

COAL GAS RESIDUALS

While Germany has been the largest producer in the world, of by-products from coke and gas works, these industries have become even more important since the outbreak of the war. In Germany such by-products as benzol and tar oil replace gasoline, the importation of which has ceased, and sulphate of ammonia is taking the place of Chili saltpetre, to be used as fertilizer and in the manufacture of explosives.

To obtain sufficient by-products, the coke production has been increased. The German government buildings and railways, etc., are now obliged to use coke, together with fuel of other kinds, and orders have been issued regulating the proportion of coke to be used in the mixture.

The principal coal gas residuals recovered are tar, naphthalene, cyanogen, ammonia and, in the case of coke-oven gas, also benzol. Tar.—The tar produced from coal gas is one of the chief residuals.

It finds its most important application in the arts, where it forms the basis of aniline colour production: 392 different colours and shades are listed as made from tar. These are produced by distilling the tar and, after a certain temperature has been reached, water-like oil is secured. This oil forms the base of all the beautiful coal-tar colours.

Carbolic acid, naphthalene, anthracene, and benzol are also produced in like manner, and each of these in turn produces a long series of other products. Alizarin, a valuable colouring matter which forms the base of artificial indigo, is produced by treating anthracene.

In 1913, Germany exported coal-tar dyestuffs worth over \$55,000,000 (equivalent to 40 per cent of the mineral production of Canada.) During the same year, the gross value of by-products (estimating dyestuff, etc., in the form of crude intermediate products) wasted, by beehive coke ovens in the United States amounted to over \$75,000,000. It is probable that the loss in Canada, due to the use of such ovens, is greater in proportion than that of the United States.—W.J.D.

Preservation of Wild Life

An Economic, Not a Sentimental, Issue Involved in Bird Protection

The popular impression in Canada that the preservation of wild life is merely a desirability, not a positive necessity—is fatally false and is responsible for the serious inroads already suffered by our game resources. Public opinion has been powerless to check destruction and will remain so as long as the campaign for wild life protection depends upon an appeal

to sentiment for its dynamic force. No conservation issue can progress far on that basis. The people of this continent move most resolutely in response to economic motives, and the necessary prelude to proper protection of wild life in Canada is wider dissemination of exact knowledge regarding its money value.

Recent experience in the United States illustrates the force of economic motives. For several years, efforts were made in that country to secure federal protection for migratory game birds. The campaign was chiefly an appeal to sentiment and made little headway. The proposal was then extended to include insectivorous birds, wide publicity was given to the fact that insect pests damaged crops annually to the extent of hundreds of millions of dollars, and within one year a popular demand, that years of sentimental appeal had failed to arouse, forced congress to pass a law placing all migratory birds under federal control. The preservation of wild life achieved the status of a national business enterprise.

Canada's wild life is as valuable as that of the United States. To preserve it as a national asset we need not pursue the method adopted by our American neighbours, but we do require to gain their sane viewpoint.

MORE EFFICIENT GAME PROTECTION

Absence of organization among Canadian lovers of wild life accounts largely for their failure thus far to check the rapid decrease in our game birds and animals. The attack on game has been systematic and persistent; the defence has been unorganized and ineffective. It lacks the driving force of methodical effort. Indifferent success, if not entire failure, has been the natural result.

There are signs, however, that the awakening is at hand, and that game protection is to benefit by the advocacy of powerful agencies. The Dominion Trap Shooting Association recently altered its name to "The Dominion Game Protective and Trap Shooting Association." The change is due to recognition of the urgent need for conservation of wild life among the sportsmen who compose this society. A second instance of growing interest in the subject of game protection was furnished when the Trent Valley Trap Shooters' League recently passed a resolution favouring the prohibition of the sale of wild ducks in Ontario. This resolution is narrow in application but is a step in the right direction. It aims at the elimination of the most destructive factor, the market hunter.

The birds and animals of Canada have suffered severely from the half-hearted efforts of their protectors. Public opinion has waited on organization and the watchword now for all lovers of wild life should be "organization and co-operation."

