

frequently observed a tendency toward albinism among individuals of this species.

96. **Dryobates pubescens gairdneri*. (394a.) GAIRDNER'S WOODPECKER.—A common resident and generally distributed.

97. **Dryobates nuttalli*. (397.) NUTTALL'S WOODPECKER.—Resident, but not so common as the preceding.

98. **Melanerpes formicivorus bairdi*. (407.) CALIFORNIA WOODPECKER.—Resident and locally abundant. About ten miles from Santa Paula is the Ojai Valley which, shut off from the coast winds by a spur of the Coast Range, is thickly set with live- and white-oaks. Among these this Woodpecker is very common, and is by far the most conspicuous bird of the valley. Almost all the available space on the dead limbs seems to have been used by these industrious birds, which drill these limbs full of holes, and into these they drive great quantities of acorns.

99. *Melanerpes torquatus*. (408.) LEWIS'S WOODPECKER.—I have taken this handsome Woodpecker at Newhall (40 miles up the Valley from Santa Paula) and at Pacheco Pass, but never saw it but once (November 2, 1880) in Ventura County. I think it only a winter visitant here.

100. **Colaptes cafer*. (413.) RED-SHAFTED FLICKER.—An abundant resident. Individuals are occasionally seen grading into *hybridus*. On January 12, 1881, I took a most beautiful albino of this species.

(To be concluded.)

AN ORNITHOLOGICAL RECONNAISSANCE IN WESTERN NORTH CAROLINA.

BY WILLIAM BREWSTER.

QUITE unaccountably the mountain region of Western North Carolina, Northwestern South Carolina, and Northern Georgia has remained, up to the present time, a *terra incognita* to ornithologists. Speculations as to its bird-fauna have been more or less freely indulged in, and a general impression has prevailed that many of our so-called northern birds regularly summer and breed there; while daring prophets have even hinted that it would prove the home of certain 'lost' or imperfectly known species, such as Cuvier's Kinglet, the Carbonated Warbler, Bachman's Warbler, etc. But despite these interesting probabilities and possibilities, the march of actual investigation has been directed into other channels, leaving the 'Land of the Sky' but little better known than in the days of Wilson and Audubon.

During the past season (1885) I was able to spend a short time in this attractive field. Reaching Asheville May 23, and making that town my base of operations, I first explored the neighboring country, and then visited, in succession, Smather's, a station on Hominy Creek in Buncombe County, Waynesville in Haywood County, Webster in Jackson County, and Franklin and Highlands in Macon County, returning by way of Hamburg, East La Porte, and Sylva in Jackson County.

This journey took a week, and covered a distance of about one hundred and fifty miles. At all the points just named more or less time was spent collecting specimens and notes. But, excepting at Highlands, by far the most productive and satisfactory work was done *en route*. Traveling in a light open wagon, with a driver to look after the horses, I was perfectly independent and free at any time to jump out to pursue a bird or explore a tempting bit of cover. Naturally the delays were numerous—so numerous in fact that the entire day was often spent in making a distance of twenty or thirty miles. Thus I had abundant opportunities for field work at places not to be found on the map, while the best hours for collecting were seldom wasted. In this way, as I learned years ago, an extensive region may be explored rapidly and perhaps, considering everything, to the very best advantage.

Returning to Asheville May 30, I spent another day there, and early on the morning of June 1 started for the Black Mountain Range, getting a long afternoon for the ascent, camping that night near the summit of the main ridge, and devoting most of the following day to exploring the spruce and fir forests above 5000 feet altitude. This expedition—a most interesting and fruitful one—was the last that I was able to make, for on the night of June 3 I set out for the North. Thus my entire stay extended over a period of only twelve days, and therefore was too short to allow anything like a thorough investigation, or the collecting of many specimens. But covering, as it did, the flood tide of the breeding season, when the birds were settled for the summer and in fullest song and plumage, it was worth thrice the time at any other period of the year. Moreover, while my explorations were necessarily hurried and superficial, they extended over a large area and included every variety of ground. Thus it is probable that they furnished me with a fair knowledge of the

general characteristics of the region, and something more than a glimpse at its bird life. At all events, the material results seem worth considering at some length.

By turning to a topographical map of the region it will be seen that Western North Carolina is crossed by two mountain ranges, the Blue Ridge and the Great Smoky Mountains. These ranges extend in a northeasterly and southwesterly direction, and are generally parallel, but diverge slightly towards the south, converging again and more or less completely uniting just north of the Georgia line. The country between them forms an extensive plateau from thirty to fifty miles in width and having a length within the State of about one hundred and fifty miles. This plateau varies in elevation from 2000* to 4000 feet. Its surface is exceedingly irregular, being broken everywhere by long, narrow ridges, rounded hills, and low mountains, separated by valleys of every conceivable shape, and varying depth and extent. It is also bisected at right angles by such ranges as the Nantahaleh, Cowee, Balsam, and Newfound Mountains, short but usually continuous chains of considerable elevation, which form imposing barriers, and subdivide the great central valley into several separate basins.

The plateau, as a rule, is heavily timbered and exceptionally well-watered. Every valley, however small, has its stream, usually a shallow brook of clear, cold water, flowing between banks fringed with alders or rhododendrons. There are two rivers of considerable size, the Tennessee and French Broad, which, after receiving the waters of numerous tributaries, cut their way through the Great Smoky Mountains and empty into the Ohio. Rather curiously, the entire plateau is drained in this direction, all the rivers which discharge into the Atlantic rising on the eastern slope of the Blue Ridge, and those which flow into the Gulf of Mexico on the southern slope of the combined ranges.

