

to make the best of its short visit from the way it attacks the mouse crop. Wherever it is seen it should have the consideration and protection of the agriculturist.

In the report of the Department of Agriculture at Washington, mention is made of the examination of 49 of the stomachs of this bird, of which 45 contained mice and other mammals, 1 lizards, 1 insects, and four were empty. It can be judged from this what the value of the bird is to the farmers.

The last hawk on our list is the pretty little Sparrow Hawk, one of the commonest of all our hawks. It can be easily identified by its small size and reddish back. It nests in holes in old trees, and shows a great fondness for sitting on telegraph poles and fence posts. Its small size precludes the idea that it attacks poultry, but it is somewhat of a thing of terror among the small birds, killing a considerable quantity of our most beneficial ones. Its principal food, however, consists of mice and grasshoppers, of which it consumes immense quantities, and the good it does in this respect probably more than counterbalances its misdeeds, and it is deserving of our protection.

Of the ten different owls found in Manitoba, there is only one variety which can be called injurious. This is the Great Horned Owl, or Big Cat Owl, as it is often called. The other nine varieties are all more or less beneficial, and are the Snowy Owl, Great Grey Owl, Long-eared Owl, Short-eared Owl, Screech Owl, Saw Whet Owl, Richardson's Owl, Hawk Owl and Burrowing Owl.

The Great Horned Owl kills large numbers of mice, gophers, weasels, etc., which form the chief part of its food, and although it will occasionally take a fowl when found roosting in a tree, there can be little doubt that its good services far more than counterbalance its misdeeds. It also kills a few game birds and quite a number of rabbits, with an occasional member of all the other species of smaller mammals.

The Great Grey Owl is a large dun-colored bird, and is found only in heavily timbered districts. It confines its attention chiefly to mice and other small fare, rarely attacking birds, and, owing to its shy and retreating habits, is seldom seen about the farms.

The Snowy Owl, the large white owl of the autumn and winter months, is almost exclusively a mouser, varying its diet with an occasional muskrat or rabbit, and rarely attacks birds.

The familiar little Screech Owl, which frequents the barns and outbuildings, is probably the most beneficial owl we have, and should be protected at all times. It is a most painstaking mouser, and will keep these small pests in check in the granaries and lofts if allowed to carry on its work unmolested. It is one of the smallest of the owls, and has two prominent ear tufts, by which it can be identified.

The Short-eared Owl is the owl of the prairies, and is easily distinguished from any of the others by its light tawny color. It destroys large numbers of rodents, and really takes a good proportion of small birds, but the good it does more than pays for its misdeeds, and it should be protected.

The Long-eared Owl is a migratory species, and is most frequently seen in the autumn about the alder and willow thickets. It is about the same size as the Prairie Owl, but is darker and has two very prominent ear tufts. It is strictly a beneficial species, feeding almost exclusively on mice.

The Hawk Owl is so called from its resemblance to both these birds, having a small head and long tail, which gives it the appearance of a hawk. It feeds by day, and is usually found in the bush. It is a swift flyer and a voracious feeder. Though its fare is varied with both small birds and animals in about equal proportions, it is probably a benefit in some districts where mice are plentiful, and should be allowed to live.

The Saw Whet and Richardson's Owls are the smallest of the race in Manitoba, and are seldom seen far from the bush where, no doubt, they do their share in checking the mouse supply.

The last on the list, the little Burrowing Owl, is so seldom seen that its work for good or bad is of little importance. However, it is too small to do any damage, and probably lives chiefly on mice and grasshoppers, and should therefore be protected.

[Note.—Referring to Mr. Turner's excellent article, Mr. W. E. Saunders, of London, Ont., one of the most expert ornithologists in Eastern Canada, says:

"While most of the remarks refer with equal force to Eastern Canada as well, it always appears to me that a student of nature is astray in recommending the destruction of any particular species of bird or mammal, except in those very rare instances where an increase in numbers has taken place directly through the agency of man, as with the European house sparrow, or where such increase is due indirectly to man's agency, as in the case of the cowbird, which finds improved conditions in the agricultural districts,

both as regards food supply and absence of its natural enemies, the aptorial birds.