Sanitation at Summer Resorts

Healthy Conditions Should be the Chief Attraction—Pure Air and Water Necessary

The sanitation of summer resorts is a matter of supreme importance. A summer resort should be a place where people may go for rest and recreation, to store up energy for work, to live for a time in closer touch with nature, and not a place whence one returns suffering with disease contracted there.

In the choice of a location for the summer vacation, the most important questions to be considered are good sanitary conditions and pure air, food and water.

Plenty of pure air is one of the boons of the summer resort, and every effort should be made to secure to the visitors this recreative element. The air should be fresh and free from disagreeable odours.

In too many cases, especially at summer hotels or large boarding houses, the air is tainted by foul odours, sometimes the result of unsanitary conditions, as the improper disposal of waste and garbage, or of the too close proximity of stable or outside closet, while sometimes it may be caused by a stagnant pond of water or a cess-pool.

Too often also the bedrooms in these hotels are small and poorly ventilated. In any case the windows should be as large as possible, easily opened and properly screened, to prevent the entrance of flies and mosquitoes.

Summer resorts usually depend upon wells for water supply. In such places the water supply should be carefully considered, as bad water is a prolific carrier of disease. The location should be such that the natural drainage is away from the well, and should be as far as possible from closet, stable, cess-pool or other contamination.

Where outside closets are used, they should be frequently cleaned and always properly deodorized by the use of lime, a solution of copperas, wood ashes or even dry earth.

Garbage should be kept in a closed fly-proof receptacle and two or three times a week it should be removed and buried at least a foot under the ground.

On account of lack of conveniences, greater care of sanitary conditions is required in the country than is usually necessary in the city. Summer visitors should, therefore, take care that their surroundings are such as will not result in their returning to their homes with the germs of typhoid to offset any advantage of the summer's change.

Public opinion is changing slowly toward bird protection because it is becoming convinced of its economic advantages to agriculture as well as the sentimental value of birds.

THE VALUE OF FARM YARD MANURE

According to recent statistics there are in Canada in round numbers, 3,000,000 horses, 6,000,000 cattle, 3,500,000 hogs, and 2,000,000 sheep. Experiments indicate that the approximate value of the fertilizing constituents of manure, both solid and liquid, produced by each horse would be \$3 by each head of cattle \$20, by each hog \$8, and by each sheep \$5. This would make the total value of the manure produced in a year by the different classes farm animals in Canada amount \$233,000,000. The importance of this by-product of the farm may be better realized if we compare with some of the other principal products of Canadian industries. The following table shows the value of some of the leading products:

Total wheat crop, 1914.....	\$196,000,000
Total oats crop, 1914.....	151,000,000
Total forest products, 1914.....	180,000,000
Total mineral products, 1913.....	145,000,000
Farmyard manure, (average 5 years).....	233,000,000

The figures given in the above table are for the years in which the value of each product mentioned reached the highest point on record, while the figures for the manure represent the average annual production for the past five years.

Assuming that one-third of the value of manure is annually lost by present methods of management, and this is undoubtedly a conservative estimate, the loss in this source in Canada would amount about \$78,000,000. Surely a farmer can not afford to let away a sum of money that would more than pay his taxes. It is that just what many are doing. Recent investigations by the Commission of Conservation show that 90 per cent of the two hundred Ontario farmers personally visited by representatives of the Commission in 1914, exercise no special care to prevent waste. The natural manure is a part of the material for farm crops and such should receive the same attention and care to prevent loss and waste as is given the raw material in any manufacturing plant. A fact worth knowing and remembering by the farmer is that the losses caused by leaching super-heating represent the more readily available portion of the nitrogen and potash in the manure which is, consequently, worth more than that left in the manure heap.

It is hard to persuade the farmer to abandon time-honoured customs as piling the manure under eaves or on the hillside, but such in this day of wider knowledge of more intelligent farming should refrain from waste.—F.C.

The English and Germans recognized more than a hundred years ago the necessity of keeping nature balanced by encouraging bird life and holding insect life check.