

July 28, 1840.

Professor Owen in the Chair.

A letter from Capt. Christopher Smith, of H. M. Brig 'Star,' was read: it is dated July 20, 1840, and refers to two living Agoutis which that gentleman begged to present to the Society. The letter moreover states that he had collected a few specimens of Natural History, which he would take an early opportunity of forwarding for the Society's Museum.

Mr. Leadbeater exhibited an extensive collection of Birds, most of which were rare species from the various islands of the Indian Archipelago.

Mr. Cuming exhibited some specimens of Quadrupeds, which he had procured during his stay at Malacca; they consisted of two specimens of *Semnopithecus obscurus*, which species, Mr. Cuming states, is subject to great variation in its colouring, one specimen of *Felis marmorata*, and one of *Rhizomys Sinensis*.

Mr. Cuming's notes relating to the last-mentioned animal state that the specimen was a male, and before it was skinned afforded the following dimensions: length from the tip of the nose to the root of the tail, 15 inches; of tail, 6 inches; girth behind the shoulders, 8 inches. The animal lives on the roots of bamboos, under which it burrows; the eyes are very small, and of a black colour.

Mr. Blyth read his paper entitled "An Amended List of the Species of the genus *Ovis*."

"The arrival of various spoils of different species of wild sheep," remarks the author, "since my memoir upon this genus of animals was read before the Society, enables me now to clear up several points which I formerly left as doubtful, as well as to include some additional species in the catalogue, and to indicate still more as probably distinct, and therefore desiderata to which the attention of travellers and others should be directed.

"1. *Ovis Polii*, nobis (the Pamir Sheep). In the narrative of the celebrated Venetian traveller, Marco Polo, we read (in Marsden's edition, p. 142) that upon the elevated plain of Pamir, eastward of Bokhara, and which is 16,000 feet above the sea-level, 'wild animals are met with in great numbers, particularly sheep of a large size, having horns three, four, and even six palms in length. The shepherds form ladles and vessels of them for holding their victuals. They also construct fences for enclosing their cattle, and securing them against the wolves, with which they say the country is infested, and which likewise destroy many of the wild sheep or goats (*mou-*

toni v. becchi or 'boucs'.) More recently, an animal called the *Rasse* was indicated, from report, in Sir Alexander Burnes's 'Travels in Bokhara,' ii. 208, and its horns have since been transmitted to the Royal Asiatic Society by Lieut. Wood, of Sir A. Burnes's party, through the medium of G. T. Vigne, Esq. In this magnificent specimen of a frontlet I recognize (though with some hesitation) the *Ovis sculptorum*, formerly described by me from a horn in the Museum of the Royal College of Surgeons; but as the characters of that specimen, as originally drawn up by me, have not hitherto been published; as its flexure, too, which suggested the appellation of *sculptorum*, would appear to form a less extended spiral than is probably normal, and the habitat also proves to be different from that anticipated,—namely, the Taurus, which I have still reason to suspect contains a large undescribed species of this genus,—I here propose to dedicate the present splendid animal to the illustrious Venetian traveller of the thirteenth century, by the name of *Ovis Polii*.

"As compared with the Rocky Mountain Sheep of North America, the *Rass* or *Roosh* of Pamir differs in having the horns considerably less massive, but more prolonged, approaching more in character to those of the domestic *O. Aries*, but differing again from the latter, not only in their very superior size, but in having their two front angles about equally developed. As in the Rocky Mountain species, and I believe also the *O. Aries* normally, the pair at first diverge backward, and then descend and gyre round at a parallel with the axis of the body, inclining, as they again spire backwards, more outward to the tip. The horns described were in their seventh year of growth, and measure 4 feet 8 inches in length, following the curvature, and $14\frac{1}{4}$ inches round at base, having the tips, which are continued round till they point obliquely backwards, 45 inches apart. The width of their upper plane is $3\frac{1}{2}$ inches at base, $2\frac{3}{4}$ inches at the distance of one foot from the base, and $2\frac{1}{2}$ inches at $\frac{2}{2}$ feet distance from the base; the depth of the base inside is 5 inches, and distance apart of the pair, measured outside, where they gyre forward at a parallel, 21 inches. The years of growth are successively $15\frac{1}{2}$, $10\frac{1}{2}$, 13, 8, 5, 3, and the last (incomplete) 1, inches. The College of Surgeons' specimen, a single horn, was in its eighth year of growth, but measures only 4 feet 4 inches round the curvature; its depth towards the base is 6 inches, and greatest width, about the middle, $2\frac{3}{4}$ inches. The successive annual growths are $12\frac{1}{2}$, 9, 8, 8, 7, 5, $3\frac{1}{2}$, and the incipient eighth 1, inches. It is curved in a spiral involution, and scarcely outwards for three-fifths of a circle, when it gradually inclines more so to the tip, the horn describing one circle and about a third. When upon the head, it must accordingly have gyred considerably inward, instead of descending at a parallel with the other, as indeed is almost invariably the case with the domestic *O. Aries*. Both specimens are of a pale colour, and indented with rugged transverse striæ, in general half an inch apart. Of the animal nothing further is yet known. Considering, indeed, the differences of the two specimens, it is by no means improbable that they will yet prove to be of allied rather than of the same species,

in which case my former name of *O. sculptorum* might be retained for that to which it was applied.

“2, 3, and 4. The museums of Western Europe do not, that I can learn, contain any portion of the Siberian Argali, *Ovis ammon* of Pallas, that might serve for comparison with the Rocky Mountain Sheep of North America, *O. montana* of Desmarest; but as the Kamtschatka Argali is described as a distinct species, *O. nivicola*, by M. Eschscholtz in his *Zoologischer Atlas*, (differing from the two preceding in its inferior size, and in wanting, it would appear, the pale disc surrounding the tail, so conspicuous in both the others,) the probability is thus enhanced, that the Siberian and Rocky Mountain species are not the same, however closely they may resemble. The descriptions of *O. Ammon* would seem to apply in every particular to the *O. montana*, though it is still probable that actual comparison of specimens would lead to the detection of some discrepancies, as generally, but not always, happens in like cases. I may notice, that while Mr. Drummond affirms that the horns of old rams of *O. montana* ‘attain a size so enormous, and curve so much forwards and downwards, that they effectually prevent the animal from feeding on level ground*,’ the same had previously been remarked by Strahlenberg of the Argalis of Siberia†, and no doubt is equally observable in the *Rass* of Pamír. The finest specimen of a head of the Rocky Mountain animal, of seven heads of adult males examined, is in the collection of this Society, and gives the following admeasurements: horns 3 feet 5 inches over the front ridge, and $17\frac{1}{4}$ inches round at base, where the front angles are $4\frac{3}{4}$ inches apart. They number nine years of growth, which successively give 9, $7\frac{1}{2}$, $6\frac{1}{2}$, 5, $4\frac{1}{2}$, 4, $2\frac{1}{4}$, $1\frac{1}{4}$, and 1, inches. They are nearly equilaterally triangular, but bulge a little between the angles, having the inner or front angle obtusely prominent, the posterior double, or forming a second plane at a slight angle with the superior one, and the inferior angle (if such it can be called) much rounded off: the greatest depth of the horn is about 6 inches; from base of front angle to tip they measure 11 inches; and the tips apart 26 inches. They are everywhere strongly furrowed across, more particularly in front, the intervals between the grooves swelling out considerably; and they gradually become, as in all the rest of the genus, more compressed to the extremity.

