

The left upper incisor grew in a circle, and when it came to the roof of the mouth became deflected until it found the suture of the palatal surface of the superior maxillary and passed through this up into the nasal passage and continuing its growth in the circle turned downward through this bone again into the mouth, completing over a circle and a quarter. The pleasant sensations he must have experienced while this growth was taking place must have been entertaining at least. The right upper incisor was forced to the right and missed the superior maxillary, and performed the same circular growth between the lip and gum. Each of the upper incisors are about $3\frac{1}{2}$ inches long. The right one shows by the abrasions on it where it came in contact on its side with the lower incisor in the earlier stages of its abnormal career, but the contact was not sufficient to arrest its growth.

The animal was weak and almost starved when killed, and I think no animal could live long on the small amount of food that could be procured after these teeth reached one-half their present length. Thus I reason that the growth of the incisor teeth of rodents must be very rapid, and I would place the time that elapsed after the accident happened this unfortunate creature, by which his teeth were so dislocated as not to oppose each other, and the time that he was killed could not have been more than a few months, under a year at the farthest. This rapid growth seems to be reasonable, too, when I consider the growth necessary to counteract the tremendous wear to which the incisors of a rodent are subjected. If this were not so, many a little fellow would find himself frequently in the condition of the fabled rat that gnawed the file.

THE BOBOLINK (*DOLICHONYX ORYZIVORUS*) IN INDIANA. BY A. W. BUTLER.

The Bobolink was one of the fanciful birds of my boyhood. The accounts of it which came to me, both by tongue and pen, interested me greatly. I longed to see the bird and hear him sing. At first I concluded it was to be found abundantly—a characteristic feature of the landscape—each spring. Year after year I watched for it, but it did not come. I consulted others who enjoyed the company of birds, and learned they had not seen it. The natural conclusion was I must see it in some other locality; but finally, before my purpose was carried out, it came to me. I saw my first Bobolink in the spring of 1881. On May 5, when walking by a timothy meadow within the town of Brookville, Ind., I saw a half dozed males, dressed in their distinctive colors, arise, one after another, from the

grass, only to alight again beneath its waving tops. They were busily feeding, and sang no song. Up to this time there were perhaps not a dozen localities within a hundred miles of the Ohio River, throughout its entire length, from which it had been reported. Dr. F. W. Langdon had noted it in the vicinity of Cincinnati, Ohio; Dr. Rufus Haymond had found it in Franklin County, Ind.; Dr. A. W. Brayton gave it from Marion County. All these records were of its spring occurrence. Since then almost every spring it has been met with, in limited numbers, in the southern part of this State, but records of its occurrence in fall are very few. At that time it had been found to range in summer as far north as Quebec, towards the coast, and in the interior to the Saskatchewan (latitude 60°). In winter it passed south beyond the United States, reaching the West Indies, Central America, Galapagos Islands, and going as far south as Bolivia, Argentine Republic and Paraguay. It was said to reach west, during the period of its visits to our land, to Kansas and Dakota. But continued explorations have shown its presence in Utah, Nevada, Wyoming, Montana, also, and, more recently, Maj. C. E. Bendire has ascertained its occurrence in British Columbia, thus extending its range to the Pacific Coast. To the form ranging from Kansas and Dakota westward the subspecific term *albinucha* has been given. Dr. T. M. Brewer gave its breeding range from latitude 42° to 54° North; that is to say, from the southern boundary of Massachusetts, New York, Michigan and the latitude of Chicago northward to the extent of its range. In the early days of this country's history they doubtless were found in great numbers, as summer residents, in natural meadows, prairies and marshy places—such open land as was suited to their needs for housekeeping and for food supply—in the region indicated. They did not frequent the timbered districts. The forest lines were barriers to them; but as the woods of the more level region gave place to grain and then to grass, the territory over which they might spend the summer extended, while, on the contrary, in certain districts, where the forest growth encroached upon the prairies, the area of breeding ground was correspondingly lessened. Their summer range, at least in Indiana, Ohio, Michigan and Illinois, has been much misunderstood. Where it is found no general statement as to its distribution can be made, for it appears to be quite irregular; indeed, in many localities, exceedingly local. The extent of its distribution and numbers depends primarily upon the area of land suitable for its occupation. The extension or restriction of the latter has a corresponding effect upon the former.

In order that its local distribution and the effect of man's occupation upon its history may be made clearer I submit the results of some investigations I have been permitted to make.

I shall refer first to Michigan. It is common and breeds at Port Sanilac (W. A. Oldfield). Common and breeds at Bay City (N. A. Eddy). Breeds commonly at Saline (Norman A. Wood). Common summer resident; breeds at Belle Isle (Louis Fites). Common; breeds at South Ogden (Mrs. H. C. Simes). Raisin, Lenawee County; common, breeds (Alfred W. Comfort). Common, breeds, Ganges, Allegan County (David Lewis). Brant, Saginaw County, common, breeds (W. De Clarence). Ann Arbor; common, breeds (A. B. Covert, L. T. Meyer, James Savage, F. L. Washburn). St. Clair County; common, breeds (Stephen A. Warnie). Windmill Point; common, breeds (N. J. R. Kennedy). Common; breeds, Battle Creek (Nathaniel Y. Green). Manchester; common, breeds (L. Whitney Watkins).

Abundant summer resident at Albion, Calhoun County, and St. Joseph, Berrien County (O. B. Warren).

Mr. R. C. Alexander, Plymouth, says that they have been there for fifty years and steadily increased in numbers, more common than usual this summer (1894). Evenly distributed in this locality. Breeds abundantly.

Prof. A. J. Cook says they were not found in central Michigan until within a few years (Birds of Mich., p. 101).

