Our Poultry Corner

If you have some things you do not understand in connection with your poultry and want some information, state your case briefly and to the point, writing on one side of paper only, and address it to THE MONITOR PUBLISHING COMPANY LIMITED, we will submit it to Prof. Landry, and when his answers are received we will publish them withholding your name if you so desire it.

THE VENTILATION OF POULTRY HOUSES

The importance of maintaining a dry atmosphere in poultry houses is recognized by all authorities and successful poultrymen. In view of its importance, and the constant development of the poultry industry, there has been here brought together the views and experiences of the chief poultrymen at a number of the Canadian agricultural colleges and schools.

MACDONALD COLLEGE

A House for Fifty Hens as Basis of Consideration

(By M. A. Jull, B.S.A., Manager and Lecturer, Poultry Department)

The health of poultry, especially during the winter season of confinement, depends to a large extent upon a comfortable house providing abundance of fresh air.

The proper ventilation of poultry houses has long been a perplexing problem. From time to time many devices have been suggested regarding the proper ventilation of small and large houses. From a practical standpoint, however, the chief object has been to provide the house with plenty of fresh air, at the same time avoiding draughts, and to keep the house free from dampness.

One of the surest indications of an improperly ventilated poultry house is the condensation of moisture on the walls, ceilings and floors. A certain amount of moisture is given off by the fowls in breathing and in other ways, and thus the air of the house must be continually changed to avoid dampness. The foul and vitiated air which contains carbon dioxide as well as other injurious gases falls to the floor, and if it is not carried off regularly the atmosphere of the house becomes excessively damp and during cold weather this dampness collects upon the walls and ceilings in the form of rime.

As a means of providing adequate ventilation the writer does not advocate installing special devices such as the King or Rutherford systems of ventiliation. Rather it would seem advisable to adopt a simple method of automatic ventilation. If fresh air from the outside is admitted gradually and allowed to diffuse with the air inside, the fowls will usually be found to do well. The air of the house may be rather cold, but if it is dry, egg production will not be seriously affected. In practice it has been found that open front poultry houses are the most satisfactory.

Construction of the Poultry House

Form.—The best form for a poultry house is square or rectangular. The house must have sufficient depth to avoid draughts and give protection. One great objection to a large number of poultry houses in the province of Quebec is that they are too shallow and consequently give rise to draughts sweeping from one end of the house to the other.

Dimensions.—The smaller the flock the larger the floor space required per bird. For a flock of fifty hens the writer would suggest from five to six square feet floor space per bird. A house 16 feet by 16 feet or one 20 feet long by 15 feet deep, would be most satisfactory. The average poultry house should be about 15 feet deep in order to give the fowls the required protection while on the roosts.

Floor.—The most satisfactory floor are of concrete. They are more durable and more sanitary than board or earth floors; they do not tend to cause dampness in the poultry houses. On the other hand, concrete floors only become damp in an ill-ventilated house. The concrete floor, contrary to public opinion, tends to absorb the moisture.

Walls.—Double-boarded walls with a dead air-space, are preferable for the Quebec climate; the double boarding is not necessary in the front of the house. In order to give the required ventiliation cotton or open front houses have been adopted with good satisfaction. Such houses provide automatic ventilation where the cold air on entering the house gradually diffuses with the warm air and tends to keep the atmosphere dry. In practice the houses are kept open as much as possible; cotton is used only in extremely cold weather, otherwise a portion of the house is kept open the year round.

Ceilings.—The writer believes that a double-boarded ceiling above and below the rafters, will tend to overcome the collection of rime on the ceiling. On the other hand, it has been found at Macdonald College that poultry houses with straw in the gables have a drier atmosphere throughout the winter months than all other houses. Where the gable is filled with straw there is a false ceiling in the house with slats one-half inch apart, and the straw tends to absorb the moisture. At the same time it should be pointed out that straw in the gable provides an excellent harbour for mice and rats.

THE OKA AGRICULTURAL INSTITUTE

(By Bro. Wilfrid Poultry Manager).

