



Life, Literature and Education.

[Contributions on all subjects of popular interest are always welcome in this Department.]

SELECTIONS FROM THE POETS.

The White Canoe.

(By Allan Sullivan, C. E., of Kenora, Ont.)

There's a whisper of life in the grey, dead trees,
And a murmuring wash on the shore.
And a breath of the south in the loitering breeze,
To tell that a winter is o'er.
While, free at last from its fetters of ice,
The river is clear and blue,
And cries with a tremulous, quivering voice,
For the launch of the White Canoe.

Oh, gently the ripples will kiss her side,
And tenderly bear her on;
For she is the wandering phantom bride
Of the river she rests upon.
She is loved with a love that cannot forget,
A passion so strong and true,
That never a billow has risen yet,
To peril the White Canoe.

So come when the Moon is supreme in the sky,
And the echoes are sweet and low,
And Nature is full of the mystery,
That none but her children know.
Come, taste of the zest that the weary crave
But is only revealed to a few,
When there's trouble on shore, there's peace on the wave,
Afloat in the White Canoe.

THE DESTRUCTION AND ECONOMIC VALUE OF BIRDS.

(A paper read before the Society for Nature Study and Bird Protection, by Herbert C. Merrill, Hamilton, Ont., March 21st, 1908.)

There is nothing before our people to-day of a more practical nature than bird protection. It is a subject of vital importance, affecting every human being; that is, when we protect the birds, we also protect ourselves. No doubt many of you know something of the economic value of birds in destroying insects, which are among the worst enemies with which the farmer and fruit-grower have to contend. The U. S. estimate their annual loss to farm crops at \$595,100,000, and, adding to this the loss to natural forests and stored products, makes a grand total of \$795,100,000 loss through insects. You may judge from this how much greater the loss would be were there no birds.

The causes of bird destruction are many. One which is most prominent is the vanity of women in persisting in the use of feather millinery.

The first part of my paper will give you some facts on the destruction of the birds, and the rest will deal with the study and value of them.

I.

The advocates of protection for our small birds present two sets of rea-

sons for preventing their killing, namely, sentimental and economic.

The sentimental reasons are the ones most often urged; they are also of a kind to appeal with especial force to those whose responsibility for the destruction of the birds is greatest. The women and girls, for whose adornment birds' plumage is chiefly used, think little or know less about the services which birds perform for agriculture, and, indeed, it may be doubted whether the sight of a bunch of feathers or a stuffed bird's skin suggests to them any thought of the life those feathers once represented—these lives cut short merely that their apparel might be admired. Women should be quick to recognize that bird destruction involves a wrong, and do their part towards ending it by refusing to wear plumage.

While this cruel fashion was at its height, a London dealer received at one time more than 30,000 dead humming birds; and not only the brightly-colored, but any small bird, by means of dyes, may come at last to such base uses. All these carcasses are steeped in arsenical solutions to prevent their becoming as offensive to the nostrils of their wearers as they are to the eyes of bird lovers.

In a report of the American Ornithologists' Union, 1886, it was estimated that 5,000,000 birds were required yearly to fill the demands of American women for ornamentation of hats. It is now estimated that double that amount are required. The report also states that the destruction was 40,000 tons in a single season on Cape Cod. It has been proved that 150,000,000 birds are used annually in Europe for the millinery trade. One dealer received from the West Indies 400,000 humming birds and 6,000 birds of Paradise, besides thousands of miscellaneous birds. A million rail and bobolink were killed in a single month near Philadelphia. These are facts that may well furnish food for reflection. The swamps and marshes have become depopulated of their egrets and herons, done to death while watching over their little ones, which afterwards die of starvation. An article in Forest and Stream states that, in the short period of four months, 20,000 birds were supplied to New York dealers from a single village.

If the women of this country would refuse to buy or wear hats containing the plumage of wild birds, 95 per cent. of the slaughter that now goes on would cease.

Will the farmers and fruit-growers stand by and allow the birds, their best friends, to be killed, that a trifling interest like the millinery trade may make a few dollars, at the sacrifice of much that is beautiful and of economic value?

Now we will consider the ordinary utility of a bird. Those of us who know little or nothing of their real economic value are liable to be unjust. We are likely to lay the sins of a particular bird upon the whole tribe. We see a Cooper's hawk swoop into the yard and strike a chicken, and we are out with a gun for every other hawk we can see, regardless of the fact that many of the hawks live almost entirely on

squirrels, moles, mice, grasshoppers, beetles and the like, and are among the most useful birds we have. It is a grave mistake to sacrifice a hundred birds, as we do, for the sins of one guilty bird. A man who lives in the country ought to have a common knowledge of bird habits. For his own good and the welfare of the country, he ought to be able to discriminate between good and bad wild birds, just as he learns to distinguish between good and bad domestic birds and animals.