I can not tell at how many of these localities it has been continuously a breeder as at present. The following localities report a change: At Agricultural College, Ingham County, they were first seen in 1874 (A. J. Cook). At Locke they were rare until 1874 and very common in 1875 (Dr. H. A. Atkins). First seen in Monroe County in 1872 (Jerome Trombley). Grand Rapids, Kent County; never common, but two or three pairs breed near this city (Stewart E. White, 1888). Benzie County: Never seen until late years; rare (Wm. G. Voorheis, 1892). In the Northern Peninsula, Prof. Cook says, upon the authority of Mr. E. E. Brewster of Iron Mountain, Dickinson County, that it occurs rarely at that place. In 1895, Mr. O. B. Warren saw them for the first time at Palmer, Marquette County. They remained and bred.

In Illinois, Mr. Robert Ridgway says it breeds only in the northern part of that State (Birds of Ill., Vol. I, p. 309).

My own experience is that in the vicinity of Chicago, Illinois, it is the most abundant I have ever seen it. This is especially true in the vicinity of South Englewood and southeast of Grand Crossing towards Indiana. The reports of Messrs. J. O. Dunn and C. A. Tallman from the last mentioned neighborhood and of Mr. Eliot Blackwelder from the vicinity of Morgan Park corroborate my experience. Mr. Blackwelder in 1894 wrote me that it was increasing yearly and was excessively numerous that year.

In Indiana, Mr. L. T. Meyer has assured me of their abundance in the northern part of Lake County. Mr. C. E. Aiken tells me they were abundant in that county in 1871. Mr. J. Grafton Parker and Mr. H. K. Coale have noted them as common in that county. In 1886 Mr. R. B. Trouslet told me it was common in Porter County. Summer resident near Michigan City, Laporte County (J. W. Byrkit). Laporte County: Abundant; breeds (Chas. Barber). Mr. Ruthven Deane reports them abundant and apparently breeding at English Lake, Starke County. Marshall County: Common (A. I. Mow). Dr. Vernon Gould, of Rochester, Fulton County, informs me that upon the prairies and open marshes in the western part of that county the Bobolink is found quite common in its favorite localities and has been for fifty years. In the eastern half, or timbered section, it is not often seen. He does not think there has been any perceptible change as to numbers since the country was settled. Mr. Victor H. Barnett reports them present at Francisville, Pulaski County, June 11, 18, 19 and 20, 1896, and thinks they breed sparingly. In 1891, Hon. R. Wes. McBride, a close observer, wrote me that the Bobolinks were entirely unknown in Elkhart County. That he had not seen one there nor had any one else to his knowledge. In 1895, Mr. Chancey Jnday wrote that he saw a number near Millersburg, that county, the week ending June 22. In Kosciusko County, Mr. L. H. Haymond, informs me they were first observed in 1872 or 1873. The next summer a few pairs bred in a swamp within the city limits of Warsaw. They have increased in numbers yearly. At Fountain Spring Park (Winona) many pairs now breed annually. I, myself, have for two seasons, found a great company in the meadow west of the assembly ground in the latter part of June and early July. In 1894, a pair of Bobolinks were discovered to have built their nest on ground often occupied for shooting tournaments. The traps were so placed that the nest was between them and the shooters. All the firing was over the nest. At first the birds were very much frightened by the noise. The female left the nest at the beginning of the shooting, returning when the first match was shot. She left again when the next match began. After some time, however, she returned to her nest and remained there until the close of the shooting. Hundreds of shots were fired over her, yet she sat quietly on her nest through it all. Mr. J. E. Mow says they are common and breed at Millwood in Kosciusko County. Mrs. Jane L. Hine, of Sedan, Indiana, wrote me in 1892, that the first Bobolinks appeared near Kendallville, Noble County, in 1883. She saw them there the next year, June 4, 1884. In 1885 they appeared two and a half miles east of the DeKalb and Noble County line. In 1886, at Sedan, two miles farther east, she saw three males that spring. There was more of them in 1887 and increased after that. In 1888 the people of a neighborhood

six miles east of Sedan were telling of their new bird, the Bobolink. Mr. McCord, who has been much upon the Auburn and Fort Wayne road, saw his first Bobolink there in 1887.

According to Hon. R. Wes. McBride, Bobolinks first appeared about Waterloo, Dekalb County, about 1880. In 1891 he wrote me they were one of the most common summer residents in Dekalb, Steuben and Lagrange counties, and in a paper before this Academy (Proc. 1891, p. 167,) he reiterates his remarks in substance, and adds: "It is still very rare in Elkhart County, only a short distance west, with the apparent conditions not materially different." In 1886 Mr. J. O. Snyder informed me that pairs remained all summer at Waterloo. In 1887 he said it was uncommon and bred. In 1888 he noted it as becoming more common each year. In 1894 Mr. J. P. Feagler said, in speaking of Dekalb and Steuben counties, the rate of increase is about ten per cent. a year. In 1889 Mr. C. A. Stockbridge, of Ft. Wayne, wrote me they were found in Allen County all summer, and he thought they bred. In 1893 Mr. W. O. Wallace wrote me it was a common summer resident at Wabash. It was first noticed there about 1887, when he saw two males. From that time they have been increasing until they are now one of the commonest meadow songsters. Dozens of persons—adults—asked him what the new bird was. Upon their describing it he recognized their new acquaintance as the Bobolink. Mr. D. C. Ridgley first noted it breeding in Wabash County about 1891. Since then Mr. Wallace has often caught young unable to fly, but has never found their nests. (Birds of Wabash County, Proc. I. A. S. 1895, p. 153.) Mr. F. E. Bell reports it as common and breeding at North Manchester.

