Entomology.

THE ARMY WORM.

From Report of the Commissioner of Agriculture and Arts for the Province of Ontario, 1871 :—

"This is another redoubtable foe that the wheat grower has to combat in many parts of the United States. The insect is very familiar to us here; we have frequently taken dozens of the moths by the process of 'sugaring,' on a warm summer's evening. But, though abundant, we have never heard of its larvæ appearing in Canada as they do in the United States, in countless myriads, marching on in regular column and devouring everything in the shape of grain or grass that comes in their way."

REV. C. J. S. BETHUNE.

The following description of the insect is taken from the *American Entomologist*:—

"The eggs hatch during the early part of May, in the latitude of South Illinois and Missouri, and the young ones may feed by millions in a meadow without attracting attention; but when they have become nearly full grown and have stripped bare the fields in which they were born, they are forced from necessity to travel in search of fresh fields, and it is at such times that they first attract general attention. A curious instinct leads them to travel in vast armies, and as they are now exceedingly voracious, devouring more during the last three or four days of their worm-life than they had done during the whole of their previous existence, they are very apt to strip the leaves from the blade of grass or grain on their way. On the other hand they are attacked by at least five different parasites, and when we understand how persistent the latter are in their attacks and how thoroughly they accomplish their murderous work, we cease to wonder at the almost total annihilation of the army worm the year following its appearance in such hosts.

"Furthermore, there may be influences at work, other than parasitic, which cause an increase or decrease in the numbers of this pest. It is a significant fact that almost all the great army worm years have been unusually wet, with the preceding year unusually dry, as Dr. Finch has proved by record. The year 1869, wherever they have appeared, forms no exception, for the summer of 1868 was unusually dry and hot, while 1869 was decidedly wet.

"The army worm, like all other insects, hatches from an egg, and this egg is evidently deposited by the parent moth at the base of perennial grass stalks. The worm varies but little from the time it hatches to the time when it is full grown. Some specimens are a shade darker than others, but on many thousands of specimens examined we have found the markings very uniform. When full fed, which is generally about four weeks after hatching, it descends into the ground where it forms an oval chamber and changes to a shiny mahogany-colored chrysalis. Sometimes it scarcely penetrates beneath the surface, but forms a rude cocoon under what dry herbage there happens to be on the ground. Then the worms vanish from sight very suddenly, and this sudden disappearance is as mysterious to those who have little knowledge of natural history, as was their abrupt advent.

"After remaining in the chrysalis state about two weeks, the perfect moth appears. The general color of the moth is light-reddish brown or fawn color, and it is principally characterized by, and receives its name from a white spot near the centre of its fore-wings, there being a dusky oblique line running inwardly from their tips."

[This description and the circumstances attending their appearance correspond to the voracious insect that has destroyed Mr. Chalmers' barley. Last year, 1871, was unusually dry, and though this year is not wet, we only read of them here as making havoc in his field, which is, he says, "low, principally black muck," and we may reasonably infer it is moist, thus affording them, though in a dry season, that moisture suited to their habits. Their mode of forming their retreat before changing into the chrysalis state teaches us how effectually they may be exterminated by burning, as we have suggested.—ASS'T ED.]

BIRDS AND INSECTS.

Dr. E. S. Hull, of Alton, Ill., is credited with having said that no bird was ever seen devouring any one of the ten or twelve most injurious insects. At the July meeting of the Alton, Ill., Horticultural Society, C. V. Riley, State Entomologist of Missouri, referred to this statement at some length.

He is reported to have expressed himself as not blind to the faults of some birds, and he thought perhaps the Blue Jay, Crow, Blackbird, Red-Winged Blackbird, Robin, Golden Robin, Cedar bird, and Kingbird deserved to be classed as our enemies—although much might be said in favor of even these.

The statement attributed to Dr. Hull he pronounced incorrect, stating that the Quail devoured great numbers of Chinch bugs, especially in winter, and he believed the prairie chickens also ate the bugs.—The Baltimore Oriole, it has been proved, eats the Curculio. The Titmouse and Downy Woodpecker and other birds devour the Codling Moth. The Kingbird has been seen devouring the Rose Chafer and Cabbage worm. The Jay, American Cuckoo, and the Baltimore Oriole devour the Tent Caterpillar. The Canker-worm is eaten by different varieties of birds.

He said it was true that birds sometimes destroyed beneficial insects, but stated that most of the predacious insects—valuable to man because of their attacks on injurious insects—were defended from the attacks of birds by some disagreeable odor or other peculiar attribute.

