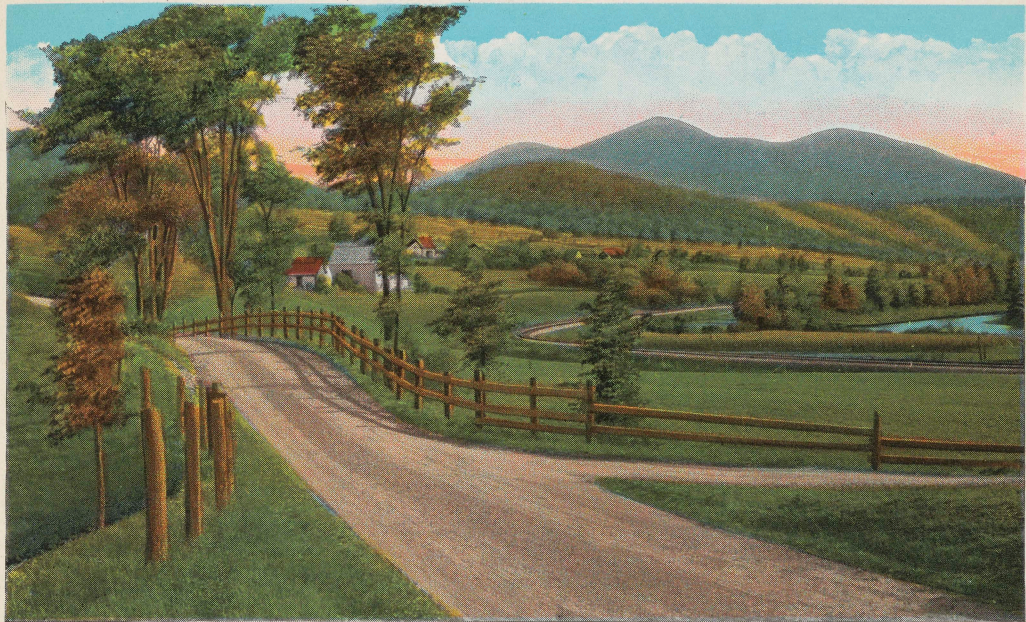
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ON THE ROAD TO DIXVILLE NOTCH, WHITE MTS., N. H.



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153:—MT. WASHINGTON FROM GLEN ROAD. WHITE MTS., N. H.



Pub. by The Bisbee Press, Lancaster, N. H.

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Pub. by The Bisbee Press, Lancaster, N. H.

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46:—TUCKERMAN'S RAVINE. PINKHAM NOTCH, N. H.



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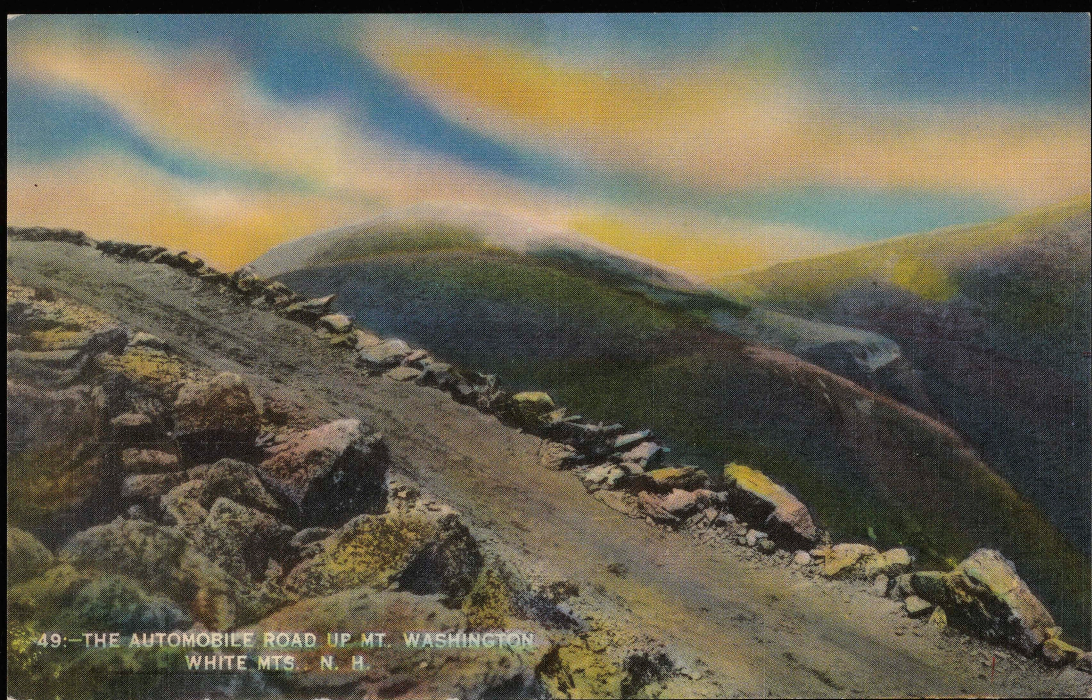
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Pub. by The Bisbee Press, Lancaster, N. H.





49.—THE AUTOMOBILE ROAD UP MT. WASHINGTON
WHITE MTS. N. H.

Pub. by The Bisbee Press, Lancaster, N. H.

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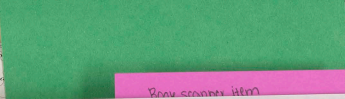
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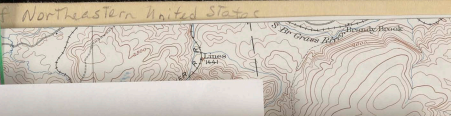
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NC 96
NC 961216

U.S. Surveys "Flood Tendency"



Box scanner item



oversize
materials

NC96.12.60

RED TYPE INDICATES PLACES DESCRIBED ON BACK OF MAP

RED DOTS INDICATE LOCATION OF RECOMMENDED ESTABLISHMENTS

These Routes AVOID ALL CITY TRAFFIC

Philadelphia TO ATLANTIC CITY
BALTIMORE TO FLORIDA AND THE SOUTH

POINTS SOUTH PENNSYLVANIA FLEET

FOLLOW THE SIGNS

Published by
AMERICAN AUTOMOBILE ASSOCIATION
WASHINGTON, D. C.

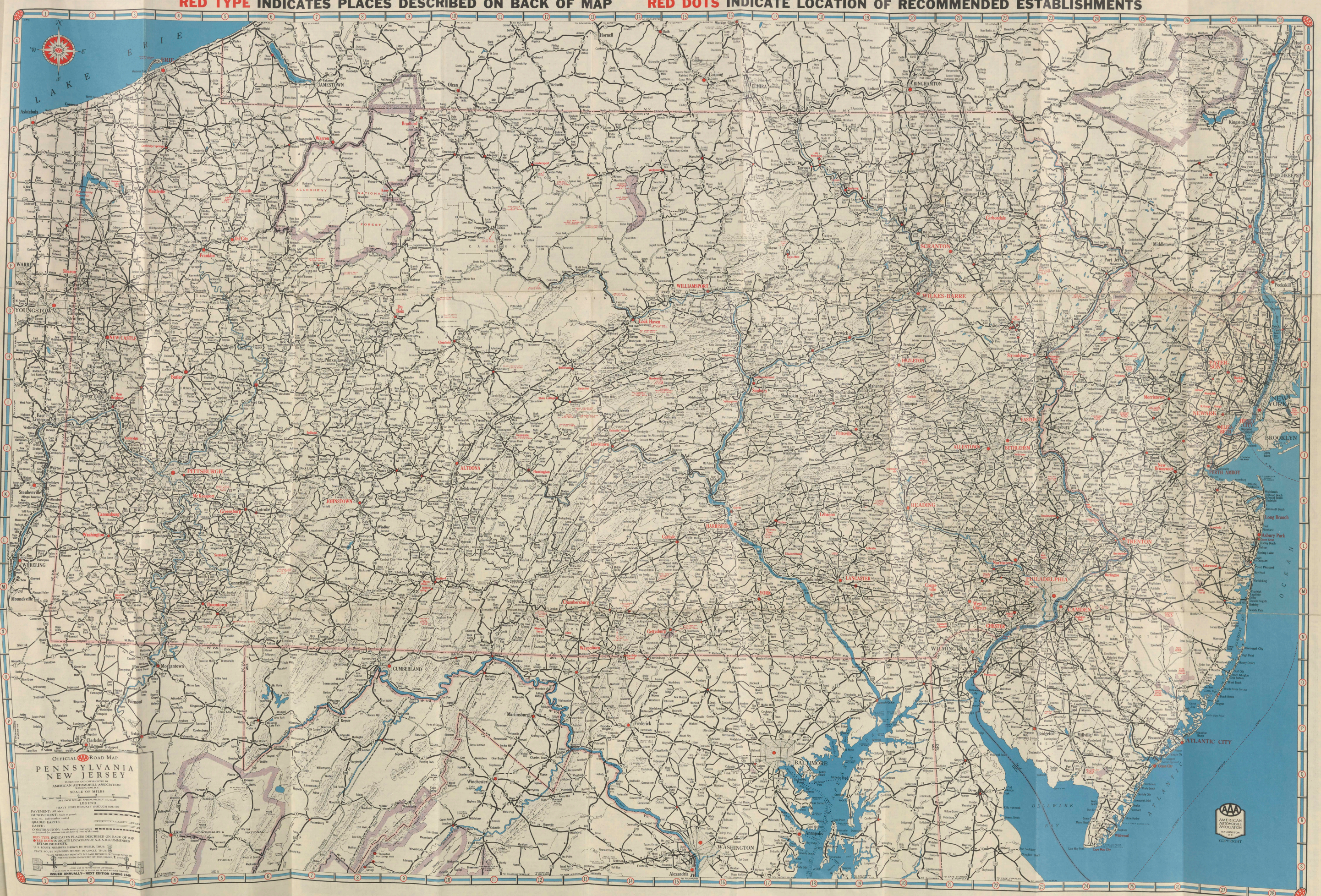
PENNSYLVANIA NEW JERSEY

"Give me a Hotel every time"

That's what the experienced traveler always says. And you agree with him after a sound night's sleep on the fresh, clean linens of a comfortable hotel bed. You agree with him as you enjoy the delicious food and attentive service of a hotel. Can you honestly disagree when he says... for a fresh start, stop at a hotel!

