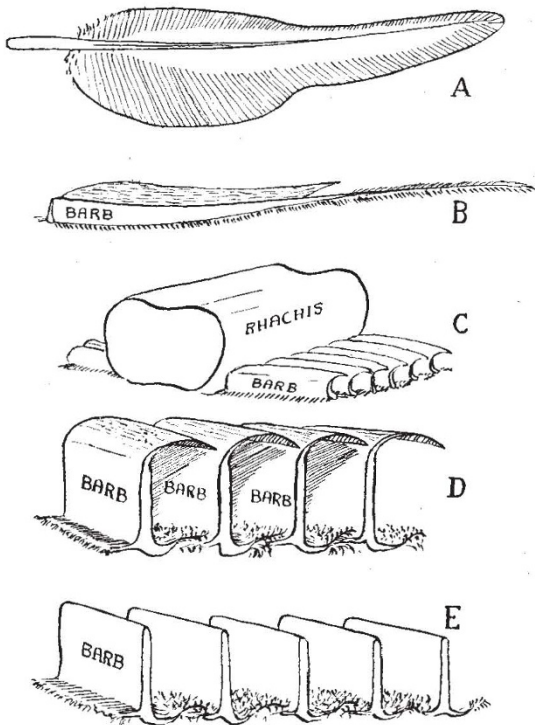


**An Undescribed Feather Element.**

In all the European ducks, geese, and swans, and in certain game birds, there is a remarkable feature about the structure of the primary feathers that seems to be hitherto undescribed. The under surface of a feather from such a bird bears a distinct glistening "mirror" occupying that portion of the web adjoining the rachis. It is quite visible to the unaided eye in any position of light, and may be readily detected by the finger-tip. A closer examination shows this area to consist of a series of narrow silvery (sometimes golden or brassy) membranes each closely overlapping the next distal barb. For illustration I have chosen the fourth primary of an adult Bewick's swan. In Fig. A the glistening area is left unshaded; in Fig. B a single barb is figured, with its membrane; Fig. C shows a portion of the rachis with the web cut across to show the barbs with their membranes in section; Fig. D gives in transverse section four barbs with the curved membranes. This will be rendered clearer by a reference to the fifth diagram, which figures the barbs on a normal feather taken from a cormorant. In this bird the membranes are wanting.

So far as British birds are concerned, this feather



element is present only in the ducks and their allies, where it is always conspicuous; in the four British grouse, where it is again striking; and in the partridge and the pheasant. In certain exotic game birds (*Lophortyx*, *Tragopan*, *Gallus*, *Catreus*, &c.) it is quite absent, and this makes its uniform constancy in the Anatidæ all the more noteworthy. The total absence of the structure in the feathers of *Steganopodes*, *Alcæ*, *Pygopodes*, *Gaviæ*, and *Tubinares* suggests that it is not essential to the feathers of water birds; and it is, moreover, as conspicuous on the feathers of the Anatidæ with terrestrial habits as it is on those of the truly aquatic ducks. This leads one to look upon it as vestigial of some earlier structure, and as such it might be used for taxonomic purposes.

The diagram of the primary shows the emarginations or notches of the web that have been, and still are, used in the classification of birds—*Circus*, for example. The use or meaning of these notches has not been explained, so I may be allowed to point out that the shapes of the outer primaries are governed by the law of Avanzini. Prof. Roy, in Newton's "Dictionary of Birds," has shown

how this law affects the general shapes of the wing feathers, but does not notice the notches. When the wing is fully extended, with the primaries spread out like the fingers of a hand, each feather must necessarily function as a separate wing or sail. As the position of the rachis cannot be altered, the web is trimmed away to the necessary degree. The new feathers appear fully formed, but, in many cases, I have reason to suspect that the notching is increased by the subsequent wear of the adjacent feathers.

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**An Interesting Donkey Hybrid.**

In his letter on the "Origin of the Domestic 'Blotched' Tabby Cat" (*NATURE*, September 8, p. 298), Mr. Vickers says, "after much diligent search I have been unable to find a single instance in which complete segregation has taken place in respect of all specific characters when two well-defined species are crossed." Our knowledge of specific characters is too limited to make such a claim provable if put forward; but I have recently seen a hybrid between two very distinct species which, at all events, approaches that standard. This is a donkey belonging to Sir Claud Alexander, Bart., which he tells me was bred by Hagenbeck between a male dziggetai, or Mongolian donkey (*Equus hemionus*), and a female Nubian donkey (*Equus asinus*). Both these gentlemen are well acquainted with the species in question, which, as every zoologist knows, are very distinct forms. Yet, unless I had been told that the animal was a hybrid, I should unhesitatingly have identified her as a pure-bred African donkey. Her colour is grey, her legs are strongly barred with black, and she has a sharply defined black shoulder-stripe and black mottling at the base of the long ears. All these characters belong essentially to the African, as opposed to the Asiatic, species.

In one point an approximation to the Asiatic type is shown. This is a widening of the spinal stripe towards the croup, a feature which is certainly more marked than in any African donkey I have seen. Still, the stripe is not nearly so wide as in the dziggetai; and, seeing how variable is the width of this stripe in quaggas belonging to the same local race, I do not feel sure that its width in the donkey in question is not an individual peculiarity independent of inheritance.

It is quite true, as Mr. Vickers says, although he expresses the fact somewhat differently, that the progeny of two distinct species usually combines the characters of the parents in such a way as to be describable as intermediate between them. The notorious case of Ward's zebra may be quoted as an instance in point. Until its history was known and its true nature ascertained, this animal was regarded as a distinct species intermediate between Chapman's quagga and the mountain zebra. It is, in reality, as I have elsewhere shown, a hybrid between the two; and I cite the case here for comparison with that of the donkeys. Whereas the two striped species of *Equus* produced an "intermediate" when crossed, the two nearly self-coloured species gave a very different result, thus proving the impossibility of foretelling what the progeny will be like when two well-defined species interbreed. It may be claimed, moreover, I think, that this remarkable hybrid donkey weakens the force of Mr. Vickers's contention that the "blotched" and "striped" tabby cats can hardly be representatives of distinct species because their kittens are not intermediate between the two types when crossed.

R. I. Pocock.  
Zoological Gardens, September 1.

**British Marine Zoology.**

It is possible to have a considerable amount of sympathy with Mr. S. Pace and also with his critic, Prof. MacBride, and at the same time to differ from both on some points. Mr. Pace aims high in both:—(1) his "bibliography of all works dealing with the biology of the European seas," and (2) his "exhaustive faunistic survey of the marine life at one or more points on our coasts," and marine biologists must wish him all possible success in his venture; but the doubt remains whether he has not under-