

**SECOND ANNUAL REPORT ON  
THE GEOLOGY OF THE PUBLIC  
LANDS, BELONGING TO THE TWO  
STATES OF MAINE AND  
MASSACHUSETTS**

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Maine and Massachusetts by C. T. Jackson

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**C. T. JACKSON**

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*Geological Survey.*  
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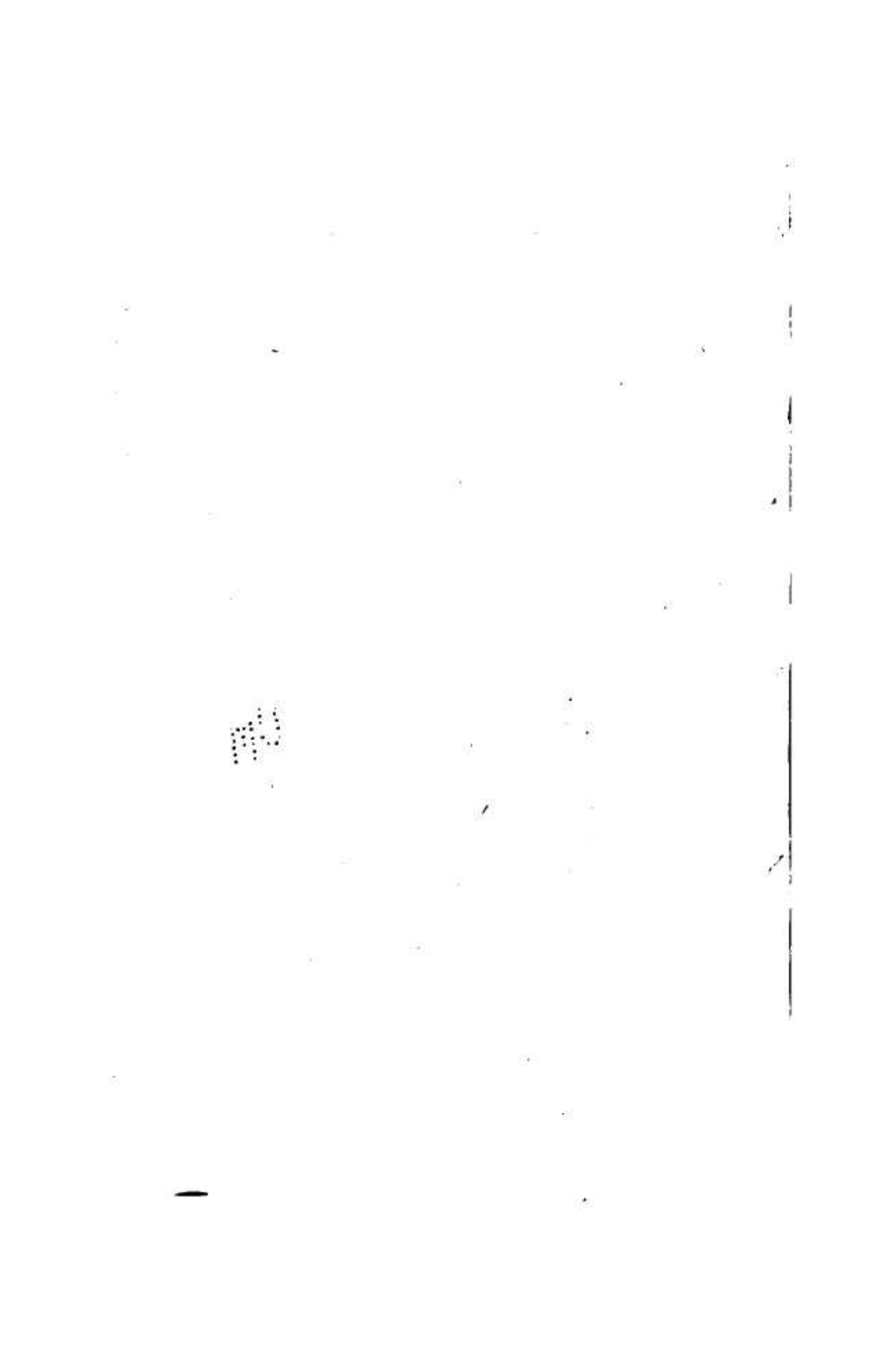
MAINE AND MASSACHUSETTS.

