cerns other individuals of the species.[1] There were certainly no other Grebes in the slough. Their nesting associates were as follows: Red-winged Blackbird (*Agelaius phœniceus fortis*), about three pairs nesting; Sora Rail (*Porzana carolina*), three or four pairs nesting; Wilson's Phalarope (*Steganopus tricolor*), several pairs; Killdeer (*Oxyechus vociferus*), one pair in evidence; Savannah Sparrows (*Passerculus sandwichensis alaudinus*) were present at the slough all summer; and a pair of Pintails (*Dafila acuta*) were believed to have a nest in an adjoining field. The adjoining prairie was monopolized, as usual, by the Horned Larks (*Otocoris alpestris leucolæma*) and Longspurs (*Calcarius ornatus* and *Rhynchophanes mccowni*).

At the present writing this slough is dry; the road which passes through it is traveled every day by automobiles; and the spot where the Grebes established their home a year ago has now been plowed and planted.

HISTORICAL NOTES ON HARRIS'S SPARROW (*ZONOTRICHIA QUERULA*).

BY HARRY HARRIS.

DURING the early decades of the nineteenth century when those pioneer ornithological enthusiasts, whose names and discoveries are familiar to all students of the science, were pushing beyond the frontiers in quest of new objects of study, the Kansas City region was the gateway to the wilderness and the very outpost of civilization. In this immediate neighborhood where the down-rushing Missouri is joined by the less turbulent Kaw, and where the great river bends finally to the east, were situated the frontier settlements of Independence, Fort Osage (Fort Clark, of Lewis

[1] Mr. A. A. Saunders advises me that so far as he is aware this is the only record of nesting of the Horned Grebe in Montana, although he has found two previous records of occurrence of the species in the state.

and Clark), Westport, and the great Konzas Indian village, while a short distance up-stream were three other landmarks frequently mentioned by travelers, Fort Leavenworth, the mouth of Little Platte River, and the Black Snake Hills.

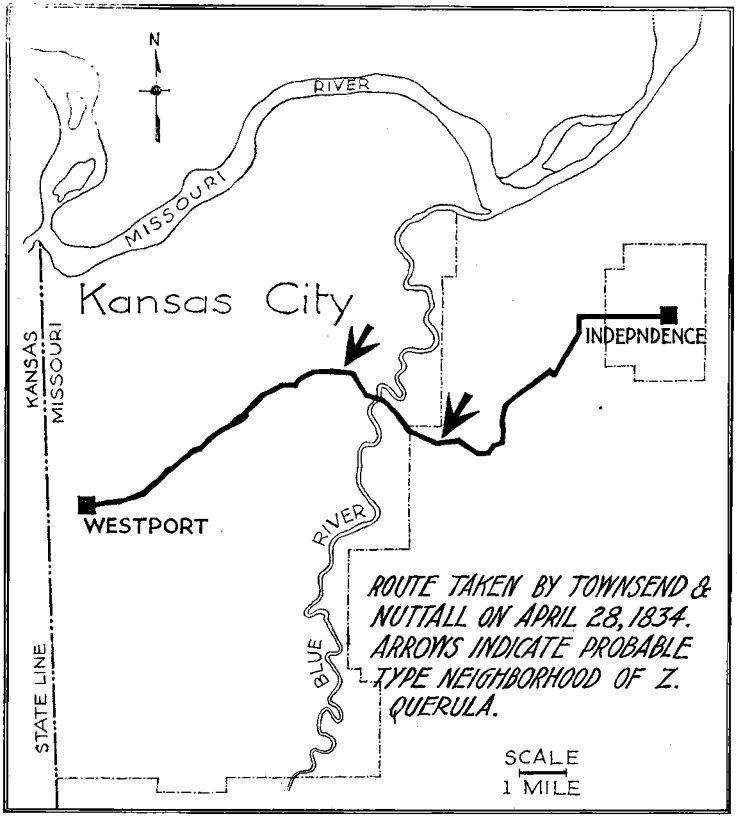
These names bring to mind several notable ornithologists and botanists whose published journals and narratives are at once fruitful sources of information to the working student and delightful reading to any person. Of all the young scientists who passed this way in their eagerness to explore the unknown beyond and gather its treasures to science, perhaps none are of more interest, though others may be more widely known, than John K. Townsend and Thomas Nuttall. Nuttall's discovery here of the bird now known as Harris's Sparrow (*Zonotrichia querula*), together with the fact that two other eminent ornithological explorers, at later periods, each believed he had discovered the bird in this same region, renders the tradition of peculiar and obvious local interest.

