at a distance of sixteen and one-half miles. The keeper of this light, Mr. William Marshall, has been there seven years. He states that during the migrations, in misty and rainy nights, large numbers of birds strike. On a single morning he has picked up one hundred and fifty on the pier surrounding the tower, and thinks that ten times as many as lodge on this narrow platform fall into the water. A package of specimens which he was kind enough to send the Committee for identification, early in June last, contained the following species: *Regulus calendula* (♂), *Dendræca castanea* (♀), *Dendræca maculosa* (♂ and ♀), *Dendræca cærulescens* (♂ and 2 ♀), *Geothlypis trichas* (2 ♂ and ♀), *Geothlypis philadelphia* (♀), *Helminthophila peregrina* (♂), *Myiodioctes canadensis* (♂), *Siurus aurocapillus*, *Vireo philadelphicus* (3), *Vireo solitarius*, *Vireo olivaceus*, *Zonotrichia albicollis* (2), *Zonotrichia leucophrys* (♂), *Passerculus savanna*, *Melospiza lincolni*, *Contopus virens*, *Empidonax flaviventris* (2).

Mr. James Davenport, keeper of the light at McGulpin's Point, near the western entrance of the Straits of Mackinac, has also furnished the Committee with valuable information.

SWAINSON'S WARBLER.

BY WILLIAM BREWSTER.

SWAINSON'S WARBLER was discovered in 1832 near Charleston, South Carolina, by the Rev. John Bachman. His experience, as quoted by Audubon—who named the species and made it the type of a genus *Helinaia*—is as follows:* "I was first attracted by the novelty of its notes, four or five in number, repeated at intervals of five or six minutes apart. These notes were loud, clear, and more like a whistle than a song. They resembled the sounds of some extraordinary ventriloquist in such a degree, that I supposed the bird much farther from me than it really was; for after some trouble caused by these fictitious notes, I perceived it near to me, and soon shot it.

* Birds of America, Vol. II, p. 84.

"The form of its bill I observed at once to differ from all other known birds of our country, and was pleased at its discovery. On dissection it proved to be a male, and in the course of the same spring, I obtained two other males, of which the markings were precisely similar. In the middle of August of that year, I saw an old female accompanied with four young. One of the latter I obtained: it did not differ materially from the old ones. Another specimen was sent to me alive, having been caught in a trap. I have invariably found them in swampy, muddy places, usually covered with more or less water. The birds which I opened had their gizzards filled with the fragments of coleopterous insects, as well as some small green worms that are found on water plants, such as the pond lily (*Nymphæa odorata*) and the *Nelumbium* (*Cyamus flavicomus*). The manner[s] of this species resemble those of the Prothonotary Warbler, as it skips among the low bushes growing about ponds and other watery places, seldom ascending high trees. It retires southward at the close of summer."

From the above account it will appear that Dr. Bachman took at least five specimens. Of these Audubon's type, afterwards given by him to Professor Baird, is now in the National Museum, while a second is still preserved, with some other of Bachman's skins, in the Museum of the College of Charleston. The remaining three I have been unable to trace, and it is probable that, in accordance with the usage of a time when a pair of specimens was considered to sufficiently illustrate a species, they were merely examined and thrown away.

For upwards of forty years succeeding its discovery our bird was so nearly lost sight of that only three examples seem to have been taken,—the first by Mr. W. L. Jones, in Liberty Co., Georgia,* some time prior to 1858; the second by Mr. L. L. Thaxter, at Little Silver Spring, Florida, April 15, 1869,† and the third in Cuba. The last was recorded by Gundlach,‡ who, writing in 1872, merely says that it was shot at the beginning of April near Havana, by his friend Don Ramon Fons, and that it represents the only Cuban occurrence of which he has any knowledge.

* Bd., Cass. and Lawr., Bds. N. A., 1858, p. 253.
† Maynard, Birds Fla., 1873, p. 47.
‡ J. f. O. 1872, p. 412.

Next in chronological order comes a specimen which I saw in the collection of Mr. Christopher D. Wood, a Philadelphia taxidermist, in 1873, and which, if I remember rightly, was killed near Beaufort, South Carolina, in April or May of the preceeding year. This bird, so far as I know, has escaped the notice of previous recorders. At last accounts it was still in Mr. Wood's possession.

