SCIENCE

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THE EFFECTS OF CIVILIZATION ON OUR BIRDS.

BY MORRIS GIBBS, M.D.

In scanning the notes of any reliable observer, in the ornithological field, of twenty years' standing, one of the most noteworthy features presented is found in the many allusions to the frequency or infrequency of various species formerly abundant or unknown. We find numerous notes like this: "Seldom seen; formerly abundant," or, more rarely, "common; exceedingly rare years ago." These conflicting notes are of peculiar interest to everyone in any way concerned in the welfare of a community, and cannot fail to excite speculation among those who have noted the changes. The changes, either gradual or sudden, have resulted from natural or unnatual causes in many and devious ways. Unnatural is a word perhaps improperly used here, even allowing that civilization has eradicated many species from the globe. We had best look at man only in the light of an animal when we are to compare him in nature, and we can but acknowledge that the civilized state is simply in advance, and, in which we are simply better adapted to perform the work of extermination or cultivation.

It is easy to account for the appearance or disappearance of some species, and, with many, the reasons assigned are so self-evident that the generally accepted theories are rarely disputed. With our game birds, it is duly acknowledged by all capable of reasoning that the cause of the disappearance, as in the case of the wild turkey, *Meleagris gallopavo*, from well-populated districts, is entirely due to persecution by the gunners. However, there are many cases of unlooked-for changes; increase or decrease of numbers, for which we are not fully able to account. The writer, having carefully studied the subject for ten years, and with the assistance of nearly a quarter of a century of his own observations, feels confident in presenting some conclusions. These deductions may not be correct, but may at least promote investigation and inquiry into the subject by others more capable of explaining.

The causes of local change, in scarcity or abundance, as regards animal life, varying migrating routes, and ultimate disappearance, or other reasons, are many and peculiar, but may, I think, be grouped collectively under the following two heads:—

I. Natural causes, or features arising from other causes than those resulting from civilization. These are many, so far as we are able to judge, but are hardly to be considered here. They come under that division normally included in the evolutionist's province.

II. Unnatural causes, or those changes occurring from causes aside from the direct effects of nature; that is, more through the direct effects of civilization. These various changes may be discussed under the following divisions; remembering always that the system, as a whole, depends on the changes resulting from man:—

a. — Proximity of the habitations of man.

b. — Removal of forests and general clearing of vegetable growth.

c. — Drainage of land.

Under the first heading may be considered the most serious incursions in the ranks of our feathered neighbors, as it is chiefly due to the nearness of sportsmen and unsportsman like individuals, as well as to the demands of milliners and the small and reasonable wants of scientists and collectors, that the birds, game, plumaged, and song, are principally sought. In addition to these well-known causes for total disappearance, or great diminution in numbers, we may add many hundreds of causes that contribute in a greater or less measure towards this end. Anyone of an observing turn must have noticed the multitude of ways which help towards decimation. A few causes may be mentioned from the innumerable series to only suggest the dangers of proximity of the habitations of man. The light-houses of our great lakes and coasts kill many thousands each year, and perhaps hundreds of thousands, the birds killing themselves by dashing against the lights when migrating seasonally. It may well be doubted if there exists an invention, with the exception of the gun, more deadly to the birds than the electric light. Then there is the head-light of the locomotive, and the very destructive telegraph and other wires, which form a net-work throughout the country. In fact, there is hardly a cause from which man himself dies, through accident or design, which does not likewise destroy our birds. Hanging, drowning, and cremation are not rare causes of their taking off. Fires in particular are damaging means each year, particularly when occurring in wild half-clearings, stubble-fields, and virgin forests, in the spring and summer; but perhaps the most destructive fires are those that ravage large prairie sections where the prairie species nest. Without a doubt, early settlers, both in wooded as well as prairie lands, are guilty of a fearful devastation to both song and game birds in their efforts to clear up and improve the land.

