

"OUR GLACIAL PROBLEM." BY REV. D. HONEYMAN,  
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*Abstract.*

A considerable part of the Introduction contained matter published in the Transactions of the Institute of Natural Science from 1876 to 1884.

When observations were made at Rimouski, in 1883, it was considered that we had reached the "Ne plus ultra" in that direction. On my working chart I had extended my "Halifax *hypothetical* line," which passed to the east of Rimouski, to the northern extremity,—lat. 52 deg., 50 min.; long. 75 deg., 45 min.

The reports of the Hudson Bay expedition of 1884, by Lieut. Gordon, R. N., commander, and Dr. Bell, geologist, with illustrative charts, blue books, and reports of progress of Geological Survey of Canada, have furnished us with important observations by which we are enabled to extend our investigations to existing glacial regions. Seven stations are reported as having glaciation with a south easterly course. Two of these,—viz. Marble Island, in the N. W. of Hudson Bay, and Nottingham Island, at the mouth of Fox's Channel—having, respectively, S. 20 E., and S. 30 E., (magnetic) courses attracted attention from their resemblance to leading Nova Scotia courses. This led me to extend my working chart so as to include these and the other five stations in Hudson Strait and the Atlantic coast. My chart, which was used in the illustration of this paper was thus six times the size of Lieut. Gordon's chart, being 9x6 feet.

Extending my Halifax and Rimouski, *Hypothetical* line, which was S. 20 E., N. 20 W., magnetic, it runs through Hudson's Bay, east of Marble Island, and west of Nottingham Island. I also extended my Antigonish and George's Bay *hypothetical* line.—(Vide Trans. 1883, page 35.) This also runs S. 20 E., N.

20 W., mag., at a distance of *three* degrees from the Halifax line. It, too, passes into Hudson Bay, east of Marble Island, and west of Nottingham Island. It was remarked that these two parallels included similar and different, even opposite courses, the agencies *not* proceeding to any great distance in straight lines, and often having their courses changed by obstructing causes. e. g. On the east side of Halifax harbor we have S. 5 E. lines, and between the *Hypothetical* lines to the east of Rimouski a line S. E. (Logan's Tables—Geology of Canada, 1863.) The harbours or fjords were seen to run approximately with the parallels, or the changed courses. (*Vide* Admiralty Charts.)

#### LINES OF EQUAL VARIATION (Evans.)

I would observe that the *line of equal variation*, 20°, (*Vide* Sir Frederick Evans, Manual of the Variation of the Compass in Iron Ships, Plate VI., 1870, and Encyclopedia Britannica, Art. Meteorology, *Fig.* 30, Ninth Ed., Vol. 16, 1883) *runs between* these parallels from Nova Scotia to Hudson Bay.

Examining Sir F. Evans' Chart, *Fig.* 30, Enc., Brit., the line of equal variation, 20° in its southerly course, is seen to intersect the corresponding line, 20°, which runs through Great Britain at about lat. 17° N., and long. 23° W. In my Paper "On Glacial Action at Rimouski, Canada, and Loch Eck, Argyleshire, Scotland," Trans. 1883-4, I incidentally connected glacially what Evans connects magnetically.

I would remark, however, that "Marble Island" seems to be in lines of equal variation, 15°. This is west line 20° Nottingham Island seems to be between lines 55° and 50°, the equal variation lines that run along Hudson's Strait from the Atlantic. This is the course of Dr. Bell's "Hudson's Strait Glacier." (*Vide* Report.)

#### Line of *no Variation*. (Evans.)

Having defined this on our chart, we find that it lies to the west of all the Hudson Bay Stations, having S. E. glaciation. It also lies to the west of all the leading S. E. lines of Sir W. E. Logan's Tables. In fact it passes *between* the S. E. and S. W.

lines as found at Lake Superior. We have thus the principal S. E. lines to the east of the line of no variation, and the S. W. to the west of it. On our chart the S. E. lines of Lake Temiscamang and Ottawa, and the S. W. lines of Lake Superior, have something of the aspect of an anticlinal, while the intermediate S. E. and S. W. lines are very much intermixed or confused. In my Paper, Trans. 1882, page 38, I remarked that the region of "glacial divergence seems to be also that of water." We have thus the apparently singular conjunction of magnetic, glacial and water divergence. Dana refers to the two last in Text Book of Geology. Third Ed.

The significance of this phenomenon we do not understand. It surely cannot be accidental. "Our Problem" must rest here.