The following is a summary of observations made on the subject of Ventilation of Poultry Houses. It constitutes an account of the methods found most efficient by experiments covering twelve years in keeping a dry and healthy atmosphere in the poultry house. This is a very important consideration which has engaged the attention of poultrymen since modern poultry houses have existed.

Climatic conditions vary to such an extent in the various parts of Canada, there is so much difference in the situation of poultry houses, in the manner in which these houses are cared for, that no absolute and uniform rule applying to all parts of the country can be laid down; some localities are subject to high winds, others to excessive dampness, to extreme cold, to prolonged storms, or the quantity of sunshine is only moderate; on the other hand, there are districts where these unfavorable conditions do not obtain, or very seldom occur.

The diversity of opinion on this subject is probably increased by the fact that cotton front poultry houses do not always ward off dampness, nor provide for sufficient ventilation.

To provide for a so-called "perfect" ventilation, it is now stated that at least two-thirds of the front should be in cotton and the rest in glass. This is all right on fine winter days, when the screens may be opened at will. But on cloudy and stormy days, or cold and sunless, and during the nights, when the screens are closed, there is not sufficient ventilation going on through the cotton screens and the dampness, which invariably results from such conditions, is accompanied by an offensive odour, making the poultry house unhealthy.

To my mind, this is the only serious objection to the modern cotton-front poultry house. As to the prejudices which many people entertain against this kind of house they are not based on sufficient reasons.

To overcome these difficulties was the object of my experiments during the last two years. These experiments were not undertaken with a view to doing away with the cotton-front poultry house, but to improve it, to modify it in such a way that the ventiliation might be good and sufficient, in spite of the inclemencies of the weather.

In 1914, I had a house of 200 hens in which the temperature was not satisfactory, in spite of the fact that two-thirds of the front of the house were in cotton and the remaining third in glass. What was I to do? It was too late and it would have been too expensive to put in a straw loft to improve the ventilation. I then put in a regular ventilator with an inlet at the bottom and an outlet at the top, thus correcting the insufficiency of ventilation through the cotton screens, which left much to be desired.

The results were conclusive. During the winter of 1915 and 1916, the inside temperature remained quite dry and healthy at all times. Farmers who were in the same conditions made the same improvement and obtained the same results. This combination appears to be useful and even necessary if one wishes to have at all times, a good and healthy temperature. It is clear that both systems complete each other; the fact is amply proved by experience.

This system of ventilation has been adapted to all our poultry houses, the construction of which is thus modified as follows (the following figures are based on a house for fifty hens):

Dimension, 15x15 feet; height in front, 8 feet; behind, 6 feet.

This building is laid on posts, one foot from the ground.

In the centre of the front, there are cottonglazed sashes 6 feet x 4 feet with cotton frames on each side, of the same size. These sashes are two feet from the floor. On the west side northern corner, there is a glazed sash of 5 x 4 feet. All the walls of this poultry house are in T and G. boards as well as the roof, which has building paper in addition. The north and east corners have a double thickness of T. and G. boards with paper and air space on a length of 7 feet; this is the night pen. There are also two ply of boards in tthe floor, with paper between. In the floor in the centre of the house there is an opening of 6 x 6inches, which is covered with a box two feet high with an opening that is fitted with a sliding door, which may be opened or closed at will. Above the glazed sash, in the front of the house, between the roof and the plate, there is an opening 6 inches wide and one foot long, covered with a wire mesh. This ventilating system presents no objections it costs only a few cents, and has the tremendous advantage of keeping the poultry house well ventilated and always dry and healthy.

This experiment was carried a little further. Many people are still prejudiced against the modern poultry house, with a large cotton front, and these prejudices, strengthened by the failure of some of these houses, are difficult to eradicate.

I tried this new system on a house containing one hundred and fifty hens, with fifty per cent. of the front in cotton and the rest in glass. The result was conclusive; not the least trace of dampness, inside temperature dry and healthy at all times.

My object is attained and I think I have perfected the cotton ventilation system, which, when used alone, does not always work well. It is well known that in some moist sections of the province, as the Lower St. Lawrence and other localities surrounded by large bodies of water, the use of cotton-front poultry houses is not to be recommended, as these houses are not sufficiently protected against dampness. However, with a ventiliation system independent from the cotton ventilation one may have in these districts houses that are quite healthful.

