Some Facts About Canadian Forests

Canada contains at the present time a larger forested acreage than any other country on the globe. The United States, it is estimated, had something like 500,000,000 acres under forest at the close of 1907; Russia, 812,600,000 acres; Austria-Hungary, 93,000,000 acres; Sweden, 49,000,000 acres; France, 23,000,000 acres; and Norway, 17,000,000 acres. The forested acreage of the Dominion at the same time was 1,657,000,000 acres. Barring Russia, Canada has about nine times as much forest as the other four principal European forested countries. 1,657,000,000 acres is 2,600,000 square miles; of this about half is estimated to be in pulp wood. Of this vast forested acreage only about twenty million acres are set apart as reserves. Ontario has several forest reservations, totalling in all about eleven and a half million acres; Quebec has 1,620,000 acres, and Manitoba 2,289,787 acres. The remainder of the reserve is made up of the Dominion Government Rocky Mountain parks, aggregating 3,450,720 acres.

Not only does this country contain the largest forest area on the globe, but she has as well a far greater aggregate of water power than any other, and when we consider the close relationship that exists between forests and water power, forest preservation becomes a matter of first national importance. American authorities, some of them, estimate that the coal supply of the Republic will be exhausted if the present rate of consumption continues, before the end of the present century. Canada has coal-fields untouched that she cannot guess the extent of, but in the natural course of events, our fields and the world's coal supply will become exhausted. As things are shaping now the next great source of heat, light and power to be exploited is the water power of our rivers and streams, the power of waves and the rise and fall of ocean tides. The two latter forms, because of the difficulty in using them, can be disregarded for the present. It is a matter of history, at least of modern history, and undoubtedly it will be of the future also, that nations will excel in wealth and material progress in ratio to the power which they control for manufacturing from raw materials goods and wares which humanity requires. England, in the last two centuries, gained the position as the wealth centre and workshop of the world on this account. The progress which the United States will make in this and future centuries, will be in proportion to the power for manufacturing purposes which she is able to develop. Thus far the Americans have enriched themselves from the exploitation of their raw resources.—Nature's accumulations since the continent came into being. To support a population as large as her extensive area and favorable situation render possible, employment in industrial pursuits for her populace must be found, and power is the first requisite to such employment. Lacking this, the nation in these materialistic days will become insignificant in world affairs.

This country, too, has become what she largely is from the exploitation of her natural resources. Canada stands third among the nations of the world in her *per capita* trade. The trade of British Columbia is the largest in the world per head of population. But that trade is made up largely from the sale of naturally produced materials, materials that, if they are replaceable at all, can only be replaced after a long lapse of time. The permanence of our trade will depend upon the extent to which we can operate upon the world's raw supplies and transform them into such articles as the human family needs. Power in the centuries to come, no less than in the one that has just passed away, will be the keystone in the arch of national prosperity. The conservation of power resources becomes therefore a problem the gravest in the whole range of our material life. The forests and the waterways are too closely related for one to be sacrificed without the other being injured.

POULTRY

Gapes and Their Treatment

The current notion that incubator chicks are immune from gapes is entirely wrong, writes Bessie L. Putnam, in Farm Poultry. True, many incubator chicks escape them, but it is because they were protected during the first few weeks after life commenced in earnest—not because they happened to be hatched artificially.

The disease is due to a small threadworm in the wind-pipe. The life-history of this worm is still under discussion; but certain it is, that whether they are parasitic in earthworms or birds, breed in the ground, or are coughed up and passed thus from one chick to another, ground once infested with the worms remains so for years.

The woman whose chicks "never have the gapes" has them on ground free from the pest. The one who is troubled every year will save in the end to transfer her poultry nursery to other ground. This is why so frequently chicks are free from them, while chicks on the same place, raised by a hen, sicken and die. Just notice, next time, and see if the brooder is not given a nice grassy plot, while the old hen is cooped in the same chipyard occupied by former generations.

