

# Conservation

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## Canada Possesses Many Beauty Spots; Canadians, See Your Own Country First

### Drowning Accidents

#### How they May be Prevented— Rules for Resuscitation— Treatment for Electric Shock

Every summer, a large number of lives are lost by drowning in the various bodies of water in Canada and particularly at summer resorts. Occasionally these are unavoidable accidents but most of them are due to carelessness and are preventable.

The first safeguard against drowning accidents is to know how to swim and it should be an essential part of every child's education. In England much more attention is paid to the instruction of school children in this useful and healthful form of exercise.

Children, after learning to swim, are liable to become too venturesome and should be cautioned not to take risks, as there is always the danger of cramps or heart failure due to the extra tax put upon the heart through exposure to cold water or through over-exertion.

In resuing the victim of a drowning accident great care must be taken by the swimmer. Do not close in rashly, but act warily and bear in mind that the only safe and ready way to subdue a frantic man in the water is to secure a hold from behind him. A simple and effective way is to lunge unexpectedly for his wrist, and, with a sudden, outward movement, spin him about, throwing your free arm around his neck. Once you have him thus you can, if he is submissive, grasp him by the hair or the neck of his suit and with a quick pull towards you, start him floating face upward, when you throw yourself gently backwards, and proceed to tow him in this position, or by swimming with your unhindered arm and the legs. As a last resort, a stunning blow on the head is effective.

The work of resuscitation includes the following:—

First—Freeing the stomach and

### Regulating Fire Inspection

Regina, Sask., has in operation a new fire inspection bylaw, under which the fire department of the city is required to inspect all business premises at least four times a year and all other premises at least twice a year. Three sections of the by-law deal with very frequent causes of fire, and are as follows:

"Bonfires, etc.—No person shall kindle, maintain or assist in maintaining any bonfire or other exposed fire within the City unless he shall first have obtained a written permit from the Chief, who shall give direction as to what measures are

### Drastic Action Secures Results

Canada has for some time been trying to rid herself of years of her more prolific noxious weeds, but the work has lacked the thorough support of those whose duty it is to help in the eradication of the pests. Concerted and organized action is necessary, and until this is secured the prospects of success are not very bright. Public opinion is too apathetic, and weed inspectors are aware of this. Prosecutions for infractions of the Noxious Weeds Act are rare, and consequently the penalty clause of this act has to a great extent lost its effect. More

### Using Air As Raw Material

#### Canada's Water-power Resources Invaluable in Extension of Electrochemical Industries

In the commercial and industrial re-adjustment after the war Canada should be on the alert to obtain the full share of expansion to which she is entitled by natural conditions, and the opinions of many of our most prominent technical experts emphasize the importance of the utilization of our great water-power resources in connection with the electrochemical industry.

The chief requirement, particularly in the case of the different processes used in the fixation of atmospheric nitrogen, is cheap power. On this account, it is of interest to explain in a general way what these processes are:

The term "fixation of nitrogen" means using the air as raw material wherefrom to manufacture a marketable product. Nitrogen constitutes four-fifths of our atmosphere. It is a very valuable constituent in both agricultural and industrial lines but, in the atmospheric state, cannot be used for these purposes. It has to undergo a transformation which changes it to the form in which it is used in fertilizers, explosives, etc. This fixation can be accomplished with the aid of a relatively large amount of electrical energy. As this energy, which can be obtained from water-power, is the principal requirement, countries like Canada, possessing large unutilized water-powers, should have the advantage.

Two of the several fixation processes which have proved commercially successful, are of particular interest to Canada because they require cheap power.

First. The production of nitric acid directly from the air by exposing the latter to a high pressure electric arc in a furnace; the electric arc acting on the nitrogen

**T**HIS year there will probably be a greater number of visitors to Canada's lake and river districts than ever before. To these the appeal is made to protect the waters from pollution. The chief attraction of many resorts is the healthy atmosphere and the excellent fishing. Neither of these can continue unless the summer visitors do their part in sanitary protection.

to be taken to safeguard property."

