

# PREFACE

BY COLONEL SABINE, R.A.

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THE observations of Admiral Löwenorn, in 1786, at Reikiavik in Iceland, confirmed by Lottin in 1836, and those made by myself in 1823 at Fairhaven in Spitzbergen, also confirmed by the observations of the "Commission du Nord" at Magdalena Bay in Spitzbergen, in 1839, showed that, in the high magnetic latitudes of the northern hemisphere, the horary variation of the magnetic declination is subject to wide differences in respect of the turning hours, and the direction of the movement at the same hours of local time, from the phænomena which in the middle latitudes of the same hemisphere are found to prevail generally, and, with very slight modifications, in all meridians. The progress which, since the results of the magnetic observatories established in the last few years have been known and discussed, has been made towards the physical explanation of many of the magnetic phænomena, renders it desirable that facts which at first sight, and to minds accustomed to the comparative regularity of the diurnal variation elsewhere, have somewhat the aspect of anomalies, should be more extensively investigated and better understood. The differences which they present from the ordinary march of the phænomena are far too considerable and too consistent to be ascribed to accident: they are obviously specialities; and the particular laws which govern them will no doubt ultimately be found to be consistent with, and to form, in fact, a part of, the general laws by which the diurnal variation in all parts of the globe shall be comprehended.

But the parts of the globe where such observations can be made are little frequented, and are difficult of access; and the observations cannot be effectively made without considerable sacrifices of personal convenience. The Magnetic Survey of the British Possessions in North America—undertaken by Her Majesty's Government at the recommendation of the Royal Society, and