LARGE BUT NOT VALUABLE YIELD.

The Whitewater, Wis., reports J. Griffin, of Palmyra, near that place, as authority for the statement that in one day he had picked from his potato field of four or five acres, two and one-half bushels of Colorado potato beetles. In one week he picked nine bushels by actual measure.

Poultry.

POULTRY-KEEPING AS A BUSINESS.

H. H. Stoddard, Hartford, Conn., writes: Poultry can be kept by wholesale, and at a great profit. Progress, always bringing about division of labor in every department of industry, will surely make poultry-keeping as a speciality quite a common pursuit, or at least as common as some other specialities in farming are, which were unknown a few years ago. The practical establishments are now few, and in the earlier stages. There is a lack of successful precedents to serve for guidance, so that the task of planning and managing such an enterprise demands altogether more thought and skill than is needed in ordinary farming, manufacturing, or mercantile business. Money has been lost in attempting this pursuit in almost every county in the northern seaboard States within the past twenty years. In most instances that we have investigated, the causes whereby the enthusiasts came to grief were the very great amount of labor required and the prevalence of croup among the adult fowls and of "mortality" among the chickens. By this last we mean a tendency to "kick the bucket" without any apparent disease, the real cause being a dearth of insect forage—the trouble when many chicks are pastured upon a small area. A common mistake is to look to the raising of chickens for their flesh as a chief branch of the business. But eggs are more profitable, except in case of early chickens and fancy fowls, which are not staples, but stand in the same relation to the main business of the market poulterer that early potatoes, for instance do to the main potato crop of the country. The market will also be better supplied with poultry than with eggs, for the supernumerary young cocks and old hens yearly turned off always keep that side ahead of the egg department, and therefore fresh eggs will continue, as now, the most profitable, labor considered. Labor is so high in this country that it is of the first importance. To reduce it to the minimum, keep principally the non-sitting breeds. The amount of trouble they cause is surprisingly little compared to a lot of fussy, contrary "clackers." All the laying stock should be (with the exception of those set apart to lay eggs for the hatching) forced from the beginning to the quickest growth and greatest laying, and killed at from 16 to 20 months' old. The flocks should consist of 30 to 50 birds; in larger flocks laying is checked, and in the care of smaller ones labor is increased. Dry pulverized loam, placed several inches thick in the houses in winter, and the use of movable buildings, with no floors, in summer, secures perfect cleanliness with the utmost economy of work. Cleaning floors every day or two would be a fearful outlay of labor, and if cleaned hourly they would not be in as good a condition as when covered with dry earth. The houses must be placed on a ridge or terrace of earth to secure dryness, if there are no floors. A ditch for surface drainage during heavy rains should surround every poultry house and yard. We would have no yards, however, if attempting to raise for the food market. There is no such thing as a cheap yard. But if food is to be raised cheaply, the fixtures must be cheap. A yard made of inch slat-work, with substantial rails and posts, takes a great deal of lumber. If an attempt is made to dodge the outlay by using lath and a frail sort of posts and horizontal rails, March winds and September gales make playthings of all such hurdles, and make the owners wish they were anywhere but flat upon the ground or swaying or bedding in disorder. How can the flocks be kept from mixing without inclosures? is the question we fancy is heard on every side by those who care enough by this matter to have followed us thus far.—Go to a country farming village, where the house and barns of each individual on a well-peopled street are about six or eight rods off from those of his neighbors on either hand, and you will find that flocks of fowls can be kept year after year without mixing with those adjoining. This is because fowls, like children (when the proper native bashfulness of the latter hasn't had its edge worn off), dislike to associate with strangers. Adjoining flocks must be strangers, to commence with, and must not be fed together, and they will not mix any more than will oil and water. We have kept four distinct flocks on less than two acres of ground, with no yards, just to prove what could be done.

These rambling remarks are written very hastily, and contain an imperfect account of "what I know about" poultry. For a full and thorough treatment of poultry farming, I refer to the articles upon the subject by Mr. H. Van Benschoten, in *The Poultry World*. That an average fowl produces more than enough to pay for the food it consumes, is a fact proved over and over again where accounts have been kept. How to so systematize operations that when many hundred head are managed, the cost of buildings and attendants shall not devour the margin of profit, is by no means a despicable industrial problem, but one worthy of careful study.—*New York Tribune.*

Progress in Canada.

A fine steamer, intended for the pioneer boat of a new line between St. John's, N. B., and Boston, has just been completed at the port first named.—*Canadian Illustrated News.*

LUMBERING IN THE OTTAWA VALLEY.