"Handling of rubbish.—No waste paper, excelsior, shavings, rubbish or other like inflammable material shall be left in any part of any business building for more than one day, except such material as may be stored within a fireproof room, provided with standard fire doors or within a fireproof receptacle, but all such material shall be destroyed, removed or placed within such fireproof receptacle at the close of each business day."

"Disposition of Hot Ashes.—No hot ashes shall be deposited in any receptacle other than one of non-combustible material with fireproof cover, and no such ashes shall be deposited within fifteen feet of any wooden building or any wooden structure whatsoever."

The fire chief reports that the citizens are taking kindly to the inspection work, and in many cases welcome the men who are going to give them advice on the prevention of fires. The by-law is known as

pressure must be put upon those responsible for its enforcement.

A lesson in cleaning up weeds might be taken from the action of China regarding the eradication of the poppy plant. The following, from a report of the United States commercial attaché at Nanking, China, indicates the method by which results are secured in that country: "Some interest in the restriction of the cultivation of the poppy was aroused locally by the dismissal of the Nanking magistrate for having falsely reported his district clear of poppy, and the imposition of fines on a number of other district magistrates for the same reason. The authorities are making a serious effort to have the province cleared at an early date in anticipation of the joint inspection by British and Chinese officials prior to the prohibition of the import or sale of Indian opium."

No. 839, and should be copied by other municipalities.

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**DROWNING ACCIDENTS**

(Continued)

air passages from water and mucus. Second—Forcing the vitiated air from the lungs.

Third—Replacing the foul gases with pure air.

Fourth—Inducing circulation. Fifth—Restoring natural respiration. This of course is the final and essential aim.

1. Lay patient down carefully prone with face downward. Open mouth wide, and if foul with mucus or foreign matter, clean with hand or cloth. Stand across body, facing the head, pass your arms around the waist until your hands meet over the left side, interlocking the fingers in order to grasp the stomach between your palms. Force out the water by raising the body from the middle, at the same time pressing the hands together. Knead inward and upward under the ribs from the left side towards the centre. Press for four seconds, then relax, endeavouring to grasp more of the stomach pouch, until water ceases flowing from the mouth.

**ARTIFICIAL RESPIRATION**

Cut 103—First Operation—Inspiration



Cut 104—Second Operation—Expiration

2. Place a pillow-like support beneath the victim at the stomach. Turn his head to windward and crook his arm on the side opposite the face and rest the head in the bend of his arm.

3. Kneel over the patient facing the head with one leg on each side of the body. Rest your open hands on his back, thumbs near the spine, at the height of victim's elbow, with fingers spread over the lower ribs. Throw yourself forward with weight on your arm, and with steady, increasing pressure force the foul air from the lungs. After four seconds straighten up quickly, releasing the ribs, so that they will spring back into place. Bend over again immediately to press for four seconds more, then straighten. Continue this treatment until signs of life begin to appear. Make from twelve to fifteen respiratory acts to the minute. Do not become discouraged if your efforts at resuscitation do not at first meet with success, as often a patient will respond after all hope seems lost.

Authentic cases are on record of victims having been restored to life after being under water for as much as half an hour, and it has at times taken as long as four hours to induce natural respiration in the apparently drowned.

4. As soon as natural breathing

sets in strip the patient of all wet clothing, cover the upper body with something warm and dry and start rubbing the limbs with rapid strokes, first from the centre joints towards the heart and gradually working down in this manner to the extremities.

5. After massaging the patient put him to bed and if natural heat does not return promptly, distribute covered hot bricks or water bottles at the soles of the feet, over the stomach and under the armpits.

6. If necessary, give patient whiskey, brandy or other stimulants, diluted in hot water. Administer in teaspoon or tablespoon doses, every ten or fifteen minutes for the first hour, and as often as seems expedient thereafter.

**TREATMENT OF ELECTRIC SHOCK**

Electric shocks suspend the action of the heart and breathing should be restored by artificial means.

Although the shock may appear to have been fatal, life may often be restored if action is taken without delay, and continued vigorously and patiently.

The steps to take are:—

Remove the body from contact with the wire, cable, or other conductor by breaking or disconnecting the circuit; dragging the patient away by his coat-tails, the hands being protected by rubber gloves or any dry woollen material, such as a cap, folded several times or with a stick or any non-conducting material.