The year 1878 brought an important contribution to our knowledge of the mysterious bird from the pen of Mr. N. C. Brown, who met with three specimens at Coosada, Elmore County, Alabama, and who, after Bachman, seems to have been the first observer to learn anything respecting its habits. Mr. Brown's account* of his experience is so interesting and graphic that I transcribe it in full:

"On April 12, while forcing my way through the dark, rank forest which lies about the source of Coosada Creek, I caught the final notes of an unknown song uttered close at hand. Instantly seating myself on a fallen tree, I awaited its repetition. The woods about me were quite dry and comparatively deserted by birds, but along the neighboring creek many Vireos, Thrushes, and Swamp-Warblers were producing such a babel of sounds that I feared the voice of my unknown songster might escape me. After the lapse of a few minutes, however, a bird emerged from a thicket within a few yards of me, where he had been industriously scratching amongst the fallen leaves, flew into a small sapling, and gave utterance to a loud, ringing, and very beautiful song. Seen in the dim light of the woods, he bore a decided resemblance to the Louisiana Water Thrush, and his song might almost have passed for an exceptional performance by that bird; but I at once suspected his true identity, and in a few seconds held in my hand the lifeless body of a male Swainson's Warbler.

"During the succeeding nine days I repeatedly and most carefully searched this tract of woods and other localities apparently equally favorable, without detecting additional specimens. Finally, April 22, while exploring a slough near the union of the Coosa and Tallapoosa Rivers, I met with two more males. Piloted by their song, I readily approached them, but, unfortunately, lost one, badly wounded, in the impenetrable cane.

* Bull. N. O. C., Vol. III, 1878, pp. 172, 173.

"I was impressed by the absorbed manner in which this bird sings. Sitting quietly upon a limb of some small tree, he suddenly throws back his head and pours forth his notes with the utmost fervor and *abandon*. During his intervals of silence he remains motionless, with plumage ruffled, as if completely lost in musical reverie."

Contemporaneously with the above appeared a note* by Mr. Ridgway announcing the supposed occurrence of the species at Mt. Carmel, Illinois, where a bird thought to be Swainson's Warbler was heard and seen, but unfortunately not secured. Some three years later the same author recorded† the detection of the species in Texas, a specimen having been shot there in the Trinity River bottom, Navarro County (presumably in the spring of 1880, though the date is not given), by Mr. J. Douglas Ogilby.

Excluding certain New England citations long since shown to be erroneous, the above is believed to comprise everything essential that occurs in the records down to the year 1884. During 1884 there were two announcements, the first a mere mention by Mr. Walter Hoxie‡ of the finding the species at Frogmore, South Carolina; the other a short article by Dr. Coues,§ embodying notes furnished him by Mr. Arthur T. Wayne. As the latter paper is anticipatory to the matter which I am about to present, as well as based on data which I am in a position to elaborate more fully, as well as perhaps more accurately, than was Dr. Coues, I shall not refer to it again, except, possibly, to call attention to certain statements which are either not warranted by the evidence at hand, or directly negatived by it.

In the hope of adding to the scanty store of knowledge just reviewed I visited South Carolina in May, 1883, expressly to search for Swainson's Warbler. Having letters of introduction to gentlemen in Charleston, I made that city my headquarters, and from it rambled over the neighboring country, exploring the woods and swamps with all possible care and thoroughness. Of this trip it is perhaps enough to say that it proved a failure, as far

* Bull. N. O. C., Vol. III, 1878, p. 163.

† Bull. N. O. C., Vol. VI, No. 1, Jan. 1881, pp. 54, 55.

‡ Orn. and Oöl., Vol. IX, No. 11, p. 138.

§ Forest and Stream, Nov. 6, 1884, pp. 285, 286.

as its chief object was concerned, for I was obliged to return to Massachusetts without having found the bird of which I was in quest. One promising result was accomplished, however, Mr. Arthur T. Wayne, a young local collector whom I had employed as guide and assistant, and who had become much interested in the search, being engaged to continue it in my interests. But during the year 1883 he also was unsuccessful.