Because a blackbird is in a grain field, it does not signify that he is doing harm. Woodpeckers are often shot for coming into orchards, when a careful examination will show that they are destroying injurious insects. There are many instances where birds have been killed because of their destruction to fruit, when an examination of their stomachs showed that they were eating more insects than fruit.

There are few instances where birds become so abundant as to do more real harm than good. For, although some of the birds eat fruit, this is not the main part of their diet. The majority of birds are continually hunting and catching insects. During the breeding season they live largely and rear their young almost exclusively on this food. Wherever insect food is plentiful, the birds resort to such a locality.

The part that birds play in economic life is to hold the balance of nature even by keeping in check the great numbers of insects and small rodents. They are active every season of the year. Their rapidity of digestion is remarkable. Many young birds digest food in one or two hours. A young bird will consume about ten times its own weight from the time it hatches till it leaves the nest. A bird often raises two or three broods; they perform a great amount of work. Where insect and animal food is abundant, the birds thrive; where it is lacking, nature keeps the bird numbers in check.

In certain places, where insects and rodents have threatened crops and become abnormally numerous, the birds soon discover the abundance of food, and flock in large numbers. In this way they help to regulate such outbreaks. An example of this was shown a few years ago in a large apple orchard in Central Illinois that was attacked by cankerworms. Prof. S. A. Forbes, of the State Laboratory of Natural History, visited the orchard for two successive seasons, and collected various species of the birds there. An examination of stomach contents of these birds showed that the birds were very useful in reducing this outbreak of injurious insects. Out of 141 bird stomachs examined, including 36 species of birds, it was found that 60 per cent. of the birds killed had been eating cankerworms, and of the 36 species, 72 per cent. of them were eating worms. Taken as a whole, it was found that 35 per cent. of the food of all the birds of the locality consisted of cankerworms. So we find that, during this time, when the pest got the upper hand, nature used the birds to restore the equilibrium. Birds of the field and forest were attracted by the bountiful supply of in-

sect food, and birds of all sizes and habits were feeding on worms and reducing the numbers.

Out of the flock of 35 cedar waxwings, seven birds were shot. With the exception of a few small beetles, it was found that these birds were living entirely on cankerworms. By actual count, it was found that there were from 70 to 101 worms in the stomachs of each of these birds. If we assume that, on an average, each of these birds ate 100 worms during the day, the flock of 30 were destroying 3,000 worms a day, or, during the month when caterpillars were out, the flock were destroying 90,000.

Another instance showing the utility of birds in checking insect pests is shown in the experiments carried on by Prof. Samuel Aughey, of the University of Nebraska, during the outbreaks of the Rocky Mountain locust or grasshopper, in 1865 and 1877, and they showed that all the birds of the locality were doing their best to check the outbreaks of these injurious insects.

Thrushes, kinglets, chickadees, nuthatches, warblers, hawks, vireos, swallows, crows, bluejays, blackbirds, kingfishers, woodpeckers, owls, pigeons, grouse, quail, gulls, and even humming birds and water birds, had all taken to eating locusts. Forty-one locusts were taken from the stomach of a blackbird. A tiny ruby-throated humming bird had four small locusts in its stomach. Six robins had eaten 265 locusts. Sixty-seven locusts were found in the stomachs of three bluebirds. One little ruby-crowned kinglet had eaten 29. Many of these and other birds were feeding their young on locusts. One barn owl had eaten 39 locusts. Eight screech owls had eaten 219 locusts. All the hawks were feeding on grasshoppers, the same as the owls.

In order to tell whether a bird is of more value than harm economically, the Department of Agriculture at Washington has for the past 15 years been making a study of the contents of birds' stomachs. In various parts of the country, and during all seasons of the year, different species of birds have been taken, and the stomachs have been preserved. These are carefully tagged and placed in a solution of 5 per cent. formalin and 80 per cent. alcohol. Later on these have been carefully examined and studied by experts who have identified such insects as are eaten, and taken an exact percentage of the various kinds of food eaten. After an examination of a large number of each species, these experts have been able to tell exactly the part that these birds take in our economy of nature; to what extent, if any, the bird is harmful to farmers and orchardists, and to what extent it is beneficial.

Some birds live by hunting through the leaves and branches, others by hunting the larvae that are in the bark of the tree-trunks; others scratch up the fallen leaves and the loose soil, while others are continually engaged in catching the flying insects.

In a day's time, the chickadee has been known to eat hundreds of insects' eggs and worms that are harmful to our trees and vegetables. A brood of three young chipping spar-