A long entertained hope of being able to determine the actual locality in Jackson County, Missouri, where Nuttall took the original specimen of this Sparrow, has led the writer to bring together the widely scattered data bearing on the early history of the bird. The facts in question, which do not appear to have been previously assembled, present several interesting features.

Nuttall and Townsend had outfitted in St. Louis in late March, 1834, preparatory to a leisurely pedestrian journey of some three hundred miles across the state to Independence, where they were to join the large caravan under Captain Nathaniel J. Wyeth, bound for the Columbia River country. On April 28th the party left Independence over the frontier trail to Westport, distant approximately fourteen miles. Some time during the day Nuttall, who was primarily a botanist and is said to have carried no gun, took, or had taken for him by some member of the party, the type specimen of Harris's Sparrow which he named the Mourning Finch (*Fringilla querula*). Nuttall writes: "We observed this species, which we at first took for the preceding [White-crowned Sparrow], a few miles to the west of Independence, in Missouri, towards the close of April. It frequents thickets, uttering in the morning, and occasionally at other times, a long, drawling, monotonous and solemn note *te de de de.* We heard it again on the 5th of May,

not far from the banks of the Little Vermilion, of the Kansa." [1]

The information contained in this short paragraph is the only guide the writer has had in a search for the spot where the species was first met with. Not a little difficulty has been experienced



in tracing the road between Independence and Westport in use in the early thirties, since but meager graphic record of its course has been preserved. The accompanying sketch map is in the main

[1] A Manual of the Ornithology of the United States and of Canada, by Thomas Nuttall, Second edition of the volume on Land Birds. Boston, 1840.

authentic, authorities differing as to only a short stretch about three miles from old Westport. Many years association with the birds of this region leads the writer to the conclusion that these scientists would have had difficulty in crossing the Blue Valley at this season of the year without seeing or hearing troops of these striking Sparrows. That part of the road lying within the valley is indicated on the map by arrows.

Townsend's frame of mind on this momentous day is best described in his own words. "On the 28th of April, at 10 o'clock in the morning, our caravan, consisting of seventy men, and two hundred and fifty horses, began its march; Captain Wyeth and Milton Sublette took the lead, Mr. N.[uttall] and myself rode beside them; then the men in double file, each leading, with a line, two horses heavily laden, and Captain Thing [Captain W.'s assistant] brought up the rear. The band of missionaries, with their horned cattle, rode along the flanks.

"I frequently sallied out from my station to look at and admire the appearance of the cavalcade, and as we rode out from the encampment, our horses prancing, and neighing, and pawing the ground, it was altogether so exciting that I could scarcely contain myself. Every man in the company seemed to feel a portion of the same kind of enthusiasm; uproarious bursts of merriment, and gay and lively songs, were constantly echoing along the line. We were certainly a most merry and happy company. What cared we for the future? We had reason to expect ere long difficulties and dangers, in various shapes, would assail us, but no anticipation of reverses could check the happy exuberance of our spirits.

"Our road lay over a vast rolling prairie, with occasional small spots of timber at the distance of several miles apart, and this will no doubt be the complexion of the track for some weeks.

"In the afternoon we crossed the Big Blue River at a shallow ford. Here we saw a number of the beautiful Yellow-headed Troopials, (*Icterus zanthrocephalus*) feeding upon the prairie in company with large flocks of Blackbirds, and like these, they often alight upon the backs of our horses." [1]

[1] Narrative of a Journey Across The Rocky Mountains, to the Columbia River and a Visit to the Sandwich Islands, Chili, &c. With a Scientific Appendix. By John K. Townsend. Philadelphia, 1839.

Here is a vivid picture of a situation well calculated to stir the imagination and excite the enthusiasm of this twenty-five year old easterner on his first visit to the virgin West, and thoughts of ornithological discoveries were no doubt reserved for the future. Nuttall could not have been so distracted by the excitement incident to the departure of this wild cavalcade, since he had had several previous experiences of the wilderness, was an older man, and was by nature "shy, solitary, contemplative, and of abstract manner." At all events he set the ornithological pace immediately at the start of the journey by discovering a new bird. Townsend's silence in his 'Narrative' regarding this important event was of course due to courtesy to the discoverer who had not yet given his species to science.