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BY C. T. JACKSON,  
GEOLOGICAL SURVEYOR.

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AUGUSTA:  
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1838.



## INTRODUCTION.

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In order to form a comprehensive idea of the Geological Structure of the Public Lands in Maine, it is necessary to consider some of the results to which we have arrived, in examining other portions of the State, so far as to determine the relative positions and ages of the various great rock formations, which present themselves to view, while we apply the general principles of geological science to their elucidation.

In making our explorations of the State, we have endeavored to record with strict accuracy, every observation which we were able to make while on the spot where the phenomena presented themselves, and specimens of all the rocks have been collected by us, and were invariably labelled immediately after they were obtained, so that they are faithful indications of the true geology of the country.

In addition to our more especial geological duties, we have endeavored to give a portion of our attention to the interesting topographical features of the State, and have measured the altitude of many remarkable eminences and table lands, so that we might be enabled to present sectional views of the relief of the country.

At the same time, I have laid down with care, the various rock formations, which I have represented in colors upon the best maps of the State that could be procured.

An uncolored map by the late Moses Greenleaf, Esq., has served as a basis for our general records, while the admirable manuscript plans of the Penobscot and Allagash waters, drawn by Col. Joseph Treat, while employed to make a survey of those regions, under the orders of the late Governor Lincoln,

of Maine, have been copied by my directions, and were used for laying down in detail, the various rocks which present themselves in that great section of the public lands.

A general map of the public lands, drawn under the direction of the Massachusetts Land Agent, G. W. Coffin, Esq., and intended for the purpose of laying out the various townships belonging to the two States in common, was also found to be very useful as indicating the positions of those portions of the public domain in which the two States are still interested, while the map being drawn on a large scale, gave us ample room for the insertion of our observations respecting the geology of the country, which we were called upon to explore.

Since there were several rivers which had never been surveyed, upon which our researches extended, and those rivers were not put down correctly upon the State map, I was called upon to draw plans of them sufficiently accurate for our purposes. By means of a good pocket compass placed in the bow of the canoe, we could easily run the courses of these rivers, and the distances of the various points were ascertained, either by noting the intersections of township lines, or by estimating by the eye the distances by diameters of the rivers as we proceeded. More accurate surveys of those waters ought to be made, but such surveys of the geography of the country would have required too much of our time, and have prevented our making such observations as were the especial objects of our explorations. A large portion of the State we have already explored, and the heights of some of the most interesting places have been determined, either by barometrical measurement or by triangulation. After making the measurement of Mt. Katahdin, the barometers were so much injured by the rough usage, to which they were necessarily exposed in such a laborious journey amid tangled thickets, that they could no longer be relied upon, and consequently they were not carried over to the Aroostook river.

All the elevations reported were, however, made when these instruments were in perfect order, and many of their results have been most carefully proved by comparison of the heights



taken in detail and added together, and by direct calculation, as also by the operation of triangulations, by means of a small portable theodolite pocket sextant, and Sir Howard Douglas's reflecting semi-circle. It was my intention to have caused a geological map of the public lands to be drawn, illustrated by sectional views of its geological structure; but such plans could not possibly be drawn in season to accompany the present report. If they should be desired hereafter, I shall most cheerfully comply with the orders of government.

Should future surveys be called for, in adjusting the vexed question of the North Eastern Boundary line of the United States, it will be necessary to carry a set of good mountain barometers along the line which is claimed by us under the treaty of 1783; and I doubt not, that the chain of highlands which separate the waters flowing into the Atlantic Ocean from those that flow into the St. Lawrence, will be readily found in the district where the present claim is made by the United States.

