

**CIHM
Microfiche
Series
(Monographs)**

**ICMH
Collection de
microfiches
(monographies)**



Canadian Institute for Historical Microreproductions / Institut canadien de microreproductions historiques

© 1994

The copy filmed here has been reproduced thanks to the generosity of:

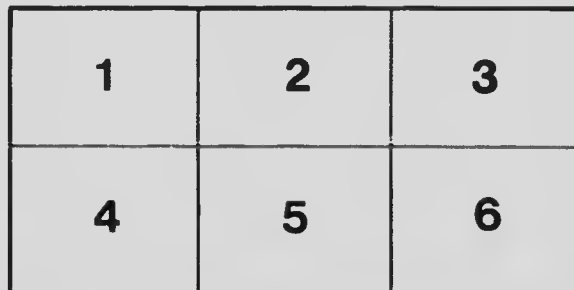
National Library of Canada

The images appearing here are the best quality possible considering the condition and legibility of the original copy and in keeping with the filming contract specifications.

Original copies in printed paper covers are filmed beginning with the front cover and ending on the last page with a printed or illustrated impression, or the back cover when appropriate. All other original copies are filmed beginning on the first page with a printed or illustrated impression, and ending on the last page with a printed or illustrated impression.

The last recorded frame on each microfiche shall contain the symbol \rightarrow (meaning "CONTINUED"), or the symbol ∇ (meaning "END"), whichever applies.

Maps, plates, charts, etc., may be filmed at different reduction ratios. Those too large to be entirely included in one exposure are filmed beginning in the upper left hand corner, left to right and top to bottom, as many frames as required. The following diagrams illustrate the method:



L'exemplaire filmé fut reproduit grâce à la générosité de:

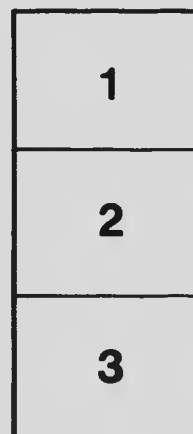
Bibliothèque nationale du Canada

Les images suivantes ont été reproduites avec le plus grand soin, compte tenu de la condition et de la netteté de l'exemplaire filmé, et en conformité avec les conditions du contrat de filmage.

Les exemplaires originaux dont la couverture en papier est imprimée sont filmés en commençant par le premier plat et en terminant soit par la dernière page qui comporte une empreinte d'impression ou d'illustration, soit par le second plat, selon le cas. Tous les autres exemplaires originaux sont filmés en commençant par la première page qui comporte une empreinte d'impression ou d'illustration et en terminant par la dernière page qui comporte une telle empreinte.

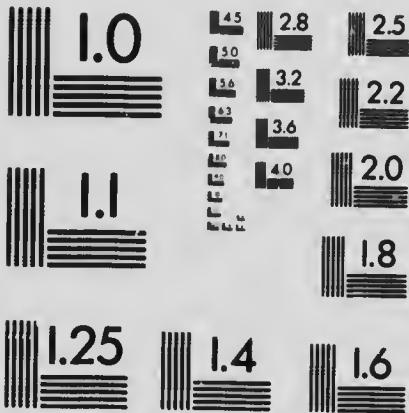
Un des symboles suivants apparaîtra sur la dernière image de chaque microfiche, selon le cas: le symbole \rightarrow signifie "A SUIVRE", le symbole ∇ signifie "FIN".

Les cartes, planches, tableaux, etc., peuvent être filmés à des taux de réduction différents. Lorsque le document est trop grand pour être reproduit en un seul cliché, il est filmé à partir de l'angle supérieur gauche, de gauche à droite, et de haut en bas, en prenant le nombre d'images nécessaire. Les diagrammes suivants illustrent la méthode.



MICROCOPY RESOLUTION TEST CHART

(ANSI and ISO TEST CHART No. 2)

