large larvæ, often two or three inches in length; but it does not appear probable that the bristly point is ever used to *transfix* an object, otherwise how should the object be again set free, without tearing off the prickles, which are extremely delicate and not capable of being bent in every direction?

The trachea, *k k*, is 5 inches 4 twelfths in length, considerably flattened, nearly of the uniform breadth of 3 twelfths throughout. The aperture of the glottis is 4 twelfths long, with a posterior flap of several series of papillæ. The rings of the trachea are very strong, firmly ossified, 92 in number. At the upper part 3 are incomplete; the last entire ring is very broad and bipartite, and there are 2 additional dimidiate rings. The bronchi are short, of 12 half rings. The lateral or contractor muscles, *l l*, commence in front, at the base of the thyroid bone, diverge, presently become lateral, and thus proceed until $4\frac{1}{2}$ twelfths from the extremity, when they terminate partly in the sterno-tracheal, but also send down a very thin slip, which is inserted on the first dimidiate ring.

The explanation of the mechanism by which the tongue is protruded as above given, differs materially from any of those to be found in English works at least, in some of which there is a very unnecessary prolixity as well as ambiguity. It does not appear that hitherto the real sheath in which the horns of the hyoid bone, with its muscle, move, has been observed, and the two very slender muscles which run from the sides of the thyroid bone to the furcula, are common to almost all birds, although they have been supposed to be peculiar to Woodpeckers.

THE PILEATED WOODPECKER.

+ *PICUS PILEATUS*, *Linn.*

PLATE CCLVII.—MALE, FEMALE, AND YOUNG MALES.

It would be difficult for me to say in what part of our extensive country I have not met with this hardy inhabitant of the forest. Even now, when several species of our birds are becoming rare, destroyed as they are, either to gratify the palate of the epicure, or to adorn the cabinet of the naturalist, the Pileated Woodpecker is every where to be found in the wild woods, although scarce and shy in the peopled districts.

Pileated Woodpecker

1. Adult Male. 2. Adult Female. 3 and 4. Young Males.

Raccoon Grape.

Wherever it occurs it is a permanent resident, and, like its relative the Ivory-billed Woodpecker, it remains pretty constantly in the place which it has chosen after leaving its parents. It is at all times a shy bird, so that one can seldom approach it, unless under cover of a tree, or when he happens accidentally to surprise it while engaged in its daily avocations. When seen in a large field newly brought into tillage, and yet covered with girdled trees, it removes from one to another, cackling out its laughter-like notes, as if it found delight in leading you a wild-goose chase in pursuit of it. When followed it always alights on the tallest branches or trunks of trees, removes to the side farthest off, from which it every moment peeps, as it watches your progress in silence; and so well does it seem to know the distance at which a shot can reach it, that it seldom permits so near an approach. Often when you think the next step will take you near enough to fire with certainty, the wary bird flies off before you can reach it. Even in the wildest parts of Eastern Florida, where I have at times followed it, to assure myself that the birds I saw were of the same species as that found in our distant Atlantic States, its vigilance was not in the least abated. For miles have I chased it from one cabbage-tree to another, without ever getting within shooting distance, until at last I was forced to resort to stratagem, and seeming to abandon the chase, took a circuitous route, concealed myself in its course, and waited until it came up, when, it being now on the side of the trees next to me, I had no difficulty in bringing it down. I shall never forget, that, while in the Great Pine Forest of Pennsylvania, I spent several days in the woods endeavouring to procure one, for the same purpose of proving its identity with others elsewhere seen.