In 1892 Prof. E. E. Fish, Buffalo, New York, wrote me that several years ago he traveled slowly through several of the northern counties of Indiana without once seeing a Bobolink. He adds, "but they now sing in the meadows near Logansport, and doubtless they nest there, as they remain so late in the summer." Prof. A. H. Douglass, of Logansport, has recently written me that he has observed these birds for a number of years. Their numbers have increased steadily every summer. They breed there now in almost every timothy meadow. He adds: "It is a great joy to me during the latter half of May and the month of June to drive into the country and see them so abundant where there were none a few years ago. In some meadows last year (1896) there were more Bobolinks than Meadow Larks." They were first reported as migrants from Carroll County in 1884 by Prof. B. W. Evermann. Mr. Sidney T. Sterling says the first of these birds he saw in that county was in 1891. That summer two pairs remained about a wet place in a timothy meadow. As they remained so constantly near the same place, he concluded they were nesting. They disappeared about harvest time, to

be seen no more until the following spring, when they returned to the same place. In 1893 the field was put in wheat, and the birds were not seen any more. At Lafayette it is rare, and I can not learn that it is a summer resident, or breeds. (L. A. and C. D. Test, R. R. Moffitt). Mr. J. E. Beasley, Lebanon, says that the first of this species he saw in Boone County was in 1869. There were three males. They have been increasing since that time. While the greater part seen are migrants, there are always a few pairs that breed. I myself have seen them during the spring migration in Howard County, but do not know that they have been observed to breed there. Mr. A. B. Ghare says they breed commonly in Clinton County. In 1889 Mr. J. R. Slonaker reported them common at Terre Haute, and added they had been noticed to breed there for the past three years only. Mr. A. H. Kendrick reports them as breeding near Ellsworth, Vigo County, in 1896. In 1887 Dr. A. W. Brayton informed me that he had found them breeding upon the grounds of the Institution for the Deaf and Dumb within the city of Indianapolis. In 1889 Mr. W. P. Hay reported them breeding at Irvington, adding, they had been scarce until the last two years. Mr. Roy Hathaway informs me they breed in Jay County, near Red Key. In 1886 Mr. G. G. Williamson reported one from Delaware County, June 3, and added they bred there. In 1890 he notes it as not common; breeds. In 1892 he informed me the Bobolink had surprised him. He writes: "He has come and brought all his friends and relatives with him. He has always been a scarce bird hereabouts before this. But this time he is actually abundant. Every suitable meadow furnishes one or more, and their music boxes are in the best of order."

The first record I have from Wayne County is from Dr. Erastus Test, Purdue University, Lafayette. He tells me he saw a number of Bobolinks there from 1883-6, and especially refers to them in the vicinity of Earlham College, near Richmond. They were next reported from that county in 1888 by Messrs. H. N. McCoy, W. C. DeWitt and Fred. M. Smith, of Richmond. They noted them as remaining as late as July 1st. I have reports from there almost every year since. In 1891 I found it near the southern boundary of Wayne County. I called the attention of some of the members of the Wayne County Horticultural Society to this occurrence. As a result I received a report for that year from Mr. Walter S. Ratliff. This was the first time he had observed them. There were only three. They were seen about the edges of the same meadow every day until July 21st. He says they bred. In 1892 they returned to the same farm. There were nine. They paired and again nested in the meadows. Young were noted a mile farther north. July 20th they left. In 1893 these birds came again in larger numbers

than before. In 1896, however, they remained but a few days in the locality formerly frequented, and did not breed there.

Bobolinks have been reported from Decatur County for a number of years. Prof. W. P. Shannon found them June 1, 1895, and a pair July 2, 1896. He is inclined to think it breeds.

Thus it can readily be seen how the breeding range of this species has been extended within recent years through the encroachment of man upon the original forest area of our region until it now occupies in summer near two-thirds of the State. By this also its range during the breeding season is extended southward about three degrees. In addition to those noted, the Bobolink has been reported from the following counties in this State, in most of which it probably occurs as a migrant: Knox—Bicknell (E. J. Chansler), Vincennes (Angus Gaines); Monroe—Bloomington (W. S. Blatchley, C. H. Bollman, B. W. Evermann, G. G. Williamson, E. M. Kindle); Bartholomew—Newbern (U. F. Glick); Fayette—Connersville (J. E. Rehme); Dearborn—Moore's Hill (C. W. Hargitt, G. C. Hubbard); Grant—Marion (H. N. McCoy); Putnam—Greencastle (J. F. Clearwaters, Jesse Earlle); Henry—Dunreith (E. Pleas); Brown—Spearsville (Victor H. Barnett); Madison—Anderson (Charles P. Smith); Johnson—Trafalgar (Miss Harriet Jacobs).

It is interesting to note the summer range of the Prairie Horned Lark, *O. a. praticola* and of the House Wren (*T. ardon*), and see how nearly they coincide in this State with the summer range of the Bobolink.

In Ohio, Dr. J. M. Wheaton (Report on the Birds of Ohio, 1882, p. 352) tells us: Dr. Kirtland gives it without comment, Mr. Read gives it as very abundant and breeding, and says that "years ago it was not found upon the reserve." Mr. B. F. Abell, of Welchfield, Geauga County, says that it was first observed in that place May 20, 1857. In the vicinity of Columbus, he states, it was unknown to old residents. He says: "I first saw them in May, 1857, when I obtained a specimen which, with two or three others, was perched upon a tree upon the bank of Alum Creek. Since then they have increased in numbers and, during the last six or seven years at least, a few have nested with us. They are also known to breed at Yellow Springs, about fifty miles south of west of this city." Dr. F. W. Langdon (Journal Cin. Soc. Nat. Hist., Vol. III, Oct., 1880, p. 224), the week ending July 4, 1880, observed a few birds only near Port Clinton, Ottawa County. Prof. E. L. Moseley reports it from the vicinity of Sandusky. In addition to those noted Prof. A. L. Treadwell, Oxford, O., and Mr. Charles Dury, Cincinnati, note it in their respective localities, where it is probably only found as a migrant.