In my account of Nuttall's discovery of his "Mourning Finch," I have assumed that the specimen he took in Jackson County is the type. Perhaps it would be more accurate to say that in the absence of any definite knowledge regarding the type specimen it is presumed from his description that the specimen here taken was the type. The description referred to was published in the second edition of his Manual (the volume on water birds being a reprint of the first edition) which did not appear until 1840. It will thus be seen that this important species was allowed to remain in obscurity for six years while twenty-four other new species subsequently discovered on the trip had been described, as well as sixteen figured by Audubon in the Great Work, prior to the appearance of Townsend's Narrative in 1839. Nuttall's published description of the bird is merely the briefest possible outline of salient specific characters, no measurements whatever being given.

On his return to the East, two years in advance of Townsend, Nuttall had in his possession a quantity of the latter's material for delivery to the Philadelphia Academy of Sciences, which Institution had helped substantially in financing the travelers. It was this material that Audubon sought so eagerly to possess, that his great work then nearing completion might not lack the new species.[1] Audubon had called on Nuttall, in Boston, in the hope

[1] An unbiased account of Audubon's efforts to secure these specimens is given in Chapter XXXI, Vol. 2, of Dr. Herrick's recent historical study 'Audubon The Naturalist.' Further light on the subject may be found in a letter from Audubon to Harris under date of Oct. 26, 1837, published in the Auk, Vol. XX, p. 370, by S. N. Rhoads. Audubon has left a full account of his activities at this time in the Introduction to Vol. 4 of the 'Ornithological Biography.'

of assistance from that quarter, and was promised duplicates of all the new species in his possession. It is said that five species were here secured, but the Mourning Finch was not included. Nuttall had reserved this discovery for his own book, and not only was posterity thereby deprived of an Havell engraving of the largest and handsomest of our Sparrows, but Audubon, being kept in the dark, was himself to later publish the bird as the discovery of his friend Edward Harris.[1]

On the same day that Townsend and Nuttall were so picturesquely entering the Indian country, Maximilian, Prince of Wied, who had spent the previous year on the upper Missouri, was making his way down-stream on his return to civilization. On May 13, 1834, when but a few miles from the northern boundary of Missouri, his hunters took specimens of a bird new to him. In the second volume of his published journal,[2] he says: "It was toward eight o'clock in the cool morning of May 13 (1834) that we stopped on the right bank of the river and landed on a fine, green prairie, beset with bushes and high isolated trees.... We found many beautiful birds, among which *Icteria viridis* and the handsome Grosbeak with red breast *Fringilla ludoviciana*....At noon we reached Belle-Vue, Major Dougherty's Agency....To the naturalist the surroundings of Belle-Vue were highly attractive. The beautiful wooded hills had shady ravines and small wild valleys.... Many, and some of them beautiful, birds animated these lovely thickets, the Cuckoo, the Carolina Dove, the Red-breasted Grosbeak, *Sialia wilsoni*, several Finches, among which *Fringilla cyanea* and *erythropthalma*, and of about the same size a new species which at least in Audubon's Synopsis of the year 1839 is not enumerated and which I called *Fringilla comata* (2)" [3] The (2) in the text refers to a note at the end of the chapter where a description of the Harris's Sparrow is given in great detail, and where the statement is made that "this bird nests in thickets along the shore of the Missouri River in the neighborhood of the mouth of La Platte River." The first volume of Maximilian's

[1] Notes from a letter of Edward Harris, Auk, 1895, p. 227, Geo. Spencer Morris.

[2] Reis im Innern Nord-Amerika. 2 Vols. Coblentz, 1839–1841.

[3] Having access only to a reprint of this rare work in which the ornithological matter is largely deleted, I am indebted to Mr. Otto Widmann for this extract which he translated from the original publication.

journal, containing the record of his trip up the Missouri, was published in 1839, while volume two, covering the period when the Sparrow was taken, did not appear until 1841. Had he published both volumes simultaneously in 1839, his specific name *comata* would of course be current. It is interesting to note that though he took his first specimen just fifteen days after Nuttall had taken the type, and at a time when the bulk of the migrants had passed north, he had overlooked an opportunity of being the actual discoverer during the previous April, when he had been in the direct migratory path of the Sparrow at the season of its greatest abundance there.