“Of the *O. nivicola* of M. Eschscholtz, that naturalist writes: ‘The specimen described is a male in winter garb, measuring 5 feet (French?) in total length, and 2 feet 5 inches high. Its outer coat is of a yellowish grey colour, brighter on the under parts, and inclining to straw-yellow on the head and neck; the markings in front of the limbs are of a rust-colour: horns equilaterally triangular, 3 inches thick at base, and gyring outwards to form one complete spiral circle, 10 inches in diameter, and having their points directed

* *Fauna Americana-borealis*.

† Description of the northern parts of Europe and Asia.—Eng. Transl., p. 332.

outwards and forwards; the upper and posterior portions of the horn are level, and marked with deep annual indentations, which successively measure 7, 6, 5, 4, 3, 2, 2, and $1\frac{1}{2}$, inches, making eight years of total growth; besides which, there are numerous minor indentations or ordinary cross-striæ, but no protuberant intervals.' From the figure they would seem not to bulge between the angles, as is usual, though not invariably the case, with the Rocky Mountain species; as also to be somewhat more tensely spiral, as if pulled a little outward. The appearance both described and figured at the base of the fore-limbs externally, I suspect to be nothing more than the *axilla*, that had been twisted outwards in the mounting of the specimen. M. Eschscholtz describes this animal to be very numerous on the mountains of Kamtschatka, residing upon the snow-clad heights in summer, and descending to the lower regions in winter. A notice of its chamois-like agility occurs in the narrative of Kotzebue's Voyage from 1823 to 1826.

"In the 18th volume of the 'Asiatic Researches,' part ii., Mr. Hodgson, of Nepál, gives a figure of a horned female of the Nahoor Sheep, and also of the skull and horns of a young ram, which he erroneously refers to that species, as since described by him. He also mentions having once possessed a pair of the horns, which he 'could only lift from the ground with a considerable effort'; but it is necessary to observe, that the description which he gives in the volume adverted to, of the mutilated skin of a young wild ram, procured in mid winter, refers evidently to the Nahoor, and not to the species with horns having a triangular section, which is the subject of the present notice. According to Mr. Hodgson, the horns of this young specimen are 'equilaterally triangular,' as the figure likewise represents; whereas the Rocky Mountain species would at the same age have much compressed horns, far from attaining to an equilateral triangle. Should a true species be here indicated, as is not improbable, distinct from *O. Ammon*, I propose that it be dedicated to that assiduous investigator of Nepalese zoology, and be accordingly termed *O. Hodgsonii*.

"5. *O. Californiana*, Douglas. The Jesuit missionary Venegos observed in California 'a kind of wild sheep, the size of a calf of one or two years old, with extraordinarily thick horns, resembling those of a common ram, and tail shorter than that of a stag,' whence it would appear that the Rocky Mountain species, or a near ally, is here alluded to. Mr. Douglas describes the Californian Argali to have a tail 18 inches long (*vide Zoological Journal*, iv. 332). Its length, he observes, from nose to base of tail, is 5 feet 10 inches; height of the shoulder 2 feet 8 inches; girth behind the shoulders 6 feet; head 16 inches long, 7 [to] between the eyes, and 9 [to] between the horns: ears erect, $1\frac{1}{2}$ inch [$4\frac{1}{2}$ inches?] long, obtuse. The horns deposited in the museum of this Society bear a general resemblance to those of the Rocky Mountain species, but are smoother, and form a much more open spiral: the terminal third is very much compressed; the medial intermediate, and the basal very thick and triangular: they were only in their fifth year of growth, and would

doubtless have attained to much greater dimensions. Their length is 32 inches, measured over the front ridge, and girth at base $14\frac{1}{2}$ inches, having a span of $12\frac{1}{2}$ inches from base to tip inside: from the tip to first annual depression they measure $12\frac{1}{2}$ inches, and then successively $6\frac{1}{4}$, $5\frac{1}{2}$, $4\frac{3}{4}$, and the incipient fifth year's growth 2 inches. They do not bulge between the angles, which are rather obtuse, and, as usual, are transversely striated. Approximate distance of the tips apart 33 inches.

“ ‘From the testimony of the Indian tribes about the Great Falls of the Columbia River,’ writes Mr. Douglas, ‘this species appears to inhabit the subalpine regions of Mounts Wood, St. Helen’s, and Vancouver, but is more numerous in the mountainous districts of the interior of California. The only good skin that ever came under my observation was in lat. $46^{\circ} 14' 55''$, and long. $121^{\circ} 17' 0''$.’ Forbes, in his recent work on California, appears to allude to it by the name of *Berindo*, which in Mexico is applied to the *Antilocapra furcifera*. He quotes, however, the description by Venegos, including the statement that it has a short tail, and remarks, that ‘they still abound in the plains at the foot of the mountains, and are always found in large herds.’ It does not, from the context, appear to me that the prong-horned animal is intended.

“ ‘From these we might proceed, through the domestic *Aries*, to the species generally typified by the Moufflon of Corsica; but I shall interpolate a small group from the Himalaya, and apparently Caucasus, distinguished by having smooth and sub-cylindrical horns, that form a bold arc outwards at nearly right angles with the axis of the body, and have the tip turned backward. Such is

“ 6. *O. Nahoor*, Hodgson; the *Nahoor* or *Nervati*, and *Snà* (not *Shà*) of Thibet. Size of the larger breeds of tame sheep, with pale horns, and general colour dull brownish grey in old animals, with the ordinary dark markings on the face, breast, and limbs, more or less developed. Younger specimens, more particularly, have their coat, when renovated, tipped with a light fulvous tint, deeper along the middle of the back; the tail is bushy, and conspicuously white, its medial portion generally dark. Length, as given by Mr. Hodgson, 4 feet from nose to base of tail, and height of the back 32 inches. A female was 3 feet 4 inches from nose to tail, and stood 29 inches high at the shoulder. From nose to between the horns a male measured $8\frac{1}{2}$ inches; the ears $4\frac{1}{2}$ inches; and tail 4 inches, or 7 inches to the end of the hair. A pair of horns in the museum of this Society, which are far from having attained their full growth, measure 12 inches in circumference at base, and $20\frac{1}{2}$ inches long over the curvature, having their tips 27 inches asunder: their successive annual growths were respectively $6\frac{1}{2}$, 4, 3, $2\frac{3}{4}$, $2\frac{1}{2}$, and $1\frac{3}{4}$ inches. Mr. Hodgson mentions a pair that were each 32 inches long. Those of a very old female in the British Museum have precisely the same curvature as in the male, only that the tips do not turn so much backwards; they are, however, much compressed, and measure $9\frac{3}{4}$ inches long, $4\frac{1}{2}$ inches round, with the tips 14 inches apart. Another female, in the collection of this Society, is entirely

destitute of horns. The latter, and a young male which I formerly examined at Mr. Leadbeater's, accorded perfectly with the description of Mr. Hodgson, having pale slaty-blue hairs, deeper on the back, and tipped with a rufous tint, more particularly on the back, which caused the animal to appear of a pale fulvous or isabelline hue. An old male in the museum of the Linnean Society*, and the aged female in the British Museum, together with another skin which I have seen, have not only no trace of this colour in their present state of *pelage*, but I doubt whether they showed much of it when their coat was new: the colour of all three is a dingy grey-brown, not easy to express in words.

