

Conservation

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Slash-Burning is Good Business

Endorsed by Lumber Company as
Result of Experience on Ontario
Operation

All forestry authorities agree that our great problem in Canada, in the conservation of timber resources, is the forest fire. It is almost as generally admitted that slash, left in the woods after logging operations, has been the contributing cause of most of our serious fires. The slash very often causes a comparatively harmless ground fire to develop into a crown fire which destroys miles of green timber.

Forestry practice in Europe has, for many years, included the disposal of slash in all logging operations, but operators in Canada, until recently, were loath to adopt such measures. It is, therefore, gratifying to find some companies now voluntarily carrying on slash-burning purely as an insurance against fire.

The Schroeder Mills and Timber Co., with headquarters in Milwaukee, and operations in Florida, Michigan and Ontario, has evidently decided that slash-burning is good business. This company, in its operations south of the French river in Parry Sound district, Ont., last spring, burned the slash in especially vulnerable places, such as around camps, along "cadge" roads, and belts along their remaining green timber.

The walking boss of the company, in conversation with an officer of the Commission of Conservation said that, after spending a considerable sum of money on this work, he thought the company might object to the expense involved, but he was informed by them that they considered it the best form of fire insurance. The men in the ground now agree with the head office in this policy, and the work is to be carried on in the future, probably more extensively.

The experience of this company would assist in securing co-operation from operators, if slash-burning is, at any time in the future, made compulsory. If, eventually, lumbermen regard such measures, not as coercive, but as protection to themselves, while a benefit to the country at large, forest administration and best utilization will find much in common. Such harmony is absolutely necessary if conservation of our timber resources is to be made practical.—A. V. Gilbert.



MISSISSAGI RIVER, ONT., AUBREY FALL AND RAPIDS. FALL OF 117 FEET.

Development of Water-Power

The utilization of water-power in Canada is advancing even more rapidly than heretofore. During 1919, the installation of plants with a total of 64,400 h.p. was completed in various portions of the Dominion; the developments at present under construction or in process of installation aggregate over 370,000 h.p. Other projects definitely contemplated for the near future will add 750,000 h.p.

Among the more notable developments are the 200,000 Chip-pawa plant of the Ontario Hydro-Electric Power Commission, now under construction, to utilize the full head of Niagara power, and the impetus given by the Quebec Government to the conservation of water by storage. Much activity is also to be noted in the Maritime Provinces.

This rapid progress, which represents industrial growth of the most valuable character, should be encouraged, yet most carefully guided. In the United States, electrical installations have doubled every five years while, in Canada, the present hydro-electric installation is about ten times that of 1900. The present hydraulic installation in the Dominion is nearly 2,400,000 h.p. If we assume for this country only one-half the rate of increase recorded for the United States, a total of 4,800,000 h.p. would be developed in 10 years, and 9,600,000 h.p. in 20 years, if available.

The resources actually available to meet future demands are indicated in the following table of the

estimated developed and undeveloped water-power in Canada. An attempt has been made to separate available sites within the populated areas from those farther north.

AVAILABLE WATER-POWERS

Province or District.	Estimated Total Possible h.p.	Available in Populated area h.p.*
Maritime Provinces.....	403,000	354,300
Quebec.....	6,000,000†	2,600,000
Ontario.....	5,800,000	2,800,000
Prairie Provinces.....	3,478,000	653,300
British Columbia.....	3,000,000	900,000
Yukon and Territories.....	150,000	‡
Total.....	18,832,000	7,398,100

*Minimum all year power, with possible regulated flow where investigated. Figures for some of the rivers included may vary as additional information is secured from future detailed surveys, flow records and conservation storage investigations.

†Not including Ungava. 5,000,000 h.p. south of the 50th parallel.

‡Available possibilities not definitely known.

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ELK FALL, CAMPBELL RIVER, VANCOUVER ISLAND.

Market Hunting Must be Stopped

The Sale of Game for Profit Means
the Extinction of Valuable
Species

One of the primary objects of those who are engaged in promoting more adequate protection of wild life is to stop the destructive activities of the market hunter. Mr. F. Bradshaw, Chief Game Guardian of Saskatchewan, in speaking before The National Conference on Wild Life Protection, held in Montreal in February by the Commission of Conservation, made a forceful appeal on behalf of the prohibition of the sale of game. Mr. Bradshaw gave the following instance of the manner in which wild life resources are depleted by those who hunt as a means of livelihood instead of recreation:

"The destruction that can be wrought by a single individual whose goal is the slaughter of game for financial gain is appalling.