PENNSYLVANIA HOTELS ASSOCIATION

For a fresh start STOP at a HOTEL



RECOMMENDED HOTELS Restaurants and Garages

To choose a hotel or restaurant by its appearance is wrong for the exterior is not always a reliable indication of the quality of service...

Table with columns: Name, Address, Phone, Rates (Single, Double). Includes Wagner Hotel, Bear Mountain Inn, Arlington Hotel, etc.

When Registering at Hotels Place "A.A." after your signature on the hotel register. Our recommendation is to place A.A. numbers and indications of membership will insure preferred attention...

Table with columns: Name, Address, Phone, Rates (Single, Double). Includes Palmetto Hotel, Hotel Astor, Hotel Belmont, etc.

When Registering at Hotels Place "A.A." after your signature on the hotel register. Our recommendation is to place A.A. numbers and indications of membership will insure preferred attention...

Table with columns: Name, Address, Phone, Rates (Single, Double). Includes Duval Ten House, Old Court House, The Wyndham Inn, etc.

When Registering at Hotels Place "A.A." after your signature on the hotel register. Our recommendation is to place A.A. numbers and indications of membership will insure preferred attention...

Table with columns: Name, Address, Phone, Rates (Single, Double). Includes Hotel George Washington, Hotel Hamilton, Hotel Marlborough, etc.

When Registering at Hotels Place "A.A." after your signature on the hotel register. Our recommendation is to place A.A. numbers and indications of membership will insure preferred attention...

Table with columns: Name, Address, Phone, Rates (Single, Double). Includes Hotel Marlborough, Hotel Marlborough, Hotel Marlborough, etc.

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Table with columns: Name, Address, Phone, Rates (Single, Double). Includes Hotel Marlborough, Hotel Marlborough, Hotel Marlborough, etc.

POINTS OF INTEREST

ASBURY PARK—A popular resort. Seated Lake in the city and part of the ocean beach is a mile long. The Asbury Park Convention Hall, the largest in the city, is a landmark.

CONRAD WEISER STATE PARK—25 acres, containing the home and grave of Conrad Weiser. Many of Weiser's descendants live on the site.

INDEX TO CITIES AND VILLAGES OF PENNSYLVANIA AND NEW JERSEY. Explanation: See Abbeon below. The key is P-25. The number in the margin of the map; the letter in the margin of the map; the letter in the margin of the map.

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BRIDGES AND FERRIES

The Bridges, Tunnels, and Ferries listed below are especially recommended. For complete rates of tolls and bridges operating in the territory covered by this map, apply at any A.A. Club.

DELAWARE RIVER. CHESTER, PA.—BRIDGEPORT, N. J. DELAWARE RIVER. CHESTER, PA.—BRIDGEPORT, N. J. DELAWARE RIVER.

DELAWARE RIVER. CHESTER, PA.—BRIDGEPORT, N. J. DELAWARE RIVER. CHESTER, PA.—BRIDGEPORT, N. J. DELAWARE RIVER.

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DELAWARE RIVER. CHESTER, PA.—BRIDGEPORT, N. J. DELAWARE RIVER. CHESTER, PA.—BRIDGEPORT, N. J. DELAWARE RIVER.

Safeguard Your Funds. The American Automobile Club of America. AMERICAN EXPRESS TRAVELERS CHEQUES. For Sale at Banks, Railway Express and Western Union Exchanges.



C.H. Birdseye, Chief Topographic Engineer.
 Frank Sutton, Geographer in charge.
 Topography by J.M. Whitman, A.B. Searle, A.P. Meade,
 C.H. Davey, and G.H. Guenther.
 Control by G.B. Kendall, W.T. Gould, S.S. Gannett.

(Big Moose) Scale 62500
 0 1 2 3 4 Miles
 0 1 2 3 4 Kilometers

Polyconic projection, North American datum
 138

United States Geological Survey is making a standard topographic atlas of the United States. This work has been in progress since 1882, and its results consist of published maps of about 42 per cent of the country, exclusive of outlying possessions.

Each topographic atlas is published in the form of maps on measuring about 16½ by 20 inches. Under the general adopted the country is divided into quadrangles bounded by parallels of latitude and meridians of longitude. These quadrangles are mapped on different scales, the scale selected for each map being that which is best adapted to general use in the development of the country, and consequently, though the relief maps are of nearly uniform size, they represent areas of different sizes. On the lower margin of each map are printed scales showing distances in feet, meters, and miles. In the top margin, the scale of the map is shown by a fraction expressing the ratio between linear measurements on the map and corresponding distances on the ground. For example, the scale means that 1 unit on the map (such as 1 inch, 1 foot, or 1 meter) represents 62,500 similar units on the earth's surface.

Through some areas are surveyed and some maps are compiled and published on special scales for special purposes, the relief topographic surveys for the United States proper and outlying maps have for many years been divided into three differentiated as follows:

Surveys of areas in which there are problems of great importance—relating, for example, to mineral development, irrigation, or reclamation of swamp areas—are made with great accuracy to be used in the publication of maps on a scale of $\frac{1}{62,500}$ (1 inch=one-half mile), with a contour interval of 10 feet.

Surveys of areas in which there are problems of average importance, such as most of the basin of the Mississippi and its tributaries, are made with sufficient accuracy to be used in the publication of maps on a scale of $\frac{1}{125,000}$ (1 inch=nearly 10 miles), with a contour interval of 10 to 25 feet.

Surveys of areas in which the problems are of minor importance, such as much of the mountain or desert region of Arizona or New Mexico, are made with sufficient accuracy to be used in the publication of maps on a scale of $\frac{1}{250,000}$ (1 inch=nearly 2 miles), with a contour interval of 25 to 50 feet.

A topographic survey of Alaska has been in progress since and nearly 45 per cent of its area has now been mapped. About 10 per cent of the Territory has been covered by reconnaissance maps on a scale of $\frac{1}{250,000}$ or about 10 miles to an inch.

Most of the remaining area surveyed in Alaska has been mapped on a scale of $\frac{1}{500,000}$, but about 4,000 square miles have been mapped on a scale of $\frac{1}{250,000}$ or larger.

The Hawaiian Islands, with the exception of the smaller islands at the western end of the group, have been surveyed, and resulting maps are published on a scale of $\frac{1}{62,500}$.

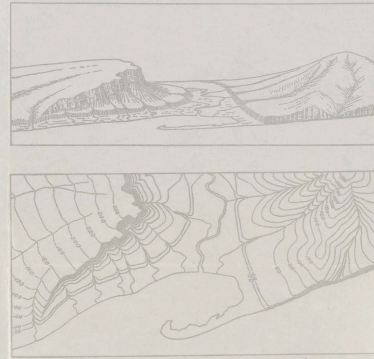
Features shown on these maps may be arranged in three groups—(1) water, including seas, lakes, rivers, canals, swamps, and other bodies of water; (2) relief, including mountains, valleys, and other features of the land surface; (3) culture

(works of man), such as towns, cities, roads, railroads, and boundaries. The symbols used to represent these features are shown and explained below. Variations appear on some earlier maps, and additional features are represented on some special maps.

All the water features are represented in blue, the smaller streams and canals by single blue lines and the larger streams, the lakes, and the sea by blue water lining or blue tint. Intermittent streams—those whose beds are dry for a large part of the year—are shown by lines of blue dots and dashes.

Relief is shown by contour lines in brown, which on some maps are supplemented by shading showing the effect of light thrown from the northwest across the area represented, for the purpose of giving the appearance of relief and thus aiding in the interpretation of the contour lines. A contour line represents an imaginary line on the ground (a contour) every part of which is at the same altitude above sea level. Such a line could be drawn at any altitude, but in practice only the contours at certain regular intervals of altitude are shown. The line of the seacoast itself is a contour, the datum or zero of altitude being mean sea level. The 20-foot contour would be the shore line if the sea should rise 20 feet. Contour lines show the shape of the hills, mountains, and valleys, as well as their altitudes. Successive contour lines that are far apart on the map indicate a gentle slope; lines that are close together indicate a steep slope; and lines that run together indicate a cliff.

The manner in which contour lines express altitude, form, and grade is shown in the figure below.



The sketch represents a river valley that lies between two hills. In the foreground is the sea, with a bay that is partly inclosed by a hooked sand bar. On each side of the valley is a terrace into which small streams have cut narrow gullies. The hill on the right has a rounded summit and gently sloping

spurs separated by ravines. The spurs are truncated at their lower ends by a sea cliff. The hill on the left terminates abruptly at the valley in a steep scarp, from which it slopes gradually away and forms an inclined table-land that is traversed by a few shallow gullies. On the map each of these features is represented, directly beneath its position in the sketch, by contour lines.

The contour interval, or the vertical distance in feet between one contour and the next, is stated at the bottom of each map. This interval differs according to the topography of the area mapped: in a flat country it may be as small as 1 foot; in a mountainous region it may be as great as 250 feet. Certain contour lines, every fourth or fifth one, are made heavier than the others and are accompanied by figures showing altitude. The heights of many points—such as road corners, summits, surfaces of lakes, and bench marks—are also given on the map in figures, which show altitudes to the nearest foot only. More exact altitudes—those of bench marks—as well as the geodetic coordinates of triangulation stations, are published in bulletins issued by the Geological Survey.