"The horns of the Nahoor differ but little in flexure from those of the next species, but may nevertheless be distinguished by many differences, in general strongly pronounced: as their superior size; the greater proportional thickness of the basal half, beyond which they narrow somewhat abruptly; the flatness of their dorsal aspect, with a much more acutely raised ridge along its middle; and by the comparative sharpness of all the angles, together with the existence, generally, of some traces of cross striæ, more particularly towards their compressed tips; whereas the horns of the Burrhel Sheep are much less angular, of a deep rufous-brown colour, and quite smooth. Those of the female Nahoor described were entirely destitute of cross furrows, but all have the marks of annual growth conspicuously indented.

"This species, according to Mr. Hodgson, 'inhabits the Kâchar region of Nepâl, northward of the habitat of the Jharal Goat, amid the glaciers of the Himalaya, and both on the Indian and Thibetan sides of that range.' Mr. Vigne informs me that it is plentiful in Great, but not in Little Thibet. I suspect that it is never found at so considerable an altitude as the next species.

"7. *O. Burrhel*, nobis. Smaller and more robust than the Nahoor, with shorter ears, and very dark horns; having no white upon it; and general colour dark and rich chestnut-brown, with the ordinary black markings upon the face, chest, and front of the limbs very distinct; tail apparently minute.

"This handsome species bears pretty much the same relationship in appearance to the Nahoor, which the English breed of South Down domestic sheep bears to the Leicester breed, except that there is not so much difference in size. Length of the unique stuffed specimen in the museum of this Society, from nose to tail, 54 inches, but a foot less would probably give the dimensions of the recent animal, as the skin is evidently much stretched; height of the back 32 inches, from which also about 2 inches might be deducted; from muzzle to base of horn 8 inches, and ears $3\frac{1}{2}$ inches. The horns measure 20 inches over the uppermost ridge, and 10 round at base, having their tips 25 inches apart; but those of a specimen noticed in the 'Bengal Sporting Magazine' (for 1839, p. 295) were $25\frac{1}{2}$

* Mistaken for *Ovis Ammon* in the *Fauna Americana-borealis*, vol. i. p. 274, and for a second specimen of *O. Burrhel* in Part 6, p. 79, for July 10th, 1838, of these 'Proceedings.'

inches long, with a girth of $11\frac{1}{2}$ inches; and a horn of this same species, which I examined at Mr. Leadbeater's, had attained a length of 2 feet, and circumference of 11 inches at base, having a span of 14 inches from base to tip inside, and numbering at least ten indications of annual growth, and probably at least one more towards the tip, which could not be made out with certainty. The respective lengths of these were successively $10\frac{1}{2}$, $2\frac{1}{2}$, $2\frac{1}{4}$, $1\frac{3}{4}$, $1\frac{1}{4}$, $1\frac{1}{2}$, 1, 1, $\frac{3}{4}$, and the basal $\frac{1}{2}$, inches. The coat of the Burrhel Sheep is rather long, and harsher than that of the Nahoor, having less wool concealed beneath it than in the Moufflon and Rocky Mountain species. The female is undescribed, and I have met with no other specimens than are here mentioned.

“In the description of the preceding species, the principal differences are stated which distinguish the horns of that animal from those of the present one. The Burrhel's horns have all the ridges rounded off, though still sufficiently distinct, and the marks of annual growth are deeply indented, the horn bulging a little between them. Upon a front view, the backward curvature of the tips disappears altogether, and the animal has an imposing appearance, finer than that of the Nahoor. Its colour is much darker than that of the Moufflon.

“The Burrhel would seem to inhabit a much loftier region of the Himalaya than the Nahoor, where it bounds lightly over the encrusted snow, at an altitude where its human pursuers find it difficult to breathe. It has the bleat of the domestic species, as indeed they all have, and is very shy and difficult of approach. Flocks of from ten to twenty have been observed, conducted by an old male, which make for the snowy peaks upon alarm, while their leader scrambles up some crag to reconnoitre, and if shot at and missed, bounds off a few paces further, and again stops to gaze. They pasture in the deep hollows and grassy glens. The Society's specimen was met with near the Boorendo Pass, at an altitude estimated to have been from 15,000 to 17,000 feet. The notice in the ‘Bengal Sporting Magazine’ refers to the same locality; and another notice most probably alludes to this species, in Lieut. Hutton's ‘Journal of a Trip through Kunawar,’ published in the ‘Journal of the Bengal Asiatic Society’ for 1839, p. 994. Finally, Mr. Leadbeater informed me that the horn described as having been in his possession was brought from Nepâl, together with specimens of the Nahoor and Musk, and the skull and horns of a Himalaya Ibex, which I also examined.

“8. *O. cylindricornis*, nobis (the Caucasian Argali). Col. Hamilton Smith notices this animal in his description of *O. Ammon* (published in Griffiths's English Edition of the ‘Règne Animal,’ vol. iv. p. 317), and writes me word that an individual died on landing it at Toulon, whither it had been brought by a French consul, who did not preserve the skull or skin, but set up the horns, which were quite fresh when he saw them. ‘Each horn was about 3 feet long, arcuated, round, as thick at the top as at the base, of a brown colour, nearly smooth, and about 15 inches in circumference. They were so heavy and unmanageable,’ writes Col. Smith, ‘that I could not lift both together from the ground, nor place them in that kind

of juxta-position which would have given me an idea of their appearance on the head. I could not well determine which was the right or which the left horn. Circumstances prevented my taking a second view of them, as they arrived only the day before I left Paris, and they are now doubtless in the museum of that capital.' In my former paper I alluded to this animal as probably distinct, and apparently allied to the Burrhel: the foregoing details confirm me in that opinion, and remove all doubt of its distinctness, as there is no other species to which they will at all apply. The sketch which Col. Smith has favoured me with represents a sheep-horn, apparently of the same general form as those of the Burrhel and Nahoor; but the dimensions specified are very superior to those attained in the instance of either of the two Himalayan species adverted to, and I can only suppose that the (reverted?) tips had been broken off, and the truncated extremity worn smooth. The wild sheep of Caucasus and Taurus are at present little known, nor does any notice of this genus occur in the catalogue of Caucasian animals published by M. Ménétries; though it is nevertheless certain, from the vague incidental notices of various travellers, that some, and not unlikely several, exist. At Azaz, by the foot of Taurus, Mr. Ainsworth mentions having seen an animal which he designates *Ovis Ammon* (*vide* 'Travels in Assyria, Babylonia, and Chaldea,' p. 42).

"9. *O. Gmelinii*, nobis (the Armenian Sheep). This species belongs to the Moufflon group, but is yet very different from the Moufflon Sheep of Corsica. It is described and rudely figured in the *Reise durch Russland* (vol. iii. p. 486, and Tab. LV.) of the younger Gmelin; and the skull and horns, forwarded by that naturalist to St. Petersburg, have been figured and described by Pallas in his *Spicilegia* (Fasc. xii. p. 15, and Tab. V. fig. 1.). Messrs. Brandt and Ratzeburg erroneously identified it, at the suggestion of M. Lichtenstein, with the wild Cyprian species, the horns of which have a nearly similar flexure. Fine specimens of the male, female, and young, lately received by this Society from Erzeroom, enable me to give the following description:

"Size of an ordinary tame sheep, with a remarkably short coat, of a lively chestnut-fulvous colour, deepest upon the back; the limbs and under parts whitish, with few traces of dark markings, except a finely contrasting black line of more lengthened hair down the front of the neck of the male only, widening to a large patch on the breast; and in both sexes a strip of somewhat lengthened mixed black and white hairs above the mid joint of the fore-limbs anteriorly, which corresponds to the tuft of *O. Tragelaphus*; tail small, and very slender: horns of the male subtrigonal, compressed, and very deep, with strongly marked angles and cross-striæ, diverging backwards, with a slight arcuation to near the tips, which incline inwards. As regards the flexure alone, but not the character of the horn, which is allied to that of the Common Ram, this handsome species links the Moufflon group with the Nahoor and Burrhel group.