Nuttall himself had overlooked an opportunity of discovering the bird twenty-four years earlier, and had his attention at that time been directed to birds as well as plants, he would no doubt have become acquainted with the species. Referring to the Journal of his companion,[1] John Bradbury, an English botanist, it is found that they passed through this region during the spring migration of 1810, and while Nuttall's absent-minded preoccupation in collecting plants was a standing joke among the voyageurs, Bradbury was somewhat more alive to ornithological possibilities, and has left many entertaining, and a few valuable notes on the better known birds. They had spent April 8th and 9th at Fort Osage, now Sibley, Jackson County, Missouri; and the writer knows of no more certain place to find Harris's Sparrows in early April than in the timber and thickets of this bottom land.

The Lewis and Clark party had passed through this region in June, 1804, and again early in September, 1806, and Thomas Say of the Long Expedition had been here in August, 1819. Maximilian was therefore the first ornithologist to enter the range of this species while the birds were in transit.

The last "discoverer" was Edward Harris, in whose honor Audubon gave the bird its vernacular name. The memorable voyage of Audubon and Harris, together with Bell, Sprague, and Squires, up the Missouri River in 1843 is too well known to require comment. A few quotations will serve in connection with the story of the Sparrow. On May 2 the party passed the point in

[1] Travels in the Interior of America in the Years 1809, 1810, & 1811 &c. By J. Bradbury. Liverpool, 1817.

Jackson County, Missouri, where Nuttall and Townsend had left the river nine years previously. Early the next morning they reached Fort Leavenworth. After leaving this post the boat was stranded on a sand-bar from 5 o'clock in the evening until 10 the next morning, giving the naturalists considerable time to do some collecting in the neighborhood. In his famous journal [1] of the voyage, Audubon says under date of May 4: "Friend Harris shot two or three birds which we have not yet fully established.... Caught...a new Finch." And on the next day he states: "On examination of the Finch killed by Harris yesterday, I find it to be a new species, and I have taken its measurements across this sheet of paper." In volume seven of the octavo edition of his 'Birds of America,' where the new species taken on the trip are described, the remarks under the Sparrow are as follows: "The discovery of this beautiful bird is due to my excellent and constant friend Edward Harris, who accompanied me on my late journey to the upper Missouri River, &c., and after whom I have named it, as a memento of the grateful feelings I will always entertain towards one ever kind and generous to me.

"The first specimen seen was procured May 4, 1843, a short distance below the Black Snake Hills. I afterwards had the pleasure of seeing another whilst the steamer Omega was fastened to the shore, and the crew engaged in cutting wood.

"As I was on the look-out for novelties, I soon espied one of these Finches, which, starting from the ground only a few feet from me, darted on, and passed through the low tangled brushwood too swiftly for me to shoot on the wing. I saw it alight at a great distance, on the top of a high tree, and my several attempts to approach it proved ineffectual; it flew from one to another treetop as I advanced, and at last rose in the air and disappeared. During our journey up stream my friend Harris, however, shot two others, one of which proved a female, and another specimen was procured by Mr. J. G. Bell, who was also one of my party. Upon our return voyage, my friend Harris had the good fortune to shoot a young one, supposed to be a female, near Fort Crogan, on the fifth of

[1] Audubon and His Journals. By Maria R. Audubon. With Zoölogical and other Notes by Elliott Coues. 2 Vols. N. Y., 1900.

October, which I have figured along with a fine male. The female differing in nothing from the latter.

"All our exertions to discover the nest of this species were fruitless, and I concluded by thinking that it proceeds further northward to breed."

The work in which this supposed discovery was announced was published in 1844, four years after the second edition of Nuttall's 'Manual' appeared. Since this manual was the first American work on ornithology, excepting Wilson's, to go into a second edition, it was presumably widely known among ornithologists, and it is not easy to understand why Audubon and his coworkers were in ignorance of their lack of claim to Nuttall's Mourning Finch.

During the twenty-five or thirty years following Audubon's visit to the Missouri haunts of the Sparrow, practically nothing was learned of its life-history or distribution, and the few scattered specimens that were taken were all from the same general region. A specimen furnished by Lieut. Couch, taken at Fort Leavenworth on October 21, 1854, formed part of the material used by Prof. Baird in his epochal work in 1858, as did another taken at the same point on April 21, 1856, by Dr. Hayden, of Lieut. Warren's Pacific Coast Surveys party. Dr. Hayden took three other specimens further up the river in the same year. Dr. P. R. Hoy, who collected in the type region in 1854, took a specimen on May 7, and on May 13 met with a troop of fifteen or twenty. There are a few other records from the Missouri Valley and one from Texas (Dresser, Ibis, 1865) prior to the numerous ornithological activities of the early seventies. Dr. J. A. Allen, collecting in the interest of the Museum of Comparative Zoölogy, had his headquarters at Fort Leavenworth during the first ten days of May, 1871, and found Harris's Sparrows exceedingly abundant in the bottom timber on the Missouri side of the river. He added a few field notes on behavior, appearance, etc, and took a series of specimens. Baird, Brewer, and Ridgway state that from the time of its discovery in 1834 up to 1872 but little information had been obtained in regard to the Sparrow's general habits, its geographical distribution, or its mode of breeding, single specimens only having been taken at considerable intervals in the valley of the Missouri and elsewhere. In 1874 Dr. Coues brought together all the avail-