Their natural wildness never leaves them, even although they may have been reared from the nest. I will give you an instance of this, as related to me by my generous friend the Reverend JOHN BACHMAN of Charleston, who also speaks of the cruelty of the species. "A pair of Pileated Woodpeckers had a nest in an old elm tree, in a swamp, which they occupied that year; the next spring early, two Blue-birds took possession of it, and there had young. Before these were half grown, the Woodpeckers returned to the place, and, despite of the cries and reiterated attacks of the Blue-birds, the others took the young, not very gently, as you may imagine, and carried them away to some distance. Next the nest itself was disposed of, the hole cleaned and enlarged, and there they raised a brood. The nest, it is true, was originally their own. The tree was large, but so situated, that, from the branches of another I could reach the nest. The hole was about 18 inches deep, and I could touch the bottom with my hand. The eggs, which were laid on fragments of chips, expressly left by the birds, were six, large, white and translucent. Before the Woodpeckers began to sit, I robbed them of

their eggs, to see if they would lay a second time. They waited a few days as if undecided, when on a sudden I heard the female at work again in the tree; she once more deepened the hole, made it broader at bottom, and recommenced laying. This time she laid five eggs. I suffered her to bring out her young, both sexes alternately incubating, each visiting the other at intervals, peeping into the hole to see that all was right and well there, and flying off afterwards in search of food.

When the young were sufficiently grown to be taken out with safety, which I ascertained by seeing them occasionally peeping out of the hole, I carried them home, to judge of their habits in confinement, and attempted to raise them. I found it exceedingly difficult to entice them to open their bill in order to feed them. They were sullen and cross, nay, three died in a few days; but the others, having been fed on grasshoppers forcibly introduced into their mouths, were raised. In a short time they began picking up the grasshoppers thrown into their cage, and were fully fed with corn-meal, which they preferred eating dry. Their whole employment consisted in attempting to escape from their prison, regularly demolishing one every two days, although made of pine boards of tolerable thickness. I at last had one constructed with oak boards at the back and sides, and rails of the same in front. This was too much for them, and their only comfort was in passing and holding their bills through the hard bars. In the morning after receiving water, which they drank freely, they invariably upset the cup or saucer, and although this was large and flattish, they regularly turned it quite over. After this they attacked the trough which contained their food, and soon broke it to pieces, and when perchance I happened to approach them with my hand, they made passes at it with their powerful bills with great force. I kept them in this manner until winter. They were at all times uncleanly and unsociable birds. On opening the door of my study one morning, one of them dashed off by me, alighted on an apple-tree near the house, climbed some distance, and kept watching me from one side and then the other, as if to ask what my intentions were. I walked into my study:—the other was hammering at my books. They had broken one of the bars of the cage, and must have been at liberty for some hours, judging by the mischief they had done. Tired of my pets, I opened the door, and this last one hearing the voice of his brother, flew towards him and alighted on the same tree. They remained about half an hour, as if consulting each other, after which, taking to their wings together, they flew off in a southern direction, and with much more ease than could have been expected from birds so long kept in captivity. The ground was covered with snow, and I never more saw them. No birds of this species ever bred since in the hole

spoken of in this instance, and I consider it as much wilder than the Ivory-billed Woodpecker."

While in the Great Pine Forest of Pennsylvania, of which I have repeatedly spoken, I was surprised to see how differently this bird worked on the bark of different trees, when searching for its food. On the hemlock and spruce, for example, of which the bark is difficult to be detached, it used the bill sideways, hitting the bark in an oblique direction, and proceeding in close parallel lines, so that when, after awhile, a piece of the bark was loosened and broken off by a side stroke, the surface of the trunk appeared as if closely grooved by a carpenter using a gouge. In this manner the Pileated Woodpecker often, in that country, strips the entire trunks of the largest trees. On the contrary, when it attacked any other sort of timber, it pelted at the bark in a straightforward manner, detaching a large piece by a few strokes, and leaving the trunks smooth, no injury having been inflicted upon it by the bill.