It would seem that it is entirely probable before man commenced his warfare upon our forests and began to replace the trees with grass, the Bobolinks found suitable breeding grounds about the lower end of Lake Michigan, reaching indefinitely westward and possibly southward into Illinois. They extended over some six or eight counties of northern Indiana to the vicinity of Rochester, Fulton County, and a few of the southwestern counties of Michigan. From this center they seem to have spread out in all directions. It is probable that along Lake Erie, in Ohio, there were localities they also originally sought as summer homes, and from there have spread over quite a large part of that State. The data at hand is not sufficient to guide one very correctly in this regard. From southeast Michigan, however, more observations are available, and would indicate that even there the Bobolink is a recent advent. Whether or not they are of recent introduction into the Saginaw Bay region the evidence does not say.

Prof. W. W. Cooke and Mr. Otto Widmann give it as a summer sojourner at Jefferson Cisy, Mo. (Bull. No. 1, Ridgway Ornithological Club, December, 1883, p. 33). Dr. William C. Rives thinks it may breed in the Virginias (Cat. Birds of the Virginias, Proc. Newport, N. H., Soc., October, 1890, p. 69). These localities are slightly farther south than those I have noted. With these exceptions I have given the extreme southern points of their breeding range, and they are the fringing markers on the barriers of the breeding region. Capt. C. E. Bendire, in the second volume of his valuable "Life Histories of North American Birds," has recorded the unusual fact that the Bobolink breeds, in April, in small numbers, on Petite Anse Island, on the coast of Louisiana, and that it probably breeds rarely in Florida (Special Bulletin U. S. National Museum, Smithsonian Institution, 1895, p. 433).

The Bobolinks reappear on the southern border of the United States in April, and for about a month are very destructive to the planted rice. Then they move northward to their breeding grounds. This is true of the bulk. There are single birds which often push on ahead of the crowd—some of them at a very early date. April 4, 1890, I found a single male at Brookville, Ind. No others were seen until May 17. Dr. P. L. Hatch says it arrived in the vicinity of Minneapolis, Minn., April 5, 1870. (Notes on the Birds of Minnesota, First Rept. State Zoölogist, Geol. and N. H. Surv., June, 1892, p. 271.) In 1885 it first reached Mount Carmel, Mo., April 20. (U. S. Dept. Agriculture, Div. of Economic Ornithology, Bull. No. 2, Report on Bird Migration in the Mississippi Valley in the years 1884 and 1885, by W. W. Cooke, 1888, p. 169.) In 1885, also, Mr. C. H. Bollman found a single male at Bloomington, Ind., April 17. It was next seen there May 2.

I am convinced that the great bulk of these migrants pass up the Atlantic Coast and seek their summer homes in this region from the east or southeast. The migrants that are seen with us are exceedingly few compared with the immense numbers that frequent our Northern meadows and prairies. While it is true they migrate at night, yet we see neither the weary resting by day nor hear the noise of the winging hordes by night. In the East it is commonly said that their unmistakable voices come to the listener as one of the characteristic sounds of the warm nights in early May. Who has had such an experience among us? Strange as it may seem, the birds in their original breeding range, and in Southern Michigan generally, arrive as soon—and in some cases actually sooner—than they do in the localities farther south, where they more recently began to nest. It is further true that often the corresponding dates of first arrival, etc., of the schedule are as early—and not infrequently earlier—in the old summer home than they are in the localities southward, where they occur only as migrants. This may be another clew from which further investigation will derive a point tending to show the route of the migration of the bulk of the Bobolinks to these breeding grounds is farther to the eastward, and earlier, and not across the interior States of the Mississippi and Ohio Valleys.

While Bobolinks, singly or few in number, migrate very early, as heretofore stated, most of them are actually noted between April 27th and May 8th. This may in some years be a day or two earlier, in others a few days later. The date at which they have been noted as common in various localities in general may be said to range from May 1st to 15th. The males precede the females by from two days to two weeks, averaging at least a week earlier. They are the features of the early clover field as it comes into bloom. The blossoms of the small red clover (*Trifolium pratense*) and the Bobolink come together.

For reference I give at the end of this paper a synopsis of the reports received for the years 1885 to 1896, both inclusive. These reports include not only observations from Indiana, but also some reports from correspondents in Ohio, Illinois and Michigan. I desire to thank them all, and also to express my appreciation of the courtesies extended to me by Dr. C. Hart Merriam, Chief of the Biological Survey of the United States Department of Agriculture.

When the Bobolinks come north in the spring the males wear an attractive livery of black, with white and light brownish markings above. They are attired for the opera. Their exquisite songs and lively, cheery, droll ways which form a characteristic feature of the life of a locality where they abound are shown to please the other sex—to make them attractive to the females and not to please you and me. But in fact we do derive much enjoyment from their life and song.

Whether or not it is so, it seems that there are two or three males devoting themselves to every female. The latter, in their sparrow-like dress of yellowish and brown, are comparatively inconspicuous, and this may be the reason they seem so few. The days of courtship are soon over and the Bobolinks settle down to house-keeping. Often there are many pairs nesting close together. They prefer a sociable company. They nest in cloverfield, prairie, meadow or grassy marsh. Nest building is begun within a few days after arriving, usually about the middle of May. The full complement of eggs may usually be found in them by the first week in June. Some of the earlier laid sets are found far advanced the second week of that month, while between June 15th and July 5th the nests usually contain young. The nest is built of dried grass, flags or weeds loosely placed together and lined with finer dried grass. It is often, perhaps usually, built in a slight natural depression in the ground. Sometimes it is placed upon the level earth. In either case it is arranged so as to be concealed by the dead grass stems and growing blades. Often the nest is placed in a clump of clover or tuft of grass above the ground and fastened to the stems of the plant.