The principal mountain chains above mentioned include many summits which rise above 6000 feet and, it is said, upwards of twenty higher than Mt. Washington in New Hampshire. They are invariably wooded nearly or quite to their tops with various deciduous trees, chiefly oaks, maples, chestnuts, and walnuts. These at the lower and mid elevations grow to an unusual size,

* Portions of Madison County, which I did not visit, are said to be as low as 1325 feet.

but above 4500 feet are often somewhat dwarfed and stunted. In places, generally at between 3000 and 5000 feet, one finds scattered white pines or hemlocks, but rarely in sufficient numbers to form noticeable breaks in the sea of tender green foliage spread out on every side; in lake-like expanses in the valleys, rippling gently on the lower ridges, and rolling in great billows over the larger hills and mountains.

The summits and upper sides of a few of the higher mountains are covered with what is locally and very appropriately termed 'black growth.' At a distance this presents the appearance of a perfectly uniform tract or belt of a dark, sombre olive-green. It is often confined to the northern slopes, and always extends further down on northern than on southern exposures. Its lower edge is usually sharply and abruptly defined at an elevation of somewhere between 5000 and 6000 feet. This black growth is made up chiefly of spruces (*Abies nigra*) and firs (*A. fraseri*), which, on the Black Mountains at least, are in the numerical proportion of about one fir to five or six spruces.* Intermixed rather plentifully with these evergreens are birches (*Betula lutea*) and mountain ashes (*Pyrus americana*), the former of fair size, the latter stunted. I noticed no other trees and few shrubs except occasional rhododendrons.

Much of the low country, especially those portions bordering or near the larger streams, is under cultivation, tobacco being the favorite and most profitable crop. Extensive areas, however, are everywhere still clothed in forest, either of vigorous second-growth or fine old timber. It is impossible, within the limits of this article, to give anything like a definite idea of these woods, for they vary greatly at different localities and elevations, and include an endless variety of trees and shrubs. In a general way, however, it may be enough to say that the growth along the streams is chiefly red birches (*Betula nigra*), sycamores (*Platanus occidentalis*), red maples (*Acer rubrum*), water oaks (*Quercus aquatica*), and sweet gums (*Liquidambar styraciflua*); that of the lower and sandier hills, scrubby oaks and pines (principally *Pinus inops* and *P. rigida*); and of the lower mountain sides and 'coves' (as the wide, fertile valleys that extend in be-

* The mountaineers confound these very distinct trees under the general term 'balsams,' by which they are known throughout the region.

tween outlying spurs of the mountains are called) black walnuts (*Juglans nigra*), tulip trees (*Liriodendron tulipifera*), basswoods (*Tilia*), and oaks of many different species.

A conspicuous feature of the plateau region at large is its extensive tracts of rhododendrons or 'laurels.' These form the principal undergrowth along streams, over damp hillsides, and throughout swampy or springy land, and, in many places, they grow in such tangled thickets that it is impossible for a man to penetrate them without the aid of an axe. On drier ground, however, the old growth is entirely devoid of underbrush. Its surface is so smooth and free from rocks or holes that one may often leave the road and drive for miles between the trees without meeting any more serious obstruction than an occasional crumbling log or fallen top. In many places, especially on the higher plateaus where the growth is largely of white oaks, the trees are scattered about in groups or singly at intervals of one or more hundred feet, with grassy openings between, giving the country a park-like appearance. Generally, in fact almost universally, the old timber is of the finest quality, many of the trees rising fifty or more feet to the first limb, and at the base measuring fifteen to twenty in circumference. But that deadly enemy of all forests, the lumberman, has already begun his inroads, and the grand old oaks, tulip trees, and black walnuts that have resisted the storms of centuries must soon fall before his merciless axe.

The region thus roughly outlined and described has been long known to tourists and sportsmen, and for many years has formed an attractive and popular summer resort. Various writers have praised its picturesque scenery and delightful climate. The botanists have been active there, and, thanks to the labors of Gray, Chickering, Vasey, and others, its flora is comparatively well known. But its ornithology has been so nearly neglected that I know of only one contribution based on actual field work, a paper by Professor Cope in an old number of the *American Naturalist*.* In this paper the writer mentions finding "in the high valley of Henderson County, and on the Black, Rich, and other mountains in southern North Carolina," such northern birds and mammals as *Junco hyemalis*, *Vireo solitarius*, *Dendroica coronata*, *D. maculosa*, *D. virens*, *D. blackburniæ*, *D. cærules-*

* Vol. IV, No. 7, Sept. 1870, pp. 392-402.

cens, *Lynx canadensis*, and *Sciurus hudsonius*. He infers "that the region, including the crest of the Alleghany Mountains to their southern extremity in Georgia, possesses a fauna in many respects entirely different from that of the southern two-thirds of the Alleghanian fauna as defined by Verrill, and in some respects as similar to the Canadian."

His bird-collecting was done in *September*, a season when almost any suitable locality in the South is well supplied with such migratory northern birds as those just named. On this account their presence at the times and places mentioned possessed no special significance. Had Professor Cope recognized this fact, and in addition considered carefully the very different respective *elevations* at which he found his northern mammals and southern reptiles, he might have escaped conclusions which, as far as they are formulated, are unwarrantable, and which do little credit to so distinguished a naturalist, especially when it is considered that he spent upwards of two months collecting at various localities and altitudes.

From an ornithologist's standpoint the region under discussion may be easily and naturally treated as embracing three distinct faunæ, which, in all essential respects, conform closely with the Canadian, Alleghanian, and Carolinian Faunæ of Eastern North America at large. The boundaries of these divisions are determined chiefly by elevation, the Canadian occupying the tops and upper slopes of the higher mountains down to about 4500 feet, the Alleghanian the mountain sides, higher valleys, and plateaus between 4500 and 2500 feet, and the Carolinian everything below the altitude last named.

