SCIENCE

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THE VISITORS TO ONE OAK TREE.

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ONE of the pleasures in the study of nature is in keeping a correct record of one's observations for a series of years. Twenty five years ago the writer began a record or list of the birds, mammals and insects seen in a village yard. The lot is five by twelve rods in size, and within this area and over it there have been seen one hundred and thirty-four species of birds, the large majority of which were recorded during the migrations. Of this number nineteen species have been found breeding in the lot.

In this yard are a variety of trees and shrubs, a boundary evergreen hedge, and just outside of it are many surrounding trees. These trees afford resting places for many birds, and during migrations most of those birds which pass through our city of 20,000 inhabitants, usually visit our yard. There is one tree in particular in the lot, a thickly foliaged, low-spreading Burr Oak, *Quercus macrocarpa* well covered with a netting of the common creeper of this section *Ampelopsis quinquefolia,* to which the birds are especially attracted.

During the last decade many changes have taken place in our city lot and the attractions for migrants are not as many as formerly, and furthermore, the former quiet village, now a thriving city, is not invaded by as many of the feathered tribe, as the active migrants prefer the suburbs in their seasonal journeyings. Nevertheless, as the following observations show, many kinds of birds wander into the city, while a few of our commoner species make their home in our midst; some as summer sojourners and others as regular residents or winter visitors.

The oak tree to which I refer stands in our front yard and is readily inspected from the house veranda. At times the tree is alive with birds, and I have often seen three to five species in the branches at once, and on one occasion seven species, including bluejay, robin, yellow-rump, and Tennessee warblers, bronzed grackle, chipping and the ubiquetous European sparrow. The following sixty-four species have been identified while in the branches of the burr oak:

A score of years or more ago the wild or passenger pigeon was known to alight in this tree. The sharp-shinned hawk once accidentally selected the oak in the autumn for a place of observation in his admirable warfare on the pertinacious imported sparrow. Those peculiar and mysterious birds commonly known as rain crows, or more intelligently as cuckoos, are occasional summer visitors, the black-billed quite commonly, while the rarer species, the yellow-billed has been seen but once, but it is becoming more common hereabouts.

Of the wood peckers, five have been seen, the yellow-bellied appears in April and stays a month ; red-head and golden-wing straggle into the city and to our tree irregularly from March to November. The hairy and downy wood peckers are not rarely observed spring and fall, the latter often in winter.

Others who visit the oak along with the wood peckers and who feed on much the same kind of food taken from the crevices of the rough bark, are the nuthatches, the white-breast being a resident while the red-belly is a straggler from the north. That mite of flesh and blood, the brown creeper, searches the trunk from base to main fork, and is seen off and on from November to April, often in company with the titmouse or common chickadee. Two other diminutive birds, but not quite so hardy, are the golden and ruby-crowned kinglets which are regular spring and fall visitors.

A not rare winter visitor is the common red crossbill of the north, which occasionally alights in flocks in our oak, and flocks of red polls often come to town. Still another not always recognized northern bird is the little pine siskin, while I have seen the even less known pine and evening grosbeaks. I have also observed the great northern shrike or butcher-bird. The bluejay is a resident and is seen every month in the tree without an exception. The goldfinch is also a resident but is noticed more often in the oak during summer. Snow birds of the slate-colored species and tree sparrows are seen in fall, winter and spring, the former commonly, the latter rarely about our oak. The cedar bird, a resident, yet so erratic in its appearance, may be seen in summer or winter, but never singly, and never to be relied upon.

In the early spring, often in late February the robin and blue bird lend their presence, the former caroling from the topmost branches of the still bare-limbed tree.

The next thrush to show itself is the hermit, which, though usually a ground species, sometimes flies into the lower branches on its way north. Sometimes a cat bird has visited the oak. I once heard a veery's song in the tree, and a dead specimen of the olive-backed thrush lying beneath the branches proved that an unfortunate example of this retiring species had taken the city route and probably been sacrificed to the skill of a boy with an air-gun or sling shot.

Among the spring sparrows I have seen the purple finch, which with the song sparrow often appear before the snow is gone, after which the little hair bird or chippy shows itself. Then follows the white-throated sparrow with its beautiful song which has been likened to the syllables *pea body, pea body, pea body.* Lastly appear the rose-breasted grosbeak and indigo bird of the family, both of which sometimes sing from our oak.

Of the blackbirds the bronzed grackle arrives first, generally in early March, the cowbird appearing the latter part of the month. A meadow lark once paused in its flight accross the city and uttered its stridulous *zeet* from our oak. Next in this family appears that brilliant oriole, Lord Baltimore, and later the plainer relative but sweeter songster the orchard oriole.

In late April the chimmey swifts arrive but do not approach our oak until late May, when inexperienced birds may sometimes be seen to attempt to break off the strong twigs for their stick nests. Humming birds with ruby throats are often seen to alight on the oak which is next to a large trumpet creeper.

The fly-catchers are represented by three species. Kingbirds, common and wood pewees are all visitors, the latter almost daily during summer. That beautiful singer, as well as bird of handsome plumage, the scarlet tanager sometimes wanders into town, and on one occasion I observed one in our oak. The house wren which nests in the neighborhood is often seen.

In the grand rush of migrants which occurs from April twentieth to May fifteenth, and during which time over

one-half in numbers of all migrating birds, reach or pass us, we are visited by a large series of birds, mostly small ones, which go further north to breed. The following have been observed in our oak: Nashville, parula, yellow-rumped, black-throated green, Tennessee and Wilson's warbler and the water thrush, while the black and white creeper and Blackburnian warblers remain to nest to some extent in the county.