"Some ten or twelve years ago a family of my acquaintance homesteaded on the south shore of lake Johnson, Saskatchewan. This lake at that time was a sportsman's paradise, and is still considered to be a choice hunting ground for waterfowl. There were four adult males in the family, all excellent shots, and as soon as the hunting season opened they started their deadly fusilade, and from daylight until dark for six days a week they hunted as long as a goose remained to be shot. They kept one man steadily hauling the game to Moosejaw, 40 miles distant. Among other things, they admitted earning enough money in two years to purchase and pay for an automobile."



Reliable Statistics of the Fur Trade

First Essential to Conservation of Wild Life—Large Increases in Quantities Taken

The problem of securing accurate statistics regarding various phases of the fur industry was one of the important questions discussed at a Convention held recently in Montreal under the auspices of the Commission of Conservation and the Advisory Board on Wild Life Protection. If effective steps are to be taken to guard against the depletion of fur-bearing species, it is essential to secure reliable figures as to the numbers of fur-bearing animals that are being taken from year to year. The Province of Quebec has adopted a system of controlling the fur trade that has given, among other results, invaluable statistical information.

In addressing the Convention, Mr. J. A. Bellisle, Inspector General of Fisheries and Game for Quebec, gave the following data: "The comparative table which follows shows the quantities of each kind of furs stamped and on which royalty was paid for: each of the two fiscal years 1917-18 and 1918-19 respectively, which were the first and second years of the operation of the law:

Species of furs	Quantity for 1917-18	Quantity for 1918-19	Increase per cent
Otter	2,602	3,151	21
Beaver	20,576	31,624	54
Bear	1,283	1,679	30
Lyx	3,621	4,010	10
Wolverine	14	14	
Marten	9,846	13,611	38
Fisher	2,083	2,539	21
Skunk	7,453	13,625	74
Mink	5,964	10,008	70
Black Fox	138	546	300
Silver Fox	30	91	300
Red Fox	8,297	12,969	56
Badger	32	153	36
White Fox	1,287	12,238	850
Cross Fox	875	2,110	141
Raccoon	1,182	1,989	68
Muskrat	192,241	208,652	9
Weasel	33,306	30,392	51
Carlin	3	3	
Moose	164	218	32
Deer	7,350	5,746	28 decrease

"There was then a total for the first year 1917-18 of 317,050 skins, which represented a value of \$1,548,348.25, on which we collected 892.92 for the extent of \$48,676.92. For the year 1918-19, the total number of skins stamped was 395,736, representing a total value of \$3,828,383.75, on which we collected \$81,830.26 of royalty."

WATER-POWERS—Continued from p. 14

The 7,398,160 h.p. available for new development in the populated area is derived from an estimated total possible of 9,781,400 h.p., of which 2,383,240 h.p. has already been developed.

Under the rate of growth assumed, all the available water-powers within the populated portion were to be developed in twenty years. It is self-evident, however, that, as new development becomes dependent on less accessible sites, it will proceed much more slowly.—*L. G. Denis.*

Swallowed a Match to Avoid Explosion

Instances of Fire Dangers Caused by Matches—How One Inspector met the Situation

Matches are the immediate cause of many of our largest fire losses and probably the majority of smaller fires could be traced to this same source.

More than one factory in Canada has gone down to ruins; many employees have been thrown out of employment, and their families have suffered want; many employees have seen the result of their life-work crumble—all the result of carelessness with matches. The number of fires in business places shortly after closing time is remarkable. Investigation has shown that these are nearly always due to employees dropping unextinguished matches after lighting pipes or cigarettes. Especially is this the case during the cold weather, when employees, regardless of "no smoking" rules, will "light up" before buttoning up their overcoats.

Many cases may be cited of fires caused by matches.

For instance, the coat and vest of an employee were hanging in a draught, and the swaying of the clothes against the wall lighted the matches in the vest pocket.

During the war, an inspector, inadvertently, carried a match into an explosives plant, but, knowing the danger, he chewed the match up and swallowed it.

If but a fraction of this recognition of the danger of matches could be impressed upon workers, much of our fire waste would be avoided, and the work necessary to replace this loss could be devoted to more productive efforts.