Lettering and the works of man are shown in black. Boundaries, such as those of a State, county, city, land grant, township, or reservation, are shown by continuous or broken lines of different kinds and weights. Good motor or public roads are shown by fine double lines, poor motor or private roads by dashed double lines, trails by dashed single lines.

Each quadrangle is designated by the name of a city, town, or prominent natural feature within it, and on the margins of the map are printed the names of adjoining quadrangles of which maps have been published. Over 3,900 quadrangles in the United States have been surveyed, and maps of them similar to the one on the other side of this sheet have been published.

The topographic map is the base on which the geology and mineral resources of a quadrangle are represented, and the maps showing these features are bound together with a descriptive text to form a folio of the Geologic Atlas of the United States. More than 220 folios have been published.

Index maps of each State and of Alaska and Hawaii showing the areas covered by topographic maps and geologic folios published by the United States Geological Survey may be obtained free. Copies of the standard topographic maps may be obtained for 10 cents each; some special maps are sold at different prices. A discount of 40 per cent is allowed on an order for maps amounting to \$5 or more at the retail price. The geologic folios are sold for 25 cents or more each, the price depending on the size of the folio. A circular describing the folios will be sent on request.

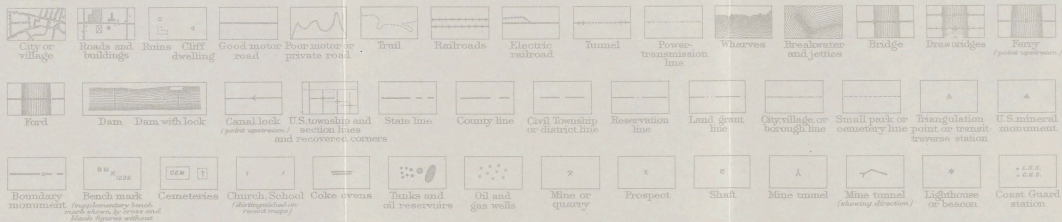
Applications for maps or folios should be accompanied by cash, draft, or money order (not postage stamps) and should be addressed to

THE DIRECTOR,
United States Geological Survey,
Washington, D. C.

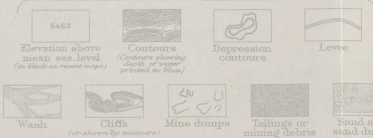
September, 1923.

STANDARD SYMBOLS

CULTURE (printed in black)



RELIEF (printed in brown)



WATER (printed in blue)



WOODS

(when shown, printed in green)

Vol. I

The SPIRAL

NOTE BOOK

No. 672-E

Vol. I.

*Flood Tendencies and Their Causes
Particularly in the Streams of Northeastern
United States. Study September 16 - November 6, 1939.*

SPIRAL Patents 118912-118921-118974

Other Patents Pending

B-12

Vol. I

The SPIRAL

NOTE BOOK

No. 672-E

Vol. I.



Made Under One or More of The Following

SPIRAL Patents 1516712-1542824-1463724

Other Patents Pending

B-12

Department of Meteorology
Nevada Agricultural Experiment Station

Flood Tendencies and Their Causes.

A Study made ^{Aug.} ~~Sept.~~ ^{for} Nov. 6, 1939

Runoff and Floods in Wyoming Valley
Susquehanna Basin.

Monday - Tuesday, Sep. 25 - 26

Trip to Wilkes-Barre to meet Stanley Messerage, Forester - in keeping with earlier correspondence.

Trace the Delaware Water Gap - like Bingen on the Rhine before castles were. Forested mountains. Flood height does not appear to be excessive. Study Conservation Reports. Pines in Catskills.

Adjoins the Susquehanna. Mountains mostly clad with second-growth hardwood forests in thicket stage of growth. Soil above slate as thin as around Pittsburgh. Beautiful autumn colors.

Summit into Wyoming Valley approx. 2000 ft. Lookout stations for fire prevention on the hill tops.

Stanley Messerage about 35 yrs old. A lad with only a year or so of high school

but with ideals and initiative. A Polish
lad, mule-driver in the mines, steel
worker. Saw work to be done in
rehabilitating his home valley and sold
the idea to the Glen Lyon Colliery Co and
the Wyoming Valley Chamber of Commerce.

Reforesting Dumps

In reforesting the mining dumps to reduce
erosion by wind and rain. Professors from
State College interested. Have found burned-wood
cinders the most fertile debris for hardwood
or conifers. Cutting new growth a foot above
ground causes shoots that quickly provide
dense cover.

Mine Flooding

In solving mine flooding by detouring water
channels around funnel-holes on slopes
where coal veins have been mined from
below to the surface. Problem is not to
reduce total seepage into the mines
but to reduce floods peaks caused by
melting snow. Present pumps can not
handle excess. Men therefore thrown
temporarily out of employment until water
is drawn down. Emergency pumps and

pumpers very minor in employment value as compared with miners laid off.

Mine flooding is a problem only of hillside mines, not of deep shafts in the valley floor. The solution is to close the holes.

Have suggested reforesting to slow down snow melting by shading and root-absorption. He showed me one area covered by Virginia pine ("scrub") in which the canopy was so ~~thick~~^{dense} and the needle mat so thick (2 inches or more) that no runoff occurred into the funnel pits tho they lay in a natural drainage channel.

a Water Supply.

A large swamp area that caused the greatest mine flooding was dammed into a reservoir that thus became a seasonal lake. The water was pumped over the rim and carried by pipeline and flume to the Lysa for washing coal - thus saving a waterbill of \$2500 monthly or annually (3). The water was too chemical

We is now thinking out the
best to improve the size of
timbers for the mines. But he
is careful to avoid over-thinning but
meets ^{up} ~~it~~

for other use. To increase the late
flow into the reservoir the forest cover
is being improved, for the area of the
reservoir is insufficient to hold the
entire watershed supply. To utilize low
or seepage water in the swamp a
canal was dredged its entire length
as a sump - This has never been
drawn dry.

Fires. Cost to colonies was originally \$3000
and more annually, now the expense is
nearer \$300. At first they were set by
the workmen to get extra pay for
putting them out - The fires usually appeared
about 2 p.m. The men took their time
in responding to the call - to give them
greater headway, and arrived after
the 8-hour day to earn pay and a half.

Management detected the system, organized
a volunteer fire department and barred
all mine workers from joining. They
thus lost all interest and fires decreased.

Disputes. The companies were originally interested in getting out coal rather than in the welfare of the region and workmen. Disputes have not fallen from 50 a year to a dozen.

Boy Scouts. To obtain trees for planting, Messerage interested the children. They also set them out. Also they are cutting a trail 5 feet wide on the valley crest - circumference 50 miles.

Federal appropriation. \$18000 for survey of anthracite region. Are now seeking \$40000 from Director of the Budget to complete it and outline program with costs. Wrote a letter for the Chamber of Commerce.

Ideals. Messerage receives \$1500 but pays own traveling expenses. He could have received \$1800 plus expenses as a Federal official on the Anthracite Region Survey. He refused it, for he could aid the cause better by retaining his

more permanent job and thus be in a position to reestablish Government cooperation in case the present appropriation was not renewed.

Each week-end he and his family travel to some new point to increase their knowledge and experience. Last Saturday-Sunday to New Jersey to visit the State Forester.

Eager to work long hours as a compensation for the hard toil in the mines.

Spent the night with his family at Lily Lake. She is a city girl - from Syracuse, resourceful, in love with his work. Nature appealing, rent low. "One wife in a thousand", said the Secretary of the Chamber of Commerce.

Here is a story for Reader's Digest. Shall write Myron Stearns about it.

"The Revivining of a Valley". Some day, when coal has departed, this can be returned

as a playground to the populous cities
of Atlantic Coast. The achievement of
an eager lad, a sympathetic mine
manager, and a responsive Chamber.
The lad wears the worn costume of
a forester, with a soft hat and rolled-up
sleeves. He bears in a scarred lip the
vicious bite of a mule.

The Susquehanna Problem.

Floods here are plainly due to shallow
soil with the slate run-off roof beneath.
The deciduous trees, ^{being leafless in winter} permit practically
the entire snowfall to reach the
ground and lie undrifted and therefore
shallow.

Consequently melting is unhindered
in spring. Its uniform shallowness
even accelerates its melting. Conifers
would intercept some of the snow
and shade the remainder. The factor
of influence should be studied.

During the summer, the deciduous trees, putting out leaves, intercept the rain and use it in transpiration. Since it falls in showers, much is wasted in rewetting the surface.

Therefore, altho the snow constitutes only one-third of the annual, it is far more effective than the remaining two-thirds.

Thus the snow cover in the East as in the West is the basic problem in forecasting runoff. Winter rains on the snow and winter thaws accentuate the problem. Soil priming is also important for the soil remains usually moist from recurrent rains.

Floods. Mr. Merriam attributes to the Susquehanna one or two percent of the flood area of the United States but 10 percent of the flood damage.

The levees at Wilkes Barre indicate its quick discharge. Possibly this is

a throat in the mountains. A large fan area in southern New York drains into it. Here the elevation is lower. Is the soil also shallow?

How forecast spring runoff after midwinter thaws? Quantitatively?

By gaging?

Flood Forecasting Bases. Mr. Merriam suggests snow studies leading to the determining of the critical temperature and density of snow precedent to sudden and copious melting.

Such study can best be conducted here where such phenomena are frequent and accentuated.

Mesavage will be very eager to conduct such studies. A trip of double value to me - mine drainage and river floods. I did not realize that I was in the Susquehanna until the close of my visit.