Among the vireos, three, the warbling, red-eye and yellow-throated, occasionally visit our tree, and all nest in the county. The blue-gray gnatcatcher, although a woodland species, occasionally wanders to our oak.

Three species, the bluejay, robin and chipping sparrow, have rested in this tree during my observations.

It will occupy too much of your space to enumerate the many species of insects which have been found feeding on the foliage or resting on the trunk or limbs of this one tree, but enough observations have been presented to suggest the value of continued notes, even on the visitors to one Oak Tree.

There are many common species of birds which have not as yet been recorded, and many of them are to be looked for and may still be added to the list. A number of birds have been seen which could not be identified, and these instances have always been ignored, the above list being exact.

THE USE OF TUBERCULIN AND MALLEIN FOR THE DIAGNOSIS OF TUBERCULOSIS AND GLANDERS IN ANIMALS.

SHORTLY after the announcement made by Koch of the effect of tuberculin, the product of the growth of the bacillus tuberculosis, upon man, the idea was suggested that tuberculin would be a very useful agent for diagnosing tuberculosis in cattle. This is often a very difficult matter, and the advantage of a sure method of diagnosis was at once apparent.

While it is probably true that unless the udder of a milch cow is diseased there is but little danger of the milk being contaminated with the consumption germ, the diseased animals even with incipient cases are fruitful sources for the infection of other animals as well as man.

Just to what extent man contracts tuberculosis from cattle and other animals, and *vice versa*, to what extent animals contract this disease from man is not known and would be very difficult to determine. The probabilities, however, point in favor of the fact that cattle are often the intermediate agent in the production of consumption in man.

A small quantity of tuberculin injected into cattle suffering from tuberculosis will cause, in diseased animals, a rise of temperature of two and a half to five degrees Fah., within eight to ten hours after the injection, while healthy animals for the most part do not respond to this test.

A large number of experiments with tuberculin have been conducted, especially in Germany and France, and in general with satisfactory results. Some few cases have been noted where the animals did not respond to the test of tuberculin, but upon section proved to be diseased, while a few others that were not diseased showed a slight reaction with the tuberculin. In the first cases, however, the activity of the tuberculous lesions was not demonstrated by inoculations. It is well known that old, inactive lesions may be found in animals that have been slightly diseased and recovered. In the second cases the autopsies have not always been sufficiently close to prove the entire absence of disease, as there has not been an examination of the bones and spinal column. It is further possible, that the cause of infection might be present in the animal without having reached a sufficiently advanced stage for lesions to be apparent.

With a view of making tuberculin of practical value and eventually stamping out consumption among cattle, the Department of Agriculture has begun a series of experiments, and the report of the Secretary of Agriculture for 1892, recently issued, contains a statement from the Biochemic Laboratory of the Bureau of Animal Industry, of some of the results obtained. In this laboratory a number of tests have been made as to methods of manufacturing tuberculin, and the Bureau has been prepared, for some time, to furnish tuberculin of its own manufacture to Boards of Health, Experiment Stations and State Veterinarians, for practical use.

In addition to these experiments this laboratory also manufactures Mallein, obtained from the growth of the bacillus malleus. The mallein is used for diagnosing glanders in horses and has proved exceedingly valuable. Through the efforts of the Bureau of Animal Industry, this product has been widely distributed in the States, and its use in different hands has proven very satisfactory. In many instances, by its means, the disease in apparently healthy horses has been detected and by the destruction of the animal the source of infection for valuable stock removed and considerable property saved.

As the tuberculin and mallein are made thus under government control and in one laboratory, the product is uniform in character, and can be prepared at a very much less cost than the imported tuberculin can be purchased. By the use of these two diagnostic agents the Department hopes to be able to do a great deal in the way of exterminating two dangerous diseases. Whether or not it would be practical to stamp out tuberculosis among cattle by killing all diseased or suspicious animals, is a question, but it would be possible by the use of tuberculin and proper sanitary regulations to check the advance of the disease and confine it within prescribed areas.

It is along this line of investigation that advance in the future, in human and veterinary medicine, will be made, and the Department of Agriculture in looking to a control of tuberculosis and glanders is keeping in view, not only the best interests of the agricultural classes, but of the people in general. "BIOS."

NOTES AND NEWS.

IT HAS been said that "the little red schoolhouse" was the corner stone of American civilization, and from the very force of sentiment and historical memories the country school of New England retains its hold upon thousands who may have never entered its doors In "The Country School in New England," written and illustrated by Clifton Johnson, the author describes the winter and summer terms, the scholars in their classes and at the blackboard, their punishments, their fishing and coasting, their duties and amusements on the farm—in short, the every-day life of the boys and girls of rural New England in the days of our fathers and our own. Every phase of his subject is aptly illustrated with pictures from life. There are over sixty illustrations in this book, which is to be published immediately by D. Appleton & Co.

—A scientific session of the National Academy of Sciences will be held in Albany, in the Capitol, Nov. 7, beginning at 11 A. M. Members who have papers for this meeting may send the titles to Prof. Lewis Boss, Dudley Observatory, Albany, New York. A special stated session of the Academy is called for Wednesday, Nov. 8, in Albany, to consider the President's Annual Report to Congress, and other business that may come before the Academy.