Although discouraged I by no means gave up hope, but early the next spring (1884) returned to Charleston prepared to devote the greater part of the season to the pursuit. The first three weeks of April passed profitably enough, as far as general collecting was concerned, but without developing anything of special importance or interest. On the evening of April 22, however, Wayne, who had been out alone that day, called, and handed me a bird with the simple question, "What is it?" One glance was enough—the long sharp bill with its compressed ridge extending well back on the forehead, the plain olive brown back and reddish crown, and the delicate, lemon-tinted white of the under parts were all unmistakable, for of course it was not the first Swainson's Warbler I had seen. It was, however, the very first *freshly-killed* one;—and who does not know the difference!

Just a week later the second specimen was taken. I stumbled on it quite by accident while exploring a tract of oak scrub covering a dry, in fact positively sandy, ridge on James Island, opposite Charleston. It was feeding on the ground in company with an Ovenbird (*Siurus auricapillus*), and almost immediately flew up into a sapling within a few yards of me, so near, indeed, that I had to retreat several paces before shooting. Wayne's bird was a male, this a female, with well-developed ovaries, but evidently not ready to breed by at least a week or two.

After this the tide of success rose, if not rapidly, at least steadily, and during the time that intervened before my departure for the North (May 10) seven more specimens were secured; thus I took home nine in all, or nearly as many as had been previously collected since the discovery of the species. At the time this success was sufficiently gratifying, but it proved only the earnest of what was to come, for during the following summer and autumn, Mr. Wayne sent me thirty-six more; all that he

took, so he assures me, with the exception of five others disposed of elsewhere. The total number killed by us near Charleston in 1884 is accordingly just fifty.

From the acquisition of so large a series in a single season it might be inferred that Swainson's Warbler is an abundant bird near Charleston. This, however, is certainly not the case. Indeed, there is no present evidence to show that it is even common there except in a few localities, and the keenest collector may cover miles of apparently suitable ground without finding a single specimen. Mr. Wayne has had this experience repeatedly, while in no instance save one (when he fell in with a brood of young accompanied by their parents) has he taken more than three specimens in a day. His general success was simply the result of the most persistent efforts extended over a period of several months, during which almost his entire time was devoted to the pursuit of this species alone. Most of his specimens were taken in a somewhat limited area where, during the breeding season, the females were spared that they might serve as decoys to bachelor males. So successful was this plan that in one instance no less than five males were shot to one female. Many of these were doubtless attracted long distances. After July, there was an appreciable if slight influx of young birds in fall plumage. Some of them may have been reared near at hand, but the majority evidently came from swamps further inland or to the northward. This movement continued through August, but at the close of that month it waned. The last specimen was taken September 25. Thus the stay of the species in South Carolina would seem to extend over a period of a little more than five months.

The specimen killed on James Island, and another shot two days later, about three miles to the westward of Charleston, were the only ones met with in the immediate vicinity of that city. Both were undoubtedly migrants, and it is probable that the 'sea islands' generally, with the adjacent mainland, are visited regularly during the spring and fall flights. They may harbor a few breeding birds also, but of this we have no present proof.* On the contrary, after the migrations passed we failed to find

* Since writing the above I have examined—through the kindness of Mr. C. K. Worthen—a specimen taken by Mr. Joseph H. Batty at St. Helena Island, South Carolina, May 30, 1884. This date is fairly within the breeding season.

the species nearer Charleston than a place about six miles to the westward and directly inland. At this point the rice plantations begin. There may be no actual connection between these facts, but certain topographical as well as floral characteristics of this rice belt incline me to believe that its limits may be found to correspond more or less closely with those of the summer distribution of Swainson's Warbler in South Carolina.

While the facts already given prove incontestably that the present species may occur at times in dry scrubby woods, or even in such open situations as orange groves, it certainly haunts by preference the ranker growth of the swamps, to which, indeed, it appears to be confined during the breeding season. In South Carolina, as elsewhere, the term swamp is somewhat general in application. As our Warbler is by no means equally general in his tastes but, on the contrary, exceptionably fastidious in the choice of a summer home, it is necessary to be more explicit. The particular kind of swamp to which he is most partial is known in local parlance as a 'pine-land gall.' It is usually a depression in the otherwise level surface, down which winds a brook, in places flowing swiftly between well-defined banks, in others divided into several sluggish channels or spreading about in stagnant pools, margined by a dense growth of cane, and covered with lily leaves or other aquatic vegetation. Its course through the open pine-lands is sharply marked by a belt of hardwood trees nourished to grand proportions by the rich soil and abundant moisture. Beneath, crumbling logs cumber the ground, while an under-growth of dogwood (*Cornus florida*), sassafras, viburnum, etc., is interlaced and made well-nigh impenetrable by a net-work of grapevines and greenbriar. These belts—river bottoms they are in miniature—rarely exceed a few rods in width; they may extend miles in a nearly straight line, but ordinarily the brooks which they conceal form short tributaries of streams of larger size, which in turn soon mingle their waters with those of neighboring rivers. More extensive swamps, especially those bordering the larger streams, are subject to inundations which, bringing down deposits of alluvial soil, bury up or sweep away the humbler plants, leaving a floor of unsightly mud, interspersed with pools of stagnant water. Such places answer well enough for the Prothonotary and Hooded Warblers, which, although essentially swamp-lovers, are not to