If possible, without discontinuing the treatment, send for a doctor.

After removal do not wait to undo the clothing but proceed to restore breathing by the same method as described above for drowning accidents.—W.J.D.

**CONSERVATION IN CHINA**

United States Commercial Bulletin:—"Mr. Chang Chien, lately Minister of Agriculture and Commerce, visited Nanking recently, accompanied by Mr. Han, chief of the Bureau of Forestry in that ministry. He had inspected several sites for establishing forest reserves and had decided on two—one on Tai Shan in Shantung, famous as the burial place of Confucius, and the other near Feng Hsiang in northern Anhui. While in Nanking, Mr. Chang opened a school of hydraulic engineering, designed to fit students in the Huai River Conservancy Works. He also visited the plantations of trees on Purple Mountain, maintained by the Nanking Colonization Association under the immediate direction of Prof. Bailey, of the Nanking University. Mr. Chang was one of the founders of the Colonization Association, and is much interested in its work. His interest has resulted in practical aid from the central Government in the form of an annual grant."

**Forests on Waste Land**

Experience of France Shows That Might be Accomplished in Trent Watershed

In the nineteenth century, up to 1865, according to Dr. B. E. Fernow, the State Forest Department of France planted 200,000 acres of sand dunes and placed them under management at a total expense of \$2,700,000, or \$13.50 per acre. A little less than half of the area was then ceded to municipalities and private owners for \$2,745,000, thereby paying fully for the outlay. The remaining 125,000 acres are valued at \$10,000,000. In 1901, the first cutting was made and yielded \$92 per acre from a property that had cost nothing.

Dr. Fernow reports also that the improvement by ditching and planting of the adjoining Landes, nearly 2 million acres, was begun in 1837 by private individuals. By 1857, they had reclaimed 50,000 acres. Then the government stepped in with a broadgauge plan, building roads, railroads, drainage systems, assisting the municipalities in reclaiming the land and making planting plans free of charge. The State itself bought some 390,000 acres of the land to enable the municipalities to accomplish the improvements. This once poverty-stricken district, which, a century ago, was hardly inhabited, is now traversed by the densest net of railroads in France. By 1907, with an expenditure of around \$10,500,000 (\$6.50 per acre) 1,600,000 acres had been reclaimed, 85 per cent in forest, of which the State owns somewhat over 100,000, municipalities 185,000, and private owners the bulk of 1,500,000 acres. In 1893, the value of these holdings, created from nothing, was estimated at over \$96,000,000. The average net yield was \$2.40 per acre in 1892, and since then has been rising so that now an annual income of \$8,000,000 is the result. This from an expenditure of \$10,000,000.

In view of these financial results from forest planting on waste lands in France, there can be no doubt that systematic planting on a large scale on non-agricultural lands in Canada, especially in the white pine region, would be a thoroughly good business policy. The results already secured by the Ontario and Quebec governments in similar work on a small scale show conclusively that planting operations under these conditions are wholly practicable. A report by J. H. White and C. D. Howe, published in 1913 by the Commission of Conservation, urges that this procedure be followed by the Ontario government on waste lands in the Trent watershed, and shows that it would be not only highly desirable from an economic standpoint but a paying investment as well. The large expenditures by the

Dominion government on the construction of the Trent canal would undoubtedly justify financial cooperation by the Dominion, or even the undertaking of this work at first hand, in order to secure watershed protection, thus decreasing erosion and tending to regulate streamflow.—C.L.

**Settlers Start****Forest Fires**

Effective Close Season Necessary to Protect Forests During Dangerous Period

During the last few days in May and the first week or ten days in June, the weather conditions in both Ontario and Quebec were very dry, resulting in the spread of many fires, some of which assumed large proportions and did considerable damage. Information secured by both the Conservation Commission and the Railway Commission indicates that, while the damage done by railway fires was small, much property has been destroyed through the spread of fires started by settlers for the clearing of land. In Ontario, there is practically no restriction upon settlers' brush-burning operations, and the result has been that, during every dry season, fires started by settlers for this purpose have spread beyond control, causing great loss of property, and, in some cases, loss of life. In Quebec, the law endeavours to regulate the setting out of fires, by establishing a closed season, during which no such fires shall be set, unless a permit is issued by an officer of the Forest Protection Branch. However, great difficulty has been met in securing satisfactory observance of this law, and nearly every year great damage is caused on this account. The modern tendency in forest fire protection is very distinctly toward the establishment of a closed season, during which no fires for clearing operations are allowed to be set out, unless upon permit by an authorized officer. Coupled with this must be an adequate and competent staff to make the law effective. The past difficulties in eastern Canada have been largely due to either the lack of such a law, or of its adequate enforcement.

