work which are clearly written and well illustrated. A little more space might have been given to the construction of bell indicators and to the maintenance and peculiarities of batteries, both of more importance to the wireman than the details of the manufacture of electric incandescent lamps. Also the distribution of lamps to give the best illumination, the use of globes and shades, and the ageing of incandescent lamps are all subjects on which wiremen would be wise to be informed, which are dealt with either inadequately or not at all. There is a question we should like to ask: Is Mr. Clinton correct in saying that the B.C. holder is known as the "bottom contact"? We had always thought that the letters stood for "bayonet cap," and certainly "bayonet holder" is much the more general phrase.

Finally, we may add that the book should be useful to the wireman entering for the City and Guilds examination in this subject; he will find it a valuable travelling companion as he proceeds to the examination room.

M. S.

The Common Spiders of the United States. By James H. Emerton. Pp. xviii + 225. (Boston, U.S.A., and London: Ginn and Company, 1902.) Price 6s. 6d. net.

THE study of spiders is probably less neglected in the United States than in Britain, for writers on general entomology like Packard and Comstock have included them in their works, and there are several valuable books on the subject. Still, spiders are less popular than butterflies or beetles, and Mr. Emerton has brought out the work before us, illustrated with no less than 501 illustrations in the text, in which he has given a very useful account of the commoner American spiders, classed under ten families. Mr. Emerton informs us that there are at least 300 or 400 species of spiders to be found in the neighbourhood of any city in the United States. The introductory matter is very good, dealing with structure, habits, collecting, &c., and the diagrams on p. ix, showing the undersurface of a spider and the front of the head, are particularly clear. So many families, genera, and occasionally even species of spiders are common to the United States and Europe that a student beginning to collect British spiders could not do better than use this book in conjunction with Miss Staveley's "British Spiders," before passing on to the more elaborate works of Blackwall and Pickard Cambridge.

Trees in Prose and Poetry. Compiled by Gertrude L. Stone and M. Grace Fickett, Instructors in State Normal School, Gorham, Maine. Pp. xi + 184; illustrated. (Boston, U.S.A., and London: Ginn and Company, 1902.) Price 2s.

THERE are many methods of nature-study in America, and in some more attention is given to the æsthetic and emotional sides of education than to the scientific. This little book is a collection of extracts from good writers showing that trees have often been the source of literary inspiration. It is good that children should become familiar with the best literature their country provides, and when at the same time they have their attention directed to the study of nature, the lesson becomes of increased value.

Chart of the Metric System. Constructed by Prof. C. Bopp. With a pamphlet of "Notes." Pp. 15. (London: Williams and Norgate.)

THIS diagram of the metric units of length, area and volume is printed on a sheet of paper about 3 feet 6 inches by 2 feet 6 inches. The various measures are shown full size. To be of the greatest use in class teaching, the chart should be used in conjunction with models, and fortunately these are to be obtained. With the aid of the "Notes," teachers should have no difficulty in making the idea of the decimal system easy of comprehension to their pupils.

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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.]

Vortex Spirals.

IT appears that a reference to Dr. W. M. Hicks's memoir on the properties of spiral fluid vortices (*Phil. Trans.*, 1898), inserted in the recent reprint of FitzGerald's Helmholtz lecture of January, 1896 ("Collected Scientific Writings," p. 353), has suggested the misconception that the idea of spiral vortices originated with FitzGerald and was subsequently developed by Hicks.

It is beyond doubt, from the context, that FitzGerald derived his knowledge of the possible existence and the properties of vortex spirals from the detailed discussion of vortex theories of matter and their difficulties, contained in Dr. Hicks's presidential address to Section A of the British Association in September, 1895; in this address, and in papers communicated to Section A, that striking extension of vortex theory was explained in illustration of the structure of optically rotational atoms. This is the more certain as Dr. Hicks's observations (*loc. cit.*) as to the possibility of the mutual absorption of a pair of Hill's spherical vortices (M. J. M. Hill, *Phil. Trans.*, 1894) were mentioned by FitzGerald in the same context. J. LARMOR.

October 13.

Bipedal Locomotion in Lizards.

THE accounts of bipedal locomotion among lizards contributed by Mr. E. A. Green and Miss R. Haig Thomas are of high interest. This peculiar method of progression has been recorded by me of the Australian lizards *Physignathus lescurei* and *Amphibolurus muricatus*, in addition to the frilled species *Chlamydosaurus kingi*, all belonging to the Agamidae. More recently I have found by experiment that a member of the American greaved lizards, *Tupinambis nigropunctatus*, possesses a like bipedal habit, and have been informed by a correspondent, Mr. H. Preston, that the same locomotive peculiarity is commonly manifested by the allied form *Amiaeva Surinamensis* and also by sundry species of the typical iguanas. Another correspondent has informed me that that singular iguanoid the basilisk is likewise bipedal, not only on *terra firma*, but that it will also run rapidly over the surface of water in an erect position. As is the case with the long-toed aquatic birds the jacanas, the feet of the running lizard are most probably in this case supported in transit by a more or less substantial substratum of water plants.

The bipedal progression attributed to *Lacerta viridis* and an allied form is, as compared with that of the above-named species, relatively incomplete; the tail is not raised clear from the ground during locomotion, and neither is the erect attitude sustained for any duration of time. The conspicuously greater length of the hind limbs that characterises all those species of which sustained bipedal locomotion has been recorded is a prominent feature in many other types which will probably be found to possess the same habit. Among these, members of the agamoid genera *Gonioccephalus*, *Otocryptis*, *Japalura* and *Calotes*¹; some of the Anolids, *Uraniscodon* and others among the Iguanidae, and *Cnemidophorus* belonging to the Teiidae, may be indicated as likely to yield affirmative evidence in this direction. W. SAVILLE-KENT.

Milford-on-Sea, October 9.

Theories of Heredity.

IS there not room for some provisional hypothesis which shall include both Galton's and Mendel's ideas, which are not necessarily antagonistic, but may turn out to be as simultaneously true as the laws of Boyle and Charles, so that the final results may be of the nature of a product or resultant? I mean that instead of drawing a hard-and-fast line between "recessive" and "dominant" characters we may suppose that these differ like heat and cold, in degree but not in kind. So that "dominance" may be measured on some scale from 0 upwards, the measure of dominance being perhaps a function of the number of generations for which a character has been established.

¹ Since writing this letter, a confirmation of my anticipation in the case of this genus has been recorded in NATURE for October 9 by Mr. N. Annandale.—W. S-K.