Owing to the irregular surface of the country, no one of these faunæ is continuous over a large area, for the birds, as well as the trees and shrubs, are continually changing with the elevation. I have left a valley where Mockingbirds, Bewick's Wrens, and Cardinals were singing in water oaks, sweet gums, and magnolias, climbed a mountain side covered with oaks and hickories, and inhabited by Wilson's Thrushes, Yellow-throated Vireos, and Rose-breasted Grosbeaks, and within an hour or two from the time of starting found myself in a dense spruce forest where Winter Wrens, Golden-crested Kinglets and Red-bellied Nuthatches were the most abundant and characteristic birds. Indeed, were it possible in the present state of our knowledge to indicate

accurately on the map the relative extent and position of the three faunæ by using a different color for each, as, for instance, green for the Canadian, red for the Alleghanian, and white for the Carolinian, the work when completed would certainly present a strangely patched appearance. Probably the white would predominate in extent, with red next, and green last.

The boundaries between the different faunal areas are sharply marked in places, in others only faintly so, one set of birds often overlapping and mingling with another throughout a belt of neutral ground. The line of separation between the Canadian and Alleghanian divisions, so far as I observed, is better defined than that between the Alleghanian and Carolinian. The Canadian Fauna is also purer than either of the other two. Thus on Black Mountain, at about 5000 feet, I found only three species (*Parus carolinensis*, *Cathartes aura*, and *Colinus virginianus*) which are not common and more or less characteristic forms of the Canadian Fauna of New England; whereas double this number of Carolinian forms extended upward into Alleghanian areas, and as many more Alleghanian birds downward over Carolinian territory. The lowest valleys of all possess a few Louisianian species, such as *Dendroica dominica* and *Peucæa bachmani*; but this infusion is too inconsiderable to be of much practical importance.

An interesting feature, more or less noticeable in each of the three faunal divisions just mentioned, is the unusual restriction of certain species and the general distribution of others. Thus *Dendroica blackburniæ* and *D. cærulescens*, elsewhere mainly confined to the Canadian Fauna, were here found in equal or even greater abundance over most of the Alleghanian, *Parus carolinensis*, *Lophophanes bicolor*, and *Seiurus motacilla* ranged from the lowest valleys nearly to, and in some cases actually above, 4500 feet; while *Dendroica virens*, in the North common alike to the Canadian and Alleghanian Faunæ, was met with only in the 'balsams' at high elevations on the Black Mountains.

With these and a few similar cases it is evident that altitude plays only a secondary part, various local conditions—such as the presence or absence of certain trees or shrubs—having clearly more influence. *Dendroica virens*, for example, was seen only where spruces and balsams predominated over other trees, and

D. cærulescens invariably in or near extensive tracts of rhododendrons. For the rest it will not do to draw the lines too closely in a region where a bird can easily fly, in a few minutes, from a valley filled with southern trees and shrubs to a mountain summit clothed with northern Coniferæ. Indeed, it is chiefly surprising that faunal lines can be drawn at all under such conditions.

Another curious fact is the apparent absence in the breeding season of many northern birds which might be reasonably expected to occur. That such non-migratory species as *Perisoreus canadensis*, *Picoides arcticus* et *americanus*, and *Dendragopus canadensis* have never discovered these isolated spruce forests is not perhaps strange; but why should not the migratory *Turdus swainsoni* et *pallasi*, *Dendroica coronata* et *maculosa*, and *Zonotrichia albicollis* here find, on the higher mountains, as congenial a summer home as have *Turdus fuscescens*, *Dendroica blackburniæ* et *cærulescens*, and *Junco hyemalis*? Scarcely less remarkable is the absence, at mid-altitudes, of *Helminthophila ruficapilla*, *Poæcetes gramineus*, and *Melospiza fasciata*.

Owing to the briefness of my stay and the rapidity of my movements it was impossible to collect many specimens. In most cases my material barely serves to authenticate my notes; in very few will it warrant generalizing. But as far as it goes it indicates that at least some of the northern birds inhabiting this elevated southern region have been more or less modified by the peculiar conditions of their environment. The Solitary Vireos and Juncos are decidedly larger than their northern representatives; the Robins and Black-capped Chickadees (*atricapillus*) are apparently smaller. Others again, as the Brown Creeper, Golden-crested Kinglet, and Red-bellied Nuthatch, do not differ appreciably.

The following list contains all the species that I personally and positively identified, and no others, except a few well-known and unmistakable game birds, included on the authority of local sportsmen. For obvious reasons I have restricted it to the resident and summer birds, the few migratory species, of whose occurrence during autumn or winter I have satisfactory proofs, being given in a separate category. As a catalogue of even the summer birds it must be necessarily far from complete; but it should at least serve as a starting point for future investigators.

During my stay in the mountains I was everywhere treated with such kindness and hospitality that a list of those to whom I am indebted would be too long for mention here. But as essential to the connection I must acknowledge my obligations to Mr. E. L. Boynton, of Highlands, for specimens and notes which have proved of much importance by establishing the breeding of certain birds observed during my visit to Highlands in the latter part of May. Without this confirmatory evidence I might have hesitated, at least in some cases, before assuming that the species in question were really settled for the summer, and not belated migrants on their way to higher or more northern regions.

1. * *Aix sponsa*. WOOD DUCK.—A common summer resident, breeding numerously along all the larger streams.

2. *Gallinula galeata*. FLORIDA GALLINULE.—A barber in Asheville had a live specimen displayed conspicuously in a cage on the sidewalk in front of his shop. It had been taken about May 15 in a meadow some ten miles from town, and was an object of wonder and admiration to all who passed. Seemingly contented with captivity, it was singularly tame and gentle, allowing itself to be handled without trying either to resist or escape.

3. *Actitis macularia*. SPOTTED SANDPIPER.—Found along most of the streams, but nowhere at all numerously. I saw less than a dozen in all,

4. *Philohela minor*. WOODCOCK.—Well known to the Asheville sportsmen, who assured me that one or two pairs breed regularly in an extensive swamp near that town. The species occurs most numerously in autumn.

