

LETTERS TO THE EDITOR.

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The Markings of *Antilocapra*.

IN NATURE of Oct. 11 (p. 586) Mr. R. J. Pocock says: "If the American prong-buck were an inhabitant of Africa, I presume that its conspicuous patterns . . . would be cited as evidence supporting the theory of recognition marks. But in the prairies of the United States there are no species that resemble it in size and form, so as to create confusion as to identity."

The prong-buck is so cited by Wallace ("Darwinism," p. 218), and a figure is given (p. 219) of a similarly-marked gazelle in support of the same theory. But the point of the whole matter rests on the aid given to the members of a herd in following one another, and has nothing whatever to do with the presence of allied species. I cannot understand how Mr. Pocock, who appears to have read Wallace's work, can have overlooked the point of the argument so completely. I have had the pleasure of seeing herds of prong-bucks (*Antilocapra*) in their native wilds (Pecos Valley, and near the Sacramento Mountains, New Mexico), and can readily understand how useful the markings must be in helping the animals to keep together in the dusk or dark, whereas it is not at all probable that they expect to escape observation on the open prairie by daylight. If these animals lived singly, there might be some plausibility in "Thayer's principle," as applied to them, but in herds they can be seen from afar off, and the same must be true of the African gazelles. Their safety is in flight, not inconspicuousness, and the necessity for keeping together when in flight is obvious.

The coyote or prairie-wolf (*Canis latrans* and allies), which also lives on the prairies and is gregarious, has the habit of barking incessantly at night, and this doubtless serves the same purpose as the markings of the prong-buck.

It might conduce to clearness if we divided what are now called recognition-marks into two categories, thus:—

(1) *Recognition-marks*, which assist members of a species in distinguishing their fellows from other species.

(2) *Guide-marks*, which assist members of a species in following one another. The markings of the prong-buck would then come under the head of guide-marks. T. D. A. COCKERELL.

East Las Vegas, New Mexico, U.S.A. October 30.

Curves without Double Points.

MR. BASSET'S objection to the term "non-singular" (see NATURE, Oct. 11, p. 572), arises from a misunderstanding. The ordinary use of the term by English-speaking mathematicians is natural and legitimate; it is applied to curves without double points when the curve in question is defined by a relation among the coordinates of its points. In the case of a curve defined in another manner, for instance by a tangential equation, "non-singular" could not possibly be used in the sense. In fact, the phrase which Mr. Basset denounces as "exceedingly infelicitous and misleading" is one which, standing by itself as Mr. Basset quotes it, strikes a geometer as unfamiliar; "non-singular cubic curve," "non-singular curve of the n th order," are familiar to him, and are unobjectionable.

In the study of algebraic curves the word *node* is in common use to denote any double point; if it is necessary to distinguish the three chief kinds of double points, the words *crunode*, *acnode*, *cusp* are recognised; and, although the two first are not wholly satisfactory, yet their meaning is unmistakable. Further, we have adjectives *nodal*, *crunodal*, *cuspidal*, *binodal*, etc. If Mr. Basset's mode of investigation is such that the introduction of new technical terms is really unavoidable, may I suggest that the phrase *nodeless curve* concisely describes a curve without double points? HERBERT RICHMOND.

King's College, Cambridge, November 10.

Euclid i. 32 Corr.

HAMBLIN SMITH writes, these "corollaries were first given in Simson's edition of 'Euclid'" (edition 1872, &c.). J. Walmsley, "Introduction to Geometry" (1880, &c.), styles them Simson's corollaries. Hall and Stevens say these "theorems

were added as corollaries to Prop. 32 by Robert Simson" (1888, &c.), and finally, Loney, in his edition of Todhunter's "Euclid," writes, "the corollaries were added by Simson." Many years ago it was pointed out to me that these corollaries, with many interesting applications, were given by Clavius in his edition of the Elements (1607), see pp. 105-108. On p. 107, he cites "ex Campano, si pentagoni singula latera producantur in partem utramque, ita ut quilibet duo extra pentagonum coeant, efficiuntur quinque anguli ex lateribus coeantibus aequales duobus solum rectis." Clavius probably is not the first publisher of these results. R. TUCKER.

November 5.

Late Appearance of a Humming-bird Moth.

IN a garden in Lower Addiscombe Road (well in the town of Croydon), I saw a humming-bird hawk-moth to-day sporting over a bed of scarlet geraniums. It was as fresh as if newly emerged. This is the first time I have seen the insect so late in the year. Would it not have been called a "late appearance" even a month ago? It testifies strongly to the unusually open autumn here. J. EDMUND CLARK.

Lile Garth, Ashburton Road, Croydon, November 3.

SOME RECENT ADVANCES IN ZOOLOGY.

TO take stock from time to time of the progress made in its different branches is advantageous in the case of every science, but in none more so than in zoology, where specialisation is now carried to such an extent that the workers in one section have in general but little acquaintance with what their brethren are doing in another. This same subdivision of work renders it, however, extremely difficult for any single writer to give any adequate account of what has been effected during the last year or two in all the different branches of the science, the difficulty being enhanced by the circumstance that the one for 1898 is the latest volume of the "Zoological Record" that has at present been published. All that can therefore be attempted in the present article is to give a fairly full *résumé* of the more notable advances in the branches of zoology with which the writer is best acquainted, and to make mention of such discoveries in other sections of the subject as may have come under his notice.

Among the Mammalia, by far the most important discovery made of late years is the identification by Mr. J. P. Hill, of Sydney, of the existence of a rudimentary placenta in the Bandicoots (*Perameles*). From this it has been inferred that all Marsupials originally developed a placenta, which has become abortive in the more specialised members of the group. This discovery entails, almost of necessity, a modification in the generally accepted classification of the Mammalia. And instead of dividing the class into the three equivalent groups, Eutheria, Metatheria and Prototheria, Prof. H. F. Osborn has suggested that we should now take only the two divisions of Eutheria and Prototheria; the former being subdivided into Placentals and Marsupials, and the latter (as heretofore) including the Monotremes alone. Placentals and Marsupials may indeed be now regarded as divergent branches of a single stem; the latter being less primitive than are the Insectivora. On the other hand, Monotremes are so different from Eutherians that some zoologists even go so far as to consider them derived independently from Reptiles or Amphibians. In this connection, as tending to emphasise the intimate relationship between Marsupials and the primitive Carnivora, reference may be made to a paper by the present writer (*P.Z.S.*, 1899), in which it is attempted to show that both have a similar dental formula. It may be added that our knowledge of the anatomy of the Monotremes has been largely increased by the publication of the results of the work on the specimens collected by Dr. Semon, now in course of publication in the *Jenaische Zeitschrift*. Moreover, much interest