

and after the hay is in the barn. I prefer to keep them all closed, and the hay barns and lofts almost air-tight. J. FIXTER.
Central Experimental Farm.

The Use of a Hay Loader.

"Old Haymaker" writes us as follows:—"Considerable prejudice exists against this implement for pitching hay by some farmers who have used it and by many more who know nothing about it. One of the most intelligent farmers in our county used one for a time, and threw it aside, pronouncing it N. G. Our next neighbor bought one at a sale for six dollars from a farmer who paid over sixty dollars for it, used it a day or two and ran it in the fence corner. It now does excellent work every season. All it needed was a little fixing and intelligent use. The rolling and jerking of the wagon makes it awkward work at first for the loaders, but one soon gets as used to it as a sailor to a boat. The writer has loaded hay from one for over fifteen seasons, and certainly has had some experience. We consider it simply an indispensable implement, and so do others in our locality. To work a hay loader right you must commence with the sulky rake, make the windrows straight and small, which lightens the labor for the loaders very much. Leave about a rod unraked at the ends for turning on. Hay should not be cut too ripe or lie too long in the swath, as the top dries too much, impairing its quality. Rake as soon after cutting as practicable. This turns a great deal of it over, partially curing it; then let it make in the windrow.

"With a loader, two men and a couple of smart boys can handle more hay any day than four men without a loader; and two men alone, with a team that know their business, will save a big lot of hay with comparative ease. Four men and a boy to drive the team (i. e., if they are not well broken to the work) can put in from 20 to 25 loads any fine day (i. e., if there are no delays and the barn convenient) from half-past nine or ten until sundown, and we have put in 20 loads in an afternoon. That's simply impossible the old way. When a field of hay is ready for the barn, and a rainstorm is brewing, you can put it in almost as quickly as to cock it up. Of course a great many will claim that clover must be put up in cocks to sweat; but if properly handled, first-class hay can be made with a great saving of labor. There is a danger of sometimes putting it in too green, as the loader does not mind forking heavy hay a bit, but of course that can be guarded against. It's an implement that takes up a great deal of storage room, and would not pay any farmer on less than 150 acres of land unless he grew a very large acreage of hay, which certainly does not pay at the present time."

The Farmer's Feathered Friends.

BY MARTIN BURRELL, LINCOLN CO., ONT.

"Thus are my blossoms blasted in the bud,
And caterpillars eat my leaves away."
—Shakespeare.

In a former article a plea was put in on behalf of the crow, and a few facts addressed to show that he is the ally and not the foe of the farmer. One correspondent asks me what is good for crows who like fancy chickens? He has some chicks worth two dollars each, two of which have been carried off by the birds whose cause (no pun intended) I had been championing. He now patrols the vicinity of his poultry yard armed to the teeth. I am not prepared to go back on previous statements, but I will admit that while crows generally are our friends, an individual crow here and there may have abandoned himself to every kind of immorality, and be in a parlous state—a reprobate bird. This, however, proves nothing against his more virtuous kith and kin. Nobody (save in the columns of one or two scurrilous Irish newspapers) has the temerity to urge that Canadians are cut-throats and blackguards, and yet even in this most decent community there are a few jailbirds. The tough crow and the tough citizen are better out of the way, but do not let us saddle their crimes on the backs of their brethren.

As to other birds, it is impossible even to mention the names of the fairly familiar birds, but they are all partially or wholly insectivorous and beneficial. The usefulness of some birds no one disputes, such, for instance, as the family Hirundinidae, which embraces all the swallows and martins. These familiar and beautiful birds feed exclusively on insects, and keep in check many injurious flies. Other great devourers of flies are the Tyrannidae. Four of the most familiar species are the kingbird (*Tyrannus tyrannus*), the great-crested flycatcher (a bird in build somewhat like the kingbird, but a trifle smaller and with a strong, imperious note), the phoebe or house pewee, and the wood pewee. The two latter are amongst our early spring arrivals, and we all love the plaintive, sad cry of the wood pewee. About the kingbird some hard things have been said on account of his weakness for including the honey-bee in his bill of fare. It is doubtful if he kills as many as some people imagine, and more than atones for his sins by the injurious insects he devours. A pair of them build every year within a few rods of my bee hives, and I've seen no cause for regarding them as anything but friends. As I write they are finishing their '97 nest in a Bartlett pear tree within ten feet of the window. The various species of woodpeckers live largely on borers, caterpillars, beetles and ants. Prof. Cook, after a close study of them, considered them of great economic value to the pomologist. In the winter and spring he often