5. *Ardea virescens*. GREEN HERON.—Several seen along the rivers in the lower valleys.

6. *Bonasa umbellus*. RUFFED GROUSE.—I did not find the 'Pheasant' (as the bird is universally called in this region) anywhere below 4000 feet, but above that altitude it was seen daily. During my visit to the Black Mountain range (June 1, 2) the males were drumming incessantly, especially at, and for a brief time after, sunset; but they were so shy that I failed to secure a specimen. At Highlands I examined several skins taken in the immediate vicinity and found them essentially similar to the bright reddish bird of Eastern Virginia. The mountain people of Western North Carolina say that the Pheasant is quite as numerous in the valleys as at high elevations. This may be true of autumn and winter, but I doubt if it is of the breeding season also. The species occurs as far east as Old Fort, where it is well known to the hunters, one of whom showed me the tail of a specimen that he had killed. At Salisbury, among the foothills one hundred miles or more further eastward, I was told that it is never seen.

* The arrangement and nomenclature are in accordance with the new A. O. U. Check-List.

7. *Colinus virginianus*. BOB-WHITE.—Abundant everywhere, in grain fields in the valleys, oak woodland over the mountain sides, and throughout the balsam forests that cover the higher peaks and ridges. On the Black Mountains I killed three (at 5000 feet altitude) in dense spruces where Winter Wrens, Golden-crested Kinglets, and other 'Canadian' species were among the most numerous birds. Others were heard calling still higher up, and my guide assured me that he had often seen them on the very summit of Mitchell's High Peak (6688 feet). The specimens just mentioned are large, light colored birds, in no appreciable way different from Massachusetts examples.

8. *Meleagris gallopavo*. WILD TURKEY.—Abundant everywhere, ranging, according to the hunters, over the highest mountains, and breeding quite as numerous throughout the black growth above 5000 feet as in the hardwood forests below.

9. *Zenaidura macroura*. CAROLINA DOVE.—The Turtle Dove was occasionally seen near Asheville, and also at Franklin, but not elsewhere. The Wild Pigeon (*Ectopistes migratorius*) is said to occur in autumn in large numbers, especially when beech mast is abundant.

10. *Cathartes aura*. TURKEY BUZZARD.—Although less numerous than in the coast districts of the South, the Buzzard is common and universally distributed throughout these mountains, where it is quite indifferent to elevation. It is said to breed in crevices in the higher, more inaccessible cliffs.

11. *Falco peregrinus anatum*. DUCK HAWK.—Nearly every suitable cliff on the higher mountains was occupied by a pair of these noisy Falcons. The mountaineers say that the same birds breed in the same places many years in succession. They also believe that these unfortunate Hawks regularly 'go blind' in August, and as a natural consequence become very thin and even die of starvation.

12. *Buteo pennsylvanicus*. BROAD-WINGED HAWK.—Three specimens noted, a pair near Webster, and a single bird at about 6000 feet on the Black Mountains.

(NOTE.—The general scarcity—one may almost say absence—of Hawks in this region during the breeding season is simply unaccountable. Small birds and mammals, lizards, snakes, and other animals upon which the various species subsist are everywhere numerous, the country is wild and heavily-forested and, in short, all the necessary conditions of environment seem to be fulfilled.)

13. *Aquila chrysaetos*. GOLDEN EAGLE.—These fine Eagles were frequently seen, usually in pairs, circling thousands of feet above the earth. They are said to breed on inaccessible cliffs and ledges of the higher mountains, whence they often descend into the valleys to prey on young lambs, geese, etc. The Bald Eagle is reported to occur in winter.

14. *Syrnium nebulosum*. BARRED OWL.—On the Black Mountains, at an elevation of about 5000 feet, I picked up a feather which unquestionably came from a Barred Owl, but whether its original owner belonged to the *alleni* stripe or to typical *nebulosum* I am of course unable to decide on such fragmentary evidence.

(NOTE.—Although I passed several nights in or near extensive forests I did not hear a single Owl of any species. The mountain people say that they are silent at this season, but very noisy during late summer and early autumn. They described several kinds well known to them, among which *Megascops asio*, *Bubo virginianus*, and *Syrnium nebulosum* were easily recognisable.)

15. *Ceryle alcyon*. BELTED KINGFISHERS.—But a single one met with—near the headwaters of the Cullasaja River in Macon County.

16. *Coccyzus americanus*. YELLOW-BILLED CUCKOO.—One at Franklin, in the heart of the village. This was the only Cuckoo of any species seen in the mountains.

17. *Dryobates villosus*. HAIRY WOODPECKER.—A male shot among the 'balsams' of the Black Mountains, at an elevation of 5700 feet, is essentially identical with our New England form,* and at once distinguishable from the birds seen at lower elevations, all of which I refer without hesitation to the following subspecies.

18. *Dryobates villosus auduboni*. SOUTHERN HAIRY WOODPECKER.—Seen occasionally at wide intervals, from the lowlands (Franklin) to an elevation of about 4000 feet (Highlands). The single example taken is precisely like specimens from Florida and Charleston, South Carolina, and very much smaller and darker than the bird above referred to true *villosus*.

19. *Dryobates pubescens*. DOWNY WOODPECKER.—Apparently rare; only two or three seen, all at about 4000 feet.

20. *Sphyrapicus varius*. YELLOW-BELLIED WOODPECKER.—The distribution of this Woodpecker in the region explored apparently corresponds exactly with that of *Contopus borealis*; thus it was found generally, but rather sparingly, over the plateau country in the southeastern corner of Macon County, and nowhere else. I shot two specimens, a male and female, both incubating. The male is a remarkable looking bird, having the lighter portions of its entire plumage deep orange or chocolate brown, instead of white or pale yellow. That this unusual color is due to a stain—perhaps derived from contact with the walls of the nesting cavity—is nearly certain, for the female—which, however, was not the mate of the male just mentioned—is of the usual color and markings. Both specimens are slightly smaller than New England ones.