Preventive for Typhoid Fever

Inoculation Undoubtedly Saved Lives of Many Canadian Soldiers Exposed to Typhoid Conditions

One striking example of the efficacy of modern medicine is the marked result obtained in the prevention of typhoid fever in the European armies. In former wars, this disease wrought havoc both in field and camp. Two instances will serve to illustrate: In the South African war, the deaths totalled over 8,000 in 57,000 cases of the disease; in the Spanish-American war, of an army of over 100,000 men, practically one-fifth (20,734) was attacked. During the recent war, there were only scattered cases of the fever and occasional small groups of cases in different units. The deaths among the troops, while under the most severe of active service conditions, were slightly below that of the civil population of similar ages and for the same period, in England and Wales, where the typhoid death rate is always low.

The marked change brought about by inoculation has made the world, at least, familiar to the public, although, possibly, few

understand the method. The anti-typhoid vaccine is a liquid containing large numbers of dead typhoid bacilli and the toxins formed in bacillus cultures, and is administered by being inserted under the skin by means of a hypodermic needle. The effect is either to counteract or prevent typhoid fever, thus acting as a preventive or prophylactic.

Inoculation against typhoid was early adopted in the Canadian forces, 23,000 of the first contingent voluntarily receiving treatment at Valcartier. Its success has been amply demonstrated. Reports received clearly show that the non-inoculated soldier is much more liable to contract typhoid fever than is the inoculated; also, should the disease be contracted, the non-inoculated case is between three and four times more liable to terminate fatally. It has been found that the severity of the attack is generally much lessened, and that inoculation protects against relapses and complications, while convalescence is more rapid. When inoculation is performed early after infection, it reduces the virulence of the attack.

The experience of the French army is similar to that of the British. It is authoritatively stated that the number of cases of typhoid in the German army at once declined when inoculation was carried out, and so marked was the result that, by 1915, all the armies of the central powers had been inoculated against typhoid fever.—*C. A. Hodgetts, M.D.*

Value of Forestry is Appreciated

Private Companies Undertaking Measures to Ensure Continuity of Industry

There is a steadily increasing movement toward the employment of trained foresters by private concerns, principally pulp and paper companies. Fourteen such companies in eastern Canada now employ foresters for exploration, mapping, cruising, surveying, inspection of woods operations, forest research, forest nursery work, tree planting, or some combination of these activities. While this is a splendid development and one most promising for the future, it must still be recorded that only to a very limited extent have foresters in private employ yet been used in the actual supervision of the woods operations, and that their influence has not yet been felt to any great extent in modifying the methods of conducting such operations with a view to increasing the productiveness of cut-over lands. Developments along these lines must be gradual; it will increase with increasing shortage of timber supplies and consequently higher stumpage values, and as the forestry profession demonstrates its worth.

The reduction of unnecessary waste in logging operations opens a large field to thoroughly practical men with forestry training; only a beginning has yet been

made. Adequate action along this line would greatly lengthen the period of operation in virgin supplies of most concerns. Aside from more complete utilization of merchantable material in the trees—by cutting lower stumps and higher up into the tops—it is well known that great amounts of cut timber have been carelessly left to rot in the woods or left stranded in the smaller streams. More careful supervision would correct a great deal of this abuse, though considerable loss by sinkage and stranding in stream-driving seems unavoidable.

Another field of large possibilities lies in the better control of jobbers' operations, with a view to ensuring the removal of all merchantable material on areas being cut over. There is evidence that, in some cases, lack of supervision results in jobbers being given a larger area than they require for the cutting of the number of logs contracted for. The result is that the jobber is likely to pick and choose, taking the best and most accessible trees, and leaving behind much merchantable material which should have been taken, but is too small in amount to justify a later operation. This is likely to be lost through windfall, insects, decay or fire before the undersized timber makes sufficient growth to justify another operation.

Among the pulp and paper companies which have undertaken programmes of reforestation, the pioneers are the Laurentide Company, Ltd., and the Riordon Pulp and Paper Company, both in Quebec. Both these concerns are working toward an annual planting of 2,000,000 trees.

During the past year the Abitibi Company has organized a forestry department in connection with its limits in Northern Ontario. In addition to other lines of forestry work, this company has established a forest nursery, with a view to undertaking planting operations.

That the field for private forestry is increasing rapidly is clearly indicated by the increasing number of foresters who are going into the work on a consulting basis. Forest surveys, mapping, cruising and exploration are, at present, the principal lines open to such men.