It will be seen, in the report of my excellent assistant Mr. James T. Hodge, that there is a chain of highlands in the district in question, there being a number of mountains which divide the waters flowing north from those which flow to the south. Should the boundary line be submitted to the exploration of a board of engineers, I apprehend they would find no difficulty in tracing it according to our claim.

The claim set up by Great Britain to more than *ten thousand square miles* of the territory of Maine, on the plea that the St. John does not empty into the Atlantic Ocean, but pours its waters into the Bay of Fundy, and that the chain of highlands designated in the treaty of 1783, is the range which divides the Penobscot and Kennebec waters from the Allagash and Wallowstock, is certainly too absurd for serious refutation, and shows only an unjustifiable desire of that country to extend its territory into lands belonging justly to this country.

It is greatly to be deplored, that few of our legislators or commissioners have ever visited the disputed territory, and that they are not prepared to act understandingly upon the subject,

while they have not even the advantage of consulting a correct map of that region, since no accurate surveys have yet been made along the northern boundary.

I will ask, however, if we are prepared to make a sacrifice of one of the most valuable timber and agricultural districts in the State of Maine, of if we shall willingly give to Great Britain the great military power over our territory which she would be able to possess, should we relinquish to her, in any degree, our boundary line.

The question is not, however, merely one of property in the backwoods of Maine, although such a consideration is of no small importance, but it is one of great military and civil interest, in which not only Massachusetts and Maine are concerned, as proprietors of the soil, but all New England and the whole confederacy of the States are interested; for the British claim extends entirely from the St. John, at Mars Hill, to the westernmost branch of the Connecticut river, and would give to that government facilities which, in time of war, would extend her power along the central parts of Maine, by the sources of all her great rivers, to the Connecticut, which empties its waters into Long Island Sound, thus surrounding all the New England States, upon the frontiers of which a most harassing warfare might be carried on; while the strong arm of the Union would thus be crippled, so that its strength could not be so powerfully exerted in the defence of our common country. Although war is a great evil, yet exigencies may arise by which we may be forced into such a contest, and I would urge upon government the importance of maintaining unaltered our ancient well-defined boundary, which ought to be forthwith surveyed and marked by suitable monuments.

I shall not enter farther into the discussion of this important subject, nor agitate the question respecting the constitutional power of the United States Government to cede any portion of the State of Maine, now inhabited by citizens of that State, by allowing the line claimed by the British Government; but I will observe, that the country is now arrested, in the increase of its settlements and in its commercial business, by the un-

settled state of this question. The moment the boundary line is adjusted, agreeably to our claim, the tide of emigration will begin to flow rapidly towards the banks of the Aroostook and to the Madawaska territory, and many active and enterprising individuals will be deterred from distant western emigration, and will turn their labor towards the Eastern forests, and soils, and minerals, while that important section of the country will become a great agricultural and manufacturing district.

In describing the geology of Maine, I have denoted the localities of many valuable rocks and minerals, while the relative positions and ages of the great rock formations have been carefully ascertained.

Along the western line of the State, where it joins New Hampshire, the principal masses of rocks belong to the primary class, and are mostly granite gneiss and mica slate, which have been burst open by intruding masses of molten rocks, injected from below, which have been protruded from beneath the granite, and cut through that rock in long dykes, or great veins of rock, that have been forced up through long rents in the superincumbent mass.

The granite itself bears ample proofs of its igneous origin, and it was forced up in a molten state, since the deposition and consolidation of the stratified rocks that rest upon it, they being variously broken and distorted by this violent upheaving.

The epoch of this granitic eruption we have ascertained to have been since the deposition of the transition argillaceous slates. By this disruption, the strata have been turned up so as to incline highly to the horizon, while various remarkable changes have been effected in their composition and structure.

The lower slate strata pass by regular gradations into micaceous slate, and that in turn graduates into gneiss, which rests immediately upon the sides of the granite mountains, and all these rocks show by their contortions, fractures and chemical changes which they have undergone, that they have been subjected to violent mechanical and igneous disturbance.

The limestone beds which abound in the gneiss and mica slate rocks extend entirely across the counties of York, Ox-