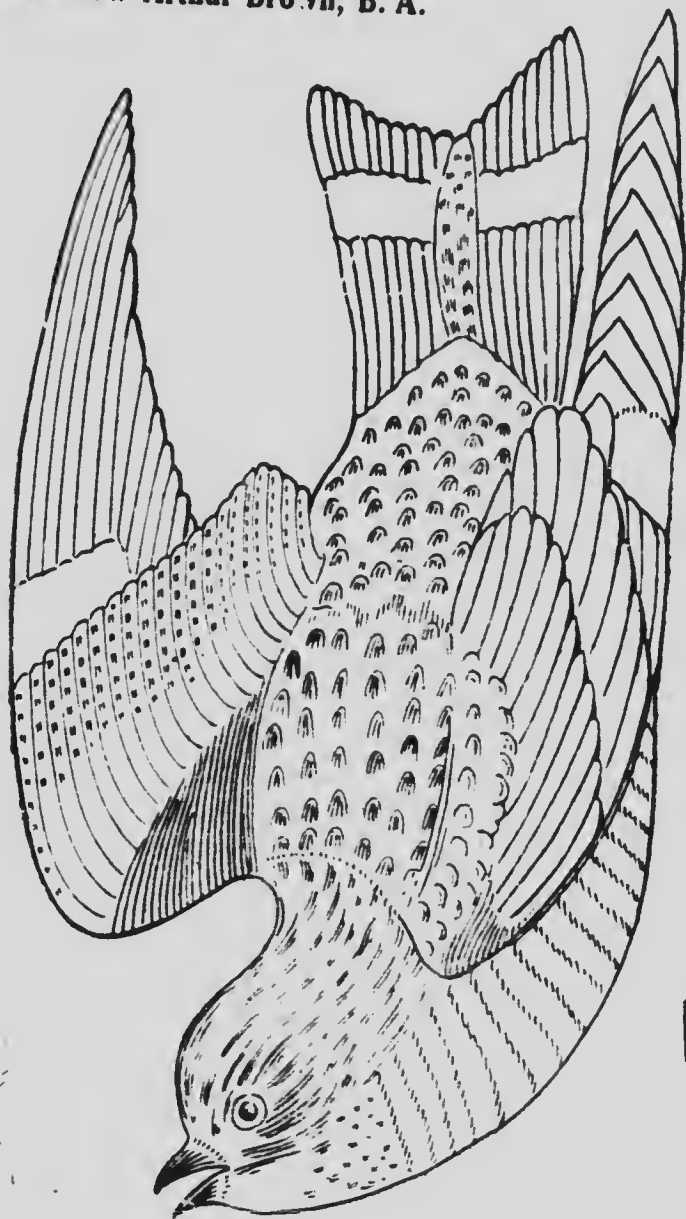


APPLIED IMAGE Inc

1653 East Main Street
Rochester, New York 14609 USA
(716) 482 - 0300 - Phone
(716) 288 - 5989 - Fax

The Desirability of the Protection and
Encouragement of Birds in
and around Chatham.

By Andrew Arthur Brown, B. A.



The Desirability of the Protection and Encouragement of Birds in and around Chatham.

"Oh Nature! thou Goddess whom we worship
For in thee we catch a glimpse of the Divine
Though interwoven so intricately
That just where it lies we cannot define.

As our eyes feast upon thy many beauties
Our ears list to the notes raised in thy praise:
Voices of birds singing in tree tops, and
The insects humming along the byways

But many dangers beset thee Oh Nature;
And we must lend to thee a helping hand
If we would ever preserve thee as thou art
In truth so perfect, so beautiful, so grand."

Birds may be studied from three points of view:—The scientific, the sentimental and the economic. The first includes their origin, development, structure and relationship to the other forms of life past and present. As regards the structure of birds it is rather of interest to note in an age when aerial locomotion so engrosses the scientific world that most of the speedier planes are modelled upon diagrams of such birds as Eagles, Larks, Martins, Swallows, Gulls etc., when soaring during flight. Man's desire to fly led him to carefully observe bird structure and the result is the monoplane. Sentiment enters largely into the interest of many. Children watch with interest a Robin tugging at a worm. The building of the nests excites our admiration for their ingenuity and facile adaptation to circumstances. Nearly everybody loves to hear the song of birds. The hum of insect life mingled with bird notes is to most natures soothing. Thus "Nature does not provide delight for the eye only. The other senses are not forgotten. A thousand sounds, many delightful, seem to fill the air." The individual who has studied Nature and felt its potent charm is

never friendless for all creation greets him wherever he may turn in some of its multitude of forms and thus is mankind ennobled. Possibly the word inquisitiveness would more clearly define our attitude than sentiment for man is a scrutinizing animal and Nature furnishes him with no form of life, plant or animal, so wonderfully fashioned and gifted with powers of adaption to man-created conditions as birds, even although they are by no means as high in the scale of creation as many of our mammals.

In this short article I shall endeavor to lay before you in but a very imperfect and condensed form data which I trust will convince you of the economic importance of birds and that their protection and encouragement is not only necessary but highly desirable.

Many people will recall that some five or six years ago conditions were such that an overabundance of insect life was the result. Trees were infested in many cases to such an extent as to seriously menace their life.