ADVERSE EXCHANGE AND PRODUCTION

The fluctuating rate of exchange, inconvenient as it may be, is on the whole an accurate barometer of the international trade situation. A dollar bill is only a promise to pay and is valueless unless redeemable. Gold, however, is not the only commodity with which it can be honoured. It can be redeemed with wheat, pulp, paper, lumber, fish, coal, anything at all of which the country issuing the note produces a surplus for export. The way to right adverse exchange is to speed up production, so that we can pay for all the goods imported with other goods exported. Retrenchment, that is, cutting down expenditure on unnecessary articles of luxury, will help.

Commission of Conservation CANADA

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FUNCTIONS OF THE COMMISSION

It cannot be too often repeated that it is not the duty of the Commission of Conservation to act in an executive capacity or to exercise the functions of any department of government, Provincial or Dominion. Our duty is to investigate, enquire, advise and inform. While, in so doing, it will occasionally become necessary for us to do things which might be regarded as possibly falling within the function of a government department, we should never carry this work to a greater length than is necessary to arouse interest in it, to point a way to improvement, and, in some cases, to collect the information necessary to the formation of intelligent judgment. While in each particular case that arises, there must be an exercise of judgment on our part, the above are the general lines upon which we must act.—*Sir Clifford Sifton.*

DAYLIGHT AND INDUSTRY

Light is an essential working condition in all industrial establishments, and is of paramount influence in the preservation of the health of the workers. A prominent investigator, who had extensive opportunities to study industrial establishments in Europe as well as America, states: "I have seen so many mills and other works miserably lighted, that bad light is the most conspicuous and general defect of American factory premises. My own investigations for the New York State Factory Commission support this view. In these investigations it was found that 37 per cent of the laundries inspected, 49 per cent of the candy factories, 48 per cent of the printing places, 50 per cent of the chemical establishments were inadequately lighted. There was hardly a trade investigated without finding a large number of inadequately lighted establishments."

Such conditions are entirely opposed to the laws of health, sanitation and efficiency. Wherever poor lighting conditions prevail, there must be a corresponding loss of efficiency and output both in quality and in quantity. In-

dustry is not using nearly enough daylight and sunlight in its buildings. Every endeavour should be made to use as much as possible of daylight for lighting purposes. It is necessary that the rays of daylight and sunlight enter the interior of the buildings as freely as possible, with the important modification that the direct rays of the sun must be properly diffused to prevent glare and eyestrain.

In the presence of poor lighting, men cannot be expected to work with the same enthusiasm as when a well lighted working place has been provided. The physical surroundings have a deep effect upon employees, and where bad working conditions are allowed to prevail, there is invariably a lessening of morale and satisfaction. Neglecting to utilize daylight, so bounteously provided by nature, and so essential to industrial efficiency, is inexcusable wastefulness.

MUSKRAT FARMING

The rising prices for muskrat fur have aroused considerable interest as to the feasibility of breeding this animal in captivity. Though prices may have reached the peak, it is altogether likely that this fur will command an attractive figure for many years to come. The farming of muskrat ought, therefore, to be a profitable business.

Present experience goes to show that the muskrat is not a difficult animal to raise. It is necessary to own or lease a stretch of suitable marsh, lake or quiet stream, which one could fence, if necessary. If there are already muskrats in the area, all they need is protection; if not, breeding stock must be bought from trappers. The rate of increase is fast; observers state that the muskrat brings forth three litters in a season, and from six to nine in a litter.

Clear water is preferable and it must be deep enough never to freeze to the bottom. The food consists mostly of the roots and stalks of aquatic plants, such as wild rice, flags, water-lilies, reeds and cat-tails. Muskrats will sometimes partake of clams, fish and insects. If the food supply is not sufficient they can be fed garden vegetables.

The muskrat appears to be somewhat like the cat in sticking closely to its home, and, so long as there is an adequate amount of food, is unlikely to migrate. Its principal natural enemies are the owl, hawk and mink.

In Maryland, which is a great centre for raising muskrats, the marshes often yield a better income per acre than adjoining cultivated land. One raiser is said to take 2,500 muskrats each year from a 50-acre marsh and yet leave enough for re-stocking.

