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The

Report on the Geology of Mt. Desert Island
(Topographic Sheets Nos. 1343 - & 1334 &c.
by J.W. Dunn. Assistant)

Report by
J. Euthoffer
Aug 28 - 1874

A cigar box with specimens is with the bottom specimens -

Original

U.S. Coast and Geodetic Survey
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This report was found with the specimens & filed by F.H.P.

C. P. Patterson
Supt of the U. S. Coast Survey

Sir

According to agreement I started on the 3d and arrived on the 6th of this month at the place of my destination. At the first view which I gained over the grounds of the Island I found my supposition fully sustained, namely that the character of the configuration resembles that of Alpine nature on a diminutive scale

The enclosed stereographs, sketch book, samples of rocks will fully corroborate the same, and will conclusively prove not only this reconnoissance but establish the necessity of a thorough orographical representation.

In as much as the amount of work has been even more than that of ordinary employment I beg leave to say, that the so called leave of absence may be transformed into a special duty „ to examine certain questions on orographical conditions on Mt

Desert Island.

I further enclose an example copied from the planetable 1243 for comparison and as a specimen of execution as would be desirable to be adopted in finishing field-works.

My traveling expences amounted to $115 which I beg to be reimbursed to me.

Very respectfully
your
obedient servant
J. Enthoffer

Washington Augst 28th 1874.

Enclosure No 1.

Report of an orographical reconnoissance of Mt Desert Island.

In scaling the most prominent hights of the Island I have been enabled to observe the geological structure, which I found of the following order. The base of the Island is of trapp-rock. In such locations where this rock was less exposed to erosion it is metaphir, consequently we can judge that the foundation of the whole Island is of a basaltic nature.

The trapp-rock girdles the whole Island in hights of from 20 to 120 feet, upon this layer rises gray granite to about 100 to 300 feet and on the top of this rests the red granite. The crystallization of both granites outcropping the surface is very coarse and unfit for building purposes. The erosion is in that latitude already most effective, producing in all precipitous locations Murres (in Alpine language) on the Island called slides, of a formidable size, and gradually filling up the small lakes.

The most interesting spectacle of the grin
power of erosion can be observed at thos
points where the breakers find the great
resistance. Here are found in abundance
the so-called whirl-pool stones, formed
and pollished to the most perfect elypsoi
but what was of real interest was the d
covery of the same whirlpool stones o
the summit of Green Mountain the
highest point of the Island (see specimen
No 5. & 6.)

These specimens prove conclusively
gradual rising of the Island out of the
ocean and further the fact that the top
part of this mountain had to undergo
at a certain time the same works of
erosion as the present shores, this st
of affairs is further proved by numerous bo
ders strewed around the summit, which co
be transported hither only at a time, wh
this locality formed a ledge, on which i
shoals deposited the stones,

For topographical purposes the investigation of the geological structure may be confined to the configuration of the surface only, but to that extent a general knowledge is indispensable. Without this information no comprehensive understanding of the causal nexus can be formed.

I refer now to the tracings of plane-tables No 1334 a & b. The sketching in red ink indicates the rocky configuration in its principle outlines & sufficiently characteristic for the representation on a reduced scale of 50.000, but in order to show, how this object shall be treated on the field-maps, I copied one of the most conspicous mountain parts located on Sumses sound. I further selected this subject because it is at the same time one of the best and minutest surveys of Mr Donn. A comparison of this example with the plane-table will however show at once, that the latter is lacking to represent any

distinct formation of the rocky co-
struction on the more gentle slopes
it only marks the principle precipi-
and shows on the other side only dash
which shall indicate a rocky nature
This indistinctness shows a want of
artistical conception of forms. In
referring to this deficiency, I do not
mean to blame the individual engin
or draughtsman, but I do blame th
authorities, which are destined to the offic
to construct Charts, Maps & plans in
the best style and up to the standard o
this branch of science and art. But h
shall this be achieved without any estab
lishment for the proper instruction thereof
All european Topographical Institutio
are obliged to educate their engineers &
draughtsmen & engravers themselves as it
cannot be expected that the schools bri
the scholars up to such a grade and e
fectness as is required for the practical
service of such institutions.

I further have to allude to the representa
of the configuration by equidistant curves
only and without detail drawing of the

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characteristic features of orography. This system is unquestionably the best system as long as it has to deal with gentle undulating terrain, but as soon as we attain to the higher mountainous regions, the system is insufficient without the assistance of topographical drawing. This is strikingly exposed in the late planetables 1334 a & b. and in the Harbor chart of San-Francisco, where the perspective views of the entrance of the golden gate show, that the declivities of the Coast are composed of most formidable rocks, whereas the topographical representation of the same subject show no indications of such a characteristic, they are hachured as if the surface of these mountains were covered with an alluvial ground.

I would not mention these discrepancies, if I did not know how to remedy the same, but what I have still more at heart, is to call the attention of the office towards preparatory steps for the

coming want of a perfect organised to
pographical corps, to the construction of
which the U. S. Coast Survey is more ca
for than any other body.

In conclusion to the remarks on a mor
efficient system of topographical drawin
upon the plane tables I will also ment
some remarks on the representation of
rocks.

The present literature and illustra-
tions on topographical matters, have
to the time failed to establish a system
tical rule for this object. When engag
in the publication of my "Topographical
Atlas" I had commenced to collect mat
and facts to that purpose, but finding
task rather difficult and too expensive
for my purse, I laid the same aside,
awaiting an opportunity for the comple
tion thereof. This opportunity may be
found now, provided the office orders to

lay down a system for the illustration of rocks. In order to treat upon this subject with perfect understanding, it becomes a necessity first to classify the rocks in regard to their principle formations.

Topographical illustrations and in particular such on small scales will never allow to represent at the same time also the mineralogical classification. All that the topographical engineer can achieve in this question, is condenced in a characteristical design for the contouring and system of hatching indicating the declivity. In as much as the rocks will never be subject to a minute survey, therefore the illustration depends the more upon an artistical comprehension.

The classification of the different types will embrace the following characteristic representations viz

turn over

1. The Wall, Pallisade or Cliff - Form
2. " Ridge "
3. " Terrace "
4. " rippled
5. " , boulders (Steinhalde)
6. " (Murren)
7. " Morraines
8. (Schrund)
9. Ledge
10. Lava.

I propose herewith to collect such examples as will be necessary to the illustration of the above enumerated types, and when completed lay the same before the office for consideration and acceptance.

Practical results of the reconnaissance on Mt. Desert Island.

first. As the most important result of the reconnoitering are to be considered the sketches on the tracings of the planetables 1334 a & b and the corrections on the proofsheet, by the aid of it I will be enabled to complete those parts of topography which have been left indistinct on the copy of said planetables. I must however state that I could not explore the whole area of the Island in as much as I found in many cases the obstructions so formidable that the same could not be surmounted without the assistance of a gide and proper equipments always necessary to scale such a terrain as is to be found in this sections of the U. S. Coast.

secondly By the results of this reconnoissance it is clearly established, that the character of such a rocky configuration cannot find any satisfactory representation by Horizontal curves only, but

that the surveyor must in such matters be converse with the system of topographical drawing, or these characteristics have to be added by such a person who is perfectly familiar with the art of drawing and the natural conditions of such a terrain.

5 By the omission of this important and highly characteristical detail it is proved that examples and instructions have to be established as rules for the fieldengineers as well as for the draughtsmen and engravers.

In conclusion I offer my services as well to the necessary reconnoiterings as to the preparations of those formulars, essential to the latter point.

Respectfully

your

obedient servant

J. Enthoffer