"Blue Coal" - yes, blue flame, but here
in a can carefully graded chemically -
colored nut coal for "discriminating"
buyers. No extra fuel value. Merely
mark of excellence. A Sackawanna idea.
It brings a high price.

Autumn Colors - now at their best.
Whole mountain sides. Pink to scarlet,
brown to bronze gold. The green is
the conifers. This proportional forest
cover can readily be estimated.

The Delaware - down stream to Easton.
Its smooth stone channel, red rock,
and slate sides prevent erosion.
High water seems not to have been
excessive. It seems to lack the large
foss at its source. Is this true?

Note - See ^{following} correspondence with Merriam.

Among the Publishers.

Oct. 2 - Lunch with Myron Stearns. Talked till 4 pm. of snowoff and Singschames, of iceberg exhibition.

Oct 3 - Lunch at luncheon table with Stearns. Met Ferguson of Reader's Digest, at hotel near Grand Central, place of publishers' conference. He thrilled at idealistic story of Stanley Messinger. Choice of smaller salary to be able to work for Wyoming Valley.

Wed. Oct. 4 - Phone from Stearns. Reader's Digest wants interview for further plans.

Dr. Gladys Wigley Keen for Watershed Studies. Might someday like "Searching for a Watershed". The Singschames interested her.

Thursday, Oct. 5. Called with Stearns at Sci. American. Met Editors McHugh and Ingalls. Merry talk on ice evaporation and college mosques and human "gravey".

Stearns wanted to sell them "Icebergs".

"Ice Patrol" over written. Accepted a story on "Birth of an Iceberg" if I would vouch for Stearns and oversee the work.

They hoped for another Digest article.

I vouched Stearns of this. But he had intimated only the possibility of this.

Digest, however, had suggested to him at trip to Wilkes-Barre to visit Mesozoic. Decision will depend upon report.

Stearns wants Greenland Diary to get background. He is "merely a reporter". Considers me among his few or fine "tops". "Wishes that we were twins, I to tell, he to write".

— Iceberg Drift —

Friday, Oct 6. Spent night at Ossington. He was present as radio operator at erection of Peary Memorial at Cape York. Success due to Belnap's persistence despite hickering.

At Cape York saw icebergs traveling north. But they soon turned south.

- The Hudson Basin -

Monday, Oct. 9. To Albany with John.

The Palisades worthy of a Boulevard to New York Hudson. Beauty and grandeur. Outlook view suggests the Oregon Empire on a slightly smaller scale. To Hudson a gateway to the West.

The Catskills best seen by ^{50 mi.} detour from Kingston to Catskill. Thus into center of Catskill Park to Ashokan Reservoir and then bisect the northern half. Slopes are mostly deciduous forested - seven eights probably as shown by autumn colors. Shallow soil, smooth-rock channels. Slopes steep but mountain contours rounded. Should have a stream gage station here to study floods, also precipitation stations on a few contours. Possibly the Ashokan Reservoir may take the place of the stream gage.

An artist's autumn paradise of slopes and rich harmonious colors of reds and browns and interspersed

U.S. S. Office Albany. Harrington
absent in Central New York on flood
investigation with the Army Engineers.
Obtained set of Cooper's Snow Survey Reports.

Many are repeat orders

greens.

Toward Albany land more rolling
and soil deeper. Albany sits naturally
in it.

Floods. West of Albany in countryside
found Dr. Horton. a farm of 20 acres, a
glens and waterfall, varied forestation,
an old gristmill from 1830 and
farm buildings to match.

Mill has been made into an office
and drafting rooms. Four men at work.
Most valuable books and documents
in a fireproof, sheet-iron building.

No catalog but files of related data
and pamphlets. Rustic everything, even
the tables and desks.

Does not need to live in the city.
His work is far-distributed - the
city comes to him. Millions of dollars in
projects have passed thru his office.
Floods rare in Hudson. Tide
water to Albany. The Mohawk, its
chief feeder, ^{from Utica} has deeper soil than the

Horton agreed with my theory except that he attributed part of the loss of summer rains to transpiration by summer crops

on the lower parts of the watershed. (For example at Singhamton. That is the true of forests in a dense forest. The interception and transpiration. Stream gages necessary on very areas.

Catskills, some of it a clay loam, and retains water better. Shallow, not deep, snow covered at least two floods. When snow was deep, floods from rain did not occur. The snow absorbed them. The shallow snow fell wet and went out as slush.

The soil can absorb 2 1/2 in. water before releasing it.

The Delaware and Susquehanna on other hand are prone to floods. The assistant in U.S.G.S. office at Albany said that frequently at Killesnoona the floods filled basements and rose toward the first floor. One citizen determined to purchase a house on a high hilltop.

Snow Measurements -

Eastern snow lies shallower and more even than Western, says Horton, a resident also in every 10 sq. miles. 50 cooperative snow observers available at \$5.00 a month.

Requires snow board i.e. flat surface on

which to measure. Measurements daily or by storms (?) — depth, water content, density, wetting. Frost depth too desirable.

I suggested also elevation meas. if quantity on watershed is desired.

He was not familiar with New York Coop. Snow Survey. He took Harrington's address. The densities of 25 to 35 percent seemed reasonable. Sometimes snow crystals were square like corn. Did not melt rapidly from melt water or rain but let it pass thru as if the crystals were coarse sand.

Working on methodology for Soil Conservation Service. Data abundant but not worked up. Has begged for it. Tell Merriam. Only January 1938 available.

Frost and Runoff. Dr. Harton has a paper practically ready on Frost and Runoff. Will let me have it for Annual Report on Snow or as a Supplement to it.

Good for Snow Survey Conference.

He suggests lysimeter measurements of precipitation and evaporation in winter.

He has continuous readings for a season of temperatures in snow, on surface of ground and in soil.
Valuable.

He is willing to come West for Conference at Stanford. Can not Sherman come with him?

Grover slow and overconservative.

The original snow sampler was made by Horton while in the U.S.G.S. at Utica. Probably junked by now. Made over 30 years ago.

Did not want the Presidency of the Section of Hydrology. Is rather withdrawing from committees. Working on a water-system project for Albany.

Back to Albany in the dark. Dollar rooms at Y.M.C.A. Cafeteria dinner at Y.W.C.A.

John's idea. He has a Y.M.C.A. membership. Albany is the product of a generation ago, architecturally.

At my request gave me the
original report on description
of precipitation by first general
standard of 1897.

Three Massachusetts to Boston

Berkshires.

→ Taconic Trail 2242 ft. pass.

Mount Graylock in distance. Ends of Berkshires and Green Mountains here come close together.

Cement posts and ties, the latter for facing embankments. Durable and easily laid in position.

Three Peterburg at
foot of mountains. Never
falling.

Williamstown.

Prettiest village since Manhattan.
Williams College along a rural highway
and open trees.

North Adams.

Shoe factories

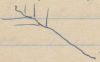
Mohawk Trail.

Soil on mountains very shallow.
Colors, Autumn at its best.

Whitcomb Summit 2240 ft. Looking into
Deerfield Creek.

Deerfield Watershed has many faces

and steep slopes



Toward Connecticut River.

Fair canyons or concentrating feeders.
Cross ranges below us. Quick runoff
into the Connecticut. Canyons deep.

Protection from sun. Banks concreted
in places. Stream scaring.

Sherburne Falls, Flowers, Arch bridge.

Large slus. over roadway.

Connecticut River

Bridges impressive. High over
rock-bound V-shape bed. Trees
high on west shoulder twisted by
hurricane of September 1938. In the
northerly course of this storm across
Long Island and over New Haven.

Got tangled up with Turner Falls,
ledge and city. Miller Creek appeared
to be railroad gateway across the
Connecticut and east.

Eastern Massachusetts. Trees dense,

Even farms sparse. One state forest,
Evergreens dense here.

Fallen trees almost to Boston.
Gale heavy at Westminster. One
church yard desolate. Only overturned
stumps left. The trees had been
salvaged.

With S. P. Fergusson at Milton, Massachusetts.

Threaded Boston by following Highway
Numbers. Traveled by "great circles" from
northwest to southeast to Matapan,
then across bridge into familiar
surroundings.

"If you accumulate enough ignorance
at the polls you get wisdom."

Van Dyne, Benson Murder Case
via S. P. F.

"He who would go to Greenland for
pleasure would go to Hell for
entertainment."

Dan Streeten in Arctic Poles
via S. P. F.

Arctic and Antarctic should remain international.

Regarding soft snow on high mountains Ferguson mentioned Edward Whymper's travels through the Great Andes of the Equator. Explorer 1892.

October 11 - Blue Hill - Quite exact note to Odell's letter.

Permission granted to drive up.

Pictures of Observatory Staff and our party taken before the gate.

Stone in hospital eliminating tropical infection suffered on Porto Rico last spring.

1. Talk with Brooks on floods.

Heavier floods lower down stream where snow is shallower. Thus in 1736, first flood in Pennsylvania, then in New York, and finally in Adirondacks where snow is deepest.

Islands.

Commander Smith is resident at Charlestown Navy Yard, Boston.

Address: Commander Edward H. Smith

5 Wildwood Street

Winchester, Massachusetts

Phone CHARlestown 1-400. Call for "Chelan".

Requested Dr. Brown to become Chairman of
the Special Committee on International Snow Maps.
The very busy he indicated acceptance.

Project by Harvard Univ. and U.S. Coast
Guard on Oceanographic Meteorology -
\$1250 given Blue Hill by Coast Guards
for meteorology.

Discussed airplane reconnaissance of
iceberg locations and numbers from
Halstenborg. Also article by Stearns
on "The Birth and Youth of an Iceberg".
Must seek Commander Smith's cooperation.

Byrd Expedition at Bldg 28 in Navy Yard.
[Date: Because of crowded schedule, missed
both.]

Sal and Viola Paglinca - he still
Chief Meteorologist of Yankee Net Work.