If it is impossible to furnish new ground, cleanse the old by sprinkling with lime. Watch the chicks closely, and as soon as there is a premonitory sneeze, put a little kerosene in the food. Only use enough that the odor is barely perceptible; if too much is used they will not eat the food. If this does not avail, try giving those affected a few drops of kerosene in which a little camphor gum has been dissolved. This is most easily given with a five-cent medicine dropper, though a feather may serve instead. Turpentine, applied in the same way, is also helpful. Persist with this treatment daily, or oftener if necessary, and some very bad cases may be cured.

Wet weather is favorable to the development of this trouble, and chicks need extra attention during inclement weather.

Experiments in Hatching and Rearing Chickens.

It has been the general experience on all large poultry farms where from 500 to 1,000 chickens are hatched annually, that the death rate among the chicks is so high as to render the business unprofitable. If only one hundred chicks are raised the death rate is proportionately not so heavy, though serious enough. The questions that present themselves for solution when a problem such as this is to be inquired into are three: (1) Is artificial incubation to blame? If so, wherein does it differ from natural incubation? (2) Is the heavy mortality due to inferior breeding stock? (3) Are the methods of feeding and brooding the causes of the trouble?

These questions the Poultry Department of the O. A. College endeavor to answer in bulletin 63 of that station, in which results are given of experiments carried on during the past year or two to discover the cause of high mortality in chicks, especially chicks that were artificially hatched. A part of the work carried on was the determination of the moisture and carbon dioxide content of the air underneath setting hens. and the determination of similar conditions within the machines, in the hope that a comparison of the results would support or refute the theory that has been accepted by some poultrymen that the percentage moisture and carbon dioxide present in the machine during the hatch was the all important factor, that if the proper proportions of these could be ascertained and that volume maintained in the machine during hatching the question of hatching and rearing chickens could be considered solved. The experiment reported from Guelph hardly bears this theory out.

HENS VS. INCUBATORS.

The tests made to determine whether hens or machines would make the most successful hatch resulted in favor of natural incubation. 958 eggs were set in the machines and 436 were hatched, or 45.5 per cent. of the eggs set; 335 eggs were set under hens, and 196 chicks hatched, or 58.5 per cent. of the eggs set. In these tests the same hens' eggs were used in each method.

How Treated	HENS	No. of eggs set	Per cent. of infertile eggs	Per cent. of fully formed dead in shell	Per cent. of hatched of total eggs set	Per cent. of chicks dead at 4 weeks of age	Live chicks at 4 weeks in % of the eggs set	No. of Hatches
Earth nests		23	13.1	4.3	60.9	14.3	52.2	2
Straw "		23	8.7	8.7	52.2	16.6	43.5	2
Ventilated nests		23	13.1	13.1	60.8	35.7	39.1	2
Roomy "		123	10.6	7.3	66.6	20.7	52.8	11
Crowded "		176	15.9	4.0	50.0	12.5	43.7	16
All Hens		299	13.7	5.4	56.9	16.5	47.5	27
	INCUBATORS.							
Buttermilk and zenoleum		61	8.2	19.7	49.1	8.0	45.9	1
Whole milk and "		110	17.3	10.0	58.2	21.8	45.5	2
Water, carbon dioxide and zenoleum		44	13.6	11.3	52.2	13.0	45.4	1
Water and zenoleum		464	16.1	11.4	52.8	16.7	44.0	6
Buttermilk		583	18.3	10.0	52.0	28.0	37.4	8
Water and carbon dioxide		129	20.1	7.8	48.1	22.5	37.2	2
Water only		1,221	13.9	11.3	51.9	37.0	32.7	13
Lamp fumes dry		112	24.1	14.3	38.4	16.3	32.1	2
Zenoleum dry		327	13.1	13.7	47.4	32.2	32.1	3
Skim-milk		330	13.6	13.0	40.6	26.1	30.0	3
Water, milk and zenoleum		83	12.0	14.5	32.5	15.3	27.5	1
Lamp fumes, water and zenoleum		61	21.3	14.7	34.4	23.5	26.2	1
Whole milk		353	15.3	12.2	48.7	52.3	23.2	4
Dry or no treatment		1,406	16.3	12.6	40.7	60.5	16.1	12

MOISTURE MACHINES VS. DRY MACHINES.

