

culum of *Georissa sarrita*, which is by my brother, are drawn by Capt. Godwin-Austen.

EXPLANATION OF PLATE XVI.

Fig. 1. Georissa sarrita, Benson, sp.; shell, magnified about 18 diameters; the mouth is a little turned away: 1 *a*, operculum, seen from the inside, showing the projection, magnified; 1 *b*, animal, sketched in three different positions, magnified; 1 *c*, lingual ribbon, magnified 250 diameters; 1 *d*, teeth near the centre, still further enlarged; 1 *e*, uncini near the margin.

Fig. 2. Acicula (Acmella) tersa, Benson, sp.; shell, magnified about 15 diameters. The specimens sent to me by Capt. Godwin-Austen differ in being more conical and less ovate, but otherwise agree well. The shell perhaps varies slightly in form. 2 *a*, operculum, magnified. A small portion of the foot (*f*) remained attached, and could not be removed, on account of the minuteness and thinness of the operculum. 2 *b*, animal, magnified, sketched in three different positions. 2 *c*, lingual ribbon, greatly magnified; the outer teeth to the left partly turned back.

Calcutta, December 26, 1868.

XXV.—*The Rabbit (Lepus cuniculus) as known to the Ancients.*

By the Rev. W. HOUGHTON, M.A., F.L.S.

THE rabbit appears to have been but little known to the ancients; the old inhabitants of Greece and Rome were not plagued, as tenant farmers in this country are, with this prolific little pest to agriculture. The rabbit in its wild state is essentially a European animal. To the ancient Jews it was entirely unknown; there is no mention of it in the Bible; it is generally acknowledged that the Hebrew word (*Shâphan*) rendered "coney" by the authorized version denotes the *Hyrax syriacus*: several species of hare have been described as occurring in the Bible-lands, but no kind of native rabbit. Rabbits were noticed by Russell as occurring rarely in the vicinity of Aleppo; but they had been introduced from Europe. If we turn to Aristotle, we shall find that, in all probability, the rabbit was quite unknown to him, though he sometimes speaks as if he were alluding to this animal. The words he uses are *λαγῶδες* and *δασύπους*: the former word occurs but once in his 'History of Animals,' viz. in a passage (viii. 27. § 4) in which he mentions that the *λαγῶοι* of Egypt are smaller than those of Greece. Of the *δασύπους* he says:—it is prudent and timid (i. 1. § 15); it is retromingent (ii. 3. § 4); it is one of those animals which, having teeth in both jaws, have cotyledons in the pregnant uterus (iii. 1. § 15); its blood, like that of the stag, does not coagulate so completely as that of many other animals (iii. 6. § 1); it alone of all animals has

hair on the inside of its cheeks (iii. 10. § 13); its milk, like that of ruminating animals, contains rennet, and is therefore useful in diarrhoea (iii. 16. § 6); the female *δασύπους* in coition often mounts upon the male (v. 2. § 1); it produces its young at all seasons, and becomes pregnant a second time while previously pregnant; it has young every month; as soon as the young are born, copulation again takes place, and the female conceives while giving milk, which is as thick as that of the sow; the young are born blind (vi. 28. § 3); if a *δασύπους* be taken into Ithaca, it will not live, but will be found dead on the sea-coast, with its face turned towards the spot from which it was brought (viii. 27. § 2); there is a kind of *δασύπους*, near Lake Bolba and in other places, which has its liver so divided as to look like two livers (ii. 12. § 3). The only passages that call for attention are those in which Aristotle speaks of the *δασύπους* having hair inside its cheeks, and of its producing its young, which are born blind, every month: the former statement is true of the hare, the latter of the rabbit. But Aristotle is so frequently in error with regard to matters of common observation, and is often so prone to hasty generalization, as to lead me to infer that by the term *δασύπους* he understood a hare, and believed that this animal produces its young ones blind, and more frequently than is really the case. As he nowhere alludes to the burrowing habits of a leporine animal, it is hardly likely that he was acquainted with the rabbit.