"Length nearly 5 feet from nose to tail; the tail 4 inches; from nose to base of horn 8 inches, and ears $3\frac{1}{2}$ inches. Horns (about

full-grown, or nearly so,) 20 inches over the curvature, 10 round at base, 4 deep at base inside, their widest portion 2 feet apart, and tips 21 inches, with a span of $13\frac{1}{2}$ inches from base to tip inside; their colour pale. Around the eye and muzzle this species is whitish; the chaffron and front of the limbs are more or less tinged with dusky, and its coat is rather harsh, and fades considerably in brightness before it is shed. Female generally similar, but smaller, with no black down the front of the neck, and in the observed instances hornless. The lengthened black hair of the male is only 1 inch long, and that composing the tuft on the fore-limbs is so disposed that the latter is white in the centre, flanked with blackish.

“According to M. Gmelin, this species is found only on the highest mountains of Persia. Its rutting season takes place in September, and lasts a month; and the female yeans in March, producing two or three lambs at a time: the males, he informs us, are very quarrelsome amongst each other, insomuch that he had been at one place where the ground was completely strewed with horns that had been knocked off in their contests; so that if any variation in the flexure of these horns had been observable, this industrious naturalist would doubtless have remarked it. Sir John McNeill informed me that ‘it appears to be the common species of the mountains of Armenia; occurring likewise on the north-west of Persia;’ but the wild sheep of the central parts of Persia is evidently distinct, ‘having horns much more resembling those of the domestic Ram, being spiral, and completing more than one spiral circle. I think I am not mistaken in supposing,’ continues Sir John, ‘that I have also had females of this species brought to me by the huntsmen with small horns, resembling those of the ewes of some of our domestic sheep; but, on reflection, I find that I cannot assert this positively, though I retain the general impression.’ It is highly probable that a wild type of *O. Aries* is here adverted to, which would thus inhabit the same ranges of mountains as the wild common Goat (*C. Egagrus*); and with respect to the circumstance of horns in the female sex, I may here remark that this character is very apt to be inconstant throughout the present group. It has already been noticed in the instance of *O. Nahoor*; and the elder Gmelin states that the females of *O. Ammon* are sometimes hornless, while those of the Corsican *O. Musimon* are generally so. The same likewise happens in different species of wild Goats, in the Goral of India, and in the prong-horned animal of North America; and even in the Gazelles, and other ovine-nosed species of what are commonly confused together under the name of *Antelope*, there have been instances of hornless males as well as females. A male Springbok of this description, as I am informed by Col. Hamilton Smith, was long in the possession of the Empress Josephine; and the specimen of *Ixalus Probaton*, Ogilby, in the museum of this Society, doubtless affords another example of the same phenomenon.

“10. *O. Vignei*, nobis: the *Shà* (not *Snà*) of Little Thibet, and *Koch* of the Sulimani range between India and Khorassan. This fine species is closely allied to the Corsican Moufflon, but is much

larger, with proportionally longer limbs, and a conspicuous fringe of lengthened blackish hair down the front of the neck, and not lying close, as in the Moufflon. Its size, I am informed by Mr. Vigne, is that of a large Fallow Deer; and from the general appearance of these animals, their length of leg, and swiftness on the mountains, 'they reminded me,' remarks that gentleman, 'of Deer rather than Sheep.'

"The general colour of this animal, to judge from an elaborately finished painting, taken from a living individual in its native country by Mr. Vigne, to whom we are indebted for all we know concerning the species, is a rufous brown, apparently not so deep as in the Moufflon; the face livid, or devoid of the rufous tinge of the body, and not terminated by a white muzzle, as in the Moufflon Sheep: the belly is white, separated by a black lateral band; and the limbs are brown, not mottled, as in the Moufflon, but with a whitish ring immediately above each hoof, then a dark ring, and above this a little white posteriorly, as in the Nylghau. The fringe in front of the neck is doubtless peculiar to the male, and the hairs of it would appear to be 4 or 5 inches long, and hang loosely. Tail about 6 inches long, and slender, apparently resembling that of the Armenian species rather than the Moufflon's.

"A full-grown pair of horns measure $32\frac{1}{2}$ inches over the curvature, and 11 inches round at base; their widest portion apart, measured outside, is 2 feet, the tips converging to 8 inches, and span from base to tip also 8 inches: they are subtriangular, much compressed laterally, the anterior surface $2\frac{3}{4}$ inches broad at base, with its side-angles about equally developed, and the posterior part of the section tapers rather suddenly to a somewhat acute angle; eight years of growth are very perceptible, which successively give 12, 7, 4, 3, 3, $1\frac{1}{2}$, $1\frac{1}{2}$, and $\frac{1}{2}$ inches; they bear considerable resemblance to those of the Moufflon Sheep, but differ in being very much larger, and in the circumstance of the outer front-angle being as much developed as the inner one; and they have not the slightest tendency to spire, but, describing three-fourths of a circle, and originally diverging as in a common Ram, they point towards the back of the neck, somewhat as in *O. Tragelaphus*. Another and younger specimen, however, has a decided spiral flexure outward, more especially towards the tip, and has also the outer angle much less developed than in the corresponding terminal portion of the former. This pair had grown to 11 inches long, with the tips $14\frac{1}{2}$ inches apart; only one year's growth, and that apparently incomplete, is however exhibited, and the curvature is likewise less than in the older specimen. The portion of skull attached is also so much smaller, that I think it prudent to hesitate in identifying it as specifically the same. The posterior margins of the orbits are but $4\frac{1}{2}$ inches apart, whereas in the other they are $5\frac{1}{2}$ inches. There are no materials for extending the comparison, but a few more dimensions may be given of the smaller one. The greatest width of this skull, at the posterior portion of the *zygoma*, is 5 inches, and the orbits are $3\frac{1}{4}$ inches distant where most approximated: the series of 5 developed

molars occupied $2\frac{3}{4}$ inches; width of second true molars apart, posteriorly and externally, $2\frac{1}{4}$ inches; of anterior false molars, measured outside and before, $1\frac{1}{8}$ inch; greatest width of palate $1\frac{3}{4}$ inch, and from front of first false molar to anterior portion of occipital *foramen*, $5\frac{3}{4}$ inches. Mr. Vigne, indeed, assures me that the adult has only five grinders on each side of both jaws, as in the Chirew, which, if normal, would make an important distinction, as the smaller specimen would undoubtedly have developed a third true molar, and possesses three false ones; whereas it is in one of the latter that the Chirew is deficient. I am inclined, however, to regard the two specimens as belonging to the same species, since I have observed analogous differences in the mere flexure of the horn in different Corsican Moufflons; but it was at all events proper to indicate the disparity.

