GENUS III.—ECTOPISTES, *Swains.* LONG-TAILED DOVE.

Bill straight, of ordinary length, rather slender, broader than high at the base, with a tumid fleshy covering, compressed toward the end. Head small, oblong; neck of moderate length; body rather slender. Feet short; tarsus as short as the hind toe and claw, anteriorly scutellate; outer toe slightly shorter than inner; claws rather short, stout, arched, obtuse. Plumage compact above; blended, but firm beneath. Wings long; first and second quills longest, and about equal. Tail long, cuneate, pointed. Digestive organs as in the preceding genus.

THE PASSENGER PIGEON.

† ECTOPISTES MIGRATORIA, *Linn.*

PLATE CCLXXXV.—MALE AND FEMALE.

The Passenger Pigeon, or, as it is usually named in America, the Wild Pigeon, moves with extreme rapidity, propelling itself by quickly repeated flaps of the wings, which it brings more or less near to the body, according to the degree of velocity which is required. Like the Domestic Pigeon, it often flies, during the love season, in a circling manner, supporting itself with both wings angularly elevated, in which position it keeps them until it is about to alight. Now and then, during these circular flights, the tips of the primary quills of each wing are made to strike against each other, producing a smart rap, which may be heard at a distance of thirty or forty yards. Before alighting, the Wild Pigeon, like the Carolina Parrot and a few other species of birds, breaks the force of its flight by repeated flappings, as if apprehensive of receiving injury from coming too suddenly into contact with the branch or the spot of ground on which it intends to settle.

I have commenced my description of this species with the above account of its flight, because the most important facts connected with its habits relate to its migrations. These are entirely owing to the necessity of procuring food, and are not performed with the view of escaping the severity of a northern latitude, or of seeking a southern one for the purpose of breeding. They consequently do not take place at any fixed period or season of the year. Indeed, it sometimes happens that a continuance of a sufficient supply of food in one district will keep these birds absent from another for years. I know, at least, to a certainty, that in Kentucky they remained for several years constantly, and were nowhere else to be found. They all suddenly disappeared one season when the mast was exhausted, and did not return for a long period. Similar facts have been observed in other States.

Their great power of flight enables them to survey and pass over an astonishing extent of country in a very short time. This is proved by facts well known. Thus, Pigeons have been killed in the neighbourhood of New York, with their crops full of rice, which they must have collected in the fields of Georgia and Carolina, these districts being the nearest in which they could possibly have procured a supply of that kind of food. As their power of digestion is so great that they will decompose food entirely in twelve hours, they must in this case have travelled between three and four hundred miles in six hours, which shews their speed to be at an average of about one mile in a minute. A velocity such as this would enable one of these birds, were it so inclined, to visit the European continent in less than three days.

This great power of flight is seconded by as great a power of vision, which enables them, as they travel at that swift rate, to inspect the country below, discover their food with facility, and thus attain the object for which their journey has been undertaken. This I have also proved to be the case, by having observed them, when passing over a sterile part of the country, or one scantily furnished with food suited to them, keep high in the air, flying with an extended front, so as to enable them to survey hundreds of acres at once. On the contrary, when the land is richly covered with food, or the trees abundantly hung with mast, they fly low, in order to discover the part most plentifully supplied.

Their body is of an elongated oval form, steered by a long well-plumed tail, and propelled by well-set wings, the muscles of which are very large and powerful for the size of the bird. When an individual is seen gliding through the woods and close to the observer, it passes like a thought, and on trying to see it again, the eye searches in vain; the bird is gone.

The multitudes of Wild Pigeons in our woods are astonishing. Indeed,

after having viewed them so often, and under so many circumstances, I even now feel inclined to pause, and assure myself that what I am going to relate is fact. Yet I have seen it all, and that too in the company of persons who, like myself, were struck with amazement.

