

valley as seen north of Allumette Island in two places, at Vinton, Portage du Fort, and near Bristol, on the Quebec side, where the course is from S. 10° E. to S. 30° E.\* On the south side the same courses were seen north of Pembroke, at several places in Ross and Bromley townships; at Shamrock, south of Renfrew, and at Galetta. In Ottawa city, "Barrack Hill,"† the course is S. 45° E., and Dr. Ami reports striæ on Park Avenue and Nicholas Street almost due east and west.‡ Near Hintonburg on the Ottawa, Arnprior and Parry Sound Railway, the course is S. 87° E. While the south-east course is constant in the valley close to the river, at a distance of ten to twenty miles back the ice moved west of south. On the south side of the river a large number of observations show the direction to be from S. 2° W. to S. 35° W., the most common being from S. 15° W. to S. 25° W. It is probable that the south-west course is the older of the two, and that the south-east course was produced when the ice had become so thin that it was deflected by the minor irregularities of the surface, and so followed the course of the river. At an earlier stage the ice had evidently been thick enough to over-ride irregularities of surface of considerable size, the course being south-west, as above stated, where the present drainage is to the east. The south-east and the south-west courses were not observed on the same surface in the area under consideration, but in the vicinity of Lake Temiscaming these two courses are frequently seen crossing each other, and Mr. Barlow states that the oldest course is about S. 20° W., while the more recent courses follow the river valleys.

Speaking generally of the glaciation of the district particularly referred to, it may be said that good exposures of rock are common where the results of ice movement can be studied.

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\* The bearings are referred to the true meridian.

† Geology of Canada, p. 892.

‡ Ottawa Naturalist, 1887, p. 69.