Joe Dodge still in charge of Appalachian
Club's camp at Pinkham Notch,
Mount Washington.

2. Visit to Stone at Hospital

Dr. Brooks is asking that Schell's
paper on Iceberg Frequency forecasting
be published in an early issue of the

of Amer. Meteor. Soc.

Bulletin. Must write him regarding possibility of republishing it with Commander Smith's paper in transactions of the Union.

Stone's name omitted by error from the Personnel list of the Committee on Snow. Make necessary correction.

Caution in Snow Maps: "In Europe snow is measured only as snow on ground, not as new snow storm by storm". In England also the length of time the snow lies on the ground. Possibly a dual map will be necessary.

See ^{Dr.} Barrows, Boston regarding floods. He is member of Snow Committee.

Mechanics of Snow. Who will translate Haefeli's work. Urge Drane or Pease. Stone will edit a free translation.

In Snow Nomenclature "may add Peter Robinson's classification. Guess

it's all right."

Stone actively at work in beds
Merely "taking shots" in hospital.

Stone not married. Commented Sal:
"If married, you can be cared for —
but also care for others"; thus a
balanced life.

3. Evening at American Academy of Arts and
Letters. Building provided by Agassiz.
Medal given to a M.I.T. professor
for a gadget that analyzed the
lines of the ~~spectroscope~~^{spectrom}. Thought of
Ferguson in anemometry. The
instrument may be pioneer rather
than the philosophers.

The roster of deceased and newly
elected members consisted of names
only — stripped of titles, offices, and
achievements. Reminded me of the
bare name BERNHARDT as a
tomb in Paris. The fore-name "Seal

was unnecessary. Some great names I noticed in the list.

There was no attempt at introduction at the smoker following. Fergusson, my brother John, Clayton, and I formed our own group. Clayton was nearly 80, authority on World Meteorology.

Failed to give Fergusson Joeng's greetings from Washington. Latter was in Dr. Davis' Western Geological Excursion in 1912(?) and visited Rend, Expert in Cartography in Archives Bldg, Washington. Recalled me from that single visit and asked Nick Basta to bring me over. So many years ago.

October 12-

Fergusson's go with John to Mount Wachusette to see autumn colors and visit a meteorograph brought by Fergusson from Rend and placed on mountain for Polar year observations.

At least 3 elements recorded.
Mountain, ^{150 miles distant} in central Massachusetts
near Worcester.

Obtain his "best seller" on Anemometry.
just published by Harvard

Law and Society. Proof received by
air mail and corrected. Timed very
fortunately. Soon beyond reach.

Salvatore Pagliuca was chauffeur
and guide for the day, with his wife
Viola. Both Italians, perfect companions.
Wanted to country for baby boy's sake.

He believes in making the public
weather minded. Gives them the
story of the weather twice daily - 15
minutes each. Not the "Fair and Warmer"
types but specialized weather - fogs,
rains ahead of the motorist or behind,
freezing temperatures, sleet. The philosophy
of weather for the layman. The Ferguson
think it too detailed, time will tell.
at least Dal is explicit and this

supplements the Weather Bureau's forecast.

In snow-sports forecasting, he suggests the extreme depths of the snow cover rather than the average or approximate depth. Thus "Snow 2 to 4 feet deep rather than approximately 3 feet deep. This is essential where very thin snow is present in places. In the West the snow is more uniform in depth and much deeper. Consequently has fewer pitfalls for the unwary.

A new system of radio transmission being perfected at Spence Network - one that eliminates static and interference and provides a uniform and pleasing tone. This will require receiving sets to match.

To Gardner Museum - Failed in 1936.
Too late in the day.

The museum is an Italian Villa, Venetian type - filled with antiques

as well as fine arts objects. Almost as if it were being lived in by its owner of the Renaissance. Except that Sargent's El Jales, ^{the Spanish Prince,} is there, filling the entire corner of a room.

As a concession to Northern winters, the central court is glassed in.

To the ^{Rands} Rands, 107 Lake View Avenue.

Harvard is very impressive on the Charles River. New England made large, fresh and modern. Not Gothic like Yale in transition.

Rand's home an old Victorian home with Victorian chairs handed down from the 1880s.

Rand aging. Composes in an arm chair with lap board and chair before him. Three positions: active, musing, sleeping.

^{Kinglet}
"Whimsical as ever." "Always purchases at the door. Does no harm". Bought

in some sheet music from a jessing
sender, who felt that he had a
world discovery and message: "Bring
Back Prosperity". Rand did not argue,
but merely asked how much. Twenty-five
cents was the price.

Mrs Rand down for a chat over tea -
sat on her seat of honor - recalled
old days. But was deeply engrossed
in her work of introducing French
culture to American colleges by means
of films. She offered to lend a
film to the University of Nevada. I
promised to speak to Dr. Chappelle.

In response to my outburst on
Hitler, he gave me his talk in ^{appleton} Chapel
at Harvard on "Visions" - a Marseillaise
to America. He and she have lived
often and long in France and have
her ^{to} spirit. He is writing his Senator
Lodge as I am writing my Senator Pat
McCarran. I marvel ^{at} and admire.

Harvard freedom of speech. However, he was sensitive regarding my attack also on Mussolini.

The Rands are both to become recipients of Legion of Honor citations by the French Consul this week.

They are deeply touched - and desired the ceremony in their own home. However, the Consul prefers the formal ceremony - in his consulate.

As we visited, a reporter came to the door. Rand delivered the message as coming specially for his wife - to give her the honor and feminine satisfaction.

Retirement at Harvard from 65 to 74, depending on finances and departmental needs. He may continue for three years more. Now 67 (born Dec. 1871).

Then financial deficiency may force him out. Professor Kittredge now retired at 74, but resents it bitterly. Probably one who never grows old - at least in

reputation.

Dare, but sent clearly on my way to Harvard Hall with instructions to stay in the hole and exit via for Park Square. Then enquire my way to Milton.

Only three lines across Boston
Labyrinth: 1. Lake View Avenue to Harvard Hall; 2. To Ashburton; 3. To Matapan.
Or better still go to the end of three lines: Harvard Hall; Ashmont; Matapan Theatre.
(End) (Crier) (End)
An hour for extra self-conducted trips.
Only, I got off too soon and walked a mile and a half, on the Milton side

of the Creek.

A. Boston Idea: On the tail of an auto a tiny grinning face of Satan that can be suddenly lighted up with startling effect if a following auto approaches too close.
October 13 - Up at 4:30 a.m. To South Station

in 20 minutes - to meet Ruth Church, John's wife. Breakfast on invitation of Fergussons at Parker House in center of Old Boston. In graveyard, the tomb of Benjamin Franklin's parents. One tomb: "She done her best".

A cold morning but warm farewells.

Ruben Klassen 7 Eliot Circle, Milton, Mass.
interested in your Deanes reprints.

Begin

Public Service Company of New Hampshire

MANCHESTER, N. H.

September 14, 1939

Dr. J. E. Church
Hotel Washington
Washington, D. C.

Dear Dr. Church:

Your letter of September 1 is very welcome. We feel encouraged to know that our report may contain information that may be of value. We plan to carry on this work and make an analysis of run-off data to correlate with this initial report.

Mr. William Noyes, our operating engineer and head of our department, will be very glad to meet you if you find sufficient time to visit Manchester. He is interested in snow survey work and hydrology and would explain to you the conditions characteristic of New Hampshire. His office is located in our main building at 1087 Elm Street, second floor.

This letter has been unduly delayed because of my vacation plans. I have previously made arrangements to leave Manchester on a trip to New York and Philadelphia beginning September 17. I am sorry not to be able to talk with you when you come to Manchester. However, Mr. Noyes will have several questions to ask regarding your experiences, as our efforts are still in the "growing stage".

Thank you for your fine letter. We hope to see you if circumstances permit it.

Yours very sincerely,

John V. Salo

JVS:DKS

John V. Salo

Undertook snow surveying at request of U. S. Weather Bureau but received nothing but instruments. Expects for reports.

Very willing to lay out courses so as to compare Percentage Method and their Method of Mean Elevations. Dr. Brooks suggested that mean weighted elevation might not mean mean average snow cover since lower areas might be bare of snow normally. Mr. Noyes recognized this.

Summer precipitation inefficient. a very heavy autumn rain ^(6 in.) failed to show in the runoff. Trees $\frac{1}{4}$ Conifers, $\frac{1}{2}$ deciduous, $\frac{1}{4}$ open, such as fields. Noyes
Pleased that Sils' report had desirable material and expects to present it for consideration rather than have it buried in files. Suggested preparation of paper by Sils for Stanford meeting. Noyes will do so.

I also will urge Bernard to develop a Snow Survey Conference for the East.

In charge Connecticut River Snow Surveys
H. M. Nelson, Hydraulic Engineer
New England Paper Co.
441 Street St.
Boston, Massachusetts.

Possibly it might be held at Washington meeting - But too far to go.

Solo's method should be tested out. Company also desires it. No comparison with runoff yet. But unfavorable publicity last year because someone measured 40 water inches of snow on one of the ridges. Quite out of normal. Suggested fixed courses.

U. S. G. S. Office in Boston. Need more stream gaging probably.

To Hillsboro -

at Weare. Church 1837 - 102 years. Two years before Father's birth. Flood - trees, brush. Bridge out. New one being built.

Hurricane swept fine trees down along long hillside. Wind vicious.

Above Weare river has frequent low power dams. Rocky bed like Truckee River. Little erosion of banks.

Railroad washed out by the river
and apparently abandoned.

Fox Forest

Dr. Baldwin at Concord on
"Flood Conference." Will return immediately.
"Wait for dinner".

Meanwhile walked southeastward downhill
thru forest. Rough with rocks, holes,
litter and ferns. $\frac{3}{4}$ deciduous.