The total amount of timber passed through the Ottawa slides and cleared between the 20th July and 1st August, or ten days, amounts to 69,093 pieces, which, if taken at an average of 50 cubic feet each, will give the enormous quantity of 3,454,650 cubic feet, or in round numbers, nearly three millions and a half. If a statement of the number of sawlogs which have arrived for the Chaudiere mills during the same period could be obtained, it would add very largely to this amount.

TRADE OF THE DOMINION.

By far the greater part of the commerce of the Dominion is carried on with Great Britain and the United States. Of our total exports of $74,173 618 shipped last year, we sold $24,850,925 to Great Britain and $32 984 652 to the United States. The importations into the Dominion are also principally obtained from the same two great nations, the mother country, however, selling us considerably the larger share of our purchases. The remainder of the annual trade of the Dominion is carried on with the West Indies, British, Spanish and Danish, Newfoundland and Prince Edward Island, France, Germany, South America, Spain, Belgium, China, and about twenty other countries, to the extent of something like twenty millions of dollars.

MONTREAL.

The New York *Bulletin* calls attention to the significant relations of the exports of grain from the United States and from Canada. It shows that Montreal is now the second commercial city on the continent. She has forty-one regular steamers plying to Europe, and her receipts of grain have risen from 6,750,000 in 1860 to 16,000,000 in 1871, while New York, even with reduced canal tolls, scarcely maintain the position of a dozen years ago.

COMMERCE OF ST. JOHN, N. B.

For the year ending 30th June, 1872, 939 vessels, making a total tonnage of 102,896 tons, and carring 4,376 men, cleared from St. John, N. B., with cargoes for British and foreign ports.

Ship building is being carried on with much vigor in the Lower Provinces. We learn from the Halifax papers that several new vessels have recently been launched, and more will be ready before long.

The shipping of coal at Caledonia is brisk, and bids fair to treble the largest quantity shipped there in any former year. Three vessels lately launched at the Glasgow and Cape Breton Company's pier, contained machinery of over the value of £30,000 sterling.

OUR EXPORTS OF DAIRY PRODUCE.

The increase which has taken place in our exports of dairy produce during the last few years has been marked and striking. In no other department of agriculture has there been such a rapid expansion—a fact for which we are largely indebted to the numerous cheese factories, and the result flowing therefrom, which have been established in almost every part of the country. Up to as late a period as 1864-5, we were large importers of cheese. In 1861 we imported 2 152,000 lbs., and in the year 1864-5, just alluded to, our importations were 2 530 950 lbs. The great change which has since taken place will at once be seen by placing side by side our exports and imports of cheese during the last two year:—

YEAR.	IMPORTS.	EXPORTS.
1869-70.....	59,494 lbs.	3 827,784 lbs.
1870-71.....	66,475 lbs.	8,271 439 lbs.

These figures indicate a complete revolution in this branch of our trade, and we are happy to perceive that, in the kindred article of butter, there has been a large increase in the amount of our shipments to other countries. Our importations of butter may be said to be *nil*, for they have dwindled down to from ten thousand to six thousand pounds annually, a quantity so trifling as not to be worth consideration. In order to show the rapid increase in our production of butter, we append the following statement as our exports for several years prior to confederation:—

1860 we exported.....	5 512,500 lbs.	
1861	"	7,275,427 "
1862	"	8,905 578 "
1863	"	7,053 868 "
1864 (½ yr)	"	1,030,655 "
1864 5	"	6,941,063 "

The progress which we have made will be appreciated when we state that our exports in 1869-70 amounted to no less than 12,259,887 lbs., and for the last year for which we have the returns (1870-71) to 15,439,266 lbs.

The number of cheese factories in Ontario is about seventy, and their production of cheese close upon five and a half millions of pounds. Quebec has also a considerable number of factories, more particularly in the Eastern Townships, and they are steadily on the increase. Although gratified by recent progress, there is no good reason why the annual value and quantity of our dairy products could not be still more largely expanded. It is one of the best paying branches of farming when properly managed, whilst it tends to check that unwise system of our cropping which has been so general and so disastrous to Ontario farmers. With proper encouragement the Dominion may easily double its present exports, both of cheese and butter, before the close of the present decade.—*Monthly Times.*

RAILWAY TRAFFIC.—The traffic of the different railways in Canada shows a steady increase from month to month. Returns for June indicate an expansion of total traffic receipts in every case over the corresponding month of 1871. The Northern receipts for the month amounted to a total of $86,357, against $76,699; the Midland, $34,782, against $32,881.