Neither, again, does Xenophon, so minutely graphic in his description of the hare, and hare-hunting, ever allude to the rabbit. Living, as the old general did for many years, as a Greek squire, in his house at Scillus, in the game-abounding district of Elis, Xenophon must have made some remarks on an animal so closely allied to, and yet differing in some remarkable ways from, his favourite hare, had he been acquainted with it.

The earliest Greek writer, so far as I have been able to ascertain, who distinctly alludes to the rabbit, is Polybius the historian (*circ.* B.C. 204). Speaking of the natural history of Corsica, he says the only animals found wild there are foxes, wild sheep, and rabbits (*κύνικλοι*). He thus describes the *κύνικλος*:—"At a distance it looks like a small hare; but when you take it into your hands, there is a great difference between the two, both in appearance and flavour; it lives for the most part underground." (*Histor.* xii. 2.) Polybius was a traveller, and had, no doubt, seen the rabbits he so well describes.

Rabbits are mentioned expressly by Strabo (*circ.* B.C. 50)

as occurring abundantly in Spain, the great home of *Lepus cuniculus*, though it is not certain whether this geographer was himself ever in Spain. The following is his description:—“Of destructive animals there are scarcely any, with the exception of certain little hares, which burrow in the ground (πλὴν τῶν γεωρύχων λαγιδέων), and are called by some *leberides*. These creatures destroy both seeds and plants, by gnawing at the roots. They are met with throughout almost the whole of Spain, extending to Marseilles, and infesting the islands also. It is said that formerly the inhabitants of the Gymnesian islands [Majorca and Minorca] sent a deputation to the Romans soliciting that a new land might be given them, as they were quite driven out of their country by these animals, being no longer able to stand against their vast multitudes. It is possible that people might be obliged to have recourse to such an expedient for help as waging war in so great an extremity, which, however, but seldom happens, and is a plague produced by some pestilential state of the atmosphere, which at other times has produced serpents and rats in like abundance; but for the ordinary increase of these little hares many ways of hunting have been devised, amongst others by wild weasels from Africa trained for the purpose (καὶ δὴ καὶ γαλᾶς ἀγρίας, ἃς ἡ Λιβύη φέρει, τρέφουσιν ἐπιτηδες). Having muzzled these, they turn them into the holes, when they either drag out the animals they find there with their claws, or compel them to fly to the surface of the earth, where they are taken by people standing by for that purpose.” (Geograph. iii. 2. § 6.)

Ælian, who lived in the third century of the Christian era, thus speaks of the rabbits of Spain:—“There is also another kind of hare, which is small and never attains the size of the common hare; it is known by the name of *κόνικλος*: I retain the original nomenclature adopted by the people of western Spain, as I am not an inventor of names. In that country this animal is abundantly found: its colour is darker than that of other hares; it has a shorter tail, and differs in the size of the head, which is finer and smaller and less fleshy; its whole body, too, is shorter; but in other respects it is like an ordinary hare. It is unusually excited when it unites sexually with the female. Like the stag, it has a bone in its heart, the use of which let others divine.” (Nat. Hist. xiii. 15.)

Athenæus (A.D. 230), after quoting the passage from Polybius already given, says that Poseidonius the philosopher makes mention of rabbits in his history, but the grammarian gives no further information. Athenæus himself, however, was acquainted with these animals. “We ourselves,” he

says, "have seen a great many in our voyage from Dicæarchia (Puteoli) to Naples; for there is an island, not far from the mainland, opposite the lower side of Dicæarchia, inhabited by only a very scanty population, and having a great number of rabbits." (Deipnosoph. ix. 64.)