Elm Park in particular suffered, and only last year after a shower the walks in the Park and many of the sidewalks were carpeted with moths carried earthwards and stunned by the impact of the rain drops.

As you are aware plants and trees breathe through stomata or pores in the leaves and that under the influence of sunlight assimilation of a large portion of the plants' and trees' food is performed by the chlorophyl of the leaves. A very large number of insect pests prey upon leaves which they devour in amazing quantities thus robbing the plant or tree of its main digestive organs. This necessarily retards growth and may cause them to die.

That insect pests destroy vast quantities of agricultural and forest products yearly is indisputable. I do not exactly recall to what Carlyle referred when he said: "There are no trifles, for out of trifles come tragedies." Had he had in his mind's eye some devastated forest or agricultural area he

could not have made a more salient and pertinent remark. A single moth, beetle or fly is capable of becoming the ancestor of an incredible number of its kind, not infrequently running into the hundreds of thousands, and even more. And the result? These insects must live and plant life will be denuded of its verdure so as to lead one to inquire whether a plague or a fire has lately passed that way.

Locust and other plagues are no more uncommon to-day than in biblical times; but are economically much more serious to nations and communities. The Pea weevil in a single state destroyed \$3,000,000 worth of that crop. The forest tent caterpillar has stripped bare of every leaf areas of deciduous trees, square miles in extent, and the brown tail and gypsy moths have cost the New England and other states tens of millions of dollars. On a conservative basis it is estimated that the loss yearly in the United States on agricultural and forest products is about \$800,000,000. C. Gordon Hewitt, D. Sc., F. R. S. C. Dominion Entomologist estimates that on our field crops the minimum annual loss due to injurious insects cannot be less than \$50,000,000. Nothing is said of forest products destroyed by these agents annually at all.

Birds are the speediest and most efficacious means of ridding ourselves of insect pests.

There is a definite relation between a tree, an insect and a bird. The former affords food to the second and a place on which often to deposit its eggs; and also a shelter and nesting place for the latter as well as that on which its food, the insect in one or all of its metamorphostical forms, is largely found. Hence it is important to preserve this equilibrium for if insects increase and birds decrease the tree suffers and often dies; and, if birds become too numerous, a state of affairs not often occurring as various agencies tend to the contrary, insect life—the birds' main food supply—will be depleted and they will starve. Not only do birds perform a service to man impossible of monetary calculation by destroying insect pests; but many

birds eat largely of weed seeds; for "tares," as they did in the time of Our Lord, still, will choke "wheat" and imperil the full productivity of the field and garden. To the farmer, who depends largely upon field and truck-garden products for a livelihood, I will throw out this suggestion: that an acre more or less of woodland close to the cleared land set aside as a bird sanctuary will amply repay him for any loss he might occasion by withholding this lot from cultivation, and materially lessen his labors in eliminating the pernicious Colorado Beetle or Potato Bug and other pests.

Following are a list of birds migratory and resident in this section with the diet set forth as revealed by analysis by the United States Government, various state and other investigators in Canada including notes of my own. The dates are the earliest and latest date of arrival here, covering a period of sixteen years, taken from Dr. Baxter's list in the *Miramichi Natural History Association Bulletin*, Number, 2, 1901. I have arranged them in groups for purposes of consideration.

Song Birds of Orchard and Woodland

Wilson's Thrush (*Hylocichla fuscescens fuscescens*) May 11. Feeds on insects largely, especially those frequenting the ground and the lower parts of trees. Ants, ground beetles, earwigs, grasshoppers, cutworms and earthworms are favorites; but it has been observed occasionally to eat hairy caterpillars of the gipsy moth and, feeding considerably in trees it takes many caterpillars including the destructive tent caterpillar. In summer and fall it eats wild fruit, seldom troubling cultivated varieties. Its habits are commendable and it should be encouraged.

Hermit Thrush (*Hylocichla guttata palassi*) May 21. Its diet is largely insectivorous. A young Hermit Thrush in captivity, Mr. Daniel E. Owen states, ate regularly half its weight of raw steak daily, and in all probability would have eaten as much more had it been fed oftener.

Professor Forbes' studies of the genus *Hyllocichla* in Illinois shows that 61% of their food consists of insects, 1% of myriapods and 32% of fruit. Thirty parts of the food consisted of injurious insects and only seven of beneficial species.