I am quite satisfied, that one may by this system, keep a dry and healthful temperature in poultry houses, even in the winter.

If this system of additional ventilation is adopted, one must, as I said before, enlarge the cotton front to make it at least two-thirds of the front of the house.

R. C. LEGHORNS GREAT WINTER LAYERS

(By Mrs. H. C. Rogers, R. D., Route 6, Oshkosh Wis.)

The Rose Comb White Leghorn, while being a very handsome fowl is also a great producer of winter eggs. Her small, low comb is almost frost proof. She is very closely feathered and can stand a very low temperature without having it affect her egg yield at all.

We experimented with a flock of 15 pullets and one cock, placing them early in the fall (not from choice but because we were then short of house room) in a building which we knew would be very cold. The thermometer dropped at one time to 5 degrees below zero in this building. There was not a frozen comb in the lot and the egg yield was not affected in the least. We were careful to use a drinking fountain that would not wet their wattles as of course if they are wet they will freeze where it is so cold.

We have never trapnested our flock of R. C. Whites but by careful watching and selection have built up a good laying strain. Their reputation as winter layers was what first attracted me to the Rose Comb variety. I was then breding Barred and White Rocks, Single Comb White, Brown and Black Leghorns, when I happened onto a flock of Rose Comb White Leghorns for which the parties claimed the same as I do now, so I purchased a couple of settings of eggs and tried them out very much to my own satisfaction, so much so, that I discarded the Black and Brown Leghorns. I have line-bred them now for eight years improving the exhibition qualities through the male without in the least injuring their laying tendency as they are not only fine winter layers of large white eggs but lay splendidly the year 'round. Some complain that they are small but that is not the case with ours as we have bred them fully up to standard. A pullet which won for us at World's Fair, San Francisco, weighed 5 lbs., and laid the second day after her return and kept it up which we thought very good after such a long trip.

A few years ago there were comparatively few Rose Comb White Leghorns raised but now you see them advertised in every poultry journal and each year adds many more admirers of this very pretty and useful fowl. I firmly believe that the Rose Comb White is the coming Leghorn of the North as they are the equal in every way of the S. C. variety and have a great advantage over them in the winter.

The Orchard

The Introduction and Establishment in Canada of the Natural Enemies of the Brown-Tail and Gipsy Moths

(By J. D. Tothill, B.S.A., Field officer, Dominion Entomological Laboratory, Fredericton, N. B.)

(Continued from last issue)

In the last issue of The Agricultural Gazette, Mr. L. S. McLaine described the methods employed for rearing and shipping to Canada large numbers of some of the natural enemies of the gipsy and brown-tail moths. Through the efforts of the Dominion Entomologist, Dr. C. Gordon Hewitt, these natural enemies have in the past four years been colonized in various places in eastern Canada. It is the purpose of the present article to speak of the colonization and principles we have had in mind in carrying out the distribution in Canada of these natural enemies.

The gipsy and brown-tail moths are not native to this continent; they have both comefrom Europe. In their native land they are largely controlled naturally by various agencies that prey upon them. In the process of crossing the water barrier between the two continents some of the most important of these agencies were left behind. With fewer enemies to contend with the insects have become far more insidious pests than they had ever been in their native land.

Introduced near Boston, Mass., the two insects have spread in all directions but more rapidly in the direction of the prevailing winds, that is towards Canada. The brown-tail moth reached Canada some years ago and is now thoroughly established in Nova Scotia, and New Brunswick is reinfested from year to year just so often as favourable winds occur at the time of flight; it will reach the province of Quebec with the first favourable wind at this same critical time of flight. The gipsy moth has not yet reached Canada but must almost certainly cross the international boundary within the next few years.

The two insects are thus spreading rather rapidly north. One is already in Canada, the other is expected annually. In their northward march the climatic and other conditions for existence become more rigorous. Sooner or later they will arrive at a point where the climate and conditions are too rigorous for their successful existence, and at this point they will cease to be injurious.