Trees of all kinds uprooted from Southeast.
Side slope, bog, height of tree may be
causes of downfall. Root system shallow,
crowns high. Pines of 15 in. diam. felled
by wind.

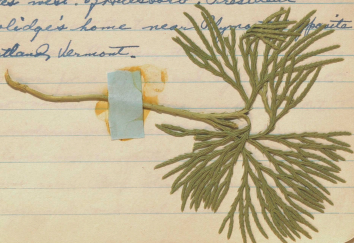
At Washington instance given of trees
remaining erect on edge of road-cut
but of the trees on the level immediately
adjacent fallen prostrate. Explanation
given that the water drained from
the edge of the road cut and left the
rocks in firm ground, but that the
level ground became water-soaked and

permitted the roots to be pulled out. Doubt this. At least on the side hill the roots should be shallower, as they are here in Fox Forest.

Trees are now mostly brown. Little chance to ski except on trails. Forest too thick - very few farms. These are hillside clearings.

Weather Station. Screened precipitation gage. Recording anemometer. Covered instrument shelter, well exposed. Thermometers?

President Franklin Pierce's home a few miles west of Hillsboro. President Coolidge's home near Plymouth opposite Rutland, Vermont.



Dr. Baldwin returned in early evening from Concord, where he had set on Flood Control Survey of the Merrimac. Sorry that I had not come to Concord first but glad that we had come to Hillsboro.

Visited Fox Farm by auto. 10 $\frac{1}{2}$ miles of boundaries for 500 acres of forest, became irregular.

Contours so irregular that it is difficult to find land of differing forest cover ~~with~~ similar slope.

Best timber uprooted - Hurricane seemed to follow the depressions and sweep the hillsides. Tall elms on the ridge-top at the Forest Headquarters were unharmed. However, the wind here was 60 mi. for 2 hours and higher in gusts. Best measurements were made at M.I.T. by windpressure gage (Pitot tube?).

Rain in horizontal sheets. Windrows blown in. Roof stripped in spots.

Logs and cord wood line the forest

road

The details of living and administrative
tasks unduly much time. Yet he has
freedom of action. In charge of forest
research throughout New Hampshire.

P. W. K. says can perhaps carry on some
snow measurements. Suggested measurement
of snow accumulation and melting by
sampling long courses. No opportunity to
measure runoff from plots. However,

could measure evaporation. ^{Prof.} H. K. Kellogg of
California had offered to show him how to use
aluminum pans.

He urged me to see Kenneth L. Roberts,

U.S. Dept. of Agric. Flood Control Survey at
28 N. Main St.,
Concord. Roberts will shortly study the
Amherst Basin.

The engineers compute a runoff of
51.7 percent of the precipitation as measured
at Concord and Plymouth. Seems large as
compared with Singschanna. Higher elev.
stations might reduce this percentage.

Engineers also believe that floods are increasing in frequency and intensity. This can hardly be due to decrease in forest cover unless the fir and pine have given way to deciduous forests.

Can trend be due to combinations of snow, temperature, and precipitation? Study snow cover March 1 or April 1 and heavy spring rains.

Regarding frost, Baldwin believes that ground freezes under evergreens more readily than under deciduous trees, since the latter under the latter is thicker and snow penetrates the branches more readily, and thus blankets the ground earlier in the autumn. He has found such instances. How prevalent is frost in the open as compared with both types of forest?

Mixed hardwoods are being recommended rather than conifers. Postoxygen is better for percolation. Is commercial value questioned?

Mrs Baldwin is a Swendrup - slight but rugged, 12 yrs old in 1914. Prefers warm clothes - loves her Scandinavia. Relative of Otto and Dr. Harald ^{Swendrup}. Latter has now decided to remain in America. She ^{has} represents brains and hospitality the water and light were failing. ^{City of the future.} Winter sports not feasible here. The low scrub is borne down by the snow but deciduous trees prevent ranging.

No difficulty from conifers.

Must go far to find snowfields. Best fields to the north - beyond White Mts east of Berlin.

Will gladly share in nomenclature of snow. Give me "Winter Sports Map of New Hampshire", and "New Hampshire Troubadour".* Also "Dartmouth Cooperative Society, Hanover, N.H."

Baldwin has a large collapsible canvas canoe - 75 lbs. - with canvas cover to deck boat over - like kayak. Can be carried on back.

Tree litter, if hardwood, need not be piled and burned like pine, for it rots quickly and becomes humus. Therefore, cut hardwood must be marketed within a year.

* The Troubadour is free to out-of-staters.

Books now played against

Otherwise it is attacked by insect pests and deteriorates. Hence the present glut in the hardwood market.

Long talks about Sweden and the war. Mrs. Baldwin became a naturalized Swede because her parents moved from Norway to Sweden - and the Norwegian branch of the Sverdrup family was bitterly disliked by the Swedes because of leadership in the Norwegian movement for independence. She described the emotional attitudes of the Swedes, Norwegians and Danes toward each other - are friendly on the whole.

The Russians were seeking a corridor across northern Finland, Sweden and Norway to the Atlantic. The Germans were seeking southern Sweden on the pretext that there were only 2 inhabitants per sq. mi. tho actually there are 80. Hanger was there, eager to bring her parents to America.

Dr. Baldwin has tried and studied

much in Europe. Met Mrs Baldwin there
"Mrs Harold Swendrup very homesick for
Norway but must now remain because
Dr. Swendrup has decided to remain
at Scripps' Institute. She, however, i.e.
Mrs Baldwin deliberately married into
America and has made it her home.
She has brought her Sweden with
her and it is delightful - in penton
and home customs and mental and
physical vigor. We need more.

Regarding the Byrd land-claiming expedition,
Dr. Baldwin agreed: Antarctica should remain
international - should be "a playground".
To Concord.

No hotel room at Hillsboro.

Had planned to visit President Pierce's
home. But hotel keeper assured us that
he was only a Democrat and that
therefore there were ^{even} no picture postcards.
Besides the home was open only in the
afternoon. That Codrington's home in
near Vermont was more popular.
Poor Pierce, he would have been

a Republican had he not been born too soon.

Our host sent us down the highway a few miles toward Concord to Hamrick where he found us quarters by use of a 10¢-long-distance telephone call.

October 14 - Hamrick -

Fog. "Fog from wet trees on Blue Hill" - S.P. Ferguson. A soft quiet rural morning.

People here for "Columbus Day" week-end and "to see autumn colors," said waitress.

State and even town forests. Women's clubs behind them. New England does seem built for pleasure rather than profit - except the shipbuilding and fisheries, now waning.

Did not turn back to President Pierce's home. Saw "Harwood" on a tomb along the highway near town.

Here glacial till is taking the place of rock. A glacier boulder is seen as large as an auto on end, Soil deeper. Fields larger near Concord.

Squashes in piles - "big enough to use

steam shovels," said Baldwin. Thus
no pumpkin pie for John.

Conference at Concord - Startled.

Visited Flood Control Service, U.S. Dept
of Agriculture 28 N. Main Street.

Kenneth L. Roberts, Director

Mr. Jones and Mr. Goddell, Assistants.

"Flood control depends on frost. And frost
occurs in open and under soft woods,
i.e. conifers, rather than under hardwoods,
i.e. deciduous trees. Cullings has found
this also and has sent in several years
of data. Mixed woods recommended" -
This is the summary in brief.

In more detail, the main factor is
frost. A few selected snow measurements
have been made but lack nearly all
data of weather, etc. Suggested courses
longer than 5 measurements. They
seem now to be arranged in squares,
as



Softer and deeper soils in the Merrimac.
Snow charts has been made on

Smith Creek and at Pinkham Notch.

Frost in open and conifers more widespread than under hardwoods, or mixed forests. Why? But not always so. Depth of frost not known. Why?

"Some ^{= caps Callings} winter runoff from hardwood stands. Why? Litter or winter melting from sun?"

Bureau interested in means of reducing flood peaks rather than in forecasting.

Need study of physics of snow at time of rapid melting thru temperature or rain.

Snow in open of finer texture than under conifers. Litter snow coarse. Weathering on pine needles?

Open catches more snow than forest but amount in them varies only slightly on April 1.

Get Harton's soil temperature graph. With frost in soil goes also shallow soil. Both are major factors. Merrimac Basin has deeper soil but "hard pan in the — soil here is found only 1? foot beneath the surface" - Roberts.

50% loss in Merrimac, 66% loss in
Susquehanna. Former has only a
few stations and at low elevation.
Deeper soil should increase loss.

Need high-level precipitation stations

Can loss be due to wastage of summer
rains? "In Merrimac in 193-, heavy
autumn rain of 6 in. gave no runoff.
Soil was dry and absorbed it. Hence
frost must be major factor in winter."

Measurements at Laconia? Then
south of Lake Winnepesaukee and
north of Concord. Southern foothills
of White Mountains.

Rochester - Outside of Merrimac Basin,
deep soil with glacial boulders - In
what basin? Floods here?

Flood Control Survey plans next to
study to Connecticut River Basin.
The regional direction of flood
prevention studies is under

C. Edward Behre, Director

Northeast Forest Experiment Station

335 Prospect St

New Haven, Connecticut.

Must write to him to obtain set
of prints of snow survey charts on
Merrimac 1939 and Discussions.

Valuable also is New Hampshire
Transportation Map - Sheet 2 (other sheets
also if available). Bureau of Public Roads,
U.S. Dept of Agriculture.

Special Request: Mt Rose snow sampler
is being used in the flood studies,
but 3 inches of ice are frequently found
at bottom of snow cover. Can not
an ice cutter be made capable of
cutting cores thru 3 in. ice? I explained
the tendency of the sampler to freeze
itself in while penetrating ice. Could
an ice drill be made similar to rock
drills but free from freezing in
a chisel would fail to bring up a core.