any extent terrestrial; but you are not likely to find Swainson's Warbler in them, unless about the outskirts, or on islands elevated above the reach of the floods. Briefly, four things seem indispensable to his existence, viz., water, tangled thickets, patches of cane, and a rank growth of semi-aquatic plants.

All four conditions are fulfilled by the 'pine-land galls.' These belts, with their cool shade, running water, and luxuriant vegetation, attract many thicket-haunting birds. They invariably swarm with Cardinals, White-eyed Vireos, Carolina Wrens, and Hooded Warblers, while there are occasional pairs of Maryland Yellow-throats, and now and then a Wood Thrush, sounding his flute-like notes, or a Painted Finch, warbling softly among the bushes. From the pines outside come the sweet refrain of the Yellow-throated Warbler, the petulent cry of the Great-crested Flycatcher, and, from somewhere in the distance, the matchless reverie of Bachman's Finch.

In the early morning, before the sun's rays have evaporated the delicate frosting of dew-drops from the fronds of the ground palmetto, or invaded the swamp, still cool and fragrent after the night, one may hear fifty birds singing in such a spot. The effect is confusing at first, but the practised ear soon identifies the various performers, and a few minutes spent in this way will often give the listener a fairly accurate idea of the bird life by which he is surrounded. Amid the general din, if he be fortunate, may be heard the song of Swainson's Warbler, a performance so remarkable that it can scarcely fail to attract the dullest ear, while it is not likely to be soon forgotten. It consists of a series of clear, ringing whistles, the first four uttered rather slowly and in the same key, the remaining five or six given more rapidly, and in an evenly decending scale, like those of the Cañon Wren (*Catherpes mexicanus conspersus*). In general effect it recalls the song of the Water Thrush (*Siurus nævius*). It is very loud, very rich, very beautiful, while it has an indescribably tender quality that thrills the senses after the sound has ceased.

It is ventriloquial to such a degree that there is often great difficulty in tracing it to its source. You advance confidently enough at first, when suddenly the sound comes from behind you. Retracing your steps, the direction is again changed. Now it is to the right, shortly after to the left; one moment in the tree tops

overhead, the next among the bushes almost at your feet. Hurrying hither and thither with rapidly diminishing caution you finally lose all patience and dash through the tangle, tripping over hidden obstructions or perhaps floundering in morasses at imminent risk of being bitten by some venomous moccasin. When at length you pause near the starting point, tired of the fruitless pursuit, and convinced that your will-o'-the-wisp has been momentarily changing his position, you may perchance discover him sitting quietly near the end of some low branch, where he has probably been all the while, calmly curious perhaps with respect to the strange two-legged creature rushing about beneath, but more likely lost to everything except his own ecstatic music. At times, however, he actually will flit from perch to perch as you advance, keeping more or less concealed among the foliage.

In addition to its song this Warbler utters a soft *tchip* indistinguishable from that of *Parula americana*, but wholly unlike the cry of any Ground Warbler of my acquaintance. I heard this note on only one occasion, when the bird was excited over some disturbance in the shrubbery, perhaps the presence of a snake.

Although a rarely fervent and ecstatic songster, our little friend is also a fitful and uncertain one. You may wait for hours near his retreat, even in early morning, or late afternoon, without hearing a note. But when the inspiration comes he floods the woods with music, one song often following another so quickly that there is scarce a pause for breath between. In this manner I have known him sing for fully twenty minutes, although ordinarily the entire performance occupies less than half that time. Such outbursts may occur at almost any hour, even at noontide, and I have heard them in the gloomiest weather, when the woods were shrouded in mist and rain.