Just where this northern barrier will be is not known and can only be known from actual observation as the insects travel northward. It is certain, however, that both insects will find favourable conditions in the "transition" zone of Canada, that is in the warmer parts of the Dominion. The northern forests of Canada are, however, largely on the colder "boreal" zone and these may or may not be attached. A certain forcast is impossible but Mr. F. H. Mosher of the United States Gipsy Moth Laboratory, has shown that there are plenty of trees in our nothern forests upon which the gipsy moth caterpillars will feed voraciously. There is consequently a probability that at least the gipsy moth, the more injurious of the two, may find a favourable environment in the boreal forest It is needless to say that a disaster to our forests would be national in character.

It is largely as a measure of protection from such a disaster that so much energy is being expended in establishing a living barrier of animals that feed upon these two insects.

To explain why these particular animals are being introduced the various agencies as factors of control governing these two host insects (gipsy and brown-tail moths) may be briefly considered. They may be conveniently tabulated in the following way:

Climatological: temperature, rainfall, winds	catastrophic
Food supply	catastrophic
Parasites: protozoa, bacteria, fungi	catastrophic
Parasites: insects	non-catastrophic
Predators: insects, birds	non-catastrophic

The catastrophic agencies are extremely important in controlling insects; they are at work in all lands; with a few exceptions they canno be modified or encouraged by man.

The non-catastrophic agencies are for insects like Lepidoptera, also of the greatest importance; amongst them the insect parasites and predators can be distributed from one place to another by man.

In Europe all these agencies are at work helping to destroy these two injurious insects and consequently the outbreaks of the pests are few. In North America all are at work except the insect parasites and predators and the outbreak of the pests is a continuous one.

Of all these factors the insects are the only ones that increase and decrease directly as the hosts increase and decrease; they are consequently the great regulators of control.

Such in brief are the reasons why these insect parasities and predators are so important in maintaining the natural balance, in preventing outbreaks and consequent destruction in forest and shade tree areas.

panying map.

The object has been to establish the barrier of living insect enemies at strategic points. These are the Canadian points nearest to the area at present infested with the two host insects, and nearest to trade routes.

The following table shows where these parasites and predators have been liberated since the inception of the work in 1912.

DISTRIBUTION OF PARASITES AND PREDATORS IN CANADA
NUMBER OF INDIVIDUALS LIBERATED

Specie	Locality	1912	1913	1914	1915
Compsilura concinnata	Fredericton, N. B.	1,238	1,238	1,500	
	St. Stephen, N. B.	1,119	1,500		
	Nerepis, N. B.		1,500		
	Woodstock, N. B.			1,500	
	Harvey, N. B.			2,000	
	Keswick, N. B.				1,800
	Bear River, N. S.		1,500		
	Annapolis Royal, N. S.				1,500
Calosoma sycophanta	St. Stephen, N. B.	42	100		
	Whittier Ridge, N. B.		100		
	St. George, N. B.			100	
	Nerepis, N. B.			100	
	Fredericton, N. B.			100	
	Marysville, N. B.			100	
	St. Leonard, N. B.			100	
	Perth, N. B.			100	
	Florenceville, N. B.			100	
	Woodstock, N. B.			100	
	Canterbury, N. B.			100	
	Lawrence, N. B.			100	
	Harvey, N. B.			100	
	Scotch Ridge, N. B.			100	
	Basswood Ridge, N. B.			100	
	Bear River, N. S.			100	
	Annapolis, N. S.			100	
	St. Rose, P. Q.			100	
	Sherbrooke, P. Q.			100	
	Revoirs Corner, P. Q.				100
	East Hereford, P. Q.				100
	Dixville, P. Q.				100
	Coaticook, P. Q.				100
	Beaver Meadow, P. Q.				100
	North Troy, P. Q.				100
	Masonville, P. Q.				100
	Stanstead, P. Q.				100
Calosoma	Apple Grove, P. Q.				100
	Way's Mills, P. Q.				100
	Digby N. S.				100
	Weymouth, N. S.				100
	Meteghan, N. S.				100
	Yarmouth, N. S.				100
Meteorus versicolor	Whittier Ridge, N. B.		475		
Aparteles lacteicolor	Whittier Ridge, N. B.		4,499		
	Basswood Ridge, N. B.		7,000		
	St. Stephen, N. B.		7,000		
	Nerepis, N. B.		3,391		
	Woodstock, N. B.		2,000		
	Bear River, N. S.		7,000		
	Dixville, P. Q.				2,000
	Coaticook, P. Q.				2,000
	Beaver Meadow, P. Q.				2,000
	Way's Mills, P. Q.				2,000
	Kosborough, N. B.				2,000
	Poquiock, N. B.				2,000
	Keswick, N. B.				2,000
	Fredericton, N. B.				2,000
	Lincoln, N. B.				2,000