In the autumn of 1813, I left my house at Henderson, on the banks of the Ohio, on my way to Louisville. In passing over the Barrens a few miles beyond Hardensburgh, I observed the Pigeons flying from north-east to south-west, in greater numbers than I thought I had ever seen them before, and feeling an inclination to count the flocks that might pass within the reach of my eye in one hour, I dismounted, seated myself on an eminence, and began to mark with my pencil, making a dot for every flock that passed. In a short time finding the task which I had undertaken impracticable, as the birds poured in in countless multitudes, I rose, and counting the dots then put down, found that 163 had been made in twenty-one minutes. I travelled on, and still met more the farther I proceeded. The air was literally filled with Pigeons; the light of noon-day was obscured as by an eclipse, the dung fell in spots, not unlike melting flakes of snow; and the continued buzz of wings had a tendency to lull my senses to repose.

Whilst waiting for dinner at YOUNG's inn at the confluence of Salt river with the Ohio, I saw, at my leisure, immense legions still going by, with a front reaching far beyond the Ohio on the west, and the beech-wood forests directly on the east of me. Not a single bird alighted; for not a nut or acorn was that year to be seen in the neighbourhood. They consequently flew so high, that different trials to reach them with a capital rifle proved ineffectual; nor did the reports disturb them in the least. I cannot describe to you the extreme beauty of their aerial evolutions, when a Hawk chanced to press upon the rear of a flock. At once, like a torrent, and with a noise like thunder, they rushed into a compact mass, pressing upon each other towards the centre. In these almost solid masses, they darted forward in undulating and angular lines, descended and swept close over the earth with inconceivable velocity, mounted perpendicularly so as to resemble a vast column, and, when high, were seen wheeling and twisting within their continued lines, which then resembled the coils of a gigantic serpent.

Before sunset I reached Louisville, distant from Hardensburgh fifty-five miles. The Pigeons were still passing in undiminished numbers, and continued to do so for three days in succession. The people were all in arms. The banks of the Ohio were crowded with men and boys, incessantly shooting at the pilgrims, which there flew lower as they passed the river. Multitudes were thus destroyed. For a week or more, the population fed on no other flesh than that of Pigeons, and talked of nothing but Pigeons.

It is extremely interesting to see flock after flock performing exactly the

same evolutions which had been traced as it were in the air by a preceding flock. Thus, should a Hawk have charged on a group at a certain spot, the angles, curves, and undulations that have been described by the birds, in their efforts to escape from the dreaded talons of the plunderer, are undeviatingly followed by the next group that comes up. Should the bystander happen to witness one of these affrays, and, struck with the rapidity and elegance of the motions exhibited, feel desirous of seeing them repeated, his wishes will be gratified if he only remain in the place until the next group comes up.

As soon as the Pigeons discover a sufficiency of food to entice them to alight, they fly around in circles, reviewing the country below. During their evolutions, on such occasions, the dense mass which they form exhibits a beautiful appearance, as it changes its direction, now displaying a glistening sheet of azure, when the backs of the birds come simultaneously into view, and anon, suddenly presenting a mass of rich deep purple. They then pass lower, over the woods, and for a moment are lost among the foliage, but again emerge, and are seen gliding aloft. They now alight, but the next moment, as if suddenly alarmed, they take to wing, producing by the flap-pings of their wing a noise like the roar of distant thunder, and sweep through the forests to see if danger is near. Hunger, however, soon brings them to the ground. When alighted, they are seen industriously throwing up the withered leaves in quest of the fallen mast. The rear ranks are continually rising, passing over the main-body, and alighting in front, in such rapid succession, that the whole flock seems still on wing. The quantity of ground thus swept is astonishing, and so completely has it been cleared, that the gleaner who might follow in their rear would find his labour completely lost. Whilst feeding, their avidity is at times so great that in attempting to swallow a large acorn or nut, they are seen gasping for a long while, as if in the agonies of suffocation.

