above described, it is obvious that the configuration of the tritürating surface, (occasioned by the folds of enamel dipping deeply into the body of the tooth, in the second and third molar of the lower jaw,) accurately represents the letter S, which is reversed on the right side; that bearing considerable resemblance to the posterior tooth of the genus SPALAX, and to which also it has a slight affinity in the truncature of the inferior incisors. The configuration of the intermediate molar of the upper jaw may be compared to the form of the Greek letter Σ, whence our generic name."

"In respect to its generic affinities, it is very obvious that its system of dentition indicates a proximity to ARVICOLA; but the different arrangement of the folds, and the circumstance of the molars being divided into radicles, certainly exclude it from that genus. With respect to the radicles, it resembles the genus FIBER; but is allied to this genus in no other respect."

"We may further remark, that the teeth of our specimen are considerably worn, a condition that materially affects the depths of the folds."

Although the animal described below is the only species of SIGMODON at present admitted into this genus, there are several well known, and one undescribed, species, that we apprehend will yet be arranged under it.

SIGMODON HISPIDUM.—SAY AND ORD.

COTTON-RAT.

PLATE XXX.

S. flavo fuscescens, infra cinereum; cauda corpore brevior; auribus amplis rotundatisque; Tamiae Lysteri magnitudine.

CHARACTERS.

Size of the chipping squirrel, (T. Lysteri;) tail, shorter than the body; ears, broad and rounded; above, dark yellowish-brown; cinereous beneath.

SYNONYMES.

MARSH-RAT, Lawson's Carolina, 1709, p. 125.

THE WOOD-RAT, Bartram's Travels in East Florida, 1791, p. 124.

Drawn on Stone by R. Trembly.

Cotton Rat.

SIGMODON HISPIDUM, Say and Ord, Journ. Ac. Nat. Sc., Phila., vol. iv., pt. 2, p. 354, read March 22d, 1825.

ARVICOLA HORTENSIS, Harlan, Fauna, 1825, p. 138.

" HISPIDUS, GODMAN, vol. ii., p. 68, 1826.

" HORTENSIS, Griffith, Cuvier, vol. v., sp. 547.

DESCRIPTION.

In its general external appearance this species approaches nearer to the genus ARVICOLA than to MUS. It has the thick short form of the former, and the broad and rather long ears of many species of the latter. The fur is long and coarse.

Head, of moderate size, rather long; nose, pointed; whiskers, few, weak, and shorter than the head; eyes, of moderate size and rather prominent; ears, broad, rounded, and slightly covered with hair.

Fore-legs, rather short and slender; four toes on each foot, the middle ones nearly of equal length, the inner one a size shorter, and the outer shortest; there is also a rudimentary thumb, protected by a strong conical nail. Hind-legs, stouter; five toes on each foot, much longer than those on the fore-feet; middle claw longest, the two on each side nearly equal, the outer, not one-third the length of the others, and the inner, which rises far back, shortest of all; nails, rather small, sharp, and slightly arched; toes, covered with hair extending to the roots of the nails; tail, clothed with short hairs.

COLOUR.

Hairs, on the whole upper surface of the body of a dark plumbeous colour from the roots to near the extremities, edged with brown, and irregularly tipped with black; giving it a rusty reddish-brown appearance. The ears, head and tail, are of the colour of the back; chin, throat, and under surface of body, dull-white, the hairs being ashy-gray at the roots, and whitish at the points.

DIMENSIONS.

From point of nose to root of tail	-	-	-	6 inches.
Tail	-	-	-	4 do.
Length of ear	-	-	-	$\frac{1}{2}$ do.
Breadth of ear	-	-	-	$\frac{1}{2}$ do.
From eye to point of nose	-	-	-	$\frac{5}{8}$ do.
From point of nose to ear	-	-	-	$1\frac{1}{2}$ do.
From heel to point of longest nail	-	-	-	$1\frac{1}{2}$ do.

HABITS.

This is the most common wood-rat existing in the Southern States, being even more abundant than any of the species of meadow-mice in the Northern and Eastern States. It is however a resident rather of hedges, ditches, and deserted old fields, than of gardens or cultivated grounds; it occasions very little injury to the planter. Although its paths are everywhere seen through the fields, it does not seem to destroy many plants or vegetables. It feeds on the seeds of coarse grasses and leguminous plants, and devours a considerable quantity of animal food. In its habits it is gregarious. We have seen spots of half an acre covered over with tall weeds, (*Solidago* and *Eupatorium*,) which were traversed in every direction by the Cotton-Rat, and which must have contained several hundred individuals.

Although this species does not reject grains and grasses, it gives the preference in all cases to animal food, and we have never found any species of rat more decidedly carnivorous. Robins, partridges, or other birds that are wounded and drop among the long grass or weeds in the neighbourhood of their burrows are speedily devoured by them. They may sometimes be seen running about the ditches with crayfish (*Astacus Bartoni*) in their mouths, and have been known to subsist on Crustacea, especially the little crabs called fiddlers, (*Gelasimus vocans*.)

