Appendix.

Hence, by a general but simple inference, they might be led to the idea of the daily rotation of the earth. There should be no attempt to hurry the process; there should be observations taken by the children themselves during the winter months, and the conclusion should be formulated when their minds are ready for it.

If an eclipse of the moon visible in New Zealand occurs, the opportunity should not be missed of showing the children, by lessons beforehand upon shadows, and lessons afterwards upon what was seen during the eclipse, what is really for children probably the best proof of the earth's rotundity.

(a.) Map-reading and Physical Geography.

Third Year (S5).—The scale of the wall-map of New Zealand used in the school compared with the scale of the map of the district; the scale of the map of New Zealand in an atlas or geographical reader. A few distances may be computed from the map of New Zealand, and also, roughly, the areas of the North and South Islands, and of the whole Dominion. Either in this class or in S6 the process may be extended so as to give clear ideas as to the distance of New Zealand from Australia, Fiji, &c.; the extent and area of Australia, &c. First ideas (to be further extended in S6) about glaciers and the work of ice; the sea and its work; tides; winds and currents; coasts, rocky and otherwise; capes. General distribution of land and water on the surface of the globe; the land hemisphere; the water hemisphere. The mountain and river systems, in outline, of some one continent.

Fourth Year (S6).—The scale of maps generally, illustrated by some one or two maps, as of England, Australia, India; distances and areas computed therefrom; a few distances measured on the globe. Ice; experiments with ice; temperature of melting ice; volume and density of ice; fracture of rocks; easy to make two surfaces of ice freeze together, &c.; snow; glaciers; the work of ice in shaping the surface of the land; icebergs. Formation of deltas and alluvial plains, *e.g.*, the Canterbury Plains. Winds, more fully than in S5. Radiation; specific heat of water and air; the principal causes of the differences of climates; continental climates; island climates. Rise and fall of the land surface; earthquakes; volcanoes.

The following portions of mathematical and physical geography should be taken in a connected logical order, but the lessons may be spread over the third and fourth years of the Senior Division (S5 and S6) in some such way as is indicated below. The instruction may be founded in every case directly upon observation and experiment, inferences from which should be explained by means of globes and other models, and by diagrams. Should teachers from any cause, however, find themselves unable to base their teaching directly upon the observation of the stars and other phenomena, simple models may be used and diagrams drawn therefrom; in no case can the teaching of mathematical geography be regarded as satisfactory if it is taught from books and diagrams alone.

The common "proofs" that the earth is nearly spherical may be used—as, by inference, from what is seen when ships go away from land; the circular form of the offing or horizon; the shape of the earth's shadow on the moon; the circumnavigation of the world.

The movements of the earth should be explained in a simple way; if the children have not done the work suggested in S4 intended to convince them of the daily rotation of the earth, they should do it now. They should be led to infer the daily rotation of the earth from their own observation of the sun and moon and of stars in the northern and southern skies. The reason for the differences of local time may easily be inferred from the fact of the earth's rotation, as it is always noon on the meridian directly under the sun. With the aid of two globes, one for the earth and one for the sun, it may be shown that, if the earth moves round the sun during the year, the part of the heavens seen at night will vary according to the time of year. Hence the observed fact that different stars are seen on or near the meridian in the northern sky at different times of the year (say, at 8 p.m.) will lead to the inference that the earth does move round the sun. (Useful stars for this purpose are the constellation of Orion, first week of February, 40 degrees to 60 degrees above the northern horizon; Sirius, the brightest star in the sky, end of February, high up; Regulus, in the constellation Leo, fourth week in April, in lower part of northern sky; the bright star Antares in the constellation Scorpio, end of July, high up in the sky; Altair, in the constellation Aquila, middle of September, lower part of sky.)

The children should be shown how to identify the chief stars and star-groups in the southern sky, such as the "Pointers" in Centaurus, the Southern Cross, Canopus, and Achernar. They may then be led to see from their own observation that a point in the sky about half-way between Achernar