As far south as I have been in the United States, and our line extends nearly to the tropics, and on the north to Lake Superior, I have met with plumage collectors for the "dear ladies'" wants. The blue-jay, tanager, and oriole cannot migrate too far north in our land to escape persecution in behalf of that travelling side-show, the feminine head-gear, and no matter where you go in the south, if it is in the everglades of Florida, you will find the plume-hunter busy for the almighty dollar, which he frequently gathers by shooting the parent birds at their nesting-sites, leaving the squabs to starve in their nests. One man (?) told me that he had shot two hundred white and snowy herons at one rookery in southern Florida; and this all for the money paid by vain, self-adorning women. Perhaps I have said more than is required on this subject, but many will not think an excuse necessary.

It is hardly worth while speaking of the destruction of game and other birds by the gun, net, and trap, as these methods of extinction have been so thoroughly canvassed that they are at least understood by all reasonable men. The havoc made on our wild pigeons with the set net is well known, and the sentiment is voiced by all that we would still have plenty of pigeons had the nets not been used, contrary to law, near the breeding-grounds.

Although so many species are noticeably diminished in numbers through the advent of advancing civilization, there are a number of birds which have become much more abundant, and a few even which have become residents or occasional or annual visitors, which were formerly not found in this section. Among them, here in Michigan, the most remarkable are in the cases of the robin, crow, black-throated bunting, meadow lark, orchard oriole, and turkey buzzard. All of these species were unknown near Kalamazoo in 1832, though they may have been recorded from the vicinity of Detroit, which was a much older settlement. About the year 1835 the robin appeared, lured hither by the social relations which have ever existed between civilization and these pleasing birds. The crow did not arrive till 1850 or later, and was not common till 1875, yet now it bids fair to become as great a nuisance in our State as it has proven in the East. The old settlers assert that the orchard oriole and meadow lark were not here at an early day, and though we cannot attest when they did first appear, we are convinced that it is through the influence of civilization that they are so abundant now. In this, Kalamazoo, county the black-throated bunting was unknown twenty years past, yet the notes *dick sissel sissel* may now be heard from almost

every clover-field, in June, in Michigan, south of 43 degrees. About 1870 a specimen of the turkey buzzard was captured here, and for a long time this note was unique, but within the last few years they have become regular summer visitors, and they have been found nesting at about 43° north latitude, on Lake Michigan's shore. There are dozens of other instances of cases where birds formerly unknown hereabouts, or but rarely met with, have, within the last twenty years or so, become comparatively common, or even abundant.

The second civilized cause of the unnatural means of change, namely, removal of forests, is remarkable in its effects, and yet, although more birds are forced to leave neighborhoods totally denuded than there are new species to occupy the locality, still a county about two-thirds cleared and well peopled is sure to embrace more species of birds than is one with its trees all standing. In a four years' residence at the north and in a new county, I was, although on the alert, and daily making notes, able to secure a list of only one hundred and twenty-odd species; while here, in a district inhabited over twice as long, and with over nineteen-twentieths of the area cleared, I have a list of over one hundred greater.

A locality where the trees were all felled would not contain a hawk, owl, woodpecker, grouse, warbler, fly-catcher, jay, crow, and many other species; but there are also many species, as house-wrens, barn and eave-swallows, chimney swifts, robins, blue-birds, sparrows, and finches of several kinds, kingfishers, and all the plovers, snipes, sandpipers, ducks, geese, and divers, which could remain with us, and many of which would not appear at all if the country was covered with forest.

The only species which I am satisfied are disappearing rapidly from the devastation of forests are the black woodpecker and wild turkey; of these, both once common, the turkey is being exterminated, while the log-cock has sought other quarters and is seldom seen here now. The raven, once abundant hereabouts, has gone forever, while its place is taken by its near relative, the crow, which was once not found in this locality.

Perhaps under this heading we may properly mention that group of birds which have modified their nesting habits to suit the requirements in order to associate with man, and, as we might say, secure his protection. A remarkable instance is that of the so-called cliff-swallow, a bird which has appropriated the space around buildings under the eaves, and which is well known to the boys as the eave-swallow. It is impossible to say how long this modification has existed, but certainly not longer than three centuries, for even now the species clings to its primitive choice of location in the west, still sticking its mud-pellet habitation to the cliffs. The white-bellied swallow, house-wren, white-bellied nut-hatch, and blue-bird, all have modified their nesting habits to an extent, and occasionally occupy boxes and other receptacles placed for their accommodation. The common pewee boldly enters our barns, out-houses, and even attempts to occupy a nook on the front porch, from which it is unceremoniously ousted. Some years ago I found two pewee's nests built in the original style; they were attached to the roots of overturned trees. This was undoubtedly the primitive method of the pewee, until the fortunate appearance of civilized man, when little pewee quickly came to know an advantage, and he adopted buildings and bridges instead of overturned tree-roots.