Ruby-crowned Kinglet (*Regulus calendula calendula*) Apr. 30 and May 30. It nests in coniferous trees. Being extremely small, ranking next to the Hummingbirds in size, it feeds on the minute forest insects which escape larger birds. Not only do they creep about the trunks but also skillfully search the foliage; and are expert fly catchers. Bark beetles, scale insects, and the eggs of injurious moths, and plant lice form the major part of its food. It is a valuable asset in the orchard and its work on conifers is most efficacious.

American Brown Creeper (*Certhia familiaris Americana*) May 10 and June 17. Feeds very largely on insects, as boring grubs and the pupae and eggs of insects. Dr. Judd's examination of a stomach showed such beetles as *Helops acreus* and *Bruchus hibisci*; also sawflies, ants, spiders and seeds of scrub pine. They work on tree trunks starting about two feet from the ground working up to about twenty feet and have been observed to thus search forty-threetrees in an hour.

The Warblers are small birds and as they are insectivorous, this enables them so reach even the tips of the twigs. The various members of this family cover a tree from the ground to the topmost branches and thus are highly desirable. The eight birds below are Wood Warblers.

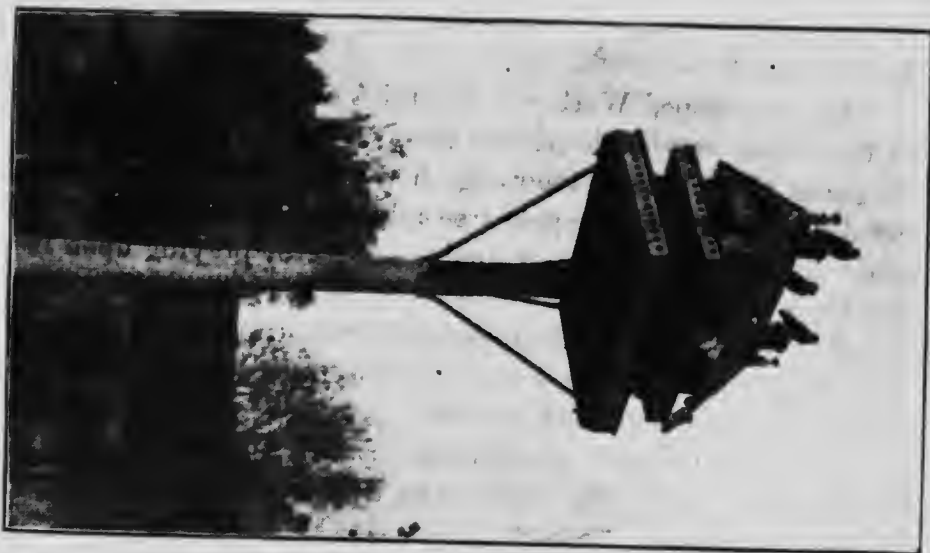
Maryland Yellow-throat (*Geothlypis trichas trichas*) May 1 and June 6. Feeds on leaf hoppers, grasshoppers, conkerworms, gipsy moth caterpillars (has been observed to eat fifty-two in a few minutes), case bearers, leaf rollers and many other destructive caterpillars; also catching and eating butterflies and moths in considerable numbers. Beetles, flies and especially plant lice, the birch aphid being a favorite, are included in its food.

Oven-bird (*Seiurus aurocapillus*) May 21. While feeding on the ground it eats grubs and earthworms and picks up cater-

pillars and other insects which have dropped from the trees. Many caterpillars of the gipsy moth are thus destroyed in their hiding places among dead leaves. It also renders valuable service by destroying cankerworms and plant lice; and, while mainly insectivorous, can subsist on farinaceous food.

Blue-eyed Yellow Warbler (*Dendroica aestiva aestiva*) May 13 and June 14. One of our most useful birds. Almost entirely insectivorous. Two thirds of its food consists of caterpillars, of which it is fond, when plentiful. Destroys small caterpillars of the gipsy and brown-tail moths and shows an inordinate fondness for canker and other measuring worms. Tent caterpillars are commonly eaten as are small bark and boring beetles, among the latter the imagoes of the current borer. Weevils are greedily seized upon. A very few useful beetles are eaten by it. Showing considerable skill as a fly-catcher it seizes small moths, like the colling moth. It covers the whole tree and even grasshoppers, and myriapods are on the bill of fare.