The average nest is four inches in outer diameter by two inches in depth; the inner cup is two and one-half inches in diameter by one and one-fourth inches deep (Bendire, loc. cit. p. 433). The eggs are ovate. The ground color varies from pearl gray or drab to reddish brown or cinnamon. They are irregularly spotted with different shades of brown, heliotrope and lavender. Almost no two eggs are marked alike. The average size is .83 by .62 inch.

By the middle of July the young are beginning to leave the nest and labor for themselves. The males in a surprisingly short space of time take on the plumage of the females, and the families form groups and many families unite, all attired in plain colors, living a quiet life until they begin their journey toward their winter homes. Many persons are not acquainted with the female, and when the attractive coat of the male changes to plainer hue they conclude the birds have gone. Hence many think the Bobolinks leave from the 20th to 30th of July. In some localities they perhaps desert more undesirable places and congregate in favorite spots, in others they remain about their homes. Most of them seem to leave about the middle of August, though it is much more difficult to get satisfactory statistics as to their fall movements in the northern States than of their spring migrations. That they often remain much later than the date noted, and well into September, is known. In 1890 Mr. H. N. McCoy sent me a Bobolink taken at Marion September 29. In 1891 the last was reported from South Ogden, Mich., September 2. In 1892 from Plymouth, Mich., September 12. In 1894

from Plymouth Mich., September 21, and from Cook County, Ill., September 24. In 1895 from Morgan Park, Ill., September 12.

During the spring migrations with us and throughout the breeding season the food of the Bobolink is largely insects. Naturally those species frequenting grass lands are chiefly preyed upon. As illustrations of this I may refer to the results of two investigations of their food at this season. Dr. B. H. Warren, of West Chester, Pa., examined the stomachs of twenty-seven specimens taken in Chester County, Pa., in May, 1879, 1880, 1882 and 1883, and found that eighteen fed exclusively on beetles, larvæ, ants and a few earthworms; five, in addition to insects and larvæ, showed small seeds and particles of gray vegetable materials, apparently the leaves of plants; the four remaining birds revealed only small black and yellow colored seeds. (Birds of Pennsylvania, second edition, 1890, p. 207.) In the early part of May, 1886, Mr. George L. Toppan, of Chicago, examined the stomachs of nine Bobolinks taken near Grand Crossing, Ill., not far from the Indiana line. Eight had their stomachs full of insects, while the ninth contained, in addition, a few worms. After the breeding season is over these birds turn their attention to the ripening grass seeds. They seem to be especially fond of the seeds of Hungarian grass. They are also said, in some localities, to eat the milky grains of the maturing corn. On the whole, their life with us may be said to be one of blessing and benefit, of happiness and good cheer. In the South, along the South Atlantic and Gulf coasts, how different are its portents. There they are winged destroyers, blighting the prospects of the results of man's labors. Dr. Merriam, in his report as Chief of the Division of Ornithology and Mammalogy of the United States Department of Agriculture for 1886, gives the results of his investigations of the destruction caused by the Bobolinks, locally known as "rice birds," among the rice-growing regions of the South. I take the liberty of giving the following extracts from a letter from Capt. William Miles Hazzard, of Annadale, S. C., one of the largest rice growers of that state, which is included in the above-mentioned report and will, better than anything else that I know, give an idea of the work of these birds among the rice fields.

"The Bobolinks make their appearance here during the latter part of April. At that season the plumage is white and black, and they sing merrily when at rest. Their flight is always at night. In the evening there will be none. In the morning their appearance is heralded by the popping of whips and firing of musketry by the bird minders in their efforts to keep the birds from pulling up the young rice. This warfare is kept up incessantly until about the 25th of May, when they suddenly disappear at night. Their next appearance is in a dark yellow plumage as the ricebird. There is no song at this time, but instead a chirp

which means ruin to any rice found in milk. My plantation record will show that for the past ten years, except when prevented by strong south or southwest winds, the ricebirds have come punctually on the night of the 21st of August, apparently coming from the seaward. All night their chirp can be heard passing over our summer homes on South Island, which is situated six miles to the east of our rice plantations, in full view of the ocean. Curious to say we have never seen this flight during the day. During the nights of August 21, 22, 23 and 24, millions of these birds make their appearance and settle in the rice fields. From the 21st of August to the 25th of September our every effort is to save the crop. Men, boys and women, with guns and ammunition, are posted on every four or five acres, and shoot daily an average of about one quart of powder to the gun. This firing commences at first dawn of day and is kept up until sunset. After all this expense and trouble our loss of rice per acre seldom falls under five bushels, and if from any cause there is a check to the crop during its growth which prevents the grain from being hard, but in milky condition, the destruction of such fields is complete, it not paying to cut and bring the rice out of the field. We have tried every plan to keep these pests off our crops at less expense and manual labor than we now incur, but have been unsuccessful. Our present mode is expensive, imperfect and thoroughly unsatisfactory, yet it is the best we can do. I consider these birds as destructive to rice as the caterpillar is to cotton, with this difference, that these ricebirds never fail to come."

Captain Bendire thinks it probable the decrease in the numbers of Bobolinks noticeable in their breeding range in some of the eastern states is due to this relentless warfare by the planters. That there is no decrease but rather a noticeable and continual increase in numbers and also in the gradual extension of their range in our region is the burden of the testimony I have been able to collect.