On such occasions, when the woods are filled with these Pigeons, they are killed in immense numbers, although no apparent diminution ensues. About the middle of the day, after their repast is finished, they settle on the trees, to enjoy rest, and digest their food. On the ground they walk with ease, as well as on the branches, frequently jerking their beautiful tail, and moving the neck backwards and forwards in the most graceful manner. As the sun begins to sink beneath the horizon, they depart *en masse* for the roosting-place, which not unfrequently is hundreds of miles distant, as has been ascertained by persons who have kept an account of their arrivals and departures.

Let us now, kind reader, inspect their place of nightly rendezvous. One of these curious roosting-places, on the banks of the Green river in Kentucky,

I repeatedly visited. It was, as is always the case, in a portion of the forest where the trees were of great magnitude, and where there was little under-wood. I rode through it upwards of forty miles, and, crossing it in different parts, found its average breadth to be rather more than three miles. My first view of it was about a fortnight subsequent to the period when they had made choice of it, and I arrived there nearly two hours before sunset. Few Pigeons were then to be seen, but a great number of persons, with horses and wagons, guns and ammunition, had already established encampments on the borders. Two farmers from the vicinity of Russelsville, distant more than a hundred miles, had driven upwards of three hundred hogs to be fattened on the pigeons which were to be slaughtered. Here and there, the people employed in plucking and salting what had already been procured, were seen sitting in the midst of large piles of these birds. The dung lay several inches deep, covering the whole extent of the roosting-place. Many trees two feet in diameter, I observed, were broken off at no great distance from the ground; and the branches of many of the largest and tallest had given way, as if the forest had been swept by a tornado. Every thing proved to me that the number of birds resorting to this part of the forest must be immense beyond conception. As the period of their arrival approached, their foes anxiously prepared to receive them. Some were furnished with iron-pots containing sulphur, others with torches of pine-knots, many with poles, and the rest with guns. The sun was lost to our view, yet not a Pigeon had arrived. Every thing was ready, and all eyes were gazing on the clear sky, which appeared in glimpses amidst the tall trees. Suddenly there burst forth a general cry of "Here they come!" The noise which they made, though yet distant, reminded me of a hard gale at sea, passing through the rigging of a close-reefed vessel. As the birds arrived and passed over me, I felt a current of air that surprised me. Thousands were soon knocked down by the pole-men. The birds continued to pour in. The fires were lighted, and a magnificent, as well as wonderful and almost terrifying, sight presented itself. The Pigeons, arriving by thousands, alighted everywhere, one above another, until solid masses were formed on the branches all round. Here and there the perches gave way under the weight with a crash, and, falling to the ground, destroyed hundreds of the birds beneath, forcing down the dense groups with which every stick was loaded. It was a scene of uproar and confusion. I found it quite useless to speak, or even to shout to those persons who were nearest to me. Even the reports of the guns were seldom heard, and I was made aware of the firing only by seeing the shooters reloading.

No one dared venture within the line of devastation. The hogs had been penned up in due time, the picking up of the dead and wounded being left

for the next morning's employment. The Pigeons were constantly coming, and it was past midnight before I perceived a decrease in the number of those that arrived. The uproar continued the whole night; and as I was anxious to know to what distance the sound reached, I sent off a man, accustomed to perambulate the forest, who, returning two hours afterwards, informed me he had heard it distinctly when three miles distant from the spot. Towards the approach of day, the noise in some measure subsided: long before objects were distinguishable, the Pigeons began to move off in a direction quite different from that in which they had arrived the evening before, and at sunrise all that were able to fly had disappeared. The howlings of the wolves now reached our ears, and the foxes, lynxes, cougars, bears, racoons, opossums and pole-cats were seen sneaking off, whilst eagles and hawks of different species, accompanied by a crowd of vultures, came to supplant them, and enjoy their share of the spoil.

It was then that the authors of all this devastation began their entry amongst the dead, the dying, and the mangled. The Pigeons were picked up and piled in heaps, until each had as many as he could possibly dispose of, when the hogs were let loose to feed on the remainder.

