

Conservation

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Chlorine Treatment Temporary Measure

Defects in the System Render it a Constant
Danger to Public Health

Temporary measures frequently become temporary measures. Expert opinion has asserted time and again that the disinfection of a contaminated water supply by chlorine should never be adopted as a permanent policy. Instead, every community should earnestly endeavour to obtain a pure water supply, either directly, or by means of filtration. Unfortunately, however, many centres, having once adopted the chlorinated water expedient, are loath to provide a permanent system. In brief, a temporary policy is adopted and is followed until an alarm is sounded in the shape of a flourishing little outbreak of typhoid.

American engineers have been the leading exponents of the chlorinated method of treating water. It is but natural to expect, therefore, that the system would be most highly perfected in the United States. Nevertheless, during the past few months, cases have come to light there that illustrate some of the inherent defects of the method. At Milwaukee the offensive taste from the chlorine in the water was intensified by the gas-house wastes. Conditions were such that it was even suggested to revert back to the old method of individual boiling of the water, instead of sterilizing at the pumping station. The futility of attempting to have every citizen boil the water used for drinking purposes has long since been demonstrated. The most serious aspect in this instance, and one which may serve as a warning to other places similarly situated, is that an employee at the pumping station, to whom complaints had been made, eliminated the chlorine treatment for a 12-hour period. As a result the mains became filled with contaminated water and there was an increased typhoid incidence. Milwaukee is now trying experiments in water filtration and the conclusions that will be reached when these have been completed are being awaited with keen interest.

At Xenia, Ohio, a small typhoid epidemic was started recently owing to the inferior quality of the chlorine powder used in the water supply. There too, a movement is on foot to procure from another source, water of a satisfactory and sanitary quality. Such illustrations serve to show the result of temporary measures in matters relating to public health. It is

a strange quality of the "public mind" that often nothing short of a great community misfortune will arouse it to demand civic reform.

Excessive Waste at Lumber Mills

Closer Utilization in Manufacturing
Lumber is Urgently Needed

The waste in the manufacture of lumber on the Pacific Coast is appalling to one accustomed to more conservative methods. Huge slabs of absolutely clear wood, 3 to 6 inches thick, are sent to the fuel pile, and ends of boards and timbers which would well be used for some purpose are sent to the refuse burner. The burner is the most conspicuous thing about a British Columbia saw-mill. The fire never goes out and it furnishes a pillar of flame by night and a cloud of smoke by day. Heavy saws are necessary to 'break down' the large logs, but it is not unusual to see one-inch lumber being cut with a saw that takes out a 3/8-inch to 1/2-inch kerf. It is estimated that at least 25 per cent. of the tree is left in the woods and another 30 to 35 per cent. is wasted in the mill.

That closer utilization is profitable has been demonstrated beyond question by some of the more progressive manufacturers in the Pacific states. In a number of mills in California, short ends and blocks are worked up into stock for the manufacture of beehives, incubators, etc., thereby saving a large amount of material, which, in British Columbia, goes into the burner.

A campaign against waste in the lumber industry is urgently needed. A large and profitable field for research is open in this direction. The possibilities of extracting from saw-mill waste such articles of commerce as turpentine, oils, acetic acid and alcohol, call for immediate investigation. Now that large quantities of hemlock are being used for pulp and lumber, an effort should be made to use the bark for tanning purposes.

If the principles of forestry are ever to be adopted in this province, closer utilization must be practised. Intensive manufacture will result in enhanced stumpage values, which, in turn, will render the forest worth protecting and worth reproducing.—R. D. Craig

William Linton, of Aurora, Ont., the man who introduced sweet clover into Canada as a crop for cultivation, died on February 16th, aged 75.

Want Annual Meeting on Game Conservation

Annual Convention of Those Interested
Would Unify and Encourage Work

The National Conference on Wild Life Protection which was held in Ottawa in connection with the Tenth Annual Meeting of the Commission of Conservation on Feb. 17, 18 and 19, unanimously adopted the suggestion that a conference of all those interested in wild life protection should be convened annually and passed a resolution asking the Commission of Conservation to call the meeting each year, arrange the details and secure the co-operation and support of the various game organizations and others interested throughout Canada. Such a unifying influence is lacking at the present time and it was felt that much better progress in the conservation of wild life could be made through the instrumentality of such an annual gathering. Among those who spoke in endorsement of the proposal were Hon. O. T. Daniels, Attorney-General of Nova Scotia; Hon. A. E. Arsenault, Premier of Prince Edward Island; Dr. A. Thompson, M.P., for Yukon; Jack Miner, of Kingsville, Ont.; Dr. W. Baker, Chairman, Provincial Game Conservation Board of British Columbia; B. Lawton, Provincial Game Guardian of Alberta; F. Bradshaw, Provincial Game Guardian of Saskatchewan; E. T. D. Chambers, of Quebec, and S. Harris, of Toronto.

'What Good is the Robin?'