NAME OF OBSERVER.	Place where observations were made.	When was it first seen?	About how many were seen?	When was it next seen?	When did it become common?	When was it last seen?	Is it common or rare?	Does it breed near your station?	REMARKS.
1885.									
C. H. Bollman	Bloomington Ind.	† April 17	1	May 5	May 22 ^a				First appearance here.
		‡ May 2	1	May 4	May 17 ^a				
Jane L. Hine	Sedan "	May 7					Smr. resident		
							Tol'bly comn		
1886.									
C. H. Bollman	Bloomington Ind.	May 4	12-15	May 5			Common	No.	
B. W. Evermann	Bloomington "	May 4	4	May 5			Not common	Migrant	
Jane L. Hine	Sedan "	May 8	3	May 9			Common	Yes.	
LeGrand T. Meyer	Cedar Lake "	May 4							
J. O. Snyder	Waterloo "	May 2					Tol'bly comn		
G. G. Williamson	Bloomington "	May 5	18	May 7		May 17			
G. G. Williamson	Muncie "	June 3						Yes.	
		† May 3	6				Common	Yes.	
Geo. L. Toppan	Grand Crossing, Ill. {	† May 4					Common	Yes.	
	{ Grand Crossing, Ill. {								
J. Grafton Parker	{ Lake County Ind.	May 11					Common	Yes.	
Jerome Trombley	Petersburg Mich.	† May 2	1	May 3	May 10		Common	Yes.	
		‡ May 10							
1887.									
LeGrand T. Meyer	Brunswick Ind.	Apr 1 27	7	April 28	April 28		Common	Yes.	Becom'g com.
J. O. Snyder	Waterloo "	May 3	2	May 7			Not common	Yes.	
J. E. Rehme	Connersville "	May 2	Many.			May 4			
W. P. Shannon	Greensburg "	May 2	2				Rare		
G. C. Williamson	Bloomington "	May 1	7	May 4					
Jane L. Hine	Sedan "					June 27			
Jerome Trombley	Petersburg Mich.	May 1	2-3	May 3	May 5		Abundant	Yes.	
1888.									
Isaac Craft	Terre Haute Ind.	May 13	1	May 18			Rare		
U. F. Glick	Newbern "	May 4	5				Rare	Migrant	
Chas. Gough	Lafayette "	May 6	1						
A. B. Ghere	Frankfort "	May 1	23	May 2	May 2		Tol'bly comn	Yes.	
W. P. Hay	Irvington "	May 5	6	May 9			Common	Yes.	

* Next seen. † Male. ‡ Female.

NAME OF OBSERVER.	Place where observations were made.	When was it first seen?	Ab ut how many were seen?	When was it next seen?	When did it become common?	When was it last seen?	Is it common or rare?	Does it breed near your station?	REMARKS.
J. O. Snyder	Waterloo	"	† April 30	1	May 2				
W. C. DeWitt	Richmond	"	May 2	4	May 2		Tol'bly comm		
H. N. McCoy	Richmond	"	April 28	4	May 7	May 12	June 2		
Fred M. Smith	Richmond	"					July 1		
C. W. Hargitt	Moore's Hill	"	April 27	6	April 30				
G. G. Williamson	Bloomington	"	May 6	2	May 13		June 14		
W. P. Shannon	Greensburg	"							
F. M. West	Greensburg	"	May 5	15					Migrant
LeGrand T. Meyer	Cedar Lake	"	April 28	20	April 28	April 29		Common	Yes.
R. W. McBride	Waterloo	"	May 1	12				Common	Yes.
Jane L. Hine	Sedan	"	May 5		May 6	May 8		Common	Yes.
Ruthven Deane	English Lake	"	May 11		May 25	May 25			
Newell A. Eddy	Bay City	Mich.	† May 24	1					
N. Y. Green	Battle Creek	"	May 2	1	May 3	May 10		Common	Yes.
F. L. Washbourn	Ann Arbor	"	May 5	Sev'lt	May 8	May 8		Common	Yes. (May 8) and (common.
Stewart E. White	Grand Rapids	"	May 3	3	May 24			Tol'bly comm	Yes.
1889.									
J. O. Snyder	Waterloo	Ind.	† May 7		May 7	May 7		Yes.	
J. R. Stonaker	Terre Haute	"	May 10	2	May 12	May 12		Common	Yes.
W. P. Hay	Irvington	"	May 6	10-12	May 9			Common	Yes.
Herbert W. McBride	Waterloo	"	May 9	3	May 10	May 12		Common	Yes.
Jane L. Hine	Sedan	"	May 13		May 14	May 14		Common	Yes.
LeGrand T. Meyer	Cedar Lake	"	May 3	5	May 9	May 9		Common	Yes.
Fred M. Smith	Richmond	"	May 6	2	May 9	May 9	July 1	Common	
W. C. DeWitt	Richmond	"	May 22	1	May 23	May 25		Not common	Migrant
N. Y. Green	Battle Creek	Mich.	May 5	2	May 6	May 10		Common	Yes.
Geo. D. Soncs	Ross	"	May 9	4				Common	Yes.
Alvan H. Alberger	St. Clair	"	April 31	1	May 7			Common	
Jerome Trombley	Petersburg	"	May 2	1	May 3	May 7		Abundant	Yes.
Adolphe B. Covert	Ann Arbor	"	May 4	2	May 5	May 8		Common	Yes.
1890.									
G. G. Williamson	Muncie	Ind.	May 11	2	May 12			Not common	Yes.
Herbert W. McBride	Waterloo	"	May 3	3	May 7	May 8		Abundant	Yes.
B. W. Evermann	Terre Haute	"	May 3	1	May 8			Rare	No.
J. O. Snyder	Waterloo	"	† May 8	1	May 10			Common	Yes.
R. R. Moffitt	LaFayette	"	May 5	1	May 10	May 10		Rare	No.

