

comparison of all the recorded observations of the spots, that the periods of their scarcity and abundance succeed one another at regular intervals of a trifle more than five years and a half: so that in eleven years and one-tenth, or nine times in a century, the sun passes through all its states of purity and spottiness. Thus, for instance, in the present century, the years 1800, 1811, 1822, 1833, 1844, 1855-6 were years in which the sun exhibited few or no spots, while in the years 1805, 1816, 1827, 1838, 1849, 1860, the spots have been remarkably abundant and large. Several attempts have been made to connect this with periodical variations in the weather, with hot and cold years—wet and dry ones—years of good and bad harvests, etc.; but though I believe there is some such connexion, it is so overlaid and, as it were, masked by the multitude of causes which act to produce what we call the prevalent weather of a season, that nothing satisfactory has been made out. But there are two classes of phænomena or facts which occur here on earth which certainly do stand in very singular accordance with the appearance and disappearance of the sun's spots. The first is that splendid and beautiful appearance in the sky which we call the Aurora or Northern lights; and which, by comparison of the recorded displays, have been ascertained to be much more frequent in the years when the spots are abundant, and extremely rare in those years when the sun is free from spots. The other is a class of facts not so obvious to common observation, but of very great importance to us; because it is connected with the history and theory of the mariner's compass, and with