"Now, what good is the robin? Everybody knows the robin. A boy came along the road with a .22 rifle, saw a robin sitting there, and killed it. I went over and picked the robin up. Two cutworms were squirming on the ground; the robin had had them in his beak. I held the bird up, and two more fell out of his mouth. Remember, one cutworm will cut down five tomato plants in a night. The cutworm does his work and then hides under the soil; Mr. Robin comes hopping along, picks in there and pulls him out—and turns him into a robin. If anyone tells you that a robin will destroy one hundred cutworms in a day, take it from him that it is true."—Jack Miner at the National Conference on Game and Wild Life.

Arresting the Fire Fiend in Canada

Analysis of the Statistics of Fire Losses
for 1918 and Suggestions for
Immediate Remedy

One of the most vital points for consideration in attempting to obtain any reduction of fire waste in Canada is clearly indicated by the fire record of 1918. Although 17,355 fires entailed an aggregate loss amounting to \$33,625,000, more than \$23,200,000 or 69 per cent of that loss was caused by 276 fires. Sixty-two fires alone were responsible for almost 50 per cent of the total loss. That is the crux of the situation and presents the logical point for substantially lessening fire waste. It is not essential to attempt the Herculean task of preventing all fires. Immediate results can be obtained by the concentration of our corrective efforts upon those classes of property where extensive loss is possible.

While it is perhaps desirable to bring fire prevention methods to the attention of the public, it should be recognized that if the 12,000 dwelling fires which occur every year could be eliminated, the actual fire loss of the Dominion would be reduced by less than five per cent. On the other hand, if less than 300 fires which annually damage large mercantile establishments and manufacturing plants could be prevented, over 65 per cent of our fire waste would be avoided.

To accomplish this result without loss of time the following legislation should be enacted:

- (1) Requiring a signed application (on a standard form) for all insurance, the statements of such application to form a part of the insurance contract and a continuing warranty during the currency of the policy.
- (2) Requiring the registration and licensing of all agents and brokers placing insurance with companies operating under Dominion authority. Licenses to be issued by the Superintendent of Insurance after examination of the character and qualifications of the said agents and brokers.
- (3) Requiring the proper inspection by insurance agents of all property whereon the total insurance exceeds \$5,000 and making compulsory the notification of defective or dangerous conditions in buildings to the Provincial Fire Marshal's Department.
- (4) Empowering Provincial Fire Marshals to stay the issuance of insurance and to cancel all existing in-

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Proposed Principles for Conserving Game

Authority on Wild Life Suggests Lines of Action to Maintain the Supply of Game

1—In the well-settled regions of the United States and Canada, the supply of wild game is nowhere sufficient to render it an important food supply; and in view of its steady destruction by man, predatory mammals and birds, severe winters and scarcity of food and cover, game killing in those regions must be regarded as a severely limited pastime, and not as an industry in competition with the stock-raiser and the butcher.

2—In well-settled regions, it is impossible to make bag limits too small, or open seasons too short, for the best continuance of the game supply.

3—No frontiersman can reasonably be expected either to devise, or to execute, unaided by his federal government, methods for the adequate preservation and increase of large game.

4—Well-settled and well-fed regions require game laws of greater stringency than frontier regions.

5—Frontier and savage regions require to be specially defined on the map, and provided with game laws specially adapted to the needs of their inhabitants and to the available supply of game.

6—The strict regulation of game-killing in frontier regions inures directly to the benefit of the people most dependent upon the game for their existence.

7—The sale of game should not be permitted at any time, anywhere; because all commercialization of wild game and other forms of wild life is thoroughly exterminatory in its effects.

8—In all countries, the rational utilization of game is desirable, but only on a basis that will provide amply and adequately for the perpetuation of the breeding stock.

9—Regions that are remote from lines of power transportation, or are in winter entirely cut off from supplies of fresh meat from without, are entitled to preferential treatment.

10—The relief of persons inhabiting frontier regions who by reason of sex, age or other causes are unable themselves to take out licenses and hunt and kill their annual quota of game must be specially provided for by law.

11—Every community large enough to contain a post office should be established as a game-protection centre, or unit, and a deputy game warden should be appointed for each centre, to whom an annual salary should be paid during satisfactory service, no matter how small the salary might be.

12—The duty of every such deputy game warden should be to issue hunting licenses, check up the reports of license holders, and generally promote and be responsible for the observance of the laws affecting game.

13—The cold-storage of legally-killed game to promote its full utilization by the holders of hunting licenses, beyond the regular season for hunting, is desirable and necessary.

14—It is time for the Governments

of Canada and the United States to stop all killing of female hoofed game, other than caribou, by Indians, by prospectors, and by all other persons.

15—The waste of game should, under certain fixed conditions, be made a penal offence.

16—Regulations should be framed to require the reasonable salvage of game meat by sportsmen.—Dr. W. T. Hornaday, at the National Conference on Game and Wild Life Protection.