This bird, when surprised, is subject to very singular and astonishing fits of terror. While in Louisiana, I have several times crept up to one occupied in searching for food, on the rotten parts of a low stump only a few inches from the ground, when, having got so near the tree as almost to touch it, I have taken my cap and suddenly struck the stump, as if with the intention of securing the bird; on which the latter instantly seemed to lose all power or presence of mind, and fell to the ground as if dead. On such occasions, if not immediately secured, it soon recovers, and flies off with more than its usual speed. When surprised whilst feeding on a tree, they now and then attempt to save themselves by turning round the trunk or branches, and do not fly away unless two persons be present, well knowing, it would seem, that flying is not always a sure means of escape. If wounded without falling, it mounts at once to the highest fork of the tree, where it squats and remains in silence. It is then very difficult to kill it, and sometimes, when shot dead, it clings so firmly to the bark that it may remain hanging for hours. When winged and brought to the ground, it cries loudly on the approach of its enemy, and essays to escape by every means in its power, often inflicting a severe wound if incautiously seized.

The Pileated Woodpecker is fond of Indian corn, chestnuts, acorns, fruits of every kind, particularly wild grapes, and insects of all descriptions. The maize it attacks while yet in its milky state, laying it bare, like the Redheads or Squirrels. For this reason, it often draws upon itself the vengeance of the farmer, who, however, is always disposed, without provocation, to kill the "Woodcock," or "Logcock" as it is commonly named by our country people.

The flight of this well known bird is powerful, and, on occasion, greatly

protracted, resembling in all respects that of the Ivory-billed Woodpecker. Its notes are loud and clear, and the rolling sound produced by its hammerings, may be heard at the distance of a quarter of a mile. Its flesh is tough, of a bluish tint, and smells so strongly of the worms and insects on which it generally feeds, as to be extremely unpalatable. It almost always breeds in the interior of the forests, and frequently on trees placed in deep swamps over the water, appearing to give a preference to the southern side of the tree, on which I have generally found its hole, to which it retreats during winter or in rainy weather, and which is sometimes bored perpendicularly, although frequently not, as I have seen some excavated much in the form of that of the Ivory-billed Woodpecker. Its usual depth is from twelve to eighteen inches, its breadth from two and a half to three, and at the bottom sometimes five or six. It rears, I believe, only one brood in a season. The young follow their parents for a long time after coming abroad, receive food from them, and remain with them until the return of spring. The old birds, as well as the young, are fond of retiring at night to their holes, to which they return more especially in winter. My young friend, THOMAS LINCOLN, Esq. of the State of Maine, knew of one that seldom removed far from its retreat during the whole of the inclement season.

The observation of many years has convinced me, that Woodpeckers of all sorts have the bill longer when just fledged than at any future period of their life, and that through use it becomes not only shorter, but also much harder, stronger, and sharper. When the Woodpecker first leaves the nest, its bill may easily be bent; six months after, it resists the force of the fingers; and when the bird is twelve months old, the organ has acquired its permanent bony hardness. On measuring the bill of a young bird of this species not long able to fly, and that of an adult bird, I found the former seven-eighths of an inch longer than the latter. This difference I have represented in the plate. It is also curious to observe, that the young birds of this family, which have the bill tender, either search for larvæ in the most decayed or rotten stumps and trunks of trees, or hunt the deserted old fields, in search of blackberries and other fruits, as if sensible of their inaptitude for attacking the bark of sound trees or the wood itself.

This handsome species inhabits the Oregon territory about the Columbia river, whence I have procured specimens from Mr. TOWNSEND. According to Dr. RICHARDSON, it is a constant resident in the interior of the Fur Countries, up to the 62nd or 63d parallel, rarely appearing near Hudson's Bay, but frequenting the most gloomy recesses of the forests that skirt the Rocky Mountains. I found it more abundant in the Texas than any where else, and whilst on Galveston Island, saw one tapping against the roof of a house, the first and only instance of so much familiarity in a bird of this

species that has occurred to me. So much attached is this Woodpecker to the tree in which it has a hole, that during winter it is often seen with its head out, as if looking to the weather, the unfavourable state of which induces it to sink out of sight, and probably compose itself to rest. It may be found in the same neighbourhood during the whole year, and, like many others of this family, it usually spends the night in the same hole.

PILEATED WOODPECKER, *Picus pileatus*, Wils. Amer. Orn., vol. iv. p. 27.