A. W. Butler	Brookville	"	April 6	1†	{ May 17 } { † and † }			Rare	No.	
A. E. Reed	Millwood	"	April 29	1	May 4			Rare	Yes.	
Edw. Hughes	Greensburg	"	May 6	12					?	
H. N. McCoy	Marion	"					Sept. 29			
Jas. Savage	Ann Arbor	Mich.	May 3	3	May 4	May 11		Common	Yes.	
W. G. Voorheis	So. Frankfort	"	June 10	1				Rare		
S. A. Warnie	St. Clair Flats	"	May 1	1	May 8	May 20		Common	Yes.	
R. C. Alexander	Plymouth	"	May 1	2	May 2	May 3		Common	Yes.	
Jerome Trombley	Petersburg	"	May 3	1†	May 5	May 15		Common	Yes.	May 6, flock 25 or 30 all †.
1891.										
Jane L. Hine	Sedan	Ind.	May 9	1	May 11	May 11		Common	Yes.	
W. S. Ratliff	Richmond	"					July 21	Rare	Yes.	
H. F. Bain	Drewersburg	"	May 1	3						
J. S. Mow	Millwood	"	April 29	1	May 9	May 16		Common	Yes.	
Ruthven Deane	English Lake	"	May 10	3	May 17	May 17				
A. I. and E. B. Mow	Argos	"	May 9	1	May 10	May 12				
Jerome Trombley	Petersburg	Mich.	April 28	1	May 1	May 9		Common	Yes.	
R. C. Alexander	Plymouth	"	† April 27	1	April 29	May 9				
Harriet C. Somes	So. Ogden	"	† May 17	2	May 18	May 18		Tol'ably com.	Yes.	
David Lewis	Ganges	"	May 20	2	May 25	May 25	Sept. 2	Common	Yes.	
A. W. Comfort	Ganges	"	April 28	2	April 30	May 25		Common	Yes.	
N. J. R. Kennedy	Raisin	"	April 28	1	May 1	May 10		Common	Yes.	
	Windmill Point	"	May 20					Common	Yes.	
1892.										
G. G. Williamson	Muncie	Ind.	May 8	2				Common	Yes.	
Jessie Earle	Greencastle	"	May 14	25	May 26	May 14	May 30	Common	?	
Jane L. Hine	Sedan	"	May 4			May 4	July 12	Common	Yes.	
V. Gould	Rochester	"	May 2	4	May 3			Common	Yes.	
L. A. and C. D. Test	La Fayette	"	† May 7	1				Rare, S. R.	?	
W. S. Ratliff	Richmond	"	May 1	9	May 5	May 5	July 30	Rare	Yes.	
Chas. Barber	La Porte	"	May 2	1	May 1	May 5		Common	Yes.	
J. S. Mow	Millwood	"	May 10	3	May 6	May 28		Common	?	
A. I. Mow	Argos	"	May 10	3	May 13	May 13		Common		
L. T. Meyer	Ann Arbor	Mich.	May 1	3	May 2	May 2		Common	Yes.	
Jerome Trombley	Petersburg	"	May 2	2	May 3	May 5		Abundant	Yes.	
W. DeClarence	Brant	"	May 2	1	May 2	May 23		Common	Yes.	
R. C. Alexander	Plymouth	"	April 27	1	April 30	May 1	Sept. 20	Abundant	Yes.	
David Lewis	Ganges	"	May 2	3	May 3	May 17		Common	Yes.	
Harriet C. Somes	So. Ogden	"	May 15	2	May 20	May 20		Common	Yes.	
Lois Fites	Belle Isle	"	May 8	6	May 10	June 12		Common	Yes.	
N. A. Wood	Saline	"	May 2	1	May 3	June 26		Common	Yes.	
N. A. Eddy	Bay City	"	† May 13	sev'l				Common	Yes.	

NAME OF OBSERVER.	Place where observations were made.	When was it first seen?	About how many were seen?	When was it next seen?	When did it become common?	When was it last seen?	Is it common or rare?	Does it breed near your station?	REMARKS.
1893.									
W. S. Ratliff	Richmond.....Ind.	May 6	10	May 7	May 6	June 13			
Geo. C. Hubbard	Moore's Hill....."	April 23	1						
V. Gould	Rochester....."	May 11			May 20			Yes.	
A. B. Ghere	Frankfort....."	May 5	20	May 6	May 6		Common	Yes.	
G. G. Williamson	Muncie....."	May 6	1				Common	Yes.	
Jesse Earle	Greencastle....."	May 1	5				Common	No.	
Chas. Barber	Laporte....."	May 1	1	May 2	May 5		Abundant	Yes.	
A. L. Treadwell	Oxford.....Ohio	May 14	4						
L. Whitney Watkins	Agl. College.....Mich.	May 3	2	May 6	May 9		Common	Yes.	
John Sinclair	Thunder Bay Id.."	May 20	2	May 21	May 21		Common	Yes.	
Harriet C. Somes	So. Ogden....."	May 10	2	May 12	May 14	Aug. 5	Common	Yes.	
David Lewis	Ganges....."	April 29	1	May 1	May 15		Common	Yes.	
R. C. Alexander	Plymouth....."	April 27	1	April 28	May 4		Common	Yes.	
W. H. Munson	Hillsdale....."	May 1	3	May 5			Common	Yes.	
Jerome Trombley	Petersburg....."	May 1	2	May 2	May 9		Common	Yes.	
1894.									
E. Pleas	Dunreith.....Ind.	May 16	1						
E. J. Chansler	Bicknell....."	May 3	2	May 7	May 10	May 24	Not common	No.	
V. H. Barnett	Spearsville....."	May 3	1	May 12	May 15		Rare		
W. O. Wallace	Wabash....."	April 27	1	May 1	May 12		Abundant	Yes.	
A. B. Ghere	Frankfort....."	May 5	1	May 6	May 6		Common	Yes.	
Chas. Barber	Laporte....."	April 27	1	April 28			Abundant	Yes.	
J. P. Feagler	Waterloo....."	April 30	3	April 1			Common	Yes.	
A. L. Treadwell	Oxford.....Ohio	May 7	1						
E. L. Moseley	Sandusky....."	April 28	1	May 3					
L. Whitney Watkins	Manchester.....Mich.	May 2	2	May 3	May 11		Common	Yes.	
R. C. Alexander	Plymouth....."	April 30	3	May 1	May 6	Sept. 21	Common	Yes.	
N. A. Eddy	Bay City....."	† May 6	1				Common	Yes.	
Harriet C. Somes	So. Ogden....."					Aug. 5			
Elliot Blackwelder	Morgan Park.....Ill.	May 5	8	May 6	May 6		Common	Yes.	
J. O. Dunn	S. Chicago....."	May 1	1	May 5	May 15	Sept. 24	Common	Yes.	
Alex. Black	Lake Forrest....."	May 4	1						
1895.									
Jane L. Hine	Sedan.....Ind.	April 30		April 30			Common	Yes.	
A. B. Ghere	Frankfort....."	May 17	1	May 18	May 21		Common	Yes.	
V. H. Barnett	Spearsville....."	May 1	3	May 2	May 1	May 9	Tolerably com.	No.	