Even as long ago as 1909, when skins were very cheap, the leasing of marshes was profitable, and the value of muskrat marshes was estimated by an American expert at \$40 an acre. As this fur has quintupled in price it is a fair assumption that these lands are worth at least \$200 per acre to-day.

Protection of Fish and Game

Quebec Association Splendidly Supports Enforcement Provincial Game Laws

Seventy-one years ago four Montreal sportsmen met in what was known as "Dolly's Chophouse," and decided to form a club for the protection and preservation of fish and game in Lower Canada. Since the organization of the Association, its members have done their utmost to see that the fish and game of the Province of Quebec were protected and, today, its membership includes about 600 prominent Montreal sportsmen.

The laws of the province of Quebec are ample for the protection of game but it is a difficult matter to enforce them. In one year, the Association prosecuted 200 poachers; this was the result of the splendid support received at an annual banquet held at the Windsor Hotel when \$4,600 was subscribed, enabling the Association to send out men all over the country. This association keeps in touch with all the clubs of the province and receives complaints from all its members. Immediately on receipt of a complaint, officers are sent out from Montreal to investigate, and it has become respected and feared by poachers throughout the province. In one district, 31 poachers were arrested and fined. The best of laws are useless without the enthusiastic support of the people.

Most of the work of the Association is confined to the protection of moose, deer, caribou, game birds and game fish, but the officers on every occasion endeavour to prevent the taking of fur-bearing animals during the closed season.

Poaching can be stopped, in a great measure, if only the press will, from time to time, publish the game laws, and if posters are distributed to the railway stations and post offices throughout the province. This year, the Association will print several thousand in English and French; these they will post in every club house and railway station, and thus endeavour to educate the people to protect the game of the country.

It is in their own interest to respect the fish and game laws, as it ensures the expenditure of thousands and thousands of dollars by tourists and others. The clergy have from time to time been asked to address the people and to inform them that poaching is an occupation entirely opposed to their best interests.

The Association has no favourites and, while many of the poachers prosecuted are poor men, yet some of the most prominent people in the province are included.

If the sportsmen in other provinces would organize themselves into similar associations and honestly work for the best interests of wild life conservation, the enforcement of laws for the preservation of fish and game would become much more effective than it is to-day.—*J. R. Innes.*

A CATTLE FOOD FROM SEAWEED

The exigencies of war have caused a number of attempts, more or less successful, to utilize Denmark's natural resources, and among the inventions reported is a process for producing a cattle food from seaweed. Several methods have already been proposed for producing such a food, more especially from sea wrack, *fucus vesiculosus*. This plant is abundant all over the world, but it has until now been impossible to transform it to a digestible state, and it also contains certain mineral substances which spoil the taste.

The present process is described as follows:

The plant is thoroughly washed to get rid of the salt, then it is treated with steam, preferably under rather high pressure, which causes the cells to burst and allows the protoplasm to come out. This mass is placed under high pressure and formed into cakes, which are dried in a vacuum and ground into a coarse powder. The juice of the mass is boiled in a vacuum to a high grade of concentration, which causes the salts to crystallize, and they are separated from the juice by means of a centrifugal separator. The juice is then mixed with the powder, and the mixture is pressed into pieces of suitable size. The analysis of the food is as follows: Water, 5 per cent; protein, 13-12 per cent; fat, 1-07 per cent; digestible carbonic hydrate-66-76 per cent; cellulose, 9 per cent; mineral salts, 5-03 per cent.

The analysis would seem to show this food to be nourishing, and the cattle are said to eat it very willingly. It can be mixed with oilcake.—*U.S. Consular Report.*

BRISK MARKET FOR RABBIT SKINS

Regarding rabbit skins, the market report of a prominent London firm of hide and skin brokers states: "After an interval of 10 weeks, public auctions were held on the 3rd December; 1,385 bales were offered and 1,326 sold. There was a record attendance of buyers, and keen competition was in evidence throughout the sales, and practically the whole offering was disposed of. Furriers' best and medium grades appreciated an average of 10 per cent. Butchers' were more readily absorbed by dressers than hitherto at an advance of 50 per cent for winters and fairly seasoned skins. The lowest price quoted for Australian and New Zealand rabbit skins was 3s. 4d. per pound and much higher figures than this were paid.

The growth of the condensed-milk and milk-powder industries during the war period has been a most notable feature of Canadian dairy production. It is estimated that for 1919 the total output of condensed and evaporated milk was nearly 110,000,000 pounds, valued at approximately \$20,000,000. The total quantity of milk powder produced during the year amounted to 5,323,537 pounds, valued at \$1,662,352.