21. *Ceophloeus pileatus*. PILEATED WOODPECKER.—Common and generally distributed, at least below about 4500 feet.

22. *Melanerpes erythrocephalus*. RED-HEADED WOODPECKER.—Only one specimen seen,—in a grove of girdled trees near Highlands.

23. *Colaptes auratus*. FLICKER.—Common over the mountain sides and plateaus between 3000 and 4000 feet, but not seen either above or below these limits. They were invariably very shy, and I failed to secure any, a fact to be regretted, for all looked unusually small and dark.

24. *Antrostomus vociferus*. WHIP-POOR-WILL.—Perhaps no other

* This form has been referred by some ornithologists to *leucomelas*, but with this ruling I cannot concur.

single fact shows more clearly the general absence of a true Louisianian Fauna in this region than the substitution, over even its lowest portions, of the Whip-poor-will for the Chuck-wills-widow. At just what particular point outside the encompassing mountain ranges this interchange is effected I cannot say, but certain it is that the larger bird is unknown over the length and breadth of the great central plateau, whereas the Whip-poor-will is common everywhere to at least 3500 feet. Above this elevation it does not appear to range, although from the extremity of the plateau at Highlands (4000 feet) it may be heard nightly in the valleys a few hundred feet below.

25. *Chordeiles virginianus*. NIGHTHAWK.—Common about Asheville, but not seen elsewhere. It is said to occur over the entire region, where it is universally called 'Bull-bat.'

26. *Chætura pelagica*. CHIMNEY SWIFT.—This ubiquitous species which, in Eastern North America at least, seems to be indifferent to climate or surroundings, was more generally distributed over the region under consideration than any other bird except the Turkey Buzzard. Thus I saw it in all the valley towns, careering madly over the streets and housetops; on the Swannanoa and French Broad Rivers, skimming close to the surface and occasionally dipping down to drink; circling over the oak woods on the mountain sides; and about their summits, sweeping close to the tops of the spruces or wandering aimlessly through space in the blue dome above. Like the Buzzard, its unusual power of wing enables it to traverse miles of air almost without thought or effort, and the bird that now drinks in the Swannanoa may be, a few moments later, hawking for insects above Mitchell's High Peak, twenty miles away. Nevertheless the species certainly nests, as well as flies, at various elevations, for I saw it entering chimneys in the towns, and hollow oaks high on the mountain sides.

27. *Trochilus colubris*. RUBY-THROATED HUMMINGBIRD.—Rather common, ranging from 2000 to 5000 feet.

28. *Tyrannus tyrannus*. KINGBIRD.—Seen only about Asheville, where a few haunted the shade trees in the town and the belt of timber bordering the Swannanoa River.

29. *Myiarchus crinitus*. GREAT CRESTED FLYCATCHER.—A common and very generally distributed species, ranging from the lower valleys up to at least 4500 feet. Naturally the open oak woodlands were its favorite haunts, and throughout these its loud, penetrating call was one of the most characteristic sounds.

30. *Sayornis phœbe*. PHŒBE.—Very common along streams, nesting usually, if not exclusively, under rocks and earth banks away from buildings. I did not find it at a greater elevation than 3000 feet.

31. *Contopus borealis*. OLIVE-SIDED FLYCATCHER.—Over the extensive plateau occupying the extreme southeastern corner of Macon County this fine Flycatcher was not uncommon. As in New England, it was usually found about the edges of clearings or along the courses of the mountain streams where, perched on the slender pinnacle of some tall

pine or hemlock, it sent its loud notes ringing over the neighboring country. At Highlands several pairs were established, and apparently preparing to breed, in a white pine swamp near the heart of the village. A specimen shot here is identical with northern ones. I did not find the species on the Black Mountains.

32. *Contopus virens*. WOOD PEWEE.—In most of the extensive forests visited, from the lower valleys to about 4000 feet, I occasionally heard the sad, plaintive voice of the Wood Pewee. It was commonest in the open woodlands about Highlands, but even here was not really numerous.

33. *Empidonax acadicus*. ACADIAN FLYCATCHER.—Everywhere below 3000 feet this Flycatcher was a very common species, inhabiting all kinds of cover, but occurring most numerous in rhododendron thickets bordering streams, where its abrupt, explosive note of *wicky-up* could be heard at all times of the day. It is one of the tamest and least suspicious of the small Flycatchers, but owing to its retiring disposition, and habit of sitting perfectly motionless among the foliage, it is much oftener heard than seen.

34. *Empidonax minimus*. LEAST FLYCATCHER.—Of sparse, but at the same time general, distribution, nowhere common. Thus a day rarely passed without two or three being noted, while I do not remember ever finding more than a pair in any one locality. They were usually met with in scrubby oak growth near streams, and were invariably very noisy, their notes and habits being precisely as at the North. The highest point at which the species was seen was about 4000 feet, the lowest 2000.

35. *Corvus corax sinuatus*. RAVEN.—Common almost everywhere above 3000 feet, below which altitude it is replaced by the Crow (*C. americanus*). Rather curiously, the two species do not seem to occur together here, at least during the breeding season. At Highlands I was told that the Ravens do not molest corn or other crops but are very destructive to poultry, killing many young chickens and turkeys. I failed to secure a specimen, but those which I saw living looked unusually large. Their notes were precisely the same as at the North. They were frequently met with in open oak woodland, and were usually pursued by Jays, Robins, and other small birds. Swannanoa, the Indian name of the beautiful little river that flows through Asheville, is said to signify "the swish of the Raven's wing."