American Redstart (*Setophaga ruticilla*) Apr. 29 and May 27. The insect food of this bird is perhaps the most varied of the common Warblers. There are few small sized forest insects which do not in one form or another fall a prey to it. Caterpillars which spin silken threads and hang in mid air are seized upon. It takes its food from trunk, limbs, leaves and the air so of necessity its prey is varied. Practically all the smaller pests of deciduous as well as coniferous trees are devoured. It eats many of the smaller hairy caterpillars, as well as bugs, moths, gnats, two-winged flies, small grasshoppers, beetles and plant lice. A rather interesting fact has been gleaned by observation: that in common with the Maryland Yellow-throat, when searching a tree trunk they will, unlike the Creepers which cling perpendicularly and partly support themselves with the tail, cling horizontally and maintain their balance and hold, with the claws alone; but they work up a trunk spirally as do



The Martin House has been occupied on the author's grounds for some six years past, and during a season from 125 to 150 Purple Martins are reared. English Sparrows also nest in one of the 14 rooms and they seem to agree with their neighbors.

The house in the tree was tried this year as an experiment and is made of zinc roofing in the form of a stove pipe and covered with birch bark. The two houses of this model on our own elms have two rooms each and are all inhabited and the birds are doing good work among the insects.



the Creepers.*

Yellow-rumped Warbler (*Dendroica coronata*) May 13 and 28. Feed upon bay-berries, caddis flies, various insect larvae, beetles, gnats, plant lice and their eggs, house flies and other diptera and the birch and woolly apple tree aphid, both of which it is very fond. In spring it renders valuable service by preying upon insect pests which come into being with the warmer weather.

Nashville Warbler (*Helminthophila rubricapilla rubricapilla*) May 27 and June 6. Feed on cankerworms, tent caterpillars brown-tail and gipsy moth larvae.

Black-poll Warbler (*Dendroica striata*) Apr. 30 and June 1. Feed on hairy caterpillars and plant lice, especially the aphid infesting the poplar.

Cerulean Warbler (*Dendroica caerulea*) May 25. Feed upon the insects commonly constituting the food of Wood Warblers.

Cedar Waxwing (*Bombycilla cedrorum*) May 11 and June 9. Feed on cedar berries as well as those of mountain ash. Eats voraciously of cankerworms. While they do eat cherries in large quantities, a stomach analysis shows them to be very largely wild cherries; and much more than half their berry diet is wild. They are particularly efficacious in keeping down the elm-leaf beetle. Flies, grasshoppers, beetles, crickets, ichneumon flies, tent caterpillars, crane flies, cankerworms, lacewings as well as bugs and bark lice go to swell the bill of fare.

Purple Finch (*Carpodacus purpureus purpureus*) Apr. 28 and June 6. Devours buds and blossoms of apple, cherry, peach and plum trees, feeding on the stamens and pistils. They also feed upon the blossoms of the red maple and seeds of such trees as the white ash and the berries of red cedar, mountain ash and others.

*NOTE:—I have observed that the Brown Creeper works up a tree spirally from left to right while the American Redstart ascends the trunk spirally from right to left. I have never observed the Maryland Yellow-throat but in no instance that came under my observation did either of the first mentioned birds proceed to search the trunk than in the above manner.

A. A. B.

Their purning is however not excessive and on the other hand they eat seeds of many of our most destructive weeds, ragweed being a favorite. In particular, destructive to plant lice and canker worms and also takes ground beetles and some cutworms.

American Goldfinch (*Astragalinus tristis tristis*) May 20 and June 12. Feed much on the seeds of weeds as wild clematis, wild sunflower and ragweed but seeds furnished with down as the dandelion and thistle are favorites. The young are largely fed on plant lice, caterpillars, small grasshopper and beetles and the parents themselves take cankerworms, Hessian flies, eggs of plant lice, the birch aphid and *Chermaphis laricifoliae*, an aphid common on larches.

Red-eyed Vireo (*Vireosylva olivacea*) May 10 and June 6. Pray upon larvae which depend upon their protective shape and coloring. One of the most effective enemies of the gipsy and brown-tail moths. Many kinds of moths and butterflies, assassin bugs, tree hoppers, bugs that eat plants and fruit, many beetles among them boring and bark beetles, weevils, grasshoppers, katydids, locusts are eaten; and at times it becomes an expert flycatcher taking horseflies, mosquitoes and other gnats and many gall flies. Blueberries, raspberries, blackberries and mulberries are commonly eaten but to them may be added sheep berries and the berries of the dogwood, prickly ash and poke. They are also fond of the fruit of the benzoin bush, the sassafras and magnolia and wild grapes.

White-eyed Vireo (*Vireo griseus griseus*) May 21. Feeds quite largely on hairy caterpillars.

