

The essay concludes with a comparison of Scheele with Shakespeare, somewhat to the disparagement of the poet, and with a very comical lament that so few people ever visit either Scheele's birthplace, "if it still be in existence," or his shrine at Köping, "where he died and where presumably his remains are interred." One might even suspect that Mr. McIntosh had not been there. A. S.

Use-Inheritance; Illustrated by the Direction of Hair on the Bodies of Animals. By W. Kidd. 8vo. pp. 47. Illustrated. (London: A. and C. Black, 1901.) Price 2s. 6d. net.

EVERY naturalist who has studied the ungulate mammals must have been struck with the curious variation in the direction of the hair which occurs even in closely-allied species, and has probably been much puzzled to account for these differences. Why, for instance, do the hairs on the back of all the Asiatic buffaloes point towards the head and those of their African allies in the opposite direction? In the former animals, as in all analogous instances, a whorl (in this case on the haunches) marks the point where the change in the direction of the hairs from the normal backward slope occurs. In the work before us the author, although he has not attempted to give a reason for the variation in the hair-slope of closely allied species, has done good service by classifying these "whorls" and "featherings," as typified in the horse. He has also shown that these features always occur at spots where two or more muscles are acting against one another, as is well exemplified on the forehead of the horse. It is therefore suggested that the production of such whorls has a dynamical origin. It is noteworthy that while whorls and featherings are very commonly developed in short-haired mammals, they are either absent or rudimentary in those with long hair.

The main argument of the book is, however, connected with certain peculiarities of the hair-slope in man. In normal instances this slope on the back of the head and neck diverges obliquely from the middle line, somewhat after the simian fashion. But in a second, or "exceptional," type the direction is just the reverse of this. It is suggested that while the normal type has been directly inherited from simian ancestors, the exceptional type (which is considered to be an acquired one) has been derived from the female line. It is further shown than on the human back the direction of the hair-slope is quite different from that which obtains in all apes and monkeys. "This aberration of hair-slope I have suggested," writes Dr. Kidd, "to be produced by the habit which man has of spending about a third of his life, during sleep, in lying mostly on his side, and, for some millenniums at least, with some sort of rest for his head."

These peculiarities in the hair-slope of man and other animals, adds the author, are congenital and not due to selection; hence, unless originally created with the forms of life in which they occur, they must have been produced in their ancestors by use or habit. From this it follows that, if the creation hypothesis be discarded, in this particular instance, at any rate, acquired characters are inherited.

While claiming recognition for his own views on this point, Dr. Kidd (p. 8) deprecates the idea that they militate seriously against the merits of Weismann's theory as a whole. It may be added that the language in which this tribute to a great thinker is couched would have been more elegant had the author avoided the triple use of the word "which" in a single sentence. R. L.

Foundations of Botany. By Joseph Y. Bergen, A.M. Pp. x + 257. (Boston, U.S.A.: Ginn and Co., 1901.)

THIS book is intended, or at least so we gather from the preface, to provide a year's work in an advanced school class. Much of the matter is to be commended, and

some of the new figures are admirable. From this side the Atlantic one can only regard with envy the amount of energy expendable in American schools if a work of this proportion and scope is really suited to their possible requirements; for the book covers a wide range of subjects, and will make no small demands on the time of the student who aims at mastering its contents. The author clearly intends that the work shall be grappled with thoroughly, and from the concrete and practical side. He gives directions for laboratory work, and suggests problems to be solved by observation and experiment. These are incorporated in the text as appendices to the chapters, after the prevailing fashion in modern American text-books. It may, perhaps, be questioned whether the book might not be improved by the separation of the purely systematic portion into a volume by itself.

LETTERS TO THE EDITOR.

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The Exploration of the Atmosphere over the Ocean.

THE experiment of flying kites in calm weather from the deck of a moving tug-boat, which was mentioned in NATURE of September 5 (p. 453), was continued by my assistant, Mr. Sweetland, and myself on a steamship that performed the voyage from Boston to Liverpool between August 28 and September 5. Flights were made on five days, the greatest height reached by the meteorograph being one-third of a mile, and the records of barometric pressure, air-temperature, relative humidity and wind-velocity, which are probably the first to be obtained above the North Atlantic, were shown to Section E of the British Association at Glasgow.

These experiments demonstrate conclusively that, with a steamer that can be manoeuvred at will, kites can be flown at sea in almost all weather conditions, and, consequently, a most important field is opened for their use in meteorological researches, especially in the tropics, where the conditions existing above the trade-winds are imperfectly known. It is to be hoped, therefore, that such an investigation will be undertaken either by the Government or by private enterprise, and I am now endeavouring to bring this about. A. LAWRENCE ROTCH.

Blue Hill Observatory, Hyde Park, Mass.,
U.S.A., October 25.

A Curious Flame.

THE kind of phenomenon described by Mr. Garbutt (p. 649) is frequently to be met with in "washed-out" flames, that is, in flames which are diluted to the point of extinction. In such cases the velocity of inflammation is so low that flame cannot propagate itself against the stream of gas. If the current of gas be baffled by an obstacle, then a flame may originate in the "slack waters" round the obstacle. No doubt the temperature of the obstacle is of some importance if the object be small, since rapid withdrawal of heat at any point of a gaseous current is a hindrance to the development of flame at that point. But it will be found that in the experiment described by Mr. Garbutt a flame may be obtained by opposing a large baffling surface of even an enduringly cold body such as a 56-pound weight. In this case a very large portion of the gaseous mixture is made stationary and the cooling down does not affect more than a small film next the metal. A kindred phenomenon is described in NATURE (vol. xlix. p. 86).

The flame obtained when a Bunsen lamp is lighted both at the bottom and the top of the tube is very feeble, and large tracts of it may be extinguished by holding in it beads of volatile salts. ARTHUR SMITHELLS.

November 4

WITH regard to the flame described by Mr. Garbutt in your issue of October 31, I would suggest the following explanation, which, however, I have not as yet quite proved.

The products of the partial combustion at the bottom of the