The barn-swallow must have adopted the custom of building in the peaks of buildings many generations ago, for no one knows of its ever nesting otherwise. It is even said that the martin was provided with gourd houses before the discovery of America in 1492, and that the natives afforded protection to this favored bird. It now accepts the boxes erected for it, or nests in the cornices of buildings in our cities and towns. The chimney-swift is the best example of a species changing from a life in the solitudes to the busy scenes of village and city. Once the swift must have nested in the cavities of trees, and I have heard of nests being found in huge, hollow sycamores, but at present the birds almost confine their nesting haunts to unused chimneys.

The third cause of change, viz., drainage of land and water, does not produce the great influence that the removal of forests does. Nevertheless, it exerts more of a change than one would credit. Many places where rails once nested in abundance, and ducks annually stopped on their migrations, are now comparatively dry fields and yield good crops. However, these drainings are almost compensated for by the overflow occasioned by the damming-up of streams and the outlets of lakes, as a head for mills, and, further, where lakes have been lowered by various means, it has not infrequently happened that the uncovered shore-line, so increased, has offered attractions to certain littoral species which were formerly rare, but which are now taken seasonally during migrations.

Enough could be written on this subject to fill a book, but space forbids further comment. It has been plainly shown that peopling a locality, with not too heavy a sprinkling over the agricultural portion, and not too heavy a removal of the trees, actually increases the number of the species of birds, and, with a few exceptions, principally the ducks, increases the number of birds. Though our little corporation does not contain as many birds as formerly, as they are crowded out, I am satisfied that there are in our county each year at least fifty species of birds unknown to the locality fifty years ago.

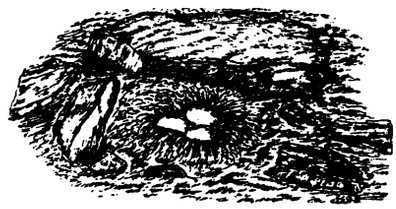
Kalamazoo, Michigan.

THE DUCK ISLANDS.[1]

BY LEVI W. MENGEL, ENTOMOLOGIST TO WEST GREENLAND EXPEDITION, 1891.

WE left Upernavick toward noon of July 1, with the "Kite's" head to the north-west. On the following morning we were awakened by the cry of "Land, Ho," and upon reaching the deck saw in the distance several small specks, which we were told were the famous Duck Islands, so-called because almost their only inhabitants are the American Eider Ducks which congregate there in the summer to breed.

The party immediately began to prepare for the day's work, and at four o'clock we brought up under the lee of the largest of the islands. The Duck Islands are situated about 73° north and 58° west, and are three in number. They are all small, the largest



AN EIDER DUCK NEST.

not being more than a mile and a half in diameter; all near together, and composed of the same kind of rock, which appeared to be granitic or at least of some igneous origin.

Our party were soon ready to go on shore. A gun was fired from the ship, and a black cloud of birds arose from the islands. They flew a short distance and then alighted, most on land, yet some in the water. We were soon on shore, and then began a day of sport and slaughter. A portion of the party was detailed to gather eggs and down for the use of Lieutenant Peary in the far north. The remainder of the party were to gun for as many birds as they could get; and we got them. Seldom did a shot fail to bring down a bird, and from every portion of the islands came rapid reports which told of slaughter and death. One could not walk even a short distance before coming to a nest, and not unfrequently did the female wait until almost trodden upon before flying. The male birds betook themselves away upon the first scent of danger, and upon the water nearby, just provokingly beyond gunshot, could be seen numbers of them, many wounded but sufficiently active to keep away. Of the birds shot the females largely predominated, probably ten to one.

The nests of these birds were all built on the ground (see illustration), some on the open, and some few under the shelter of

[1] The plates have been kindly loaned for this article by Dr. R. N. Keely, Jr., of Philadelphia, and are from his excellent narrative "In Arctic Seas."