Androscoggin Basin

Going Into Maine - and Androscoggin Basin

Country rolling - large or broad
basins. Undulating roads, deeper
soil, more frequent farms. Storm
ahead.

Must write to him to obtain set
of prints of snow survey charts on
Merriamac 1939 and discussions.

Valuable also is New Hampshire
Transportation Map - Sheet 2 (other sheets
also if available). Bureau of Public Roads,
U.S. Dept of Agriculture.

Special Request: Mt Rose snow sampler

All churches old but fresh and in
full repair. At Sanford, church 1786.
Clock in Church tower. Same in form
of a lyre.

Bear Mountain School 1698.

Toward Portland

Land much flatter. Farms larger.
Up Androscoggin Valley. Farms 40%,
forest cover 60%. Fairly flat. Soil deep.
Farms in fair repair.

basins. Undulating roads, deeper
soil, more frequent farms. Storm
ahead.

At Lewiston a concrete dam on a falls-lodge built in '56. Together with a concrete canal. Solid, but "can" concrete can wear in time as well as iron. A long winding lava behind dam (Columbian lava) protected against gunners. Val'd confels as a domestic water supply.

Leaves brighter. New England fitted for game country - Thicket. Just as represented at Maine Exhibit at New York World's Fair.

at 2:40 p.m. called from Gorham, Maine to Paul L. Bean, Union Power Co., Lewiston. Vigorous voice in reply: "I'll be right here". Arrived at 4 p.m. Heard Maine college football game enroute. Mr Bean, his son Webster and a companion were waiting

→ To Rumpford Falls. 40 miles upriver from Lewiston, cradle and home of snow surveying. a memorable scene in a marble office in a town suggesting Johnstown Pennsylvania. Paul L. Bean, suggesting W. W. McLaughlin in size and energy; Mr. Thomas, his upstream assistant; Charles Mixer, predecessor, 65 rather than 80, active and smiling: "When a thing's to be done, we try to do it." So he ~~he~~ turned the

8-inch outer can of the rain gage upside down to cut cores from the snow cover and melt them. Tomkenfield of the U. S. Weather Bureau encouraged him.

"He is a man of Christian faith and gentleness," said Bean later.

Thomas has developed a correction factor to apply to the present low-level measurements. His chart upon which the factor is based is merely exploratory. He promised us a copy.

The Androscooggin Method

Quantitative rather than percentage. Yet forecasts of available water accurate within 5% and forecasts of flood crests accurate within a few inches. This is the Bean's own achievement but required the later addition of snow surveys to precipitation measurements only, evidently practiced after Mixer's experiment.

The snow courses are not in "traverses" but in bunches or even singles in selected types of timber and open and altitude. More studies are planned in soil moisture and evaporation.

Daily measurements of precipitation, snow cover, temperature and runoff. A work chart is maintained.

Allocations of water for power granted only when available. Four power companies have pooled their water resources, and have established a fixed scale for diversion of water or release at Rimpford Falls. Hence name Union ^{Water} Power Co. Mr. Bean is Agent and Manager.

He tries forecast for next season on basis of reservoir holdover ^(including bank storage) and soil moisture, i.e. precipitation of previous season, to permit paper mills to regulate wood cut. May fail some day in accuracy.

Hard wood pulp used for rayon and Japanese explosives.

Flood of 1936 terrifying. Ice jams. Dams shaken to their foundations. The boys measured the snow, Bean made the estimate of suspended water. Rimpford Falls questioned the warning but soon appealed for aid.

The most thrilling experience of Bean's long life. Boys fortunate in having had the experience so early in life.

2000 also of 1927.

The boys now preparing for war. New England quiet but does its own thinking. The struggle has become one of "paganism against religion". Home at 9 p.m.

Worth the trip from Reno.

Bean promised me a picture of Mixer.

Sunday-

October 15 - Circuit of Androscoggin Watershed a dilapidated hotel with finest service. Possibly the dilapidation was considered antique - leading hotel in town on Lewiston's central park.

Autumn wind in trees. Leaves falling.

"Best last Wednesday".

Westward up the Little Androscoggin to White Mountains and across the main Androscoggin and its storage lakes to Pemford Falls and Lewiston - 300 miles.

Mr Bean has a sketch map showing route and snow survey stations. ask him for a copy.

Laviston center of industrial development in Maine. Power mostly within 30 miles. Most efficient watershed of all in Maine.

Contours map prepared by ~~Thomas~~. 51% of precipitation appears as runoff. Same in Merrimac, is this true on basis of elevation also? Contour map prepared by Thomas.

Flood Storage - The northern portion is filled with lakes which can be controlled in case of flood for storage. Some lakes are really reservoirs or expanded lakes. Some dams contain sluiceway for logs or pulpwood being floated down to mills. Hardwood too heavy for safe floating ^{unless it is dried first.} Power Co. receives revenue for floating wood as well as for providing water for power. The south side is a farming area.

Mr Bean has a sketch map showing
route and snow survey stations.
ask him for a copy.
Lowiston center of industrial development

RENO EVENING GAZETTE Nov. 14, 1939.

TIMBER SALVAGE DEAL IS MADE IN EAST

BOSTON, Nov. 14.—(P)—A \$14,400,000 contract for the purchase of 600,000,000 board feet of New England hurricane-felled timber, believed to be the largest transaction of its kind in the nation's history, was made operative today by the northeastern timber salvage administration.

Leslie S. Bean, director of the salvage administration, said the purchase was made by a newly formed cooperative of wholesalers in a contract signed last Friday in Washington. Timber owners would receive \$24 per thousand feet, Bean added, "considerably higher" than

the price they normally receive.

The contract is effective for four and a half years and provides for payments of \$800,000 each quarter, allowing dealers a twenty per cent return on their investment. Profits in excess of that amount must be split between the cooperative, known as the Northeastern Timber and Marketing Association, and the timber salvage administration. The latter's share must be distributed among the original timber owners.

The cooperative agreed to take possession of the sawed lumber at the salvage scene, Bean said, adding that the contract would dispose of all the lumber—downed in the 1938 hurricane—which the salvage administration contemplated handling, exclusive of that portion to be held in New England in anticipation of regional needs for the next six or seven years.

About 250,000,000 board feet of timber already has been sawed, and operations are continuing at the rate of 4,000,000 board feet a week.

Bean credited Herman I. Hymans, Detroit lumber wholesaler, with originating the idea of the coopera-

tive. He said Hymans had been contemplating the purchase of 100,000,000 board feet but became concerned at what might be done with the other half billion feet.

The salvage administration director said he did not know the identities of the men forming the cooperative, incorporated under the laws of the state of Delaware, but added that there must be at least thirty persons involved, since that was the number the government specified must participate to prevent a monopoly.

FAMISHED MAN EATS MUD

Drought has caused conditions bordering on famine in Gujerat and adjoining states in India. Lack of fodder has resulted in the death of many cattle. Many persons from the mofussil areas are flocking into Ahmedabad seeking relief. Police picked up one man in an exhausted condition and another who had died of starvation. Indications were that the latter had eaten mud in desperation.

receives revenue for floating wood as
well as for providing water for power.
The south side is a farming area.

This could be dammed into a catchment area by ~~or~~ very easily but the farms are valuable for homes and taxation, while the downstream lands prefer enrichment by silt deposition & the occasional damage by heavy flooding. The loss below Lemistok is slight.

Erosion also is slight; prevented by dense tree cover and trees on river banks. ^{Cleared land 4%.} The army engineers proposed damming the stream banks to accelerate flow and making a flood-reservoir of the agricultural land. Bean's look when queried by the engineer was loud. He is still angry. "An ignoramus", he commented ^{to me.}

Ice jams - are a problem. Winter flow is cut down by ice cover. So on eve of a "cold wave" the level of the river is gently raised until the ice cover is sufficiently high to permit more flow beneath.

Regulation. 3 dams. Union Company
1700 cfs maintained constantly at
Rumford Falls. Only once was
amount reduced - then by special
agreement of companies.

Snow Samplers.

Test of diameters. Mt Rose Sampler
failed to collect sufficient core.

3 inch diameter adopted. Aluminum.
No slots. 50 in. length. Sherd fan
Pineham Notch, Mount Washington.

But snow granular - Core settles greatly
when cut. Therefore, the sampler
can be pushed considerably below the
surface of the snow cover without
bringing the core to the top of the tube.
This merely necessary to shovel the
snow from around the end of the tube
and measure additional depth penetrated.

The tendency of the core to shrink
is paralleled by the sudden or quick
settling of the snow cover in sun(?).

Altho the core shrinks to half or more,
yet the density of the measured snow is
somewhat $\frac{1}{3}$. Cutal also corresponds closely
to precipitation as measured in gage.

Frost was never found in the soil
when snow measurements were made -
asserted the boys. Because of depth or early
snowfall?

Such settling sometimes amounts to 6 in.

The boys believe that snow escapes from the slots of the Mt Rose tube.

Wallet is used to drive the tube, which is reinforced by a ferule.

However, the ferule was placed inside instead of outside the tube, thus making egress of cores more difficult. I suggested that this be changed.

The boys try to bring up soil in order to assure a complete catch. They felt the need of developing a driving wrench.

Snow texture appears to resemble that in Bow River Basin except that ice strata are frequently encountered. This would prevent use of the Kappel sampler with the snow danger to life contents. These the boys carefully cut out of similar diameter and circle as the tube and put into the tube to weigh.