As a rule, the railways are now doing thoroughly commendable work in fire protection, and in many cases have expended considerable sums in controlling fires unquestionably due to outside sources. The next big step in forest fire protection throughout eastern Canada should be in the direction of securing better control of settlers' slash-burning operations during dangerous seasons.—C.L.

Safety first at the summer resort is as important as at home. The number of deaths by drowning each summer is a large one.

## Commission of Conservation

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CONSERVATION is published the first of each month. Its object is the dissemination of information relative to the natural resources of Canada, their development and the proper conservation of the same, together with timely articles covering town-planning and public health.

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OTTAWA, JULY, 1915

Many new beauty spots will be discovered in Canada this year by those who previously have spent their vacation beyond their own borders.

When closing up house for the summer, floor oil mops, furniture polish or oily rags should either be burned or put where they will not cause fire from spontaneous combustion.

Attention to dust prevention and ventilation in the Rand Mines of South Africa during the past two years has resulted in considerable decrease in the mortality among the natives.

Campers and others who have occasion to sojourn in or near the woods should exercise the greatest care with fire. This danger should be ever uppermost in the minds of those who have an interest in Canada's welfare.

Most accidents can be prevented, but what is each one of us doing to prevent accidents? We must not expect that care will be taken for our safety and never take thought for that of another.—*Bulletin Ontario Safety League.*

### WATER WASTE DANGEROUS

A recent incident in a large American city shows the fallacy of certain arguments advanced to excuse abnormal water consumption in municipalities possessing water-works systems. After a thorough investigation which had shown that the consumption of water was excessive the mayor of this city was credited with the following comment, "We are glad to have lots of water and waste it, for it makes

... a cleaner city." The argument might have some weight if the facts quoted were true, but, as a rule, the wasted water does not contribute one iota to the cleanliness or health of the city. As a matter of fact, the official report of the city referred to shows that from 30 to 50 per cent of the water pumped is returned to the sewers unused, the waste being caused by leaking faucets and closets and carelessness in the use of water. Such wasted water does not make a city nor its people any cleaner and does not furnish any protection against disease. On the other hand, the cost of supplying and distributing this wasted water has to be paid just as if it had performed a useful function. The flow of wasted water also causes low pressure in many parts of the system, where mains are inadequate, and this shortage may cause unflushed closets and other offences against cleanliness and health, besides seriously affecting the city's protection against fire.

There are numerous safeguards against water waste. The least that should be done by the smallest water-works organizations is thorough inspection of the consumers' plumbing and fixtures. On larger systems the installation of meters is very effective and advisable, while the so-called pitometer survey will locate excessive flow or leaks in any part of the system including the distributing mains.—L.G.D.

## Slaughter of Sea Birds

Having No Protection, They are Being Wantonly Killed Off

Respecting the disgraceful slaughter of sea fowl in Gaspe, a reliable correspondent writes as follows:

"A week ago today—Sunday, June 6th—an automobile load of 'sportsmen' (?) arrived in Percé, all with guns, and were immediately taken to Bonaventure island to spend the day shooting sea birds. I was not able to get over there until late in the week but even then the talus shores were spotted with maimed and winged gannets that had dragged themselves up out of reach of the surf to die. As these men did not take a single bird away from the Island and were there avowedly only for the "sport" of shooting it is obvious how wanton the slaughter was.

"It is most regrettable that the Quebec laws do not provide any adequate protection for these birds—they being neither ducks nor perching birds. The acts might be stretched to technically cover such cases but the result would be very doubtful."

It is difficult to find words to characterize adequately such inhuman slaughter of God's creatures.