Persons unacquainted with these birds might naturally conclude that such dreadful havoc would soon put an end to the species. But I have satisfied myself, by long observation, that nothing but the gradual diminution of our forests can accomplish their decrease, as they not unfrequently quadruple their numbers yearly, and always at least double it. In 1805 I saw schooners loaded in bulk with Pigeons caught up the Hudson river, coming in to the wharf at New York, when the birds sold for a cent a piece. I knew a man in Pennsylvania, who caught and killed upwards of 500 dozens in a clap-net in one day, sweeping sometimes twenty dozens or more at a single haul. In the month of March 1830, they were so abundant in the markets of New York, that piles of them met the eye in every direction. I have seen the Negroes at the United States' Salines or Saltworks of Shawanee Town, wearied with killing Pigeons, as they alighted to drink the water issuing from the leading pipes, for weeks at a time; and yet in 1826, in Louisiana, I saw congregated flocks of these birds as numerous as ever I had seen them before, during a residence of nearly thirty years in the United States.

The breeding of the Wild Pigeons, and the places chosen for that purpose, are points of great interest. The time is not much influenced by season, and the place selected is where food is most plentiful and most attainable, and always at a convenient distance from water. Forest-trees of great height are those in which the Pigeons form their nests. Thither the countless myriads resort, and prepare to fulfil one of the great laws

of nature. At this period the note of the Pigeon is a soft *coo-coo-coo-coo*, much shorter than that of the domestic species. The common notes resemble the monosyllables *kee-kee-kee-kee*, the first being the loudest, the others gradually diminishing in power. The male assumes a pompous demeanour, and follows the female, whether on the ground or on the branches, with spread tail and drooping wings, which it rubs against the part over which it is moving. The body is elevated, the throat swells, the eyes sparkle. He continues his notes, and now and then rises on the wing, and flies a few yards to approach the fugitive and timorous female. Like the domestic Pigeon and other species, they caress each other by billing, in which action, the bill of the one is introduced transversely into that of the other, and both parties alternately disgorge the contents of their crop by repeated efforts. These preliminary affairs are soon settled, and the Pigeons commence their nests in general peace and harmony. They are composed of a few dry twigs, crossing each other, and are supported by forks of the branches. On the same tree from fifty to a hundred nests may frequently be seen:—I might say a much greater number, were I not anxious, kind reader, that however wonderful my account of the Wild Pigeon is, you may not feel disposed to refer it to the marvellous. The eggs are two in number, of a broadly elliptical form, and pure white. During incubation, the male supplies the female with food. Indeed, the tenderness and affection displayed by these birds towards their mates, are in the highest degree striking. It is a remarkable fact, that each brood generally consists of a male and a female.

Here again, the tyrant of the creation, man, interferes, disturbing the harmony of this peaceful scene. As the young birds grow up, their enemies, armed with axes, reach the spot, to seize and destroy all they can. The trees are felled, and made to fall in such a way that the cutting of one causes the overthrow of another, or shakes the neighbouring trees so much, that the young Pigeons, or *squabs*, as they are named, are violently hurried to the ground. In this manner also, immense quantities are destroyed.

The young are fed by the parents in the manner described above; in other words, the old bird introduces its bill into the mouth of the young one in a transverse manner, or with the back of each mandible opposite the separations of the mandibles of the young bird, and disgorges the contents of its crop. As soon as the young birds are able to shift for themselves, they leave their parents, and continue separate until they attain maturity. By the end of six months they are capable of reproducing their species.

The flesh of the Wild Pigeon is of a dark colour, but affords tolerable eating. That of young birds from the nest is much esteemed. The skin is covered with small white filmy scales. The feathers fall off at the least

touch, as has been remarked to be the case in the Carolina Turtle-dove. I have only to add, that this species, like others of the same genus, immerses its head up to the eyes while drinking.

In March 1830, I bought about 350 of these birds in the market of New York, at four cents a piece. Most of these I carried alive to England, and distributed them amongst several noblemen, presenting some at the same time to the Zoological Society.