“ ‘Vast numbers of this species,’ relates Mr. Vigne, ‘are driven down by the snow in winter to the branches of the Indus, near Astor, at the southern extremity of Little Thibet, where the river breaks through the chain of the Himalaya. I once saw a young one, apparently of this species, in Persia, but took no memorandum of it at the time; it was dirty and draggled, but, I think, was covered with short wool.’ I have great pleasure in dedicating this species to that gentleman.

“ 11. *O. Musimon*, Linnaeus: the Moufflon Sheep of Corsica and Sardinia, but not, there is reason to suspect, of the Levantine countries. It is unnecessary to give a detailed description of this beautiful little species, though I may mention that the fine living male in the Gardens measures 39 inches from nose to tail, the tail 5 inches; from nose to base of horn 7 inches; ears 4 inches; neck, from posterior base of horn to the abrupt angle of its insertion, 8 inches, and thence to base of tail 21 inches; height at the shoulder $2\frac{1}{4}$ feet. The horns of this individual are remarkable for not spiring in the least degree, whence they point towards the back of the neck: they measure 21 inches over their curvature, and $8\frac{1}{4}$ inches round at base, being in their fifth year of growth; their widest portion apart is 15 inches, and at the tips 6 inches; but another pair, upon the stuffed specimen in the museum, which show the more usual slight spirature, are 26 inches long, having the widest portion 14 inches apart, and the tips as much as 12 inches: this pair shows seven years of growth, and their development was evidently completed, though they are only 7 inches in girth at base. The female has seldom any horns, which, when they exist, are ordinarily about 2 inches long.

“ The character of the horn of the Moufflon is nearly the same as that of the domestic Ram, only that it is never so much prolonged, nor indeed to more than two-thirds of a circle: the inner front edge is acute to near the base, where the outer one approaches to an equality with it; the first half being thus unequally triangular, and the remainder much compressed, with strongly marked *rugæ*, and having the inner surface of the horn concave. It has always appeared to me, however, that the specific distinctness of the Moufflon is very obvious, and I doubt whether it has contributed at all to the origin of any tame race. That it interbreeds freely with the latter, under

circumstances of restraint, is well known; but we have no information of hybrids, or *Umbri*, as they are called, being ever raised from wild Moufflons, though the flocks of the latter will occasionally graze in the same pasture with domestic sheep, and all but mingle among them. The male of this animal is denominated in Corsica *Mufro*, and the female *Mufra*, from which Buffon, as is well known, formed the word *Moufflon*: and in Sardinia the male is called *Murvoni*, and the female *Murva*, though it is not unusual to hear the peasants style both indiscriminately *Mufon*, which (as Mr. Smyth remarks in his description of that island,) is a palpable corruption of the Greek *Ophion*. It is sometimes stated, but I do not know upon what authority, that a few of these animals are still found upon the mountains of Murcia.

“12. The Cyprian Moufflon, figured and described by Messrs. Brandt and Ratzeburg from a specimen in the Berlin Museum, and contrasted by them with M. F. Cuvier’s figure of the Corsican animal, is probably a distinct species, intermediate to *O. Musimon* and *O. Gmelinii*: its horns have more the curvature of those of the latter species, but are not so robust, and curve round gradually backward from the base, instead of at first diverging straightly, as in *O. Gmelinii*; but the colour of the coat would appear to resemble that of the Corsican Moufflon, only without the rufous cast, and the specimen figured wants also the saddle-like triangular white patch, which is seldom absent in the Moufflon of Sardinia and Corsica. The *Tragelaphus* of Belon, it is true, observed by that author in Candia and in Turkey, is described by him to have ‘horns similar to those of Goats, but sometimes gyrated like those of a Ram’; yet the fact of a nearly similar flexure of horn to that represented by Messrs. Brandt and Ratzeburg, proving to be of normal occurrence in the allied Armenian wild Sheep, confers additional probability on the supposition that the Berlin specimen of the Cyprian Moufflon has also normally curved horns, which alone would go far to establish its claim to rank as a species, in which case it might bear the appellation of *O. Ophion*.

“13. *O.* —: *Ixalus Probaton*, Ogilby. I stated in my former paper an opinion, to which I am still disposed to adhere, that this animal is no other than a genuine sheep, but specifically distinct from any at present known: the specimen had long lived in captivity, as is obvious from the manner in which its hoofs had grown out; but whereas I formerly sought to account for its absence of horns, by ascribing this to probable castration at an early age, I am now inclined to consider that this abnormality—for such there is every reason to suppose it—was individually congenital, as in other rare cases before alluded to. The Armenian wild Sheep approaches more nearly to this species than any other as yet discovered; so much so, that before actually comparing them I thought that they would prove to be the same; but they are nevertheless distinct, as is particularly shown by the longer and less slender tail of the present animal, and the very different texture of its coat: the absence of dark markings on its face and limbs may prove to be an individual peculiarity. The specimen is of the size of a large tame Sheep, and entirely of a

chestnut fulvous colour, dull white beneath and within the limbs, as also on the lips, chin, lower part of the cheeks, and at the tip of the tail. From nose to base of tail it measures about 50 inches,—the tail half a foot, and height of the back $2\frac{1}{2}$ feet. From nose to rudiment of horn 9 inches, and ears 4 inches: the vestiges of horns, which exactly resemble those found upon many breeds of tame Sheep, are 2 inches apart. Upon the minutest examination of the specimen, I can perceive no character whatever to separate it from the genuine Sheep, nor any distinction more remarkable than the trivial circumstance of its chaffron not being bombed, as usual, which however is equally the case with *O. Tragelaphus*. I have been favoured, however, by Col. Hamilton Smith with a drawing of an animal observed by himself on the banks of the Rio St. Juan in Venezuela, which appears to accord so nearly with *Ixalus Probaton*, except in the particular of bearing horns similar to those of the Rocky Mountain Goat, that its absolute identity is probable, in which case it would be curious that a species so very nearly allied to the genus *Ovis* should yet differ from it so considerably in the character specified. The South American animal adverted to is the *Aploceros Mazama* of Col. Smith, and is probably congenous with the *Pudu* of the Chilian Andes mentioned by Molina, (the existence of which would appear to have been lately re-ascertained by M. Gay,) and also with the fossil *Antilope Mariquensis* of Dr. Lund: there would indeed appear to be other living species of this type, more or less distinctly indicated by different authors.

“ 14. *O. Aries*, Linnæus: the Domestic Sheep. Assuming that different species have commingled to produce this animal, as appears to be very evident in the instance of the Dog, it is still remarkable that we have certainly not yet discovered the principal wild type, or indeed any species with so long a tail as in many of the domestic breeds, which I cannot doubt existed also in their aboriginal progenitors: nothing analogous is observable among the endlessly diversified races of the domestic Goat, which all appear to have been derived exclusively from the Caucasian *C. Ægagrus*; and as in my former paper I suggested the probability that a wild Sheep more nearly resembling the domestic races than any hitherto discovered would yet occur somewhere in the vicinity of the Caucasus, it now appears that such an animal does exist in central Persia, as noticed in my description of *O. Gmelinii*: nor should it be forgotten that Hector Boëtius mentions a wild breed in the island of St. Kilda, larger than the biggest Goat, with tail hanging to the ground, and horns longer and as bulky as those of an Ox*. Pennant remarks upon this subject, that such an animal is figured on a bas-relief, taken out of the wall of Antoninus, near Glasgow.