When not singing Swainson's Warbler is a silent, retiring bird, spending nearly his entire time on the ground in the darkest recesses of his favorite swamps, rambling about over the decaying leaves or among the rank water-plants in search of the small beetles which constitute his principal food.* His gait is distinctly a walk, his motions gliding and graceful. Upon alighting in the branches, after being flushed from the ground, he assumes a statuesque attitude, like that of a startled Thrush. While singing he

*The stomachs of all the specimens that I have examined contained exclusively small Coleoptera.

takes an easier posture, but rarely moves on his perch. If desirous of changing his position he flies from branch to branch instead of hopping through the twigs in the manner of most Warblers. Under the influence of excitement or jealousy he sometimes jets his tail, droops his wings, and raises the feathers of the crown in a loose crest, but the tail is never jerked like that of a *Geothlypis*, or wagged like that of a *Siurus*. On the contrary, his movements are all deliberate and composed, his disposition sedentary and phlegmatic. At the height of the mating season the males do occasionally show some spirit, chasing one another among the trees, or even attacking larger birds; but these lapses, like their song periods, seem to form comparatively rare breaks in a life which, for the most part, is passed in profound quiet and seclusion.

In these, as well as other characteristics, he is the very counterpart of the Connecticut Warbler, as I have observed the latter in the swamps about Cambridge. In none of them does he bear the least resemblance to the Worm-eating Warbler, with which he has been so closely associated by ornithologists. The Worm-eater is an active, restless bird, spending much of its time winding about the trunks and branches of trees in the manner of *Mniotilta*. Moreover, it breeds by preference, if not invariably, in dry situations, such as tracts of oak scrub, on the steep sides of elevated ravines or mountain slopes—precisely such ground, in short, as is resorted to by the Ovenbird (*Siurus auricapillus*). Systematists may make light of such considerations, but *H. swainsoni* has, in addition, certain structural affinities with *Oporornis* to which I shall presently call attention.

Judging by my personal experience, Swainson's Warbler is at all times a singularly unsuspicious bird. If singing he may be usually approached within a few yards, even though the crashing that inevitably marks your every movement among the thickly-growing canes has long ago alarmed and silenced the other songsters of the swamp. When flushed from the ground he flies in silence to the nearest low branch, whence he regards you with a half-timid, half-wondering expression, precisely like that of the Connecticut Warbler under similar conditions. You may startle him by an unexpected or threatening motion, for the tamest birds are subject to sudden panic; but ordinarily, if once distinctly seen he is certainly yours—barring a miss or some other accident.

The chief difficulty is to find him, for if on the ground his coloring harmonizes so well with that of the general surface that the keenest eye may overlook him, while he is not apt to start unless almost trodden on. Like most thicket-haunting birds, however, he is intensely curious, and by concealing yourself and producing a shrill screeping or chirping you may often call him directly to you. More than once has this plan been successful when I had no idea that the bird was near. On one such occasion the victim proved a female, which had unmistakably just laid her full set of eggs. I had barely begun to 'screep' on the edge of a small cane-brake bordering a brook, and surrounded by comparatively open ground swept clear of undergrowth, and the usual *débris*, by a recent fire, when there was a glimmer of wings and the Warbler appeared, alighting on the stem of a cane. Upon shooting and examining her I discovered that she was incubating. As it was near noon of a very sultry day, and birds of all kinds closely hidden, I felt sure that she had come directly from the nest. This conviction became almost a certainty when, a few paces further on, I flushed and secured her mate. Needless to say, the remainder of the day was devoted to searching that thicket. But although it covered only a few square rods of surface, the nest could not be found. Speculations as to its position are idle, but there seemed to be only two available sites—the stems of the canes and the ground.

The date of this episode was May 3, which probably represents about the beginning of the breeding season. Mr. Wayne met with a brood of three young June 9, and another of four June 11. Specimens of both broods are before me. They are in first plumage and were evidently only a few days from the nest, but sufficiently feathered to fly well. All the young taken after this date were in autumnal plumage, which seems to be very quickly put on.* They frequented the same places as the spring birds and had essentially similar habits, though, according to Mr. Wayne, they were shyer, or at least more timid.

