June, July, October. I have seen, but not shot them in August and September. They are not so much reduced by shooting (as Mr. Barnes says) as by snaring. Many are brought in alive to the Camp Bazaar, and sent to me and others as presents, their legs being most cruelly tied with feathers plucked from their own wings. I have released several that had been so tied, and have found that it took several days for them to recover sufficiently for them to leave my garden. The pelican ibis breeds here at Chittral and at Thasra in October. The shell ibis breeds in large numbers, with the white ibis and snake bird, near Khaira. Mr. Barnes says he cannot find any record of the occurrence of the cotton-teal in Guzerat. It is very common, especially in May and June, when there are hundreds on Muwal tank, 20 miles north of Baroda. When the rains fall, they disperse over the country and take up their quarters in some small pond or pool, occasionally

> Affording scarce such breadth of brim,
> As served the wild duck's brood to swim,

and they nest in the neighbourhood. I extracted a full-sized soft egg from a bird shot near this last September. Mr. Barnes could have found it recorded in Butler's *Gazetteer* list. But enough has been said, I hope, to justify, even from my own very limited experience, the opinion with which I set out, that Mr. Barnes might have got much additional information if he had asked the "Bombay Natural History Society" for it, and might thereby have rendered his book still more deserving than it is at present of being regarded as the standard authority on the birds of the Bombay Presidency.

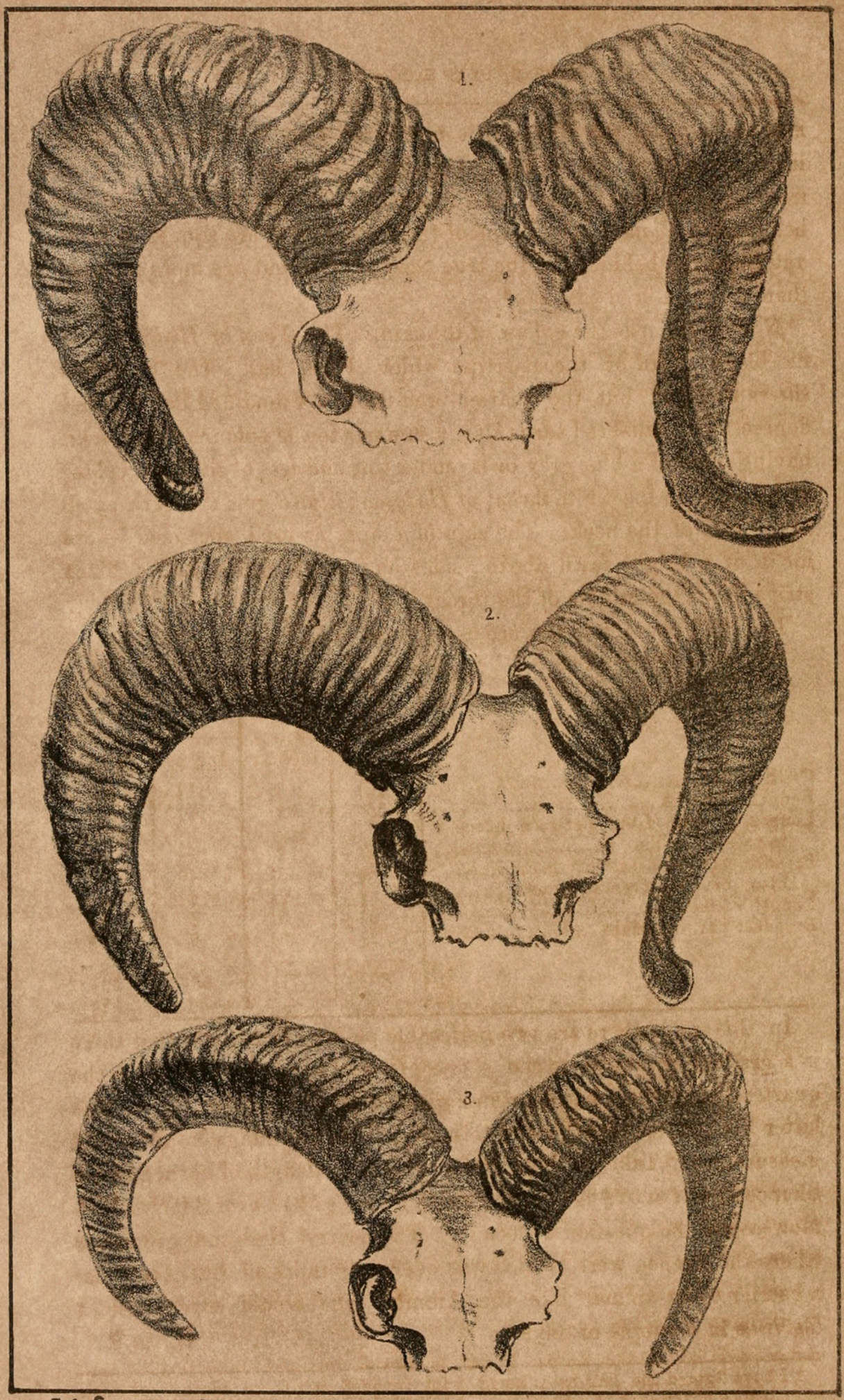
ON A HYBRID, *OVIS HODGSONI, CUM VIGNEI*, DISCOVERED AND SHOT BY MONS. H. DAUVERGNE,

BY R. A. STERNDALE, F.Z.S., &c.