Pliny says, "There is also a species of hare in Spain which is called *cuniculus*; it is extremely prolific, and produces famine in the Balearic islands by destroying the harvests. The young ones, either when cut from out of the body of the mother, or taken from the breast without having the entrails removed, are considered a most delicate food; they are called *laurices*. It is a well known fact that the inhabitants of the Balearic islands begged of the late emperor Augustus the aid of a number of soldiers to prevent the too rapid increase of these animals. Ferrets (*Viverræ*) are much prized on account of their hunting these animals; they are put into the burrows, with their numerous outlets, which the rabbits form, and from which circumstance they derive their name, and as the ferrets drive them out they are taken above." (Nat. Hist. viii. 55.) Pliny also mentions superfoetation as occurring in both the hare and the rabbit.

Martial says, rabbits first taught men how to undermine enemies' towns—

"Gaudet in effossis habitare cuniculus antris,
Monstravit tacitas hostibus ille vias."

(Ep. xiii. 60.)

The Latin word *cuniculus*, it is well known, denotes both a rabbit and an underground passage. Varro (De Re Rust. iii. 12. § 6) suggests that the rabbit derived its name from the burrows it forms: "cuniculi dicti ab eo, quod sub terra cuniculos ipsi facere soleant ubi lateant in agris." J. G. Schneider contends with much force that the word *cuniculus* is of Spanish origin: "Animal ex Hispania allatum, Romani vetere Hispanico nomine appellarunt." Ælian, it will be remembered, says the same in distinct words. There was an ancient Spanish nation called Cunei (*Κουνεοί*), of which, according to Appian, the chief town was *Κονίστοργυς*. I may mention that there is a small island of the Balearic group, called Conejera, which is abundantly stocked with rabbits: hence the Spanish name ("a rabbit-warren").

Appian in Varro (*l. c.*) gives instructions how to form a leporarium, and speaks of three kinds of hares, the *cuniculus* being one of them. Two of these kinds he concludes he has already in his leporarium; "and since," he says to his veteran friend Varro, "you have been so many years in Spain, I think

it likely you have brought the third kind (rabbit) with you from that country."

What can we gather from the above extracts from classical authors? I think we may safely infer that the rabbit was not indigenous either in Greece or Italy in early times. In Greece there is, as far as I can make out, no record of its existence, either in a wild or a domesticated state; in Italy there is no mention of its occurrence prior to the time of Athenæus (A.D. 230), who, as we have seen, observed specimens in his journey from Puteoli to Naples. Once give a couple of rabbits standing-ground either in Italy or Greece, and they surely must have increased in those countries, and consequently have been specially noticed by some classical writer or other. The rabbit, where expressly mentioned, is spoken of as an animal not familiar to the people of Greece and Italy; it is looked upon as a foreigner, and generally as an inhabitant of Spain or its outlying islands. Consequently, if rabbits exist in large numbers in either of these countries at the present day, I consider they have been introduced there, as we know they have been in other countries. In the Cyclades a large variety of rabbit is known to exist at present. In his 'Fauna der Cycladen,' Dr. Erhard speaks of this variety being as large as or larger than the common hare. How did these rabbits get to these islands? Were they there in the times of Aristotle and other Greek writers? Are the present large rabbits of the Cyclades the descendants of those that lived there in the time of the ancients? It does not seem to me probable that this is the case: I think it more likely that this large variety now inhabiting the Cyclades is descended from some large domestic variety that may have been carried thither, some time or other subsequent to classic times. I should be obliged to any one who will give an opinion on this point. The subject of the natural history of the ancients has been for some time an interesting study to myself, and it is one which, both archaeologically and zoologically, has some claims upon our attention.

XXVI.—*Notes on Lizards of the Group Anolis.*—*The Characters and Synonymy of Norops.* By ARTHUR W. E. O'SHAUGHNESSY, Senior Assistant in the Natural-History Department of the British Museum.

THE great disadvantage which one has to contend with in studying the lizards of the group *Anolis* is, that their brilliant and varied metallic colours, which are so important a characteristic of their species, fade, and even vanish completely, in the preserved states of the specimens. A person able to test



Houghton, W. 1869. "XXV.—The rabbit (*Lepus cuniculus*) as known to the ancients." *The Annals and magazine of natural history; zoology, botany, and geology* 3, 179–183. <https://doi.org/10.1080/00222936908695915>.

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