* In his 'Forest and Stream' article Dr. Coues quotes Mr. Wayne as saying: "The first brood is abroad late in June, that is on the way [wing?]; it usually numbers four. The second brood is abroad early in August." The inaccuracy of the first statement will appear on comparing it with the dates above given; the assumption that the bird regularly rears two broods in a season is, in my opinion, equally unwarranted by the evidence at hand.

CRITICAL NOTES.—Swainson's Warbler has been considered nearly related to the Worm-eating Warbler and, by most recent writers, even placed with it in the genus *Helmitherus*. It has been occasionally separated, however, at least subgenerically, under the Audubonian name *Helinaia*. With abundant material for study and comparison, I am convinced that it merits such separation, and furthermore that *Helinaia* should stand as a full genus. It may be characterized as follows:

Genus **Helinaia** *Audubon.*

CHAR.—Bill long, robust at base, tapering to a sharp point, smooth or slightly notched at tip; the culmen slightly curved, its ridge compressed, elevated and extending well back on the forehead, resembling in this, as in some other respects, the bill of the Meadow Lark (*Sturnella*). Wings long, rather rounded, the first quill always shorter than the second and third, which are about equal. Tarsus stout, slightly longer than the middle toe. Feet large, flesh-colored. *Eminently terrestrial.*

Helinaia swainsoni *Aud.*

SP. CHAR.—(Adult ♂, breeding plumage, No. 8974, Coll. W. B., Charleston, South Carolina, May 1, 1884.) Crown and nape reddish-brown; remainder of upper parts, including the sides of neck, clear olive, the wings, tail, and upper tail-coverts tinged with reddish-brown; under parts creamy white with a lemon-yellow tinge, most pronounced on the breast and abdomen, faintest on the throat and crissum; sides of body brownish olive; sides of breast olivaceous-ashy, extending completely across the breast in a broad but rather indistinct band of pale, nebulous spots; throat, abdomen, and crissum immaculate; a dusky stripe starting at the lores (which are nearly black) passes backward along the side of the head intersecting the eye and separating a conspicuous, brownish-white superciliary stripe from the region below the eye, which is dappled with reddish-brown on a creamy-white ground. There is also a short, yellowish, concealed median stripe on the forehead. Iris hazel; legs and feet flesh-colored (notes taken from the freshly killed specimen). Sexes indistinguishable.

Dimensions.—Length, 5.65; extent, 9.00; wing, 2.82; tail, 2.03; tarsus, .74; culmen from base, .70; from feathers, .61; from nostril, .42; depth of bill at anterior corner of nostril, .18; width at same point, .13.

Juv., first plumage.—(♂ No. 224, A. T. W., Charleston, June 9, 1884). Wings and tail essentially as in the adult; abdomen dirty-white; rest of plumage, including the crown, nape, back, rump, throat, breast, sides of head, neck and body, and the wing-coverts, nearly uniform dull cinnamon-brown, without bands, spots, or any other markings whatever, even on

the head. Another specimen from the same brood, but apparently older, has the lores distinctly black, the light space on the abdomen nearly obscured by a brownish tipping on many of the feathers, and the general coloring lighter, approaching chocolate-brown in places.

The above-described plumage is very odd and striking. In general coloring the bird seems to most nearly resemble the young of *Oporornis formosus.** It differs so widely from the adult *H. swainsoni* that no one would suspect their identity were it not for the bill, which in the smallest specimen before me shows all the essential characteristics of the genus.

Juv., fall plumage.—(♂ No. 354, A. T. W., Charleston, Aug. 25, 1884.) Entire upper parts rich olive strongly tinged with reddish-brown, the crown scarcely deeper-colored than the back, the wings a trifle redder; loral stripe blackish; superciliary stripe tinged with yellow; under parts strongly yellowish. Otherwise like the adult.

Variations.—Among the adults and fall-plumaged young before me there is much variation in the size and shape of the bill, as well as in general coloration. Some examples have the upper and lower outlines of the bill nearly if not quite straight; in others the culmen is curved, the gonys often with an appreciable angle. Again some specimens have the bill decidedly *notched* at the tip, although in the majority it is plain. As a rule (but not invariably) young birds seem to have shorter, slenderer, and straighter bills than do the adults.