This celebrated bird is mentioned by Dr. RICHARDSON as "annually reaching the 62nd degree of latitude, in the warm central districts of the Fur Countries, and attaining the 58th parallel on the coast of Hudson's Bay in very fine summers only. Mr. HUTCHINS mentions a flock which visited York Factory and remained there two days, in 1775, as a very remarkable occurrence. A few hordes of Indians that frequent the low flooded tracts at the south end of Lake Winnipeg, subsist principally on the Pigeons, during a part of the summer, when the sturgeon-fishery is unproductive, and the *Zizania aquatica* has not yet ripened; but farther north, these birds are too few in number to furnish a material article of diet." Mr. TOWNSEND states that this species is found on the Rocky Mountains, but not on the Columbia river, where the Band-tailed Pigeon, *Columba fasciata* of Say, is abundant. Whilst in the Texas, I was assured that the Passenger Pigeon was plentiful there, although at irregular intervals. In the neighbourhood of Boston it arrives, as Dr. T. M. BREWER informs me, in small scattered flocks, much less numerous than in the interior of that State.

My friend Dr. BACHMAN says, in a note sent to me, "In the more cultivated parts of the United States, these birds now no longer breed in communities. I have secured many nests scattered throughout the woods, seldom near each other. Four years ago, I saw several on the mountains east of Lansinburgh, in the State of New York. They were built close to the stems of thin but tall pine trees (*Pinus strobus*), and were composed of a few sticks; the eggs invariably two, and white. There is frequently but one young bird in the nest, probably from the loose manner in which it has been constructed, so that either a young bird or an egg drops out. Indeed, I have found both at the foot of the tree. This is no doubt accidental, and not to be attributed to a habit which the bird may be supposed to have of throwing out an egg or one of its young. I have frequently taken two of the latter from the same nest and reared them. The Wild Pigeons appear in Carolina during winter at irregular periods, sometimes in cold, but often in warm weather, driven here no doubt, as you have mentioned, not by the cold, but by a failure of mast in the western forests."

A curious change of habits has taken place in England in those Pigeons which I presented to the Earl of DERBY in 1830, that nobleman having

assured me that ever since they began breeding in his aviaries, they have laid only one egg. My noble friend has raised a great number of these birds, and has distributed them freely. It is not therefore very surprising that some which have escaped from confinement have been shot; but that this species should naturally have a claim to be admitted into the British Fauna appears to me very doubtful. The eggs measure one inch five-eighths in length, one inch one-eighth and a half in breadth, and are nearly equally rounded at both ends.

COLUMBA MIGRATORIA, Linn. Syst. Nat., vol. i. p. 285.

PASSENGER PIGEON, *Columba migratoria*, Wils. Amer. Orn., vol. i. p. 102.

COLUMBA MIGRATORIA, Bonap. Syn., p. 120.

COLUMBA (ECTOPISTES) MIGRATORIA, Swains. and Rich. F. Bor. Amer., vol. ii. p. 363.

PASSENGER PIGEON, Nutt. Man., vol. i. p. 629.

PASSENGER PIGEON, *Columba migratoria*, Aud. Orn. Biog., vol. i. p. 319; vol. v. p. 551.

Male, 16 $\frac{1}{4}$, 25. Female, 15, 23.

Wanders continually in search of food throughout all parts of North America. Wonderfully abundant at times in particular districts.

Adult Male.

Bill straight, of ordinary length, rather slender, broader than deep at the base, with a tumid fleshy covering above, compressed towards the end, rather obtuse; upper mandible slightly declinate at the tip; edges inflected. Head small, neck slender, body rather full. Legs short and strong; tarsus rather rounded, anteriorly scutellate; toes slightly webbed at the base; claws short, depressed, obtuse.

Plumage blended on the neck and under parts, compact on the back. Wings long, the second quill longest. Tail graduated, of twelve tapering feathers.