found the flat-headed apple tree borer in their stomachs, and the larvae and pupae of the codling moth form sometimes a considerable portion of their diet.

The red-headed woodpecker is a fruit lover, and is painfully partial to cherries, but Prof. Forbes, of Illinois, after examining a few specimens, found that 32 per cent. of the food consisted of cankerworms. If much wild fruit exists the woodpeckers will not do much harm to the cultivated fruit. It has been suggested that the planting of a few Russian mulberries would successfully allure this and other fruit-loving birds from the choicer fruits. Like the man who said that the only good thing he knew about malaria was that whisky was a cure for it, the only good thing I have ever heard of the Russian mulberry is that birds are fond of it. One wishes they would confine their attention to the mulberry. When that elegant fruit plays out they might pass on to the Russian apricot; and after that delicious product has been eaten we should forgive our feathered friends if they gobbled up the agents who introduced these "choice" Russian varieties.

Of the Baltimore oriole it is almost unnecessary to speak. It is true that he has a sneaking affection for fruit, especially grapes, but he practically lives on insects. He is not very particular as to size or variety, his diet ranging from the small bark louse to the huge green tomato worm; caterpillars by hundreds go down his throat during the season.

The family Fringillidae, which includes the finches, singing sparrows, grosbeaks, red polls, snowbirds, etc., contains not only a great many highly useful birds, but some of our sweetest singers. They are all largely insectivorous, and in addition do immense good by the number of weed seeds they pick up. Two types may be instanced: the rose-breasted grosbeak, and the indigo bird or



CHAS. COLLING, THE NOTED BREEDER AND IMPROVER OF SHORTHORN CATTLE;
BORN 1751, DIED 1836.

indigo bunting. The former is a good singer, a model husband, frequently taking his turn at sitting on the eggs, and a big insect eater. He has even been seen eating potato beetles, and Prof. Forbes, after a careful examination of many stomachs, found that 66 per cent. of the food consisted of cankerworms. The indigo bird goes the grosbeak one better in this respect, for 78 per cent. of the food of several was found to be cankerworms. In build he is a trim, neat little chap, somewhat of the shape of the yellow bird, and of a beautiful dark blue color. I must not omit touching, however briefly, on the cedar waxwing or cherry bird. His economic status is open to more or less doubt, though the evidence is, on the whole, in his favor. As his name implies, he is a big cherry eater. Only one year, however, during the past decade has he injured me at all seriously in this respect. This year during the blossoming time of the cherry I observed four of these birds diligently catching the bees with which the trees were fairly alive—a very undesirable habit. But they eat innumerable injurious insects. Prof. Beal, in a report for the U. S. Department of Agriculture, states that he examined 125 stomachs collected from 14 States, and found that the waxwings consumed the greatest amount of insect food during the month when fruit is abundant, and that the young were fed to a great extent on insects. Wild fruit and berries constitute a large portion of their food. A good deal the same may be said of the robin as was said of the cedar waxwing. Of course, when either of these birds come in flocks they can do immense harm to orchards or vineyards, but, speaking generally, we should look at them with a friendly eye.

