Part ii. deals with actual weather conditions, with cold and warm waves, and types of weather, illustrated by beautifully executed synchronous charts. The discussions, which will be of the utmost interest to the students of practical meteorology, direct especial attention to the relation between wind-direction and temperature, the distribution of clouds, rainfall, &c. The author makes use of the long series of data at his disposal to test several points of popular interest. The temperature observations, extending over a period of eighty-seven years, do not exhibit any tendency to the cold period about May 10–13 which is observed in Europe; on the contrary, there is a distinct rise, probably due to high barometric pressure at this time over the southern Atlantic States. Nor do they show any regular recurrence of cold and warm periods; the only negative conclusion that the author considers may be safely drawn is that a cold winter is not likely to be followed by a warm spring or summer, and that a warm winter is not likely to be followed by a cold spring or summer. The observations clearly disprove the popular belief in the occurrence of severe storms at the equinoctial periods of March and September, while a comparison of weather conditions with the sun-spot curves neither proves nor disproves any intimate relation. We congratulate the author on the able way in which he has dealt with the whole subject, without having had recourse to mathematical formulæ.

A Monograph of the Silurian and Devonian Corals of New South Wales. Part ii. By R. Etheridge, jun. (Sydney, 1907.)

THIS part deals with the genus Tryplasma, of which several new species are described, from the Upper Silurian of the neighbourhood of Yass. A history of the genus is given, together with an account of its relations to other genera and its systematic position. Attention is directed to the intimate relation existing between the structure of Lindström's Pholidophyllum and that of Tryplasma, but in none of the Australian species of the latter have been found any of the exothecal scales which led Lindström to consider *Pholidophyllum tubulatum* (Schloth.) homologous in a certain sense with Calceola, Goniophyllum, and Rhizophyllum. The author advocates the removal of *Ph. tubulatum*, as a representative Tryplasma, from the vicinity of the *Anthozoa operculata* to a separate family, the Tryplasmidæ, with relations to Amplexus and Pycnostylus. The general structure of the Australian Tryplasmidæ is described in detail, but the examination of the development of the septal lamellæ and spines by means of serial sections was not attempted.

The Fauna of British India, including Ceylon and Burma. Published under the authority of the Secretary of State for India in Council. Edited by Lt.-Col. C. T. Bingham. Rhynchota. Vol. iv., part ii. Homoptera and Appendix (Part i.) By W. L. Distant. (London: Taylor and Francis, 1908.) Price 10*s*.

WE congratulate the editor and author on the appearance of another half-volume of this important work. The present instalment is devoted to the homopterous family Jassidæ, subfam. v. Jassinæ (including Acocephalinæ), comprising twelve divisions, and subfam. Typhlocybinæ, with two divisions. The species included are numbered from 2509 to 2696. An appendix is commenced, including additions to the Rhynchota Heteroptera discussed in vol. i.; and the portion now published relates to the families Pentatomidæ, Coreidæ, and Berytidæ, and the additional species are numbered from 2697 to 2768. The general character of "The Fauna of British India" is so well known, and has been so frequently commented on, that it is only necessary to say that the present half-volume is similar to those which have preceded it, and that the high character of the series is fully maintained.

How we Travel. A Geographical Reader. By J. F. Chamberlain. Pp. ix+227. (New York: The Macmillan Co., 1908.) Price 2*s*. 6*d*.

THE intention of the author of the series of four reading books, of which this is the last, is to develop an interest in the subject on the part of young pupils beginning the study of geography. The little book should be popular in the lower classes of secondary schools; it provides a simple, entertaining, and attractively illustrated account of means of travel and communication in various parts of the world. Previous volumes have dealt with man's activities connected with securing food, clothing, and shelter.

LETTERS TO THE EDITOR.

[*The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts intended for this or any other part of* NATURE. *No notice is taken of anonymous communications.*]

Solar Vortices and Magnetic Fields.

SEVERAL weeks ago I discussed with Prof. Hale the matter of solar vortices and magnetic fields, with reference to his recent discoveries, briefly described in NATURE for August 20 (p. 368). It did not seem to me probable that the effects could be accounted for by unequal diffusivity of the positive and negative ions, or by centrifugal separation, nor does it seem necessary to assume, with Prof. Zeeman, that the magnetic effects are due to electrons participating in the vortical motion. Since that time I have recalled that, so far as definite evidence goes, *all luminous vapours giving a line spectrum, and therefore capable of showing the Zeeman effect, are positively charged.* A flame coloured with sodium or lithium vapour and placed between two condenser plates is attracted by the negative plate. This fact was used by Lenard to determine the velocity of the positive ions. As shown by Riecke and Stark (*Phys. Zeit.*, v., 537, 1904), if a sodium or lithium salt is placed on the kathode of a long spark the coloured vapour remains in that neighbourhood; if placed on the anode it is at once projected across the entire length of the gap. Hemsalech (*Comptes rendus*, cxlii., 2, 1906) proved spectroscopically that the metallic vapour in the spark is projected solely from the positive electrode. As shown by Stark (*Ann. der Phys.*, xiv., 529, 1904), that part of the luminous vapour in a mercury arc which gives a band spectrum is unaffected by an electric field, while that part which gives a line spectrum is positively charged. The canal and anode rays are likewise examples of positively charged carriers giving a line spectrum.

What becomes of the negative electricity in these cases is obscure; but the fact remains that somehow, either in the form of projected electrons or more rapidly moving negative ions, it gets away, and leaves behind the positively charged ions of the luminous vapour. If such is the case on the earth, we should expect it to be true of the luminous vapours of hydrogen, calcium, and other elements on the sun. Whether the vapours taking part in the sun-spot vortices are positively charged can easily be determined from Prof. Hale's observations on the Zeeman effect.

It would be interesting to know whether the solar vortices follow a definite cyclonic law, as is the case in the earth's atmosphere. If so, a definite resultant polarity should be produced by the aggregate of sun-spots, and accompanying magnetic fluctuations on the earth should be always in one direction. If the vortices are accidental the terrestrial effects should be irregular.