Harriet Jacobs	Trafalgar	"	April 29	2	April 30	May 15	.....	Common	?	
E. J. Chanler	Bicknell	"	April 29	2	April 30	May 19	.....	Not common	No.	
E. J. Chanler	Bicknell (Fall)	"	Sept. 9	1	Sept. 10	Sept. 11	.....	Common	No.	
Roy Hathaway	Redkey	"	May 2	2	May 4	May 7	.....	Common	Yes.	
W. P. Shannon	Greensburg	"	May 8	6	May 20	June 1	.....	Tot'ably com.	?	
E. L. Moseley	Sandusky	Ohio	April 25	.....	April 27	.....	.....	Abundant	Yes.	
R. C. Alexander	Plymouth	Mich.	April 9	3	April 30	May 2	.....	Common	Yes.	
N. A. Eddy	Bay City	"	May 4	2† 14	May 4	May 4	.....	Tot'ably com.	Yes.	
T. L. Hankinson	Agl. College	"	May 2	1	May 5	May 5	.....	Common	Yes.	
W. DeClarence	Brant	"	May 2	5	May 5	May 5	.....	Common	Yes.	
O. B. Warren	Palmer	"	June 2	1†	June 3	June 9	.....	Rare	Yes.	First occurrence here June 9, 2† 24.
C. A. Tallman	Chicago	Ill.	May 4	20	May 5	May 5	.....	Abundant	Yes.	
Eliot Blackwelder	Morgan Park	"	April 30	2	May 1	May 1	Sept. 12	Abundant	Yes.	
1896.										
W. P. Shannon	Greensburg	Ind.	April 26	7	April 27	May 1	July 2	Tot. common	.....	A pair July 2, 1896.
J. P. Feagler	Waterloo	"	April 27	1	April 29	May 29	.....	Common	Yes.	
Jane L. Hine	Golden Lake	"	May 5	.....	May 4	May 5	.....	Common	Yes.	
Mrs. L. M. Sniff	Angola	"	May 1	.....	May 4	May 4	.....	Abundant	Yes.	
F. E. Bell	N. Manchester	"	May 3	6	May 5	May 8	.....	Abundant	Yes.	
W. S. Ratliff	Richmond	"	April 28	1	April 30	.....	.....	Rare	Yes.	Here only 2 or 3 days; did not nest with us.
A. H. Kendrick	Ellsworth	"	May 2	1	May 4	May 15	.....	Med. common	Yes. ?	
A. W. Butler	Brookville	"	May 2	1	May 2	.....	.....	Rare	No	Only 1 seen.
B. J. Chanler	Bicknell	"	April 28	1	May 3	.....	.....	.....	.....	
W. B. Van Gorder	Knightstown	"	.....	2	June	.....	.....	.....	.....	
V. H. Barnett	Carthage	"	.....	3	June	.....	.....	.....	.....	
S. W. Collett	Francisville	"	May 1	1	May 6	May 1	June 20	Tot. common	Yes.	
A. B. Ulrey	Upland	"	May 3	.....	.....	.....	.....	.....	.....	
Chas. Barber	S. pt. Kosciusko C.	"	.....	.....	.....	.....	Aug. 13	Common	Yes.	6 or 8 seen.
C. A. Tallman	Laporte	"	April 28	1	May 1	May 9	.....	Abundant	Yes.	
E. Blackwelder	S. pt. Chicago	Ill.	May 2	25	May 5	May 2	.....	Abundant	Yes.	
E. L. Moseley	Morgan Park	"	April 27	1	April 28	April 29	.....	Common	Yes.	
L. W. Watkins	Sandusky	Ohio	April 26	1	April 27	.....	.....	Common	Yes.	
E. B. Schrage	Manchester	Mich.	April 28	1	April 28	May 1	.....	Common	Yes.	
T. L. Hankinson	Pontiac	"	April 20	1	April 30	May 6	.....	Common	Yes.	
W. E. Mulliken	Agri cul' College	"	April 30	1	May 1	May 1	.....	Common	Yes.	
R. C. Alexander	Grand Rapids	"	May 9	Many	May 1	May 1	.....	Abundant	Yes.	
Dr. W. DeClarence	Plymouth	"	April 26	1	April 27	April 30	.....	Common	Yes.	
	Brant	"	May 1	4	May 2	May 7	.....	Common	Yes.	