The color variations range between two extremes. In one the crown, wings, and tail are bright reddish-brown—almost reddish-chestnut on the secondaries—in decided contrast with the back, which is deep brownish-olive; the underparts strongly yellowish. In the other the wings and tail are concolor with the back, which is of a plain grayish olive; the crown dull reddish-brown; the under parts creamy-white, scarcely, if at all, yellowish. That these variations are not sexual is evident, for the richest-colored bird in the whole series is a female (No. 137, A. T. W., May 10), and several of the dullest are males; that they are not connected with age is equally certain, for among the young birds still bearing traces of first plumage both types occur. As a rule, however, the young in autumn are more apt to be yellow beneath than are breeding birds, but in none of the specimens which I have seen is the yellow deeper than in a male taken May 5 (No. 9015, W. B). Adults in autumn are positively indistinguishable from breeding birds. Young in full autumnal dress may be generally, if not invariably, recognized by the darker color of the bill and the much more uniform coloration of the upper parts, the crown in some specimens being almost concolor with the back, wings, and tail, a condition never seen in spring birds.

In markings the variations are trifling. The nebulous spotting on the breast is indistinct in many birds, and in a few, barely appreciable, the ashy being practically confined to the sides, and the remainder of the

* As described by Mr. Ridgway, Bull. N. O. C., Vol. III, No. 2, April, 1868, p. 60. I have no specimens for comparison.

Measurements.

No.*	Sex.		Locality.	Date.	L'ngth.	Extent.	Wing.	Tail.	Culmen from base.	Culmen from feathers.	Culmen from nostril.	Depth of bill at nostril.	Tar.	Mid le toe & claw.	Remarks.
8881	♂	ad.	Charleston, S. C.	April 22	.....	.....	2.69	2.04	.69	.56	.44	.16	.73	.69	Tail emarginate
8938	♀	"	" "	" 29	5.15	8.70	2.78	2.08	.72	.62	.46	.16	.70	.66	" rounded
8974	♂	"	" "	May 1	5.65	9.00	2.82	2.03	.70	.61	.42	.18	.74	.....	" "
8996	♂	"	" "	" 3	5.50	8.60	2.78	1.91	.72	.57	.46	.17	.74	.69	" emarginate
8997	♂♀	"	" "	" 3	5.55	8.55	2.70	2.06	.70	.58	.45	.16	.72	.65	" square
9015	♂	"	Otranto, S. C.	" 5	6.50	8.90	2.80	2.17	.....	.....	.....	.17	.71	.66	" emarginate
9055	♂	"	" "	" 8	.....	.....	2.78	2.01	.74	.64	.46	.18	.75	.73	" "
137	♀	"	Charleston, S. C.	" 10	.....	.....	2.64	1.85	.71	.62	.45	.17	.69	.67	" square
170	♂	"	" "	" 22	.....	.....	2.70	1.92	.65	.57	.41	.17	.65	.65	" "
	♂	"	" "	" 23	.....	.....	2.74	2.06	.74	.66	.47	.17	.75	.70	
210	♂	"	" "	June 6	.....	.....	2.76	2.00	.69	.62	.45	.16	.72	.67	
	♂	"	" "	" 9	.....	.....	2.66	2.05	.72	.62	.45	.16	.73	.70	
222	♂	"	" "	" 9	.....	.....	2.96	2.10	.70	.62	.47	.12	.73	.66	
	♂	"	" "	" 9	.....	.....	2.82	1.91	.66	.62	.45	.17	.71	.67	
231	♂	"	" "	" 11	.....	.....	2.86	2.00	.70	.60	.44	.16	.68	.70	Tail emarginate
230	♂	"	" "	" 11	.....	.....	2.70	2.02	.69	.59	.43	.16	.73	.66	" "
	♂♀	"	" "	" 12	.....	.....	2.90	2.07	.71	.64	.44	.16	.72	.68	
237	♂	"	" "	" 13	.....	.....	2.80	1.99	.74	.65	.47	.16	.70	.68	" "
243	♂	"	" "	" 17	.....	.....	2.76	2.13	.65	.60	.47	.17	.71	.68	
252	♂	"	" "	" 19	.....	.....	2.95	2.10	.74	.62	.46	.17	.73	.70	" "
276	♂	"	" "	July 4	.....	.....	2.85	1.95	.71	.60	.45	.16	.66	.62	" rounded
	♂	"	St. Helena Id., S.C.	May 30	.....	.....	2.75	2.02	.70	.61	.46	.16	.70	.63	Coll. J. H. Batty
1783	♂	"	Coosada, Ala.	April 22 1878	.....	.....	2.85	2.10	.71	.60	.47	.16	.70	.65	Tail square Coll. N.C.Brown

* Numbers below 1000 are those of Mr. A. T. Wayne.

upper parts immaculate. The yellow of the median stripe on the forehead is usually restricted to the bases of the feathers, but in some specimens it extends to their tips, forming a conspicuous marking. In others again it is wholly wanting.