36. *Corvus americanus*. CROW.—Common throughout the lower portions of the region, but nowhere as numerous as at the North.

37. *Cyanocitta cristata*. BLUE JAY.—Abundant everywhere, ranging over the tops of even the higher mountains, where I often heard its shrill voice among the balsams. It is most numerous, however, in open oak woodland at mid-elevations.

38. *Agelaius phœniceus*. RED-WINGED BLACKBIRD.—Apparently confined to the lower valleys, where every little meadow harbored a few pairs. As meadows, even of small extent, are by no means numerous, these Blackbirds were seen in only a few localities.

39. *Sturnella magna*. MEADOW LARK.—I heard of the Meadow

Lark at several places, but did not happen to meet with it living. At Highlands two skins were shown me, and I was told that it occurs numerously in the vicinity during autumn and winter. It is said to breed sparingly throughout the region, and there can be little doubt that this is true, although I have no proof of the fact.

40. *Icterus spurius*. ORCHARD ORIOLE.—Common throughout the low country, especially in or near towns, where its rich, flowing song was frequently heard among the trees shading the noisiest streets.

41. *Icterus galbula*. BALTIMORE ORIOLE.—The distribution of this species in the region under consideration is somewhat remarkable. About Asheville it is not uncommon, and I noted several there daily, either in the fine old oaks that ornament so many of the cultivated grounds, or among the sycamores and red birches which overhang the neighboring Swannanoa. At Highlands I saw a single male—an unusually brilliant one—which I was told was the only bird of its kind in the vicinity. Elsewhere I searched for the species in vain. Of course it may occur in other localities, but throughout the region at large it is certainly rare and very locally distributed.

42. *Quiscalus quiscula*? PURPLE GRACKLE.—At Asheville several pairs of Crow Blackbirds were breeding in a cluster of white pines in the heart of the town. Of course it was impossible to shoot any of them here—hence the ? attached to the specific name, which possibly should be followed by the sub-specific term *æneus*. As nearly as I could make out, however,—and I had a close view of several of the males—the form was true *quiscula*.

43. *Carpodacus purpureus*. PURPLE FINCH.—At Old Fort, May 23, the Purple Finch was abundant, in full song, and apparently breeding, but to my surprise it was not afterwards met with, although I searched for it carefully, especially in the balsam forests on the Black Mountains.

44. *Loxia curvirostra minor*. AMERICAN RED CROSSBILL.—Seen only on the Black Mountains, where it was numerous in small flocks throughout the balsam forests above 5000 feet. At Highlands I was told that it regularly appeared in winter about the outskirts of the town. I failed to secure specimens.

45. *Spinus tristis*. AMERICAN GOLDFINCH.—Nowhere very numerous, but generally distributed over the low country and mountain sides to at least 5000 feet.

46. *Spinus pinus*. PINE LINNET.—On the morning of June 2 I found these Linnets rather numerous near the lower ledge of the balsams on the Black Mountains at an elevation of about 5200 feet. They were not seen above this point, but they doubtless range over the upper portions of these mountains, as well as, probably, other extensive tracts of 'black growth' in the surrounding region. The males were in full song at the time of my visit.

47. *Ammodramus savaanarum passerinus*. YELLOW-WINGED SPARROW.—In sandy, sorrel-grown fields near Franklin these Sparrows were common and apparently breeding. The species was not seen elsewhere.

48. *Spizella socialis*. CHIPPING SPARROW.—Quite as common, ubiquitous, and familiar as in New England. I did not find it above 4000 feet.

49. *Spizella pusilla*. FIELD SPARROW.—Less numerous than the Chippy, but of equally general distribution, occurring most frequently in steep, bush-grown pastures on the mountain sides, but often in open oak or chestnut woodland. Its song differed markedly from that of our New England bird; as a rule it was higher-pitched, shriller, and less melodious.

50. *Junco hyemalis carolinensis*, susp. nov. CAROLINA JUNCO.

SUBSP. CHAR.—Differing from *J. hyemalis* in being larger, with lighter, bluer, and more uniform coloration, and a horn-colored, instead of pinkish-white or yellowish, bill.

♂ ad. (No. 10597, Black Mt., North Carolina, June 2, 1885. W. B.). Middle of breast behind and of the belly, under tail-coverts, and outer three tail-feathers, white, the third feather with a narrow inner edging of slate-color; remainder of plumage deep bluish or ashy plumbeous, the crown and back concolor, the throat a shade lighter, no blackish anywhere except on the wings and tail, the feathers of which are nearly, if not quite, black with grayish-plumbeous outer edging; bill (in the dried specimen, I unfortunately neglected to note its color in fresh birds) dark horn-color. Wing, 3.20; tail, 2.70; bill, .51.

♀ ad. (No. 10567, Highlands, N. C., May 28, 1885. W. B.) Smaller than the ♂ and generally lighter colored, with a tinge of brownish above

MEASUREMENTS.

Junco hyemalis carolinensis.

Cat. No. Col. W. B.	Sex.	Locality.	Date.	Wing.	Tail.	Culmen from base.	Culmen from feathers.	Culmen from nostril.	Depth of bill at nostril.	Remarks.
10566	♂ ad.	Highlands, N. C. . . .	May 28, '85	3.09	2.80	.50	.43	.33	.25	
10593	♂ ad.	Black Mountain, N. C.	June 1, "	3.20	2.80	.52	.43	.35	.24	
10594	♂ ad.	" " " "	" 1, "	3.17	2.82	.55	.45	.35	.24	
10597	♂ ad.	" " " "	" 2, "	3.20	2.70	.51	.43	.35	.25	Type.
10559	♂ ad.	Highlands, " "	May 28, "	3.05	2.86	.50	.46	.30	.25	
10567	♀ ad.	" " " "	" " "	2.98	2.67	.51	.43	.33	.23	Type.