The results indicate a marked advantage from the use of moisture in the machines, and leave no room for doubt that moisture increases the hatch and vitality also. From every hundred eggs hatched in a dry machine there were 12.1 chickens alive at the end of four weeks, while from each hundred hatched in the machines with moisture there were 30.3 chicks alive at four weeks of age. Water, whole milk and buttermilk were used in the machines to supply moisture. Buttermilk used in the moisture pan beneath the trays seemed to add vigor to the chicks. The buttermilk was changed every four or five days. The acid in the buttermilk appears to have some action on the shell and contents of the egg, hence a chicken stronger in vitality is produced.

A good portion of this bulletin is given over to discussions more or less scientific in their nature, in which results are given of a number of tests made to determine the correct proportion of carbon dioxide gas necessary in the egg chamber in successful incubation, the relation of humidity to incubation and the chemical work carried on in relation to the solving of these incubating problems. About the only thing of a practical nature that the results bring out at all clearly is that the first portion of the hatch is a very critical time, and every care should be given at this period.

On the whole it can hardly be said that much information that is really new and of a practical value to poultrymen, is brought out in this bulletin as a result of the experimental work which the O. A. C. poultry department has been carrying on. The problems of artificial incubation are baffling enough when solution of them is attempted. Practically all the experiment stations in America have been working on them since incubators first were introduced and it can scarcely be said that they have got much nearer the solution of the various problems involved than they were at the outset. Sometimes a station will make the statement that upon the eggs used depends largely what the hatch will be. That strong, vigorous chicks, come only from eggs selected from strong vigorous hens, and so on. Now the Guelph results do not deny in any way that vigor is very likely to be transmitted to the chick hatched from the eggs of strong, vigorous, hardy parent, but so far as they do go they seem to indicate that the egg has very little influence on the health and vigor of the chicken hatched. Results very similar in the average were obtained from hatches of special selected trap-nested eggs, from eggs indiscriminately selected, and from eggs bought from the poultry men where no special precautions were taken to ensure of the laying stock being strong and healthy. Nothing of any interest was brought out in the brooding or feeding work.

The following table sums up the results in a general way pretty thoroughly. It shows in a comparative way the results of the two hatching methods, natural and artificial, with hens set in different ways and machines operated with and without moisture, with carbon dioxide in the egg chamber and in various other ways.

FIELD NOTES

Agricultural Commission in New Brunswick

The New Brunswick legislature at its last session passed an act providing for a commission to inquire into the condition of agriculture in the province. The purpose of the commission is to thoroughly investigate the agricultural, immigration and colonization conditions and possibilities of the province with a view of securing the greatest benefits possible from such assistance and encouragement as the Legislature can afford to devote to the development and advancement of agriculture, immigration and colonization and for the purpose of ascertaining the quantity, location and quality of land in the settled, partially settled and unoccupied districts of the province available for profitable agricultural occupation, the needs of farmers in reference to labor, transportation and markets, and the adaptibility of the various sections of the province to the growth of different crops, fruits and other products of the soil, with a view to retaining the native born population, the encouragement of colonization and immigration of the most desirable character, and the general prosperity of the farmers.

The work of the commission, consisting of three men, will be in the nature of meetings in the various centres, where inquiries will be made. From a list of these inquiries it would seem that a good portion of the information which the New Brunswick people are looking for could be gathered through the regular municipal officials or by sending inquiries out each year to correspondents much as the Departments of Agriculture in Ontario or Saskatchewan collect matter for the crop, live-stock and other statistics annually issued.