We have frequently kept Cotton-Rats in cages; they killed and devoured every other species placed with them, and afterwards attacked each other; the weakest were killed and eaten by the strongest. They fight fiercely, and one of them will overpower a Florida rat twice its own size.

The old males when in confinement almost invariably destroy their young.

This species delights in sucking eggs, and we have known a Virginian partridge nest as completely demolished by these animals as if it had been visited by the Norway rat. They will sometimes leave Indian-corn and other grain untouched, when placed as a bait for them in traps, but they are easily caught when the traps are baited with meat of any kind.

Although the Cotton-Rat is nocturnal in its habits, it may frequently be seen by day; and in places where it is seldom disturbed, it can generally be found at all hours.

The galleries of this species often run twenty or thirty yards under ground, but not far beneath the surface; and the ridges thrown up as the animals excavate their galleries, can often be traced along the surface

of the earth for a considerable distance, like those formed by the common shrew-mole.

Each burrow or hole contains apparently only one family, a pair of old ones with their young; but their various galleries often intersect each other, and many nests may be found within the compass of a few yards; they are composed of withered grasses, are not very large, and may usually be found within a foot of the surface. In summer the nests are often seen in a cavity of the earth, on the surface in some meadow, or among rank weeds.

This is a very prolific species, producing young early in spring, and through all the summer months, till late in autumn. We have on several occasions known their young born and reared in cages. They produce from four to eight at a litter. The young are of a bright chesnut-brown colour, and at the age of five or six days begin to leave the nest, are very active and sprightly, and attain their full growth in about five months.

This species has no other note than a low squeak, a little hoarser than that of the common mouse; when captured it is far more savage than the Florida rat. On one occasion, while seizing one of them, we were bitten completely through a finger covered by a buckskin glove.

The Cotton-Rat is fond of burrowing in the old banks of abandoned rice-fields. In such situations we have, during freshets, observed that it could both swim and dive like the water-rat of Europe, and WILSON'S meadow-mouse of the Middle States.

This species supplies a considerable number of animals and birds with food. Foxes and wild-cats especially, destroy thousands; we have observed minks coursing along the marshes in pursuit of them, and have frequently seen them with one of these Rats in their mouth. Marsh-hawks, and several other species, may be constantly seen in the autumn and winter months sailing over the fields, looking out for the Cotton-Rat. No animal in the Southern States becomes more regularly the food of several species of owls than this. The barred owl (*Syrnium nebulosum*) is seen as early as the setting of the sun, flitting along the edges of old fields, seeking to make its usual evening meal on it or carry it off as food for its young. We were invited some years since to examine the nest of the American barn-owl (*Strix Americana*) in the loft of a sugar refinery in Charleston. There were several young of different sizes, and we ascertained that the only food on which they were fed was this Rat, to obtain which the old birds must have gone several miles.

The Cotton-Rat has obtained its name from its supposed habit of making its nest with cotton, which it is said to collect for the purpose in large quantities. We have occasionally, although very seldom, seen cotton in

its nest, but we have more frequently found it composed of leaves and withered grasses. Indeed, this species does not appear to be very choice in selecting materials for building its nest, using indiscriminately any suitable substance in the vicinity. We should have preferred a more characteristic English name for this Rat, but as it already has three names, Cotton-Rat, Hairy Campagnol, and Wood-Rat, the latter being in Carolina applied both to this and the Florida rat, we have concluded not to add another, although one more appropriate might be found.

GEOGRAPHICAL DISTRIBUTION.

We have traced the Cotton-Rat as far north as Virginia, and have seen it in North Carolina, near Weldon and Wilmington. It is exceedingly abundant in South Carolina, Georgia, and Florida; in Alabama, Mississippi, and Louisiana, traces of it are every where seen. We have received a specimen from Galveston, Texas, but have had no opportunity of ascertaining whether it exists farther south.

GENERAL REMARKS.

Although this species was noticed by LAWSON a century and a half ago, it was not described until a comparatively recent period. ORD obtained specimens in Florida in 1818, and it was generally supposed that it was not found further to the north. In the spring of 1815, three years earlier than Mr. ORD, we procured a dozen specimens in Carolina, which we neglected to describe. SAY and ORD, and HARLAN, described it about the same time, (in 1825,) and GODMAN a year afterwards. We prefer adopting the name given to it by the individual who first brought it to the notice of naturalists. In its teeth it differs in a few particulars from *ARVICOLA*, and approaches nearer to *MUS*.

Audubon, John James and Bachman, John. 1851. "Sigmodon Hispidum, Cotton Rat, [Pl. XXX]." *The quadrupeds of North America* 1, 228–232.

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