J. hyemalis.

2741	♂ ad.	Upton, Me.	June 12, '72	3.04	2.65	.50	.40	.33	.24	
2742	♂ ad.	" " " "	" 12, "	2.95	2.61	.50	.42	.32	.25	
9701	♂ ad.	Shelburne, N. H. . . .	July 21, '84	2.97	2.73	.49	.40	.32	.23	
9333	♂ ad.	Mt. Washington, N.H.	" 12, "	3.12	2.65	.47	.40	.31	.25	
9335	♂ ad.	" " " "	" 12, "	2.80	2.47	.46	.41	.31	.23	
9344	♀ ad.	Shelburne, " "	" 15, "	2.85	2.55	.50	.42	.33	.23	

I should hesitate to propose a new race in a group which has already given so much trouble, were it not that the characters just mentioned are remarkably constant in the series of six specimen before me. The bird is much larger than *hyemalis*, and its general coloring is lighter, clearer, and bluer, as well as more uniform, the crown being perfectly concolor with the back, which is rarely, if ever, the case in *hyemalis*. The dark color of the bill also is an apparently good point of difference, at least between the bird under consideration and *hyemalis* of New England and northward, for in a series of some fifty specimens of the latter I do not find one which possesses this character, the bills of all being straw-yellow with sometimes a pinkish suffusion. Among a smaller number taken in early spring at Washington, D. C., however, are several with bills colored precisely as in the North Carolina birds. In other respects, however, these specimens are identical with *hyemalis* proper. It is probable that they represent the form which breeds on the mountains of Virginia and Pennsylvania and which naturally would be in varying degrees intermediate between the extreme northern and southern types. Linnæus, it should be mentioned, based his *Fringilla hyemalis* on the *F. nivalis** of Catesby, but the latter author's description clearly relates to our northern bird, which occurs numerously in winter throughout the low country of the Carolinas, while this large form appears to be resident in the mountains.

This new and interesting race of our northern Junco was found only at Highlands and on the Black Mountains, but it doubtless occurs at other points wherever the country is sufficiently elevated to suit its boreal temperament. About Highlands it was seen everywhere; flitting along the snake fences that border the fields and roads, twittering shyly in the depths of the 'laurel' swamps, flirting unexpectedly from beneath the oaks in the open woodlands, and on the grassy, wind-swept mountain summits, hopping fearlessly among our horses or peering curiously at their riders.

On the Black Mountains it was decidedly the commonest bird, ranging from an elevation of about 4300 feet to the very top of Mitchell's High Peak. It was here found quite as numerously in the hardwood forests below 5000 feet as among the spruces and balsams above that altitude. The mountain people call it 'Snowbird,' and say that it spends the winter in the lower and more sheltered valleys, returning to the mountain sides as soon as spring begins. Thus it is doubtless a local and essentially resident form.

I am indebted to Mr. Boynton for two sets of four eggs each, with the nests, taken at Highlands, respectively June 30 and July 7, 1885. The eggs are larger than those of *hyemalis* but similar in color and markings. The nests are also larger and composed of coarser material, although both are lined neatly with horse-hair. The one collected July 7 was placed "in a bank by the roadside," a site often chosen by our northern bird, but the other was built in "a berry bush in a garden, four feet above the ground," and hence in a situation never occupied, I believe, by the nest of *hyemalis*.

* Catesby's Car., I, p. 37.

Both sets of eggs were perfectly fresh, a fact which proves that the bird breeds very irregularly and probably at least twice in the same season, for I saw young on wing as early as May 29, and on the preceding day was shown a nest which the birds were just finishing.

51. *Peucaea aestivalis bachmani*. BACHMAN'S FINCH.—A single specimen, taken at Franklin, was the only one met with. It was singing in an old field grown up to sassafras sprouts. This specimen is in many respects unlike any in my large series from South Carolina, Alabama, Texas, and Illinois. In certain particulars, especially the size and shape of the bill, and the color and markings of the upper parts, it bears a close resemblance to *P. arizonæ*. Probably these peculiarities are individual; but I note them for the benefit of those who may have an opportunity of examining more material from this region.

52. *Pipilo erythrophthalmus*. RED-EYED TOWHEE.—Generally distributed, but nowhere very common. Its favorite haunts were thickets along wood edges, and brush-grown fences. The song was uniformly unlike that of our New England bird, but it varied so with different individuals and in different localities that this fact has little significance. I shot only one specimen, a female, which had the irides of the usual deep red.

53. *Cardinalis cardinalis*. CARDINAL GROSBREAK.—Confined to the lower valleys, where it was usually found in thickets along streams. It was nowhere at all numerous; indeed I rarely saw more than one or two pairs in a single day.

54. *Habia ludoviciana*. ROSE-BREADED GROSBREAK.—I found this species only in the country about Highlands and on the Black Mountains. In the former locality it ranged from (approximately) 3500 to 4500 feet; in the latter from 3800 to 5000 feet; in both it was far more abundant than I have ever seen it at the North. Its favorite haunts were the open oak woodlands so frequently mentioned in this paper. Throughout these, at all times of the day, I was rarely out of hearing of its voice. The song did not seem to differ from that of our northern bird, but what a superb performance it is whenever heard—so rich, flowing, and withal so tender and plaintive! I know of no bird-voice more expressive of feeling and sentiment.

55. *Guiraca cærulea*. BLUE GROSBREAK.—I met with only a single specimen of this species, a female seen June 1, in an apple orchard near Asheville. This bird was at one time within a few feet of me, and I have no doubt whatever as to its identity.

56. *Passerina cyanea*. INDIGO BIRD.—Abundant everywhere, ranging upward to at least 4500 feet. Especially numerous about the edges of pastures and other clearings on the mountain sides, but also very generally distributed throughout open woodland. Song and habits normal.