“ Of all the wild species of true *Ovis* that have been here described, the Rass of Pamir approaches nearest to *O. Aries* in the

* Two *crania* of sheep, apparently male and female, from the Irish peat, in the possession of the Earl of Enniskillen, and exhibited some time ago at a meeting of the Geological Society, are probably of this race.

character of its horns, though differing in one particular, besides size, that has been pointed out; namely, that the two front angles are about equally developed; whereas in *O. Aries*, as in the Moufflon, the inner angle is more acute to near the base. Some experience in the deduction of the specific characters of sheep-horns enables me to state with confidence, that the normal character of the long-tailed domestic breeds of Europe, and also of most other breeds, is intermediate to that of the Rass and that of the Moufflon, combining the flexure and the prolongation of the former with the section of the latter, but becoming proportionally broader at the base than in either; more as in the Argalis of Siberia, Kamtschatka, and North America. That *O. Aries* is totally distinct from all, I have been long perfectly satisfied, and examination of the Rass in particular has strongly confirmed me in this opinion. I think it likely, however, that more than one wild species have commingled to form the numerous domestic races, though certainly not any that have been described in this paper. It is not very long since the question was habitually discussed, whether the tame Sheep had descended from the Argali of Siberia or the Moufflon of Corsica? and now that so many more decidedly distinct wild species have been added to the catalogue of this genus, it is probable that we are still very far from having ascertained the complete existing number, but that several more yet remain to be discovered upon the lofty table-lands and snowy mountains of middle Asia, from the Caucasus and Taurus to the Altai, and among them, it is very probable, some much more nearly allied to the domestic races than any at present known.

“The whole of the foregoing animals appertain to my subgeneric group *Ovis*, as distinguished from *Ammotragus*, which latter is characterized by the absence of suborbital sinuses, like the Goats, but differs from the latter by possessing interdigital *fossæ*, as in other Sheep. This difference between the Goats and Sheep appears to have been first noticed by Pallas, and has since been descanted upon by Prof. Géné in vol. xxxvii. of the *Memorie della Reale Accademia delle Scienze di Torino*. The fact of such a diversity in genera so nearly allied in habitat as the Goats and Sheep, renders the problem of the utility of the structure in question somewhat difficult of solution. The species upon which I found the subgenus *Ammotragus*, has decidedly an Ovine, rather than a Caprine aspect, when viewed alive: the male emits no stench, as in the Goats; the bleat is precisely that of *Ovis*, and the animal butts like a Ram, and not like a Goat. Unlike the other species of admitted wild Sheep, as well as the long-horned or true wild Goats, it has a concave chafron, and no markings on the face and limbs: its tail is rather long, which is the case in no species of *Capra*, and is also remarkable for being tufted at the extremity. The indigenous habitat, North Africa, is a further peculiarity in the genus in which it is here placed, though two species of wild Goats respectively inhabit Upper Egypt and the snowy heights of Abyssinia.

“15. *O. Tragelaphus*, Pallas: the African Goat-Sheep. This animal appears to vary considerably in size, some exceeding a Fallow

Deer in stature, while others are much smaller. It has no beard on the chin, like the true Goats, but is remarkable for the quantity of long hanging hair in front of the neck, and on the upper part of the fore-limbs, the former attaining in fine males to about a foot in length, and the latter to 9 inches; there is also some lengthened hair at the setting on of the head, and a dense nuchal mane, the hairs of which are 3 inches long, continued over the withers till lost about the middle of the back. General colour yellow-brown. Horns moderately stout, turning outwards, backwards, and so inwards, with the tips inclining towards each other.

“The splendid male in the British Museum measures 5 feet from nose to tail, and tail 9 inches, or with its terminal tuft of hair 13 inches; height of the back $3\frac{1}{2}$ feet, but the living animal would not have stood so high by several inches; from muzzle to base of horn 11 inches, and ears 5 inches. The finest pair of horns which I have seen are in the same collection, and measure 25 inches over the curvature, $10\frac{1}{2}$ round at base, with an antero-posterior diameter of $2\frac{1}{2}$ inches inside; they diverge to 23 inches apart, measuring outside, at a distance of 6 inches from the tips, which latter return to 15 inches asunder; their span from base to tip inside is 13 inches; at base they are closely approximated, but not quite in contact. General form subquadrangular for nearly a foot, then gradually more compressed to the end, and having a very deep longitudinal furrow for the greater portion of their length outside, above which the horn bulges: there is a mark of annual growth at $1\frac{1}{4}$ inch from the base, another $1\frac{1}{2}$ inch further, and a third after an interval of 3 inches; but the rest are too indistinct to be made out with certainty among the wrinkles of the horn. A large pair of female horns were 16 inches long; $7\frac{1}{2}$ round at base; their widest portion apart, near the tips, 19 inches; and the tips $17\frac{1}{4}$ inches: their surface is marked with broad transverse indentations, which in the males ordinarily become more or less effaced with age. The female of this species is a third smaller than the other sex; and a lamb in the collection of this Society is extremely kid-like, with the spinal mane upon the neck and shoulders very conspicuous, but no lengthened hair on the fore-neck and limbs; in the half-grown male, the latter especially is still not much developed.

“This species is well known as the *Aoudad* of the Moors, and the *Kebsh* of the Egyptians; it is also, according to Rüppell, the *Tedal* of the inhabitants of Nubia, which is doubtless the same as *Teytal*, applied by Burckhardt to the wild Goat of that region, in addition to the word *Beden*, which (in common with Rüppell and others) he also assigns to the latter. Mr. Wilkinson, however, confirms Burckhardt, by informing us that the Goat referred to is called in Arabic *Beddan*, or *Taytal*, the former appellation referring to the male only. This author adds, that the present species ‘is found in the eastern desert, principally in the ranges of primitive mountains, which, commencing about lat. $28^{\circ} 40'$, extend thence into Ethiopia and Abyssinia.’ According to M. Rüppell, ‘it is found in all North Africa above 18° , in small families, and always upon the rocky hills;’ frequenting the

steepest and most inaccessible crags amid the woods and forests of the Atlas, and descending only to drink. It is a wonderfully agile leaper, even more so than the wild Sheep and Goats generally, and is remarkable for always browsing, in preference to grazing. The *Ovis ornata*, figured by M. Geoffroy in the great French work on Egypt, would appear to be merely a small-sized individual.

“The following may serve for definitions of the various ascertained species of wild Sheep that have been here described:—

“1. *O. Poli*, Blyth. *O. cornibus maximis triquetris, angustis altissimisque; angulis anterioribus equalibus: extrorsum spiraliter gyratis, et tam prolongatis quam sunt cornua Arietum domesticorum longissima: sulcis transversim indentatis; colore pallido. Animal non cognitum est, sed O. Ammoni magnitudine saltem haud inferius. Habitat apud planitiem elevatam Pamir dictam, in Asia centrali.*

“2. *O. montana*, Desmarest. *O. cornibus maximis triquetris, crassissimis, et sæpe inter angulos tumidis, ad apicem compressoribus; sulcis transversim indentatis; deorsum et antrorsum gyratis ad parallelum, apicibus extrorsum eductis: colore pallido, sed sæpe rufo-brunneo suffuso. Animal ad magnitudinem Cervi Elaphi appropinquans, sed artubus brevioribus; pilis griseo-fulvis pallidis, maculis genericis super facie, pectore, artubusque fuscis; caudâ brevissimâ, et disco albescente circumdatâ. Habitat apud Americæ Septentrionalis montes, occidentalem versus.*

“3. *O. Ammon*, Pallas. Diversitas hujus speciei ab præcedente non cognoscenda est, quamvis patria differt, hæc in Siberiâ Orientali habitante; tertia alia species ambobus distincta regione intermediâ Kamtschatkæ invenitur, itidem simillima, tamen (apparenter) facillimè dignoscenda; viz.

