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

Report by
J. Euthoffer

Aug 28 - 1874

A cigar box with specimens is with the bottom
specimens -

Original



This report was found with the specimens & filed by J. H. P.

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

Sir

According to agreement I started on the 3rd 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 reconnaissance 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 travelling expences amounted to \$ 115 which I beg to be reimbursed to me.

Very respectfully
your

obedient servant
J. Enthoffen

Washington August 28th 1874.

Report of an orographical reconnaissance
of Mt Desert Island.

In scaling the most prominent heights 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 melaphir, consequently we can judge that the foundation of the whole Island is of a basaltic nature.

The trapp-rock girdles the whole Island in heights 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 murrises (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 grinding power of erosion can be observed at those points where the breakers find the greatest resistance. Here are found in abundance the so-called whirl-pool stones, formed and polished to the most perfect ellipsoid. But what was of real interest was the discovery of the same whirlpool stones on the summit of Green Mountain the highest point of the Island (see specimens No 5. & 6.)

These specimens prove conclusively the 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 state of affairs is further proved by numerous boulders skewed around the summit, which could be transported hither only at a time, when this locality formed a ledge, on which it should be 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 80,000, but in order to show, how this object shall be treated on the field-maps, I copied one of the most conspicuous mountain parts located on Sumser sound. I further selected this subject because it is at the same time one of the best and minutest surveys of Mr. Down. 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 construction on the more gentle slopes it only marks the principle precipice and shows on the other side only dashed lines 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 engineer or draughtsman, but I do blame the authorities, which are destined to the office to construct Charts, Maps & plans in the best style and up to the standard of this branch of science and art. But how shall this be achieved without any establishment for the proper instruction thereof?

All European Topographical Institutions are obliged to educate their engineers & draughtsmen & engravers themselves as it cannot be expected that the schools bring the scholars up to such a grade and expertise as is required for the practical service of such institutions.

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

characteristic features of orography. 11
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 mountain-
ous regions, the system is insufficient
without the assistance of topographical
drawing. This is strikingly exposed in
the late plane tables 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 formi-
dable 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 discrepan-
cies, 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 organisation to
topographical corps, to the construction of
which the U. S. Coast Survey is more
for than any other body.

In conclusion to the remarks on a more
efficient system of topographical drawing
upon the plan-tables I will also make
some remarks on the representation of
rocks.

The present literature and illustrations
on topographical matters, have
to the time failed to establish a systematic
rule for this object. When engaged
in the publication of my "Topographical
Atlas" I had commenced to collect materials
and facts to that purpose, but finding the
task rather difficult and too expensive
for my purse, I laid the same aside,
awaiting an opportunity for the completion
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 condensed in a characteristical design for the contouring and system of hachuring 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. " Moraines
8. (Schlund)
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 reconnaissance are to be considered the sketches on the tracings of the plane tables 1334 a & b and the corrections on the proofsheets, 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 plane tables. 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 guide 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 reconnaissance 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 conversant 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.

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

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

Respectfully

your

Obedient servant
J. Cuthbert