able data in his interesting article on the bird in 'Birds of the Northwest,' but was able to add nothing in determining the bounds of its habitat, which he gave as "Region of the Missouri. East to Eastern Iowa."

It was not until ten years later that enough information had accumulated to warrant an attempt at defining the limits of its range and the periods of its migration. This was done by the painstaking and accurate Wells W. Cooke in the first volume of 'The Auk,' in 1884. In this article, 'Distribution and Migration of *Zonotrichia querula*,' he was able only in a very general and indefinite way to give the western and southern extent of the range, but the eastern limits remain practically as he defined them.

In 1913 Professor Cooke noted the interesting peculiarity of the migration of the Harris's Sparrow in the interval that elapses after the first spring advance. He states [1] that the birds become common along the Missouri River in northwestern Iowa soon after the middle of March and yet it is not until early May that they are noted a few miles further north in southeastern South Dakota and southwestern Minnesota. He adds that the dates suggest the probability that these March birds have wintered unnoticed in the thick bushes of the bottomlands not far distant, and have been attracted to the open country by the first warm days of spring. This theory is borne out by the facts as observed by the writer in the Kansas City region. The birds are present in this vicinity during even the most severe winters, but keep to the dense shelter of the Missouri bottoms. During mild and open winters a few scattered flocks may even spend the entire season until spring in the hedges and weed patches of the prairie country.

This Sparrow has always attracted attention in the field by its large size and conspicuously handsome appearance, as well as by its sprightly and vivacious manner and querulous notes, but it has seldom been the subject of special notice in the literature of American birds. Its bibliography is chiefly confined to diagnostic listing in formal works on ornithology, brief annotations in faunal lists, and occasional mention in published field notes.

During the thirty-four years that have elapsed since Prof. Cooke's

[1] The Migration of North American Sparrows. Compiled by Prof. W. W. Cooke, chiefly from data in the Biological Survey. Bird Lore, 1913, p. 301.

article of 1884, the Sparrow, as a migrant, has become well known to ornithologists. Its narrow migration path, the center of which in the United States is approximately down the 96th meridian, has been worked out; the wide extent of territory covered by stragglers has been fully reported;[1] the food habits of the bird while on migration have been thoroughly investigated and the results published;[2] the nest has been seen once,[3] and young just out of the nest have been collected,[4] and the general region of the breeding ground itself is known to be where barren tundra meets the edge of the timber between Hudson Bay and Great Bear Lake. But the eggs yet remain to be discovered.

NOTES ON THE STRUCTURE OF THE PALATE IN THE ICTERIDÆ.

BY ALEXANDER WETMORE.

THE curious keel-like, angular projection found on the palate in the North American Grackles of the genus *Quiscalus*, recognized as one of the prominent characters distinguishing that group of Blackbirds, is a structure that can hardly fail to attract attention when the mouth is examined in freshly killed specimens, or in birds preserved in spirits. Recently, certain observations made in the field on these birds, which will be recounted later, recalled this structure to mind and the writer was led to make a somewhat detailed study of the palatal keel in the Grackles, and finally to examine the appearance of the palate in other members of the family *Icteridæ*. In these studies, carried on in the United States National

[1] The Status of the Harris's Sparrow in Wisconsin and Neighboring States. By Alvin R. Cahn. Bull. Wis. Nat. Hist. Soc., Vol. XIII, No. 2, pp. 102–108. Also in numerous lists and field notes published in 'The Auk,' 'Wilson Bull.' and the other bird journals.

[2] The Relation of Sparrows to Agriculture. By Sylvester A. Judd. Bull. Biol. Surv. No. 15, 1901.

[3] Bird Records from Great Slave Lake Region. By E. T. Seton. The Auk, 1908, p. 72.

[4] Biological Investigation of Hudson Bay Region. By E. A. Preble. N. A. Fauna No. 22. Washington, 1901.