

NOTE IN REGARD TO MAGNETIC DISTURBANCES ON ST.  
GEORGE ISLAND, BERING SEA.

The Pribilof Islands, in Bering Sea, are entirely volcanic in origin. St. George, the second in size of this group, is somewhat over twelve miles in length and five miles in width. Its surface is strewn with lava rock and scoria, except around the borders of the island, where there is a heavy growth of grass. There are, however, no well-marked volcanic craters as on the sister island of St. Paul. During the progress of the plane table surveys made by the Coast and Geodetic Survey parties on the latter island, it was noticed that there were considerable local variations in the magnetic declination. Opportunity was afforded to investigate this subject somewhat on St. George Island, while waiting for the arrival of the revenue cutter that was to take the party off. Besides regular magnetic observations at a base station, the declination was determined at twenty-four other points distributed over the eastern two-thirds of the island. These observations were made with a regular magnetometer, the true directions of the lines being obtained from the triangulation of the island. The declinations observed showed a range from  $5^{\circ} 14'$  East of North on the highest central hill, Ulakiya, to  $20^{\circ} 03'$  East on the northeastern shore of the island. Another station on the summit of Ulakiya showed declination of  $5^{\circ} 54'$ , while at three stations within a quarter of a mile, and north, northeast, and southeast of the summit, the declinations were  $14^{\circ} 55'$ ,  $15^{\circ} 38'$  and  $15^{\circ} 27'$ , and at no other place on the island was the declination observed less than  $14^{\circ} 00'$  East. The variations appear to be due principally to the magnetic properties of the local surface materials. Small pieces of the volcanic rock and scoria held near the magnetometer were found to deflect the needle by as much as a quarter of a degree. Around a red scoria bank near the village of St. George, the declination varied nearly three degrees in about sixty feet.

As the disturbances appeared to be due to local surface conditions, no attempt was made to investigate the irregularities in the other magnetic elements, the dip and force. The observations on St. George are of interest as indicating the amount of deviation of the magnetic needle that may be expected on volcanic islands. Cases of much greater local deflections than these have, however, been noted in other parts of the earth. As far as observed, the direction of the needle varied about  $6^{\circ}$  around the shores of the island, and it is probable that at the distances at which ships would approach the island the effect would be considerably less than this, so that these magnetic irregularities might not materially affect the compass in navigation.

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