

several hundred feet, using the form of coherer described, and, therefore, I am unable to compare its sensibility with that of the usual form.

Undoubtedly it would prove to be less sensitive, but for use over a moderate distance it forms a convenient instrument for the purpose of demonstration. AUGUSTUS TROWBRIDGE.

University of Wisconsin, U.S.A.

Secondary Sexual Characters and the Coloration of the Prong-buck.

THE weak spot in Mr. Cunningham's argument (NATURE, November 8, p. 29) lies in his believing it to be conceded that secondary sexual characters which are the outcome of male katabolism need no explanation by the theory of sexual or of natural selection. Starting with this assumption, he points out that, since these characters are often not developed, male katabolism does not exist in such cases, or exists without producing any visible effects. He therefore rejects male katabolism as the cause of the variations and introduces in its stead "nervous and muscular activity" and "the habits of life and external conditions."

Whether Mr. Cunningham's hypothesis is an improvement upon that of Geddes and Thomson or Wallace may be doubted; and, so far as his views are intelligible to me from the brief epitome his letter contains, they labour under the disadvantage of involving an acceptance in the Lamarckian doctrine and the transmission of acquired characters—problems which, seductive and important though they be, are as yet insufficiently supported by evidence and, whether true or false, stand aside from the Darwinian theory, neither refuting nor confirming it.

After all, "male katabolism," "metabolism" and "physiological activities" are in this connection merely names assigned to the unknown primary cause of certain male characters, and, as such, are nothing but imposing substitutes for the "vital force" of the pseudoscientific realists.

Setting on one side the question of the initial cause of variation, I am quite unable to agree with Mr. Cunningham that secondary sexual characters may reach a high standard of perfection and be maintained in a state of stability by "physiological processes" without the controlling influences involved in the struggle for existence. Sexual variations, once started, must fall, like other variations, under the influence of external conditions; those which are harmful will be eliminated; those which are beneficial selected and preserved. Therefore, considering the diversity of the conditions under which species live, the needs that have to be satisfied, the enemies that have to be avoided, it is no matter for surprise that, even in the males of closely allied forms, the sexual characters vary in degree of manifestation, are sometimes suppressed, sometimes developed; or, taking the particular case Mr. Cunningham mentions, that the nigrescence of the bull kudu and nilghaie may, as I have suggested, be checked for purposes of concealment in the one and emphasised as an ornament or advertisement in the other.

One or two points in Mr. Cockerell's criticism of a footnote (NATURE, October 15, p. 58) call for comment. His suggestion that Mr. Wallace cites the prong-buck as an instance of recognition-marks in the sense in which these terms were employed in my article is inexact; and his opinion that I completely overlooked the point of a theory I was not discussing is, I can assure him, erroneous. Moreover, in spite of his incredulity, I venture to repeat that the prong-buck, with its white belly and darker upper side, is an illustration of Thayer's principle. That its patterns are to be explained exclusively on this principle I did not assert. With regard to Mr. Cockerell's reasons for rejecting the view that the prong-buck is procryptically coloured, I would commend the following facts to his consideration. Zebras and giraffes can be "seen from afar off in herds," they seek "safety in flight," and they have the same "necessity for keeping together when in flight" that the prong-bucks have. Nevertheless, these animals are known to be procryptically coloured, though the fact is by no means always evident to those who "have had the pleasure of seeing them in their native wilds."

R. I. POCKOCK.

November 18.

A New Race of Musk-Ox.

MR. ROWLAND WARD has on view at his establishment in Piccadilly a mounted adult male and female musk-ox from East Greenland, which differ from the ordinary form in having a large

whitish patch on the face, as well as in certain other details of coloration. They may be made the types of a new race, under the name *Ovibos moschatus wardi*. The female was recently exhibited at the Zoological Society. R. LYDEKKER.

Harpenden, December 10.

The Optics of Acuteness of Sight.

IN reference to the letter of Mr. Percival in your issue of November 22 (p. 82), concerning acuteness of vision, it is interesting to determine the power of resolution of the eye considered as a lens merely, according to the well-known rule,

$$\theta = \frac{\lambda}{A} \times 2.44.$$

Where θ is the angular diameter subtended at the second nodal point by the first dark ring of the diffraction image of a distant point, A is the aperture of the lens, and λ is the wavelength of the radiations (supposed homogeneous) from the distant point.

Taking A for the eye as 4 mm., and λ as 0.000589 mm. (yellow light) the value $\theta = 1'$ is obtained.

Hence the diffraction image of a luminous point on the retina may be taken as rather less than 1' in angular diameter (the brightness of the diffraction disc rapidly decreasing towards the first dark ring).

It would thus seem that, should any considerable superiority of acuteness of vision exist among savages the cause should be looked for in the aperture of the iris, as well as in greater detail of the retina. F. TWYMAN.

54, Haverstock Hill, London, N.W., November 26.

Euclid i. 32 Corr.

WITH reference to Mr. Allman's letter in NATURE of November 29, the following will, I think, be of interest.

In Proclus' (411-485 A.D.) commentary printed at the end of the Editio Princeps of Euclid (Grynaeus-Bâle, 1533 A.D.) these two corollaries are given:—

- (1) The sum of the interior angles of any polygon is equal to twice as many right angles as the polygon has sides less two.
- (2) The sum of the exterior angles of any polygon is equal to four right angles.

STAM. EUMORFOPOULOS.

33, Gloucester Square, Hyde Park, W., December 3.

A PLEA FOR THE STUDY OF THE NATIVE RACES IN SOUTH AFRICA.

IN a recently-published work Dr. P. Topinard makes the statement that ethnography is cultivated in England because it leads to a knowledge of the natives, and thus prepares the means of turning them to account. This distinguished French anthropologist appears to have permitted his dispassionate judgment to have temporarily forsaken him. Alas! ethnography is but little cultivated in this country, and it may be said to be almost entirely neglected by our Government. It was to take away this reproach in some measure, and to seize the present opportunity in South Africa, that led Mr. E. Sidney Hartland, the President of the Folklore Society, to read before the Anthropological Section of the British Association at Bradford a very carefully considered and temperate paper, "On the Imperfection of our Knowledge of the Black Races of the Transvaal and Orange River Colonies."

Mr. Hartland stated that on the pacification of these colonies one of the first problems confronting us would be the management of the native black population. This led to the question, What did we know of the African races of these provinces? It must be confessed that we knew very little. Our hunters had hunted big game through the land; our missionaries had taught the natives; our traders had traded with black and white; our soldiers had fought in the country, and during the last twenty years mining adventurers had exploited the mineral products. None of these, except the missionaries, had had any real interest in the natives; consequently, few of the others had recorded anything of value