The two-winged tachina fly Compsilura (vide the figure in the previous article) has not yet been recovered in numbers from the field. No attempt to recover it will be made until it has had an opportunity to become thick enough to enable recoveries to be made without great expense. The method of recovery will consist in collecting large quantities of native caterpillars in which the larvae of the parasite feed. These will be fed in trays so as to rear the parasities, or will be dissected. One of the most convenient insects to collect for this purpose is the common cabbage caterpillar.

The beetle Calosoma is not expected to increase rapidly until the favourite food, the gipsy moth, becomes abundant. No attempt has been made to recover the species, but in spite of this a fine specimen was ploughed up last spring in a field in New Brunswick in which it had happened to go to earth for the winter. Later on attempts at recovery will be made on a lager scale. The method is based on the tree climbing habit of the larvae. The larvae cast their skins periodically and leave them attached to branches and trunks of trees. By examining carefully all the trees within distance of beetles colonies the moulted skins can be found and the numerical status of the species ascertained.

The small four-winged-fly, Aparteles lacteicolor is increasing rapidly in Canada. The method of recovery may be of interest. The parasite winters as a tiny larva in the hibernating brown-tail caterpillars in the winter webs; in the spring these parasitic larvae develop rapidly and kill their respective caterpillar hosts; they then crawl or wriggle out of the caterpillars and spin silken cocoons that are white in colour and easily seen. On these points are based the methods of recovery. The winter webs of brown-tail caterpillars collected during the survey of all infested territory are saved In are spring these webs are placed in trays and the emerging caterpillars fed. In two weeks or so the cocoons of the parasite appear in the trays. These are picked out and counted and the remaining unparasitised caterpillars burnt.

In this way it has been shown that the insect has been steadily increasing in numbers in all the places in Canada in which it has been introduced.

In Nova Scotia Apanteles has done particularly well. Mr. G. E. Sanders, the Field Officer of the Branch for the Province, has developed an ingenious and successful plan for assisting the local distribution of the parasite. The winter webs are saved and placed in the spring in large open-air cages placed at points at which new colonies are desired. The caterpillars are fed until the parasites have issued. In this way Mr. Sanders has been able to distribute thousands of these parasites.

In Massachusetts, owing to the of Entomology Dr. L. O. Howard, and to the untiring energies of Mr. W. F. Fiske, Mr. A. F. Burgess and other assistants, these insects have been naturalised for some years and are now making themselves felt as factors in the control of their two imported hosts.

The farther north the hosts travel the smaller is the percentage of parasitism and predatism necessary for control, for the catastrophic factors assume a large role. By the time the gipsy moth reaches Canada it is quite possible that a living wall of natural enemies will have been built of sufficient strength to prevent a repetition in Canada of the serious conditions brought about by the introduction of this pest into the New England States.

In conclusion it should be said that these parasites can never become injurious in themselves for the reason that their digestive systems are adapted only for feeding in or upon other insects.

Because he wagered that the war would end in victory for Germany by August 1, 1916, Otto Wiederberger must wheel a baby carriage from Albany to New York, 250 miles or forfeit $250. Otto has started from Albany to begin in the big "push."

Berlin, Ontario, will hereafter be known as Kitchener.

Minard's Liniment cures Diptheria.