The boys wouldn't pay 10¢ per dozen for the Mt Rose instrument. Suggested that they make further detailed comparison of snow samplers and prepare paper for Snow Survey Conference.

long courses difficult because of thickets.
Supported at least a few more measurements
at selected stations to determine possible error
of single measurements. ^{has been} ^{found} to be 5% accuracy
of accuracy of present method.

long
A cable and lever puller is taken
to extricate the car when mired in
snow or soil. Thus a daily winter
service is maintained for 300 miles
when desired. The course is completed
in one long day, thus giving the
accumulated ^{water} over the entire watershed,
if necessary some more isolated
courses are measured by resident
reservoir superintendents. One course
ascends a low mountain to afford
measurements of increase in precipitation
with altitudes.

One course is outside the watershed
to give supplementary measurements and
aid a neighbor watershed.

Ice Auger - a spiral auger, hollow -
consisting of a square rod sharpened
at the lower end and coiling upward -
driven by the usual brace.

Thus



Will this cut ice and
bring up the ice dust or
shavings and the central
core? Try it.

A striking example of a college or
faculty man in public service.

Mr. Bean deeply interested in education and civic problems - diminishing school population on heels of new and larger school buildings.

Lives in his library and with his engineering problems that have come to him in increasing number unsought because of satisfaction with first consultations. Thus another Dr. Horton. Earlier he served as dean of engineering at Maine State until the work was fully established. But research and power appealed more strongly.

October 16 - Took farewell of Paul and Webster Bean. Highest praise and mutual appreciation. ^{Best of friendship established.} They will be eager to prepare detailed papers on the Androscoggin System. It should become the center of Eastern snow survey activity.

Mr. Bean sent greetings to Sanford Dinsmore, his college mate.

Evolution: Two lines of snow surveying,
Eastern Quantitative; Western percentage.
Each developed independently. Bean
is almost the successor of Mixer, but
the descent is broken. Bean evidently
reverted to precipitation only and
later adopted snow surveying to attain
greater accuracy. Did his idea of
actual sampling come from the West
through Cullings of New York? Their sampler
was provided by Cullings, so I learned
later from Cullings. Continuity is ^{possibly} essential,
but Mixer's credit remains.

To the Green Mountains and Lake Champlain.

1. White Mountains

Up Little and Big Androscoggin to

Treasure map Point in summer
is ~~best~~ and ~~best~~ and ~~best~~ for hiding hole
for winter skins. get it to cleaned
with onions.

had now returned home.

Yesterday visited a nearby glen made easily accessible and attractive by CCC landscaping, but summit of Mount Washington had been veiled in wind-driven cloud and covered by light snow. Today time was too short to reach Lake Champlain as scheduled and also make the ascent.

A set of sturdy college goggles was manning the clubhouse for the winter. Had lunch and bought out the bookstore. I, not the books and cards, was the bargain. ^{I always fall for them.} Bill was \$17.⁰⁰, as shown by the following items:

[Insert]

They will all make desirable additions to the Department library at the Station.

→ Circled the southern base of Mount Washington from Pinkham Notch to Crawford Notch - from the base of

The slopes are speckled with
conifers. Some day the conifers
will be restored.

the auto road on the east to the foot of the cog railway on the west. Because of the standard railroad, a series of imposing hotels of a long generation ago line Crawford Notch and its approaches. This also accounts for the site of the cog railway, fortunate also in having a uniform the steep slope to the base of the summit round which it curves to the eastern face.

Run-off Problem. Here is an opportunity to compute run-off from ground water after the snow cover has melted.

Forest in Ground. Birch and hardwood leaves thick. How with conifers?

Get temperature measurements under each.

Beauty. Here also is the Birch Forest Road in Autumn for artists' painting. An unimproved, unimproved road fit for roller-coasting. It stirs both imagination and the blood.

Crawford Notch is a Delaware Water Gap and deep glen combined. The birch forest ^{overbrunched} ~~is~~ the road ^{with} ~~with~~ ^a ~~line~~ ^{of} ~~of~~ ^{overarching} ~~crimson~~ - an autumn fairy land now almost solitary because of the approaching winter.

But high up on exposed ^{south} shoulders of the mountain, the forest lay flat and jumbled by the hurricane ~~line~~. "jackstraws". ^{Was this due to compression of the wind} Destruction but not so severe had occurred at the base of

at foot of cog railway
the fir needles, bluish
was found thinner and
darker than that of
birch leaves.

the Notch along the side road to the foot of the cog railway. In this distance of 6 miles, ^{the road for} 3.1 miles traversed a jungle of fallen trees. Much of this lower wreckage had been salvaged.

There was a fire-line clearing up the cog railway track and a trace of storm in the spine and on north slopes.

Erosion. Little erosion possible here where rock lies so near the surface. However, erosion from cliffs. Flood of 1936? Stream dredged.

Connecticut River. Broad and peaceful. Wide rolling valley. Low mountain rim. Dam below? Above 15 miles falls. Littleton deep in river bed. Very attractive.

Farms more numerous. Forested slopes. Soil deep. Barns and houses connected. Cold winters?

Crescent moon.

2. Vermont is a rolling mountain state. The Connecticut is the Rhine with woodland thickets in place of vineyards, the most rural of the landscapes we passed there. Home and churches well painted.

a sturdy land. ^(7,500 population) Montpelier visited by night. State house is a Roman fore and aft temple with wings built on. A Cnidian Aphrodite stands on the dome - made originally of wood and recently restored by an aged janitor, who created the likeness in laminae structure of planes so that

the planes could be taken care of by one
by aerial cableway to the top of the
dome for final assembly.

This seems to be the spirit of the
people. Said a bystander: "Not better
nor worse than other states. I am
only an 8-year resident but Vermont
grows on me".

Spent the night at "Tay Town" down
the river toward Burlington.

October 17.

3. Green Mountains and Lake Champlain.

Auto camps too cold for late autumn
even with fires. But glad to have
chanced in Tay Town, for the disincarnate
state capital stood in our plaza and
a traffic policeman of colonial looks
was handling the traffic of a goat cart
with lady driving and a pedestrian.

There was also a rabbit leading child
by the hand but tickling the neck of a

hunter with a cornstalk to divert his aim from another rabbit.

There was also a woodpecker on the office door to serve as a door-knocker with its bill.

But we were seeking breakfast and a scenic view along the axis of the Green Mountains before the storm could close in. Because of uncertainty regarding ferries across Lake Champlain, we turned southward along the mountains to descend to Crown Point Bridge over upper Lake Champlain.

A man-cooked breakfast of sausage was finally overtaken at Bristol.

Farms occupy 50% of the area, the soil is thin and ledged.

Over the crest is a snow storm. Lincoln Summit 2424 feet. Steeper pitches in the road than in Kingsbury Pass above Seneca. At least a 15% grade in some ^{stretches} patches. Rocks near the surface. It might well have been the descent from Red House on Hobart Creek, Little Valley, to Fawcett's Ranch in roadbed, steepness, and forest, except the colors of the bases. In fact, Lake Champlain in the distance looked

like Washoe Lake.

Middlebury. College of gray stone.
Spacious village. Elms. Churches
impressive. Soil fertile. Community
prosperous. Roads winding.
Swamps. Contentious farms.

A high bridge ^{spans} ~~crosses~~ from the plain.
The Adirondacks rise sharply beyond.

Quickly over Lake Champlain that
narrows here like ^{a miniature} the Carquinez Straits.
Today in the cold wind ^{the water} ~~it~~ looked as
rough when viewed from the toll bridge.

On the New York side the scenery suggests
the Highlands and Islands of Scotland.
at Crown Point Fort was the wreck of
the gunboat Philadelphia ^{of 32 guns} sunk in the
Battle of Lake Champlain ^{in 1776, led by Benedict Arnold.}. It has recently
been raised and is now housed on a
flat boat for display along the Lake and
the Hudson. I did not realize that the
connecting canals were so large.

4. Adirondacks.

The Adirondacks are more
bunchy and lumpy than the Green.
Today they are snow-touched and wintry.

Evergreens whiter than birch but
wet snow clings to limbs and leaves
of birch also. Snow is lightly falling
and covers the ground.

Ausable Canyon broad with walls
of ledges.

Broad mountain valley. "Olympic
Bobled Run". Here is Saranac Lake
with skiing, ~~ice skating~~, and ice-boating
facilities, hotels and club houses
encircled by low wooded hills.

John Brown's home and grave
near by with a massive boulder
bearing memorial plaque. His uncle
had taken up a sawmill timber
claim here in earlier days.

Study interception and freezing.
Temperature measurements for various types.

- (a) Under canopy
- (b) Under litter
- (c) In soil

at least, destroys fish. Fortunately this unemptiness is only for a brief season and may be covered by the snows of winter.

Addresses:

James C. DuBar (pron. Dubar), Director.
Prof. Farnsworth, Asst. Director
Prof. Haddock in Office.

Cranberry Lake, Adirondacks

or New York State College of Forestry
Syracuse, New York

The leading forestry schools as listed by Cullings and Haddock are Yale, Syracuse, Michigan, and California.

Frost Occurrence.

The Forest School in cooperation with Cullings is conducting daily measurements of temperature in air and soil in six types of open and forest cover.

The circuit was 3 miles - just an exhilarating walk, ^{or appetizer.} The previous night had been the coldest of the season.

- in fact 0°F was recorded at one station. [See photos from Cullings.]

Some of the readings found on our circuit were the following:

Red Pine . . . $+17^{\circ}\text{F}$. approx.

Frost in soil $\frac{1}{2}$ in.

Frost Packet . . . 0°F .

Hillside . . . 10°F

Spruce Swamp . . . Min. 10°F . (?)

Soil - 1 in. depth . . . 34°F .

Frost in path and some in moss.

Control Station -

Opening in forest $+6^{\circ}\text{F}$.

Ice on evaporation pan

In soil - 1 in. deep 32°F

6 in. deep 36°F

12 in. deep 42°F

24 in. deep 46°F

Ice present in soil