Chickadee (*Penthestes atricapillus atricapillus*) This bird is a resident throughout the year. They can be heard anywhere in the woods along our country roads and railroad tracks. At one time they were quite numerous in town but the last time I can recollect hearing or seeing any was about five or six years ago when a pair nested on the Benson homestead in a tree opposite Mr. Michael Murray's. They readily respond to encouragement and amply repay any measures taken in that

direction. Other birds are always where Chickadees are found. They seem intuitively to know that where these keen eyed and industrious little creatures are, there also is food. They are not quarrelsome and in addition to attracting other birds perform yeoman service in devouring such pests as the tent caterpillars and their eggs; codling moths with their larvae; the forest tent caterpillar; and the larvae, chrysalis and imago of the gipsy and brown-tail moths.

The birch, willow and apple plant lice and eggs as well as the pine weevil, flea beetles, and bark beetles destructive to fruit, shade and forest trees are also eagerly devoured.

The Acadian Chickadee (*Penthestes hudsonicus littoralis*) is also resident all year in this section of New Brunswick.

Songless Birds of Orchard and Woodland

Least Flycatcher (*Empidonax minimus*) May 22 and 28
Catches house and May flies, many moths that fly by day as the gipsy, brown-tail and codling moths; also those stirring very early in the morning or evening. Caterpillars which spin down by a silken thread fall a prey to it as well as many hairy caterpillars and their imagoes, boring and bark beetles, the flies of the railroad worm, cankerworms and many other caterpillars and plant lice.

Kingbird (*Tyrannus tyrannus*) May 16 and June 15. Feeds mainly on flying insects, May beetles, *Cetonia*s, weevils of fruit and grain, click beetles, grasshoppers, crickets, wasps, wild bees, moths and flies preying on bees, ants, fleas, house flies, as well as several species troubling cattle, mosquitoes, gnats, midgits, leaf hoppers and many other bugs, numerous varieties of caterpillars mostly hairless species; but also eats hairy caterpillars and their imagoes. It is the premier destroyer of the gipsy moth and also takes the ichneumon flies when a host to an injurious or secondary parasite (*Theronia melanocephala*)

Ruby-throated Hummingbird (*Archilochus colubris*) May 20 and June 2. Plant lice, small spiders, beetles, small worms.

worms, nectar of flowers and little insects that flit in the air, especially under trees, on fine summer evenings.

Northern Flicker (*Colaptes auratus luteus*) Apr. 26 and May 26. Feeds on ants which constitute about 45% of its food; it being the premier bird in this respect. Also takes beetles, grasshoppers, crickets, caterpillars such as forest tent and including hairy caterpillars, pupae, of gipsy moth, plant lice and other harmful insects; and grass and weed seeds are taken to some extent.

Birds of Field and Garden

Robin (*Planesticus migratorius migratorius*) Mar. 25 and May 31. Vegetable food 58% and of this 47% wild fruit and only 4% cultivated varieties. Earthworms, larvae of March flies (*Bibio albipennis*), cutworms (the larvae of Noctuid moths,) cankerworms, woolly bear caterpillars, caterpillars of the forest tent, gipsy, brown-tail and white-marked tussock moths, all the span-worms: tent caterpillars, curculios, leaf-eating, wood-boring and ground beetles, wire worms, white grubs of May beetles and so-called "June bugs" of the genus *Lachnosterna*.

Bluebird (*Sialia sialis sialis*) Apr. 24. Feeds on cutworms, cankerworms, furry caterpillars of Arctians and other hairy species; and Orthoptera, of which grasshoppers constitute nearly 25% on the average of the year's food. It also takes vegetable food including many wild berries.

Dr. Judd says the food of sparrows consists of from 25 to 35% animal matter and from 65 to 75% vegetable matter. Beneficial insects seldom amount to more than 2 percent.

Song Sparrow (*Melospiza melodia melodia*) Mar. 29 and Apr. 23. Feeds on cabbage plant lice, cutworms, caterpillars of brown tail and gipsy moths and several hairless pests among the Geometrids, leaf hoppers, spittle insects, grasshoppers, locusts, crickets, click beetles, flies and their larvae, earthworms, spiders, wild fruits, some waste grain; and 50 per cent of their

food consists of seeds of weeds as chickweed, purslane, sorrel, dandelion, dock, witch, pidgeon, barnyard, and crab grasses.

Slate-colored Junco (*Junco hyemalis hyemalis*) Mar. 29 and May 8. Useful mainly in that it eats large quantities of seeds of Amaranth, lamb's quarters, sorrel, wild sunflower and other pernicious weeds.