HYBRIDIZATION between the various known species of *Capræ* and *Oves* has been abundantly proved by the instances that have occurred in the London Zoological Gardens. In 1864 and 1865-67 and 1868, a female *Capra Ægagrus*, the Persian Ibex, bore seven kids, the father of which was a Markhor *C. Megaceros*. In 1872 a hybrid between a male *Ovis Aries* and a female *Ovis Musimon*; in 1871 two hybrids between *Ovis Musimon*, the Corsican Moufflon, and our Indian *Ovis Cycloceros* were born; also in 1871 and 1882 two between the former and *Ovis Aries*. There are two species of deer

from Philippine Islands, *Cervus Nigricans* and *Cervus Alfredi* which have twice bred in the gardens, and so have the European and Mesopotamian fallow deer. Sir Victor Brooke in one of his letters to me says he has known the common red deer and the Japanese deer to interbreed. So far the question of interbreeding is amply proved, but the interesting feature of the case is how far is this carried out in the wild state so as to create new species. I am of opinion that, if the truth were fully known, we should have to narrow down our list of goats and sheep. It is an undecided question whether *Ovis Polii* and *Ovis Karelini*, the two great sheep of the Pamir steppes, are not one and the same, and I think that *Ovis Brookei* is the hybrid which forms the subject of this paper. Sir Victor Brooke in a letter to me says : " If we can prove that the form is a hybrid between those two species (*i.e.*, *O. Hodgsoni et Vignei*), it will be much more interesting than if it should prove what is called a distinct species. I do not think the presence of one or even several male *O. Hodgsoni* amongst herds of *O. Vignei* would originate a breed of sheep intermediate in size and character between the two species, the much larger quantity of *Ovis Vignei* blood in the district would, in my opinion, prevail over the infusion of *O. Hodgsoni* blood introduced in such small quantities, and the thus originated larger animals would throw back to the parent stock. If it is a case of hybridization what we should find would be herds of *O. Vignei* with here and there large animals mixing and running with them of *O. Brookei* forms." Now this is exactly what Mons. Dauvergne found. In the mountain range south of the Indus near Zanskar, the precise locality being for obvious reasons withheld from publication, a herd of *Ovis Vignei* were observed for some years to contain a large ram of *Ovis Hodgsoni*, which drove out the weaker Shapoo rams and appropriated the ewes of the herd. He was ultimately one winter killed and eaten by *Chankos* (the Tibetan wolf), but during his stay he produced a family of hybrids possessing greater size of horn and head with characteristic colouring, combining traits of both animals. In course of time these hybrids were crossed again with the *Vignei* stock, and the third generation shows signs of degeneration from the larger sheep and of reversion to the Vignei type.

The skull of the half-bred animals, which the Tartars called *Nyan Shapoo* (the former being the name of the *Hodgsoni* or Ammon



R.A. Sterndale Del..

1. Ovis Hodgsoni.-2. Hybrid.- 3. Ovis Vignei.

and the latter of the *Vignei*), is nearer in size to *Hodgsoni*, which is double that of the other. The horns of these are rounded in front resembling what has been figured of *Brookei*, but hollowed out behind like *Vignei*. The horns of the quarter-bred are square in front and hollowed behind like the true Shapoo type, but are more massive than the pure-bred Shapoo.*

Now as regards the colour of the skin. The *Nyan* or *Hodgsoni* has no black beard or throat-stripe which *Vignei* has. The half-bred shows no black, but the quarter-bred does in a modified but decided degree. The half-bred turns also in summer to the colour of *Hodgsoni*, having more of a blue grey or lavender tint and less of the fawn colour of *Vignei* with the white throat of *Hodgsoni*, it also gets the dark patch at the side of the neck. The skin of a quarter-bred specimen before me is of a bright fawn above ; sides and rump white, and a black stripe down the middle of the throat.

The skull characteristics are as follows :—

	Ovis Hodgsoni	*Half-hybrid*	*Quarter-hybrid.*	*Ovis Vignei.*
	Inches.	Inches.	Inches	Inches.
Girth of horn	16½	13½	11¼	10
Length of horns	36	32	22¾	30¼
Length of skull from between horns t tip of premaxillæ	13½	12	9½	9¼
Breadth between orbits	6⅛	5½	4⅝	3¾
Ditto between frontal sinuses	2¾	2⅞	2⅜	2
Length of teeth	3½	3¼	3	2⅞
Broadest part of palate	2¼	2¼	2	1¾
	80⅜	71⅜	55½	59⅛ 52⅜

In this table there are two noticeable points. It is plain that there is a gradual reversion to the size of *Ovis Vignei*, but although the quarter-bred hybrid has a greater girth of horn than the *Vignei*, the latter has greater length ; and this gives it an advantage in all round measurement. Take off these extra 7½ inches in length of horn, and the Shapoo stands at 52⅜ against the quarter-bred's 55½ ; over 3 inches less. Now comes the question of locality. The nearest Hodgsoni ground to where the Shapoo were located was over sixty miles off, but this is not a barrier to an animal like the Ammon who would cover such a distance in a couple of days. R. A. S.

* I have figured the half-bred horns with rounded fronts on account of their resemblance to the type of *Ovis Brookei*, but I have received another pair of hybrid (half-bred) horns which are quite square in front and as massive as the rounded ones.—R.A.S.