“4. *O. nivicola*, Eschscholtz. *O. cornibus triquetris, et inter cornua Poli et Montana Ovium apparenter intermediis; apicibus magis prolongatis quam in O. montano, sed ad basin crassioribus; potius quam in O. Polio prolongatis, sed cornibus utriusque minoribus. Magnitudo huic animali inferior est, et pilorum color flavescens, sine disco caudali. Habitat apud montes Kamtschatkæ.*

“5. *O. Californiana*, Douglas. *O. cornibus crassis triquetris, ad apicem compressoribus; sulcis transversim indentatis; curvamine aperto extrorsum (non antrorsum) gyrantibus, apicibus plurimum extrorsum ductis; colore pallido, aut rufo-brunneo paulum suffuso. Magnitudo Ammonis, vel paulum inferior: caudâ elongatâ, et non (?) disco pallido circumdatâ. Habitat apud Californiam.*

“6. *O. Nahoor*, Hodgson. *O. cornibus crassis subcylindræcis, supra magis planiusculis, culmine abruptiore medio, dimidio-distali compressiori, et extrorsum arcuatis, apicibus retortis: sulcis transversis obsoletis; colore pallido. Magnitudo Arietis grandis; pilis griseis, vel in junioribus adultis fulvo terminatis, maculis genericis fuscis; caudâ brevi et floccosâ. Habitat apud regiones medias montium Himalaicorum, et in Tibetâ Magnâ.*

7. *O. Burrhel*, Blyth. *O. cornibus crassis subcylindræcis, supra*

convexioribus, culmine longitudinali minùs abrupto, et aliis angulis minùs prominentioribus quàm in specie præcedente, subequalioribus; in arcu extrorsùm curvatis, apicibus retrorsis; sulcis transversis obsoletis; colore nigrescenti-rubido. Magnitudo inferior est *Nahoori*, sed forma robustior; pilis castaneo-brunneis intensis, maculis genericis nigris et distinctis; caudâ minimâ (?) et non floccosâ. Habitat apud montium Himalaicorum regiones summas.

“ 8. *O. cylindricornis*, Blyth. *O.* cornibus maximis cylindraceis, in arcu extrorsùm (?) sine diminutione curvatis, apicibus non cognitis; sulcis transversis obsoletis: colore nigrescenti-rubido. Habitat apud Caucasum.

“ 9. *O. Gmelinii*, Blyth. *O.* cornibus triquetris et robustis, altis, et transversim sulcatissimis; in arcu retrorsùm divergentibus, apicibus introrsùm ductis: colore pallido. Magnitudo *Arietis*; pilis brevissimis, et castaneo-fulvis splendide coloratis; maculis genericis subdistinctis, sed lineâ pilorum longiorum nigrâ infra collum in mare solo excipiendâ, apud pectore se expandente, et in utroque sexu cæsarie rudimentâ brachiis, sicut in *Ove Tragelapho*: caudâ brevi et gracillimâ. Habitat apud Armeniam et provincias Occidentales Persiæ Septentrionalis.

“ 10. *O. Vignei*, Blyth. *O. Musimoni* simillima, sed magnitudine *Cervi Damæ* grandis, æquans artubusque longissimis: cornibus robustis, compressis, et subtriquetris, angulis anterioribus equalibus; lunatim non spiralter gyratis; et sulcis transversim indentatis: colore pallido. Corporis pilis rufo-brunneis; facie artubusque lividis; ventre, et annulis supra ungulas albis; lineâ laterali nigrâ; pedibus annulo secundo nigro anticè albo super-marginato notatis; apice caudæ (brevis et gracilis,) et lineâ pilorum paulò pendentium infra collum medium ad pectus tendente, nigris. Habitat apud Tibetam Minorem. *Varietas dubia* minor, cornibus extrorsùm gyratis, cum angulo interiori prominentiori.

“ 11. *O. Musimon*, Linnæus. *O.* cornibus compressis, ad basin triquetrioribus, angulo interiori prominentiori; lunatim gyratis, et sulcis transversim indentatis: colore pallido. Magnitudo *Arietis* parvi, caudâ brevi et magis villosâ: pilis rufo-brunneis; facie lividâ, cum capistro albo; ventre, clunibus, dimidiisque artuum inferioribus, albis; et lineâ laterali, caudâ, pectore, et membrorum plerumque dimidiis superioribus, nigris: maculâ triangulari albâ utroque lumbo sæpe conspicuâ. Habitat apud insulas Corsicæ et Sardinia, et forsan provinciam Murcia in Hispaniâ.

“ 12. *O. Ophion*, Blyth. *O. Musimoni* simillima, sed cornibus retortis, apicibus accurvatis: pilisque brunneis, et non rufescentibus (?). Habitat apud Cyprum, et forsan regiones alias Levantinas.

“ 13. *O. Aries*, Linnæus.

“ 14. *O.* —? *Ixalus Probaton*, Ogilby. Magnitudo *Arietum* maximorum, caudâ paulum elongatâ: cornibus in specimine solo cognito abnormaliter (?) rudimentalibus. Pilis castaneo-fulvis, et infra albescentibus.

“ 15. *O. (Ammotragus) Tragelaphus*. *O.* cornibus magnis subquadrangularibus, moderatè crassis, ad apicem compressoribus, sulcis

transversim indentatis; divergentibus et retrorsum curvatis, sed prope basin rectis, apicibus acclinatis; colore pallido. Magnitudo *Cervi Damæ* superior, pilis flavescenti-brunneis; collo jubato, et infra cum pectore brachiisque capillato, caudâ elongatâ extremitate villosâ; facie non convexâ—ut in omnibus speciebus aliis, sinibusque suborbitalibus nullis. Fœminâ semper (?) cornutâ, cornibusque fortioribus quàm in fœminis specierum cæterarum hujus generis, quæ sæpe non cornutæ sunt, sed plurimæ cornua parva, tenuissima, et compressiora ferunt, qua in maribus junioribus aut curvata sunt, aut sæpe rectiora. Habitat apud Africæ Septentrionalis montes rupestres.”

This paper on the Sheep was illustrated by numerous drawings; and the horns of the Rass of Pamir, from the Museum of the Royal Asiatic Society, and two pairs of those of the *Shà* of Little Thibet, and one of the Nahoor Sheep, or *Snà* of Great Thibet, brought by G. T. Vigne, Esq., were exhibited.