Bill black. Iris bright red. Feet carmine purple, claws blackish. Head above and on the sides light blue. Throat, fore-neck, breast, and sides, light brownish-red, the rest of the under parts white. Lower part of the neck behind, and along the sides, changing to gold, emerald-green, and rich crimson. The general colour of the upper parts is greyish-blue, some of the wing-coverts marked with a black spot. Quills and larger wing-coverts blackish, the primary quills bluish on the outer web, the larger coverts whitish at the tip. The two middle feathers of the tail black, the rest pale blue at the base, becoming white towards the end.

Adult Female.

The colours of the female are much duller than those of the male, although their distribution is the same. The breast is light greyish-brown, the upper

parts pale reddish-brown, tinged with blue. The changeable spot on the neck is of less extent, and the eye of a somewhat duller red, as are the feet.

Length 15 inches, extent of wings 23; bill along the ridge $\frac{3}{4}$, along the gap $\frac{5}{6}$.

An adult male preserved in spirits. Length to end of tail 17 inches, to end of wings $12\frac{3}{4}$; extent of wings 24, wing from flexure $8\frac{2}{12}$; tail 8.

The mouth is very narrow, being only $4\frac{1}{2}$ twelfths in breadth, but capable of being dilated to the width of 1 inch by means of a joint on each side of the lower mandible. There are two thin longitudinal ridges on the palate, of which the sides slope upwards. The posterior aperture of the nares is $\frac{1}{2}$ inch long, margined with papillæ. The tongue is $7\frac{1}{2}$ twelfths long, rather broad and sagittate at the base, with numerous small papillæ, but at the middle contracted to $1\frac{1}{2}$ twelfths, afterwards horny, very narrow, induplicate, and ending in a rather sharp point. Œsophagus, *a g*, $5\frac{1}{2}$ inches long, immediately dilated to 1 inch, and at the lower part of the neck enlarged into an enormous sac, *b c d*, 3 inches in breadth, and $2\frac{1}{2}$ inches in length, a little contracted in the middle, with its inner surface smooth, and at the lower aperture running into longitudinal prominent plicæ; in the rest of its extent, the width of the œsophagus, *e f*, is about 10 twelfths. The stomach, *g h i*, is a very large and strong gizzard, placed obliquely, 2 inches 2 twelfths in breadth, 1 inch 1 fourth in length; its lateral muscles exceedingly thick, the left being $7\frac{1}{4}$ twelfths, the right 8 twelfths; the lower muscle prominent; the tendons very large; the epithelium of a horny texture, of moderate thickness, with longitudinal broad rugæ, and two opposite longitudinal grinding surfaces, of a yellowish colour. In the crop were found three entire acorns, and in the stomach fragments of others, and three pieces of quartz. The intestine, *i j k l m n*, is 4 feet long, 4 twelfths in width, at the narrowest part only 2 twelfths. The duodenum, *i j k*, curves in the usual manner, at the distance of 3 inches. The intestine forms six folds. The cœca, *m*, are extremely diminutive, being only $1\frac{1}{2}$ twelfths in breadth; they are 2 inches distant from the extremity; the cloaca, *n*, oblong.

The trachea passes along the left side, as usual in birds having a large crop: its length is $2\frac{3}{4}$ inches; its breadth varying from $2\frac{3}{4}$ twelfths to $1\frac{1}{2}$ twelfths; its rings 105, feeble; the last ring large, formed laterally of two rings, with an intervening membrane. Bronchi of about 15 half rings, and narrow. The lateral muscles strong, as are the sterno-tracheal, which come off at the distance of $\frac{1}{2}$ inch. There is a single pair of inferior laryngeal muscles going to the upper edge of the last tracheal ring.

J. C. *Passenger Pigeon*
1. Male 2. Female.

Audubon, John James. 1842. "The Passenger Pigeon, *Ectopistes migratoria*, Linn. [Pl. 285]." *The birds of America : from drawings made in the United States and their territories* 5, 25–35. <https://doi.org/10.5962/p.319400>.

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