Chipping Sparrow (*Spizella passerina passerina*) Mar. 29 and Apr. 28. Destroys cankerworms, caterpillars of brown-tail gipsy and tussock moths; tent and forest tent caterpillars and moths; codling moths; nocturnal moths; such as Arcticans and Tineid moths; current worms, leaf-eating beetles, grasshoppers, perlice, parsley butterflies; and seeds of chickweed, clover, ragweed, amaranth, wood sorrel, dandelion, lamb's quarters, purslane, knotweed, black bindweed, crab and pigeon grass and some wild fruits.

Tree Sparrow (*Spizella monticola monticola*) Apr. 24 and 25. Seeds form 98 per cent. of its food. It feeds very largely on pigeon, crab and other grass seeds as well as those of ragweed, amaranth, lamb's quarters and other common weeds.

Peabody Bird (*Zonotrichia albicollis*) Apr. 27 and May 11. Feeds on beetles, berries and their seeds, but mainly on weed seeds, the ragweed constituting 45 per cent of its food; and polygonum.

Savannah Sparrow (*Passerculus sandwichensis savanna*) Apr. 23 and May 10. Nearly half of its food is insect, such as Sparrows eat. It shows a fondness for beetles, ants in particular, cutworms, some spiders and snails and its vegetable food is largely the seeds of pigeon, panic and marsh grasses and wild rice.

Vesper Sparrow (*Poaeetes gramineus gramineus*) Apr. 8 and 29. Feeds on dung, leaf, click and ground beetles, weevils, grasshoppers, cutworms and seeds of grass and weeds common in corn and other fields and gardens.

Fox Sparrow (*Passerella iliaca iliaca*) Apr. 14 and May 3. Feeds on insects generally eaten by Sparrows and the seeds of our common noxious weeds.

House or English Sparrow (*Passer domesticus*) Here the year round. Has a very evil reputation but while pugnacious if spacious nesting place is available other birds are not molested. This is only my own observation. The vast majority of their food is grain and seeds, especially of those weeds abundant in gutters and on lawns; but in summer they eat large numbers of flies, mosquitoes, moths, elm-tree beetles and a small mauve-blue fly which infests the elm leaf, tussock caterpillars, and in fact they seem so greedy they will eat almost anything. I am fully aware that my remarks are not any too extensively corroborated but am certain as to their accuracy as the frequent denunciation of this bird led me to watch him closely.

Titlark or Meadow Pipit (*Anthus pratensis*) May 6. Feeds mostly on insects common to the diet of the Wood Warblers.

Crow Blackbird (*Quiscalus quiscula quiscula*) Mar. 29 and May 6 and **Rusty Blackbird (*Euphagus carolinus*)** Apr. 23 and May 21. Both feed on hairy caterpillars, cutworms and earthworms but are destructive to other birds especially the young and those of the Robin in particular. They attack adult birds and pick their eyes out and will drive away robins as a result of their raids. They are also grain eaters. The former bird should be dubbed the "Robber Bird" and no opportunity to shoot either ought to be neglected.

Crow (*Corvus brachyr. brachyrhynchus*) Mar. 3 and 17. Some usually stay all winter chiefly around smelt holes. They eat some insects, hairy caterpillars, field mice and grain, as every farmer knows.

Bobolink (*Dolichonyx oryzivorus*) May 17 and June 3. About 85 per cent. of food: insect. Very destructive to plant lice, grasshoppers and caterpillars, the army worm in particular.

Spotted Sandpiper (*Actitis macularia*) May 22. Feeds on grasshoppers, locusts and other insects common in fields.

Birds of Marsh and Waterside

Swamp Sparrow (*Melospiza georgiana*) Apr. 28 and May

21. Feeds on army worms, the green grasshoppers and the salt marsh caterpillars

Water Thrush (*Seiurus noveboracensis noveboracensis*) May 21. Over 55 per cent. of food, insects common to the diet of Wood Warblers.

Great Blue Heron (*Ardea herodias herodias*) Apr. 28 and May 23, and Bittern (*Botaurus minor*) May 7 and June 4. Feed on army worms, green grasshoppers, salt marsh caterpillars, meadow mice, reptiles and frogs.

Birds of the Air

Marsh Harrier (*Circus hudsonius*) Apr. 14 and June 1. Of 124 stomachs examined: 7, contained poultry or game birds; 34 other birds, 79, mice and other mammals; 9, reptiles etc.; 14, insects; and 8 were empty.