But in the case of hawks, all of which are comparatively rare, it is very doubtful if we would improve conditions by their destruction. All of the bird-eating hawks feed upon mammals to a certain extent, and are therefore available in case of the unprecedented increase of any species, and most of the birds they kill are residents of the woods, where man does not feel the effect of their labors. I do not mean to say that a farmer who is suffering from the loss of poultry should not trap or kill, as there is no doubt that individual birds may develop tastes in a certain direction, and the trapping or killing of a chicken thief will often warn the others of the species, and will certainly diminish the enemies of the poultry-yard by one. But, as a rule, the hawks and owls leave the poultry alone, and were a farmer to kill them indiscriminately, or even with discrimination, he is likely to do himself more harm than good.

These birds were placed here by an all-wise Creator, and history is full of instances of trouble arising from the interference of man with the Creator's arrangements.

Toad Flax.

To the Editor "Farmer's Advocate":

I am sending you a sample of a noxious weed which I fear is, through the agency of grass seed, largely distributed through the country.

This sample was taken from a field of wheat stubble that has a nice catch of clover upon it. Where this grew it had a stubborn possession of the soil. The clover beneath it was pretty badly choked out. The seed pods are similar in size and appearance to the pods of lobelia. I don't know the height to which it would grow. The tops of these were cut off with the wheat, but laterals were thrown out and seeds in great abundance produced, which are black and about the size of alsike clover seed. What is it? Is it what is sometimes called toad flax? Doubtless it will pay farmers to look well after it in time. The seeds shell out easily, hence the necessity of handling it carefully. You will confer a favor by telling your readers more about this weed and its habits.

S. T. PETTIT.

Elgin Co., Ont.

[The plant above referred to is toad flax, or "butter and eggs" (*Linaria vulgaris*, L.), a perennial which has escaped from cultivation as an ornamental and become a common pest. It grows in tufts, and has bright yellow, spurred flowers. It blooms from July to October, and seeds from August to November. It propagates itself by root-stocks and by seeds in grass seed. It is found chiefly in meadows and roadsides. Continuous cultivation will subdue it, but care should be taken not to spread the root-stocks.

Nitro-Cultures at the Nova Scotia Agricultural College.

During the meetings of the Farmers' Association, held at Truro, Nova Scotia, last February, no question was more frequently asked than, "What value is there in nitro-cultures, which are supplied by bacteriologists to treat the clover and allied plants' seed with, in order to influence the nodular growth on the roots of these leguminous plants?" We decided to experiment with these cultures at Truro this year, and were supplied with the same by Prof. Harrison, of Guelph. We treated red clover seed and alfalfa clover seed with the culture, and sowed plots of each with the treated seed, side by side with plots sown with untreated seed. In the case of the red clover, unfortunately, our seed was sown somewhat late, and owing to the drought which ensued, little of it grew, so that we have no definite result to report. With the alfalfa clover, however, we have had most remarkable results. We sowed alfalfa at the rate of 20 pounds per acre, along with a nurse crop of barley, sown at the rate of one bushel per acre. On the treated plots we have, at the present time, a vigorous growth of alfalfa, the plants averaging in height from 8 inches to 10 inches, and being thick and vigorous. On the adjoining untreated plots the plants have come up just about as thickly, but the root system is less extensive, and the plants they are no more than 1 to 2 inches in height, generally have a somewhat sickly appearance. In examining the roots, we find that those of the treated plots are covered with nodules, whereas those of the untreated plants have but a limited growth of nodules.

Now, this is our first experiment with nitro-culture, and we do not feel that we are, as yet, in a position to make any very authoritative statement. We will duplicate our experiment next year, and should we ascertain that the cultures will prove of positive value to the farmers of Nova Scotia, we will do all in our power to recommend their use. In the meantime, we think that this is enough to report on results of this one experiment.

F. L. FULLER.

Notes from Ireland.

(Special correspondence.)