57. *Piranga erythromelas*. SCARLET TANAGER.—Abundant everywhere in hardwood timber and second growth, ranging from the lower valleys nearly or quite to 5000 feet (Black Mountains). The song is normal, the call note *chip-churr*, as in New England, not *chip-prairie*, as in Southern Illinois. My single specimen shows no peculiarities.

58. *Piranga rubra*. SUMMER TANAGER.—It is probable that this species occurs more or less commonly and generally over the lower portions of the plateau region, but I found it only on the eastern slope of the Blue Ridge, at Old Fort, where it was about as numerous as *P. erythromelas*.

59. *Progne subis*. PURPLE MARTIN.—Common in most of the towns and villages, building chiefly if not wholly in Martin boxes.

60. *Stelgidopteryx serripennis*. ROUGH-WINGED SWALLOW.—The characteristic Swallow of the valley region, common almost everywhere throughout the settled country up to about 2500 feet, and nesting in ledges and clay banks formed by railroad cuttings or the erosion of streams.

(NOTE.—I believe I saw the Bank Swallow once or twice, but I did not identify it fully. The Barn, White-bellied, and Eave Swallows were apparently absent.

61. *Ampelis cedrorum*. CEDAR BIRD.—Very common everywhere. Seen in greatest numbers along streams, catching flies over the water. On the Black Mountains I found a pair which were apparently about to breed in some spruces bordering a clearing at 5000 feet altitude.

62. *Vireo solitarius alticola*, subsp. nov. MOUNTAIN SOLITARY VIREO.

SUBSP. CHAR.—Differing from *solitarius* proper in being larger, with a stouter bill, and duller, darker, and more uniform coloring above.

♂ ad. (No. 10577, Highlands, Macon County, North Carolina, May 29, 1885. W. Brewster). Above dusky, almost blackish, plumbeous, slightly tinged with greenish on the rump, back and wings; beneath white, the sides yellow, washed with dusky-olive; wings dark brown, all the feathers except the first primary with light, slightly greenish outer edges and white inner ones; the wing-coverts tipped with dull white, forming two bands; tail-feathers similar, but the outer pair edged externally with white, the inner pair without white on their inner margins; a narrow white ring encircling the eye, interrupted anteriorly by a blackish loreal spot, and beyond this extending forward to the nostril in an imperfectly-defined whitish line, which is only continuous when the feathers are disarranged so as to expose their bases.

Four other specimens (three from the same locality, one from the Black Mountains), are essentially similar, but two of them have the orbital ring and line to the nostrils pure white and well defined, although it is not as broad and conspicuous in any of them as in true *solitarius*.

This new form may be easily distinguished from *solitarius* by its larger size, heavier bill, and different color of the upper parts. In *solitarius* the crown and sides of the head are clear, pure ash, in strong contrast with the olive green of the back and rump, whereas in *alticola* the entire upper parts are nearly uniform blackish-plumbeous, with only a faint tinge of greenish on the back, which is essentially concolor with the crown. In these respects the bird resembles *V. plumbeus*, but its coloring above is darker and dingier, its sides strongly yellowish, as in *solitarius*. From *cassini* and *propinqua* it differs too widely to require special comparison.

Habitat. Mountains of Western North Carolina.

MEASUREMENTS.

Vireo solitarius alticola.

Cat. No. Col. W. B.	Sex.	Location.	Date.	Wing.	Tail.	Tarsus.	Culmen from base.	Culmen from feathers.	Culmen from nostril.	Depth of bill at nostril.	Re- marks.
10554	♂	Highlands, N. C. . . .	May 27, '85	3.23	2.31	.72	.55	.44	.31	.17	
10555	♂	" "	" " "	3.03	2.21	.75	.52	.40	.30	.17	
10503	♂	" "	" 28, "	3.05	2.22	.72	.60	.49	.36	.20	
10577	♂	" "	" 29, "	3.16	2.30	.75	.60	.48	.35	.18	Type.
10607	♂	Black Mountain, N. C.	June 2, "	3.30	2.30	.73	.59	.46	.30	.18	

Vireo solitarius.

9350	♂ ad.	Shelburne, N. H. . . .	July 15, '84	2.95	2.17	.75	.57	.41	.31	.16	
9293	♂ ad.	" "	" 8, "	2.80	2.15	.73	.56	.41	.32	.15	
7386	♂ ad.	" "	" 7, '82	2.84	2.05	.69	.49	.37	.27	.15	
4593	♂ ad.	Upton, Maine	May 27, '79	2.82	2.05	.71	.51	.40	.30	.16	
5391	♂ ad.	" "	" 15, '81	2.98	2.25	.72	.57	.41	.30	.16	

Throughout the elevated plateau occupying the southeastern corner of Macon County, this new *Vireo* was one of the most abundant forest birds. It was found exclusively in open oak and chestnut woods, where its ringing voice, mingling with the rich music of the equally numerous Grosbeaks (*Habia ludoviciana*) and Scarlet Tanagers (*Piranga erythromelas*), was rarely still even at noontide. Its song was somewhat like that of *solitarius*, but to my ear much finer, many of the notes being louder and sweeter, and the whole performance more continuous and flowing.

On the Black Mountains it was also a very common and conspicuous bird, ranging from about 4200 feet to the lower edge of the balsams (5000 feet) and inhabiting woods similar to those just described.

(*To be concluded.*)

ADDITIONS TO THE CATALOGUE OF KANSAS BIRDS.

BY N. S. GOSS.

SINCE the publication of my Catalogue of the Birds of Kansas in 1883, the following additions* have been made, which I here

* [The nomenclature here followed is that of the forthcoming A. O. U. Check List, —EDD.]