Sparrow Hawk (*Falco sparverius sparverius*) Apr. 21 and May 23. Of 320 stomachs examined: 1, contained a quail; 53, other birds; 101, mice and other mammals; 11, reptiles, etc.; 224, insects, etc., and 2 were empty.

Broad-winged Hawk (*Buteo platyterus*) May 21. Of 49 stomachs examined: 45, contained mice and other mammals; 1, lizards; 1, insects; and 4 were empty.

These are the examinations by Dr. Fisher of U. S. Biological Survey and of 32 stomachs of the last bird examined by C. W. Nash in 1895 not one contained a trace of any domestic fowl and nearly every one contained mice.

Chimney Swift (*Ch. tura pelagica*) May 1 and 30. Catches flies, small beetles of various kinds, flying ants, bugs, grasshoppers, and other insects, and spiders.

Nighthawk (*Chordeiles virginianus virginianus*) May 22 and June 18. Professor Beal estimated that the stomachs of 87 of these birds examined "contained not less than 22,000 ants and these were not half of the insect contents." May beetles; grasshoppers, gnats and mosquitoes in enormous quantities, potato and cucumber beetles, leaf hoppers and bugs are found in their stomachs.

Whip-poor-will (*Antrostomus vociferous vociferous*) An animated insect trap. Night moths, May and other leaf eating beetles, hairy caterpillars such as the tent and tussock caterpillars, spunworms, grasshoppers and ants are all taken with avidity.

Barn Swallow (*Hirundo erythrogastra*) May 1 and 24. Destroys cattle flies, the moths of smaller entworms, Arctians and Crambids, etc.

Cliff or Eaves Swallow (*Petrochelidon lunifrons lunifrons*) Habits similar to the Barn Swallow. Large numbers of these useful birds nested under the eaves of the fire station at the head of the Call Wharf, Newcastle.

Purple Martin (*Progne subis subis*) Apr. 25 and May 26 Feeds almost entirely on winged insects as the Rose, May and striped cucumber beetles, as well as house flies and flies troubling cows and horses and many small moths. Mr. Otto Widmann, in "Forest and Stream" states that 32 parent Martins made 3275 visits to their young in one day.

Trusting that the above information has been sufficiently illuminating to interest my readers let me refer to what has been done in a few countries where bird encouragement is not an innovation but a science.

Baron Von Berlepsch on his estates at Seebach, Germany, has for many years encouraged birds in his woodlands, having more than 2,000 nest boxes placed and nearly all occupied. As a result when the Hainich wood, south of Eisenach, covering several square miles was stripped nearly bare in the spring of 1905 by caterpillars of the Oak Leaf-roller moth (*Tortrix viridiana*) the woods of the Baron stood out amid the general forest as green oasis; and the signs of the pest began to show a quarter of a mile from the borders of his estate showing how far the birds travelled for food. As a testimony of the economic value of the Berlepsch nest box the Government and Communal woods of the Grand Duchy of Hesse were provided with 9,300 of these boxes. Eighty-five per cent. of these boxes were inhabited the first year; and all since then.

In Hungary, Otto Hermann is largely responsible for similar measures being taken; and in fact the Austro-Hungarian Government manufactures these boxes in state factories.

In England a Royal Society for Bird Protection has undertaken similar work.

The United States Government has recommended such measures; and many states are actively engaged in bird protection and their work is ably supplemented by the National Association of Audubon Societies.

In Ottawa through the wisdom and efforts of Dr. C. Gordon Hewitt, Dominion Entomologist, there are to be two bird sanctuaries. In other sections too, bird protection is receiving a little of the attention which it justly merits.

The Martin house on our own grounds as well as the trees have attracted birds in increasing numbers yearly for some years past; and apart from any economic value, which they undoubtedly have, have afforded a vast amount of pleasure.

The bird houses which the boys of Grammar School Manual Training Class are building in competition for the prizes I offered will I trust be hung in Elm Park as it is my intention to approach the mayor and council on this matter; and doubtless they will assent to such a proposal. The result will I can assure every doubting Thomas be bifarious: affording protection to the trees and a source of pleasure to those frequenting the Park as bird notes float from the branches.

Trees are a monument to a man's love of the beautiful in Nature and surely there is no citizen but would like to see the trees of Elm Park standing for many a year to grace the only recreation and resting place our town affords; and also to see them more extensively inhabited by our feathered friends.

"There are always destroyers and upbuilders;
In everything these two forces blend;
While the moth and the locust are destroyers.
The bird, is Nature's greatest friend."

Chatham, N. B.
Apr. 29th, 1914