The place which *Helinaia* should occupy in systematic lists is a somewhat puzzling question. Its long wings, large, flesh-colored feet, and sluggish terrestrial habits indicate an affinity with *Oporornis;* its acute, compressed bill and short tarsi a perhaps stronger one with *Helmitherus*. In many respects it seems to form a connecting link between these two genera, with *Helmitherus* extending the chain towards *Helminthophila*. Baird apparently held some such view in 1858, for he placed *Helmitherus* (in which he included *Helinaia*) between *Icteria* and *Helminthophila*, and *Oporornis* immediately before *Icteria*. Subsequently he separated *Helminthophila* further from *Oporornis* by the intervention of the additional genera *Perissoglossa*, *Dendræca*, and *Siurus*, and later authorities have widened the gap still more. Leaving out of consideration the Cœrebidæ, a troublesome family which seems to grade insensibly into the Sylvicolidæ through such genera as *Helminthophila* and *Perissoglossa*, our North American Sylvicolidæ might be very naturally arranged as follows: 1, *Mniotilta;* 2, *Dendræca* (including *Perissoglossa* and *Peucedramus* as sub-genera); 3, *Protonotaria;* 4, *Parula;* 5, *Helminthophila;* 6, *Helmitherus;* 7, *Helinaia;* 8, *Siurus;* 9, *Oporornis;* 10, *Geothlypis;* 11, *Icteria;* 12, *Myiodioctes;* 13, *Setophaga;* 14, *Cardellina;* 15, *Ergaticus;* 16, *Basileuterus*. The Cœrebidæ, however, cannot be thus conveniently ignored, and the general subject is far too important and comprehensive to be discussed within the limits of the present paper.

RECAPITULATION.—Within the United States Swainson's Warbler has been taken only in South Carolina, Georgia, Florida, Alabama, and Texas. There is but one extralimital record (Havana, Cuba). It has been erroneously accredited to New England, on incomplete evidence to Southern Illinois. It is not known to winter within the United States, but on the contrary seems to emigrate southward before the approach of cold weather (latest date, September 25), returning again in April (earliest date, April 12). It has occurred in numbers only near Charleston, South Carolina,[*] where alone it has been positively ascertained

[* *Cf.* p. 62 of this number of 'The Auk.'—EDD.]

to breed. During the migrations it sometimes visits dry or open situations; it breeds, as far as known, only in the most tangled swamps. It is an exquisite but fitful singer; when not singing a silent bird, retiring and sedentary in disposition, eminently terrestrial in habits.

Thus much light on what has been an obscure subject! Important details remain to be worked out, such as the general distribution of the bird in the South, its manner of nesting, etc. It is to be hoped that the near future will see all these points made clear. Meanwhile we may congratulate ourselves on what in effect, if not literally, is the rediscovery of another 'lost' species.

THE HEATH HEN OF MASSACHUSETTS.

BY WILLIAM BREWSTER.

ALTHOUGH the Pinnated Grouse was found rather numerously during the first half of the present century at several localities in the Middle and New England States, no specimens from this region seem to have come under the critical notice of modern ornithologists. Accordingly it is with peculiar pleasure and interest that I have entered into an examination of three examples kindly loaned me by Mr. F. T. Jencks, who received them directly from Martha's Vineyard in the autumn of 1879. Compared with western specimens, they prove to be smaller, with relatively, as well as actually, shorter tarsi; the feathers of the neck-tufts narrower and acutely instead of obtusely lance-pointed; generally redder or rustier coloring above, and much less white or whitish below. The neck-tufts, also, have only from four to five instead of from seven to ten rigid feathers.

It may be pretty safely assumed that at the time of the first settlement of the country, when the Pinnated Grouse ranged more or less uninterruptedly from Eastern Massachusetts to beyond the Mississippi, all the birds found east of the Alleghanies were similar to these island specimens; or, to put case more comprehensively as well as definitely, that the large, light-