Overcoming an Industrial Waste

Substantial Returns from Electrical Precipitation of Dust from Stacks

The dust discharged from the stacks of iron furnaces, cement mills and other industrial plants, represents a waste of valuable material and frequently constitutes a nuisance. Not only is it detrimental to public health, but it is often injurious to plant life, increases the cost of cleaning and disfigures buildings. The loss of material represented by this dust, and the nuisance caused by its discharge into the atmosphere, may be eliminated by electrical precipitation.

The fumes, while passing through a system of vertical pipes, are brought into contact with conductors carrying electricity at high voltage. The minute particles become charged with static electricity and adhere to the walls of the pipes. The material can then be removed at intervals by rapping the pipes and collecting the dust in hoppers at the bottom.

Electrical precipitation processes are now being used successfully in lead and copper smelters to reduce metal losses from the stacks and to eliminate the smoke nuisance; in cement plants to collect potash and cement dust; in acid plants to recover acid fumes; and in rock crushers to suppress the dust nuisance. The process is also being applied to iron blast furnaces to eliminate the ore dust and to recover potash values; to gas plants for removing the dust, tar and lamp black from the gases; to locomotive roundhouses and power plants, situated in centres of population, to remove the soot and cinders from the smoke; and to industrial processes producing fine powders as in the manufacture of lamp black, zinc oxide, desiccated foods, etc.

To appreciate the efficiency of the process, one needs only to stand where he can watch the stacks leading from the treaters while some one opens and closes the treating circuit. When the current is off, the familiar clouds of smoke pour out; when the current is on, the smoke vanishes and only a fine vapour can be seen. Final proof of the effectiveness of the operation is provided by the car-loads of precipitated dust taken out of the collecting bins.

Financially the operation seems most attractive. A copper-smelting company installed an electrical precipitation equipment at a cost of \$113,900. The operating expenses (power, labour, supplies, etc.) were \$14,600 a year. The value of the copper dust collected (at 12 cents a pound) was \$180,018 a year. Thus, this installation paid for itself in less than a year and, thereafter, was operated at a large profit.

Again, a cement plant equipment cost \$180,000 to install and \$10,395 a year in operating expenses. Though the material recovered is worth much less than copper

dust, its value per annum at present prices is \$74,325, of which about one-third is cement dust at \$1.00 a ton and two-thirds is potash at 70 cents a unit. This also represents a highly satisfactory profit.

These examples are of large plants. However, smaller plants may be installed at approximately proportional cost with practically proportional recoveries since the efficiency is not dependent upon the size of the plant, but more particularly upon the operation of it.—L. G. Dennis.

Electric Bake-Ovens

Conservation of Fuel and Ease of Operation Suggest Their Use

While electricity cannot take the place of coal for general heating purposes, certain industries offer a promising field for the more extended use of hydro-electric energy. One of these is in bake-shops, where the current can be used during the night, thus furnishing a valuable off-peak load. In many parts of Canada there are special low rates for electric energy used after 6 p.m. and bakers should enquire respecting; this cheap rate as, in most cases, it is cheaper than other fuels. Where there are no such rates, bakers could doubtless obtain them by calling attention to the fact that, as they operate during the night, they use the energy when others do not require it. In Europe, the present abnormally high price of coal has led to the introduction of many electric ovens in countries such as Switzerland, Norway and Sweden, which are well supplied with water-power. In Canada, also, their use is being extended. Even where electric ovens do not effect an actual reduction in the cost of fuel, they are frequently preferable to other types, owing to their other important advantages. The principal advantages are great cleanliness and convenience in working, the elimination of the cost of delivering coal and carting away ashes, reduction in labour costs, elimination of expenses for chimney building, the small space occupied, etc. In the case of confectionery shops, which are generally situated in the best parts of the town, ground space is a very expensive item. Quite apart from the elimination of the chimney, electric ovens occupy but little room. An electric oven with capacity for 240 loaves takes up only 35 square feet, whereas an ordinary baker's oven of the same capacity requires 125 square feet. This is an important factor in hotels that make their own bread and pastry.

Another advantage of electric bake ovens is in temperature regulation. The top and bottom heat can be separately switched on or off, or adjusted as to intensity. In this way, special kinds of pastry may be more easily baked. Electric ovens are also very hygienic; there is no smoke or soot, and, as very little heat escapes, the bakers are not inconvenienced by high temperature. The switching off of the current at night may also be done automatically.