Mr. Blyth also exhibited various other coloured drawings and specimens collected chiefly in Little Thibet by Mr. Vigne, among the former of which were several figures of the Yak (*Bos grunniens*), a highly-finished portrait of the Jharal* of Mr. Hodgson, another of the *Ovis Vignii*, some sketches of the *Ursus isabellinus*, (or *Syriacus* of Ehrenberg?) and of Buffaloes of the same breed as that of Italy and Hungary, with the long tail, &c., that were drawn from life at Hurriana. This race was more esteemed for the quantity of milk it yields than the ordinary Indian Buffalo, with long horns, a shorter tail, &c., and is doubtless the same, in the opinion of Mr. Blyth, as the Guzurat race indicated in Dr. Buchanan's 'Journey through Mysore,' &c., which that author, however, observed at Seringapatam. It appears to be scantily diffused throughout India, becoming rarer to the eastward.

Among the specimens was the horn of a Stag, from Kashmir, which Mr. Blyth suspected would prove to be the *C. Wallichii* of Duvaucel, or a closely allied species, a description of which may be expected from Dr. Falconer. The specimen exhibited was 44 inches long, and 8 inches round above burr: it had a brow, a bez, and royal antlers, the bez a foot in length, and longest of the three, and

* “This animal is mostly known as the *Tehr*, *Thaar*, or *Thar*, to the westward of Nepâl, a name applied by Mr. Hodgson to a very different animal, which is usually called *Surow*, or *Surrow*. The first of these names, as suggested to me by Col. H. Smith, is clearly a modification of the Teuton *Thur*, ramifying into *Thier*, *Deer*, &c. &c. &c. *Surow*, or *Surrow*, again passes into various other names, applied to different Himalayan Ruminants; as *Jerow* or *Jerrow* for the *Cervus Aristotelis*, *Serow* and *Chirew* (pronounced with a soft 'Ch') for the *Panthalops chiru*, Hodgson, &c. Then we have *Jharal*, *Goral*, *Goorul*, *Baral*, *Boorul*, *Burrhel*, *Boorhoor*, *Nayoor*, *Nahoor*, and even the Persian *Maral* may be derived from the same root. These names, too, are all severally applied to different animals, whence it often requires much caution in endeavouring to ascertain what species is intended.”
—E. B.

it terminated in a bifurcating crown, precisely as in the *Cervus Elaphus* of the Sâl forest of Nepâl, figured by Mr. Hodgson, and supposed by Mr. Ogilby to be *C. Wallichii*, an opinion in which Mr. Blyth coincided. The general character of this horn was intermediate to that of the *Wapiti* and European Stag, but agreeing more nearly with the latter in its kind of granulated surface.

There were also three pairs of horns of the *Markbur* of Kabul, or *Rawacki* of Little Thibet, a race of feral common Goats (in the opinion of Mr. Blyth), remarkable for their large size, and also that of the horns, which last are more or less twisted, varying from the curvature of those of the Koodoo, only in an opposite direction, to the tense spiral of the Caffrarian Impoof's horns, as shown by the specimens then exhibited. It was remarkable that no tame Goats observed by Mr. Vigne in the same countries at all approached this feral race in stature, nor was it known to occur in Persia, or in Nepâl. From the circumstance of the twist alone of the horns of this animal, Mr. Blyth argued that it was not an aboriginal species; for whereas an inward spirature, or at least a tendency to it at the tips, was all but invariably observable throughout the endlessly diversified races of domestic Goats, neither the wild *Capra Egagrus*, nor any other of the numerous distinct species of wild *Capræ* known to Mr. Blyth, exhibited this spirature in the least degree; besides which, it appeared to be alike in no two specimens of the *Markbur*. This animal, however, as he was informed, did not vary in colour, which resembles that of an ordinary brown domestic Goat. A description and figure of it have been published in Mr. Vigne's narrative of his travels in Kabul.

Finally, were exhibited the skull and horns of a magnificent specimen of the Himalayan Ibex, being the second skull and third pair of horns of this species examined by Mr. Blyth, all of which accorded with each other in the several particulars in which they differed from the Swiss Ibex. The animal is very closely allied to the latter, having a similar rudimental beard, and colouring, so far as he could learn; but the horns are much longer, considerably less divergent (a constant distinction in both species), and resemble those of the Egyptian Ibex in curvature: excepting towards the base, they are less massive than the horns of the Swiss Ibex, the middle part being narrower; and the tips, which incline more abruptly somewhat forward and inward, are much more attenuated, or drawn out. The splendid pair exhibited, which were in their twelfth year of growth, and all but fully developed, measured $4\frac{1}{4}$ feet over the curvature, and $10\frac{1}{2}$ inches round at base; diverging to 23 inches asunder, measuring outside, at nearly three-fourths of their length from the base, and the tips returning to 16 inches apart, at a distance of 20 inches from the base inside. They are 4 inches deep at base, $2\frac{1}{4}$ inches broad anteriorly, and 2 inches at a foot distance from the base, bearing 26 prominences, and numbering, as before remarked, 12 years of growth, which successively give 16, 7, 5, 4, 5, 4, $3\frac{1}{2}$, $2\frac{1}{2}$, 2, $1\frac{1}{2}$, and the last (incomplete) $\frac{1}{2}$ inches. The extreme length of skull is 12 inches, or $18\frac{1}{2}$ inches over the curves, from tip of intermaxillary to occipital *foramen*;

breadth across of orbits posteriorly 7 inches, and total length of bony palate $6\frac{1}{4}$ inches. The dimensions of the largest pair of horns of the Swiss Ibex examined by Mr. Blyth, and which were of the same age as the preceding, are given as follows. Length $3\frac{1}{2}$ feet over the arch, having a span of 2 feet from base to tip inside; the points $2\frac{3}{4}$ feet asunder, and basal circumference $10\frac{3}{4}$ inches; number of prominences above 20, several being comprised within the first 8 inches. They diverge quite regularly, and somewhat spirally, more outward to the tip.

“The Himalayan Ibex,” continues Mr. Blyth, “is the *Skyn* or *Skeen*, *Sakeen* or *Sikeen* (as variously written) of different parts of its range, and is numerous, according to Mr. Vigne, in Little Thibet, where it is designated *Skyn*. In Kashmir it bears the name of *Kyl*. Mr. Moorcroft informs us that in Ladakh the male is termed *Skyn*, and the female *l’ Danma**: he describes it to inhabit the most inaccessible crags of the mountains; and other authors notice its habits as entirely resembling those of its Alpine congener†. In Kashmir, as I am informed by Mr. Vigne, its *poshm* (or under-fleece of delicate silky wool), which in all the true massive-horned Ibices is amazingly copious in winter, is highly prized, ‘that of one large Ibex being equal to the produce of three Shawl Goats, besides being softer and finer. I have some beautiful cloth,’ continues that gentleman, ‘made from the *poshm* of the Ibex. The animal is of a sepia-brown colour.’ It may be further noticed, that in the ‘Journal of the Asiatic Society of Bengal,’ vol. v. p. 242, it is stated that Major Kennedy had a pair of these animals, stuffed, at Suhatu, in Kunawar. A skull and horns which I saw at Mr. Leadbeater’s was received from Nepál, where, however, the species does not yet appear to have been noticed by Mr. Hodgson. Dr. Falconer has probably named it.

“*Himalaya Ibex*. *Capra* Ibici Helvetico simillima, sed cornibus magis prolongatis, semper minus divergentibus, apicibus attenuatioribus et ad antrorsum abruptiori-curvatis,—sic ut in plurimis speciebus hujus generis, at vix in *Capra Ibice* verâ.”

* Travels, i. 311.

† Vide ‘Journal of a Trip through Kunawar,’ published in the ‘Journal of the Asiatic Society of Bengal’ for 1839, p. 928.