Among the thousands of regular readers of the "Farmer's Advocate" there are, no doubt, many Irishmen who, though they are now seeking their fortunes in another portion of the British Empire, still retain an interest in matters agricultural as they affect the land of their birth. To such, as well as to born-and-bred Canadian readers, I hope to present from time to time in these notes some information regarding farming conditions in this country, and developments which may be taking place therein, which will prove of general interest.

MORE GRASS: LESS TILLAGE.

For many years past the plow has been becoming more and more unpopular with Irish farmers; in other words, there has been an uninterrupted tendency on the part of our farmers to devote less land to tillage and more to grass. Many efforts have been made of late to counteract this tendency, but none of them seem to be of avail. It would appear as if raised prices and cheapened labor will alone induce a departure from the present system, for farmers recognize, as do other folks, that altered plans must be adopted when altered circumstances arise. This year the official statistics tell the story very plainly. They disclose the fact that, as compared with 1904, there has been a reduction of 12,296 acres in the area devoted to tillage operations, while 34,414 acres have been added to the area under hay, and grass land for pasture has been increased by 11,209 acres. As it stands, the returns, briefly put, show that of the 20,345,328 acres of which Ireland consists, 2,361,696 acres are under crops of various kinds; 2,294,574 are under hay, and 10,597,848 under grass.

Though the total tillage area has decreased, some individual crops have been more largely grown, there being increases in the case of wheat, flax, peas, cabbage, beet roots and parsnips.

LESS LIVE STOCK.

Though it might be expected that the increase of pasture land would be accompanied by an expansion in the number of animals to graze it, the reverse has been the case, judging by the official estimates. The total number of cattle in Ireland this year is returned at 4,645,222, or 31,496 less than last year; of sheep, 3,749,313, or 78,606 less; and of pigs, 1,164,322, or 150,804 less. Horses are the solitary exception, totaling 608,992, or an increase of 4,000 in the course of the twelve months.

EDUCATING THE SEEDSMEN.

The seed trade in any agricultural country is one of prime importance. Certainly it is here, and I presume it is so in Canada. You will, therefore, be interested perhaps to learn of a movement which has been going strong for some time past in connection with the trade in Dublin. I may mention that although there are numerous shops and stores throughout the country, yet it is in Ireland's capital, Dublin, that the forces of the trade are mustered. A few years ago an association was formed for the benefit of the employees of the Dublin houses, and it is a matter of much satisfaction to farmers to see how prominent a place is given in the working of this association to increasing the knowledge of its members in the different studies bearing on their business. During the summer that has closed numerous excursions were organized on Saturday afternoons to representative gardens and farms, and these were inspected under expert guidance. During the winter session now entered upon a course of practical lectures on the science of botany is being given at the Royal College of Science. Competitions have also been organized among the members in connection with collections of grasses, identification of weeds, etc.—practical tests of skill and knowledge. Everything would, therefore, point to the fact that our farmers can count upon having a thoroughly capable and well-informed body of men to look after their requirements in the way of seed supply.

LOCAL SHOWS IN IRELAND.

Never before in the history of agricultural shows in Ireland has such a large number of local exhibitions taken place as during the past season. The increase in the number of these events has been most striking. Practically every one of the 32 Irish counties now has its show, and some of them have two or three or more. That these shows are capable of imparting considerable benefit to a district it is not my intention to contend, as the statement is not likely to be questioned by any thinking person. But being capable to do a thing is totally different from actually doing it; and opinions differ as to whether Irish shows at any rate are fulfilling their part to the best possible advantage. Several of the promoting societies make very little attempt at instructing the people who attend them, though in all justice it must be said that others make great efforts to bring home to farmers some practical lesson that they may carry away with them and turn to good account in their everyday work. We need more of this in our shows. At a fixture in Co. Tipperary which I attended recently, I observed an admirable plan adopted by one of the experts, whose task lay in judging the sheep. I noticed that instead of merely selecting the winners, decorating them with rosettes and passing on, this gentleman gathered around him a crowd of onlookers, and taking each animal in turn he drew attention to the strong points and the weak points, and presented many an instructive object lesson to his hearers. A few days earlier I observed a similar plan adopted at a little show away in the west of Ireland,