Report on the Geology of Mt. Desert Island
(Topographic Sheets Nos. 1343 - v 1351 int.
by J.M. Dunn, Assistant)
Report by
J. Eustetter
Aug 28 - 1874

A cigar box with specimens is with the bottom
Specimens.

Original

This report was found with the specimens & filed by J.M.D.

MAR 21 1891
C. P. Patterson

Superintendent of the U. S. Coast Survey

Sir,

I have been unable to complete the survey of the island which has been assigned to me, and have therefore been unable to start on the 25th of this month as was originally intended. I have been delayed by the unfavourable weather, and have been unable to make any progress on the island.

The enclosed stereographs, sketches, and descriptions of the results of my survey will fully corroborate the statements which I have made. The island is of a very peculiar character, and the results of my survey will be of great interest to the scientific community.

I have, therefore, decided to remain on the island until the weather improves, and to complete the survey as soon as possible.

I am, Sir,

Your obedient servant,

C. P. Patterson

Superintendent of the U. S. Coast Survey
Desert Island.

I further enclose an example copy from the Planetable 1249 for comparison and as a specimen of execution as would be desirable to be adopted in finishing field works.

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

Very respectfully,
your obedient servant,

J. Entholles.

Washington, August 28th, 1874.
Report of an geographical reconnaissance
of Mt. Desert Island.

In scaling the most prominent heights of the Island I have been unable to observe the geological structure, which I found of the following order. The base of the Island is of trap rock. In such locations where this rock was less exposed to erosion it is metamorphic, consequently we can judge that the foundation of the whole Island is of a Basaltic nature.

The trap-rock circles 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 slums (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 griststone power of erosion can be observed at those points where the breakers find the greatest resistance. Here are found in abundance the so-called whirlpool stones, formed and polished to the most perfect ellipse, 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 rivers skewed around the summit, which can be transported further only at a time, while this locality formed a ledge, on which it should deposit 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-table No. 1934 a to c. The sketching in red ink indicates the rocky configuration in its principle outlines so sufficiently characteristic for the representation on a reduced scale of 1:2,000, but in order to show how this object shall be treated on the field-maps, I copied one of the most conspicuous mountain parts locate on Sumte's 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 construction on the more gentle slopes; it only marks the principle precipices on the other side only, and shows on the other side only what shall indicate a rocky nature. This indistinguishness shows a want of artistic 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 shall this be achieved without any establishment for the proper instruction thereof? All European topographical Institutes 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 perfection 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...
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 plane tables 1834 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 shows 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 organisation to geographical corps, to the construction of which the U. S. Coast Survey is more or far 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, leave to the time failed to establish a systematical rule for this object. When engaged in the publication of my Topographical Atlas I had commenced to collect maps 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 principal 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 conducted in a characteristic 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 artistic comprehension. The classification of the different types will embrace the following characteristic representations viz.
I. The Wall, Pail padre or Cliff - Form 
2. Ridge 
3. Terrace 
4. rippled 
5. Boulders (Steinholde) (erratic) 
6. 
7. moraines (Schrudd) 
8. 
9. Ledge 
10. Lava

I propose herewith to collect such examples as will be necessary to the illustration of the above enumerative 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, the sketches on the backings of the plan tables 1884 a and b and the corrections on the proof sheet, by the aid of it, I will be enabled to complete those parts of the topography which have been left undistinct on the copy of said plan 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 obstacles so formidable that the same could not be surmounted without the assistance of a guide and proper equipment 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 recommissorings as to the preparations of those formulae, essential to the latter point.

Respectfully yours,

Assistant servant

[Signature]