PICUS PILEATUS, Bonap. Syn., p. 44.

PICUS (DRYOTOMUS) PILEATUS, *Pileated Woodpecker*, Swains. and Rich. F. Bor. Amer., vol. ii. p. 304.

PILEATED WOODPECKER, or LOG-CK, Nutt. Man., vol. i. p. 567.

PILEATED WOODPECKER, *Picus pileatus*, Aud. Orn. Biog., vol. ii. p. 74; vol. v. p. 533.

Male, 18, 28.

From Texas to the Columbia river, and along the Atlantic coast, as well as in the interior, to the Fur Countries. More abundant in the south. Resident every where.

Adult Male.

Bill long, straight, strong, polyhedral, tapering, compressed and slightly truncated by being worn at the tip; mandibles of equal length, both nearly straight in their dorsal outline; their sides convex. Tongue worm-shaped, capable of reaching four inches beyond the bill, horny near the tip for about one-eighth of an inch, and barbed. Nostrils basal, oval, partly covered by recumbent bristly feathers. Head large. Neck rather long, slender. Body robust. Feet rather short, robust; tarsus strong, scutellate before, scaly on the sides; two toes before and two behind, the inner hind toe shortest; claws strong, arched, very acute.

Plumage compact, glossy. Feathers of the head elongated, loose, and erectile. Wings large, the third and fourth quills longest. Tail long, cuneate, of twelve tapering stiff feathers, worn to a point by being rubbed against the bark of trees.

Bill and feet deep blue. Iris yellow. The general colour of the plumage is deep black, glossed with purplish-blue. The whole upper part of the head of a shining deep carmine; a broad band of black runs backwards from the eye, and is continued, narrow, to the forehead; between this band and the bright red of the upper part of the head is a narrow line of white; at the base of the bill commences, at first yellowish, a band of white, which crosses the cheek, expands on the side of the neck, where it is joined by the white of the throat, and terminates under the wing; there is also a broad band of red from the base of the lower mandible. Under wing-coverts white, as are the proximal portions of the quills.

Length 18 inches; extent of wings 28; bill along the back $1\frac{3}{4}$, along the edges 3.

Adult Female.

The female differs little in external appearance from the male. The fore part and sides of the head over the eye are dusky, and the bright red of the upper part of the head is confined to the vertex and occiput, while the red band, from the base of the lower mandible, is substituted by one of a brownish colour. In other respects it resembles the male.

Young Males.

The young males, fully fledged, differ little from the old males in the tints and distribution of their colours; but they are represented in the plate for the purpose of shewing the original pointed form and greater length of the bill.

THE RACCOON GRAPE.

VITIS ÆSTIVALIS, *Mich.*, Flor. Amer., vol. ii. p. 230. *Pursh*, Flor. Amer. Sept., vol. i. p. 169.—PENTANDRIA MONOGYNIA, *Linn.*—VITES, *Juss.*

The *raccoon grape* is characterized by its broadly-cordate leaves, which have three or five lobes, its oblong clusters, and the small size of the bluish-black fruit. It is one of the finest of our vines, in regard to the luxuriance of its growth, its tortuous stem ascending the tallest trees to their summit, while its branches spread out so as to entwine the whole top. I have seen stems that measured eighteen inches in diameter, and the branches often extended from one tree to another, so as to render it difficult to pull down a plant after its stem has been cut. Its flowers perfume the woods. The grapes are small, hard, and very acrid, until severely bitten by frost. In autumn and winter, raccoons, bears, opossums, and many species of birds, feed upon them.

Pileated Woodpecker

1. Adult Male. 2. Adult Female. 3 and 4. Young Males.

Raccoon Grape.

Audubon, John James. 1842. "The Pileated Woodpecker, *Picus pileatus*, Linn. [Pl. 257]." *The birds of America : from drawings made in the United States and their territories* 4, 226–232. <https://doi.org/10.5962/p.319371>.

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