Space forbids mention of the vireo, warbler, catbird, bobolink, and dozens of other birds scattered throughout Ontario. To give something

like an adequate idea of the extent of the aid they give us, I may cite the case of the jovial, hardy, friendly little chickadee. Mr. Forbush, of the Mass. Board of Agriculture, carried out some interesting experiments for the purpose of ascertaining to what extent birds are useful. It was found that the chickadee was particularly destructive to the cankerworm in the larval, egg and mature state of that insect. A female bird was seen one day to carry twenty cankerworms and two tent caterpillars to its nest, and the male bird was not loafing all this time. One chickadee had 41 moths of the cankerworm in its stomach, and as the average number of eggs that a moth could lay is about 185, one chickadee could thus destroy from five to seven thousand eggs a day.

With such concentrated food no wonder that the

"Fire burns in that little chest,
So frolic, stout, and self-possessed."

The whole subject is very interesting, and the statistics decidedly instructive. It is a cheering and admirable thing that Ontario Legislation so amply recognizes the value of Canadian birds. Let us see to it that there is a good healthy sentiment ready at all times to enforce the spirit and the letter of the law.

Cement in Refitting Old Stables.

During the last ten years and for years in the future old farm buildings have been and will be remodeled and renewed. Every summer a great many wooden structures are jacked up and stables put beneath them, and in many cases the jobs thus done are much more sanitary and permanent than many expensive new buildings that were put up ten or more years ago. The use of cement for walls and floors, and the modern system of ventilation and large windows have made many old stables seem so dark and unsanitary, comparatively, that the small cost of refitting the whole understructure has become too insignificant to delay it longer.

The question of cement for walls is far beyond the experimental stage, as when properly constructed it becomes in a short time as hard as limestone. In dealing with the amount of cement, gravel and labor necessary to wall a basement, the writer speaks from experience. A nine-foot wall beneath a barn 60x34 feet, allowing for the necessary windows and doors requires about 55 barrels of Queenston cement, 30 loads of gravel, and a few loads of small stones. This amount of wall four men can readily build in ten days. Experienced men are not necessary, so long as they are started right and are faithful to their instructions. It is important that good clean gravel, absolutely free from soil, be used, and also that the concrete be well rammed while in course of construction. Such a wall is as permanent as stone and very much more cheaply built.

With regard to cement for floors there can be no question as to its advantage over wood in any form. Where smooth flagstone can be secured, nothing can answer any better, especially for horses, but cement concrete properly laid possesses all the desirable features a material can well have. Some bed smooth, round cobblestones, just showing at the surface, where the horses stand and stamp. For pigs it is just ideal when a wooden platform is used for a sleeping place. We were amused at a remark of a small boy on a farm on which we put in a cement hogpen floor last year, to the effect that he would not put in cement floor in a pigpen of his, because the floor was always "so wet." Had he considered for a moment that all that moisture would have run through the old plank floor, polluting the surroundings and wasting so much valuable fertility, his objection would never have been made. We cannot afford to lose all this fertility. The saving in manure alone effected by a cement floor over one not watertight would go a long way in a few years towards paying for the new floor. What is true in regard to hogpens floors is equally applicable to other stables. The time for plank flooring is altogether gone past. Our farms need every bit of fertility we can get for them; and when we can accomplish an important saving in this direction by the use of a cheap, everlasting substance, we act the part of wise men in availing ourselves of its use. For feed rooms and passages nothing can surpass cement. It is smooth, permanent and impervious to rats or mice.

In constructing a cement floor the following points will be of use. First dig down to the clay to get a solid foundation. It is well to pave with common field or broken stone on the clay, leaving the surface as firm and level as possible. The first coat of concrete should be wet enough so that it will readily pound down among the stones. This will cement them all together. The next coat should be about one and one-half inches thick, mixed (one to six) with gravel, not sloppy, well rammed down. The top may be a thin coating of clean sand and cement, half and half, nicely smoothed like the surface of a marble slab. This should be occasionally sprinkled with water, with or without a coating of straw, but those who have used the damp straw covering strongly recommend it. In mixing the cement and gravel or sand do it thoroughly while dry and then moisten until it will trowel nicely. A person can readily tell about the thickness when once he gets to work at it. It is well to leave stock off a new floor from four to six weeks, when it will have become thoroughly hardened.