Lightning Dangers of Early Spring

Inspect Lightning Rods to Ensure Proper Connections—Wire Fences to Protect Cattle

Though electric storms reach their highest frequency during the heat of summer, they often occur in the spring, and fire losses caused by lightning are by no means unknown in April and May.

Lightning rods have proved an almost absolute protection. Only in very rare instances have they been known to fail, and, even in these cases, the failure was probably due to defect in installation or to deterioration.

Examine your lightning rod installations for broken insulators, for bends in the cable which allow contact with the framework, or for corrosion where it enters the earth. The latter is an important point. The electricity is carried into the ground by means of the cable but, if it corrodes, and the ground connection is thereby broken, a fire is very liable to result. See to it that the cable is sound and is deep enough in the ground to always be in damp earth.

When building wire fences it is advisable to use ground wires about every five rods. Lightning is attracted by wire fencing and as, during a storm, animals will congregate near fences, many of them are killed by contact with the wire. These ground wires may be of about No. 9 gauge wire, given one turn around each strand of the fence and carried into the earth beside the fencepost.

Canadian Dairying Makes New Record

Western Provinces Rapidly Increasing their Production of Milk and Butter

Canada's dairy products yielded approximately \$250,000,000 in 1919. Of this amount, about \$85,000,000 was received for exports. These figures easily constitute a record for the Canadian dairy industry. In 1910, the total value was estimated at \$100,000,000 and the exports amounted to nearly \$24,000,000. Although the production of most dairy products made a fairly constant increase during the period of the war, the phenomenal record of 1919 must be attributed in large measure to market conditions. In common with other food products, the prices of milk, butter and cheese rose rapidly owing to a world shortage. Then, too, the more rapid growth of urban centres as compared with the rural population has enlarged the home market, without a corresponding increase in production. Further, the shortage of labour on farms throughout the war restricted increased production materially, and the comparatively rapid expansion of the condensed and powdered milk trade adversely affected the cheese industry adversely. Each of these factors tended to increase prices. Thus, in 1918, the average price paid for cheese by the Dairy

Produce Commission was 23 cents, f.o.b. steamship, at Montreal. Although similar statistics are not available for 1919, it is probable that the price exceeded 27 cents. Butter prices also established new records, the average price for all grades of creamery, delivered at Montreal, was 53½ cents in 1919. While the production of cheese probably showed a slight decline, the past year can be credited with a record production of butter and condensed and powdered milk.

Western Canada, especially the Prairie Provinces, is rapidly increasing its production of milk and butter. At present, Ontario and Quebec easily lead the other provinces, but with a more general realization of the need for conserving soil fertility on the prairies, dairying will progress prodigiously.

Modern, co-operative dairying is less than fifty years old. Already it has played an outstanding part in giving such countries as Denmark and New Zealand economic independence. It has been proved beyond peradventure that no other branch of farming surpasses it in maintaining and improving soil fertility. However it would be unreasonable to expect that prices can long continue at the present high levels. On the other hand, labour conditions should steadily improve and advances will be made in labour saving devices. It seems reasonably certain that dairying is destined to be an increasingly large economic factor in the future of Canada.—A. Donnell.

EXHAUSTION OF SOUTHERN PINE

According to a bulletin just issued by the Spruce Production Corporation of the United States War Department, only four mills out of 2,043 southern pine mills have timber supplies (southern pine) which will last more than twenty years. More than 1,600 mills will have exhausted their supplies in five years or less, and more than 1,900 mills in ten years or less. Attention is drawn to the fact that this rapidly approaching depletion coupled with an expanding world market for timber, is bound to result in heavy demands upon the great timber areas of the Pacific coast and Canada. The present generation of timbermen in Canada will probably benefit as a result. This benefit may be extended to posterity if the short-sighted policy of the southern lumbermen is avoided.

TOWN-PLANNING OFFICE AT LYONS, FRANCE.

The Congress of Housing, at a recent meeting in Lyons, decided to install in that city under the patronage of the municipality a permanent central office. This office will assemble documents, French and foreign, relative to housing and to construction. The work is to be undertaken under two forms: (1) Library, comprising books and papers, and (2) Permanent exhibition of plans, photographs, samples, patterns, etc.