## Utilization of Fish Waste

One of the problems that has long confronted the operators of fish canneries is how best to dispose of cannery waste. This waste is usually very heavy. In the case of humpback salmon, it has been stated that "the waste is from 40 per cent to 50 per cent of the round weight." The waste from the "red" salmon is rather less, but it constitutes a serious loss.

According to an estimate of the United States Department of Agriculture, the waste at the Pacific Coast canneries amounted to 140, 210 tons in 1913, which, at values fixed by commercial operations, would amount to over two million dollars.

The products obtained from the reduction of the waste are fish scrap for fertilizer and fish oil. An average of several analyses of the raw waste from humpback salmon showed that it contained 3.02% nitrogen, 3.46% bone phosphate and 10.43% of oil. At retail prices this would give a value of \$20 a ton. It would seem desirable, therefore, to establish fish reduction plants in the neighbourhood of the larger canneries to utilize the waste.

One difficulty, however, has been that the canning industry is carried on for only a short time each year, and, as the fish reduction plants are expensive, considerable capital would be kept idle during most of the year. On the Atlantic coast of the United States this handicap has been overcome largely by gathering in enormous quantities of menhaden, a species of herring, and converting these into fertilizer and oil. Nearly 50 factories, having a total invested capital of over \$3, 500,000, are engaged in this latter industry. In 1912, they produced 6,651,000 gallons of oil, valued at \$1,551,990, and 88,520 tons of scrap valued at \$2,138,165.

Again, the kelp resources of the Pacific coast, which are being investigated by Prof. Prince, are without doubt of great value, and may possibly be exploited to advantage by those operating the fish scrap industry. In any event, the utilization of fish waste will not be an entire success until the cost of the process of reduction is lowered, or means are found for keeping the plants in operation for longer periods each year. It is a field deserving close attention from those interested in Canada's fisheries.—A.D.

### USING AIR AS RAW MATERIAL

(Continued)

and allowing it to form nitric oxide from which nitric acid is made. The three different processes which have been commercially applied following this method are known as the Birkeland-Eyde, the Schonherr and the Pauling processes. All three operate on practically the same principle, and unfortunately, all have a rather low efficiency, 65 kilowatt-hours

being required per kilogramme of nitrogen. This represents only 5 per cent of the theoretical possibilities. The advantage of this method is that the raw material is practically free. On the other hand, the product obtained has a rather limited market; the production of fertilizers, for instance, is excluded by reason of costs unless extremely cheap power is available. As the efficiency of this method is so low and the margin before reaching the maximum is so great, we may hope for better results through efforts in the research field.

The second process is known as the cyanamide process. In this process the nitrogen is brought into contact with pulverized calcium carbide (carbide of lime) at a high temperature in an electric furnace, thus obtaining calcium cyanamide. It requires only 16.6 kilowatt-hours per kilogramme of nitrogen, the efficiency being 66 per cent. In this process the question of raw material is quite an item but the cyanamide can be used directly in the fertilizer industry.

The latter process is used by the American Cyanamide Co., whose plant, located at Niagara Falls, Ont., is the only one of this kind in America.—L.G.D.

## FISHERIES ENGINEER FOR ONTARIO

Canada is certain to be visited by increasing numbers of tourists and holiday visitors during the next few years. Conditions in Europe and in other parts of the world preclude the possibility of safe travel abroad. For this reason Canada should encourage tourists by perfecting and adding to her many natural attractions. The recent action of the Ontario Government in appointing a consulting fisheries engineer and fish culturist is, therefore, to be commended. The new official is Mr. J. B. Fielding, F.Z.S., of Barrie, Ontario, and his work will be to examine the waters of the province to determine scientifically their suitability for the various species of fishes. Special efforts will also be made to develop new and attractive fishing grounds for holidaying sportsmen. Another important branch of the new official's work will be an attempt to improve the strain of some of the Ontario fishes, which have steadily deteriorated within recent years. Mr. Fielding has an excellent opportunity for performing valuable public service.

Without good drainage even the best streets or roads soon go to pieces.

The waters of Norway, according to the latest estimate, can produce at least six million horsepower, easy to develop. Of this approximately 850,000 h.p. has already been developed.

## 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 \$3. 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 be 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.