

I have spoken of the changes that take place with a greater or lesser degree of regularity; there are others, sometimes very material, that cannot be accounted for and which require the constant watchfulness of the observer to detect. The greatest change of this unaccountable character, that has come under my personal observation, was a deflection of about forty-four minutes in eight or ten minutes of time. This was probably due to an electrical storm, which could not otherwise have been noticed.

The glass cover of the compass sometimes become charged with electricity, which causes the needle to *apparently stick* to the glass. This is of rather frequent occurrence. Wetting the glass immediately dispels the electricity.

Any state of the atmosphere in which electricity is an element, greatly effects the needle; electricity and magnetism being, it would seem, almost the same; the power of an electrical motor for mechanical purposes, being dependent on the magnetic force induced in iron by an electric coil surrounding it.

In many places a purely *local* attraction causes the needle to swerve from its general course, from five minutes to fourteen degrees, as noticed by myself during the twelve years I was actively engaged in surveying; and instances have been recorded where this local swerving exceeded twenty-five degrees.

These considerable deflections of the Magnetic Needle in certain localities are doubtless due to large deposits of magnetic substances. In the vicinity of Thetford and Coleraine the iron ore that is disseminated through the serpentine and so-called asbestos, attracts the needle very sensibly.

Navigators have to contend with another perplexing source of error in compass reading, which is not easily overcome, particularly in these days when iron enters so largely into the construction of ships and that iron so used sometimes effects the needle to a serious extent, and from causes that are not always apparent.

It is a well known fact that iron, remaining long in one position, sometimes becomes magnetic, and it has been found that portions of iron ships become magnetic. Now, the action of unmagnetised iron,