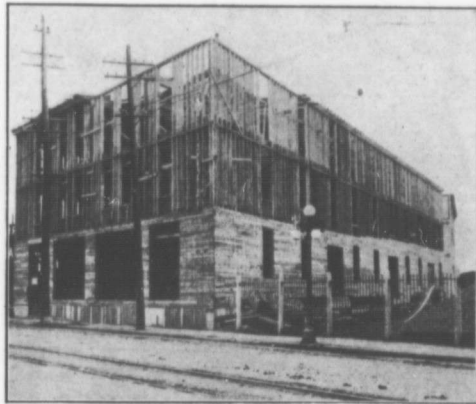
Arresting the Fire Fiend

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insurance upon property reported as being in a dangerous condition until such conditions have been remedied.

(5) Requiring the installation and proper maintenance of automatic sprinkler systems in all buildings (fire-proof buildings excepted) which together with their contents have an insured value exceeding \$10,000.

—J. G. S.



Cut No. 183

BAD TYPE OF CONSTRUCTION IN BUILDING BEING ERECTED IN THE CENTRE OF A CITY IN EASTERN CANADA

It is a wooden building, three stories high, and wainscotted with asbestos shingles. Now that a permit has been granted for the erection of such a building, the owners should, at least, be forced to cover also the interior walls, posts and joists with asbestos shingles. The protection against fire is as necessary inside as outside.

Licensing Water Plant Operators

Water Purification and Sewage Treatment Plants Should Be Operated by Licensed Attendants

Most citizens do not fully appreciate the high degree of responsibility that rests on the operators of water purification plants. These operators have in their hands the lives of the population served practically to the same degree as a locomotive driver, and more so than a boiler stoker. Why not have them also licensed? Pioneer legislation along these lines has been enacted by the state of New Jersey, the bill providing that hereafter all sewage treatment plants must be in charge of superintendents, or operators licensed by the state. On its introduction in the legislature, the bill was accompanied by a statement of its purpose which is well worth quoting: "The purpose of this bill is to

secure the employment of attendants at water-purification and sewage-treatment plants having a higher degree of intelligence and more familiarity with the operation of these plants than is now the case. There are a large number of water-purification plants and sewage-disposal plants now in operation in this state. The experience of the State Department of Health has shown that many of these plants, particularly the smaller ones, are operated in a very unsatisfactory manner. This results, in the case of water-purification plants, in imperfect purification of the water at times, and the consequent exposure, of the people who use the water, to danger from water-borne disease. The unskillful and careless operation of these plants also results in their rapid deterioration, which ultimately entails upon the municipalities owning them the expenditure of funds for repairs and replacements which would not be necessary were the plants properly operated."—L. G. D.

Electricity Is Not Substitute for Coal

Wholesale use of Electricity for Heating of Homes, During the Winters is Impracticable

To every material its own work! Every one of nature's products has its own outstanding fields of usefulness. It is the purpose of science to assign to each of these products the tasks that they are best fitted to perform. During recent years, careful experiment has demonstrated that electricity can not compete successfully with coal for domestic heating.

A recent report, issued by the Hydro-Electric Power Commission of Ontario, demonstrates the undesirability of the general use of electricity for heating homes. It contains the following conclusions:

"Regarding the future outlook for the use of electric energy for heating, it may be said that to push the matter on an extended scale would be economically unsound in Canada where such enormous amounts of energy would be required for this purpose alone, as all other fields of application for electric energy would suffer seriously thereby.

"At existing rates for coal and other fuels, compared with those for electricity, electric heating is too expensive to be adopted extensively, but as an auxiliary its advantages are so attractive that efforts will undoubtedly be made to reduce the cost so as to make its use in this way more popular."

Since we cannot look forward to using electricity for fully coping with the heating requirements in the cold Canadian winters, we must, therefore, continue to rely mainly on fuels, and the two commodities, coal and electricity, should each be used where it is most profitable. In this regard the report further states that, "It can be readily demonstrated that, of the total energy in fuels, at the present time and under the most favourable conditions possible in the largest and most modern plants, a maximum of 12 to 15 per cent is obtainable in the form of mechanical power; this is only about one-third of the percentage obtainable in the form of heat in the average house furnace and only about one-fourth of that obtainable in the form of mechanical power from the water-power of a hydro-electric plant."

"True conservation, therefore, lies in using, to the fullest practicable extent, water-power for the generation of mechanical power and fuels for heating. Where no water-power is available, then the fuels must, of necessity, be used for mechanical power purposes, but this will preferably be done in large electric generating stations."

QUEBEC FOREST FIRES

Last year, according to the report of C. J. Hall, the Superintendent of the Quebec Forest Protection Service, there were 430 forest fires in that province which devastated 23 square miles of forests out of 48,800,000 square miles which were operated for forestry work. The total damage was only \$5,557. The splendid results achieved are due largely to the efficiency of the work of the private fire protective associations.

A GOLDEN HARVEST

Sweet clover is just beginning to come into its own in the farming business and the growing of it for seed is apparently profitable. It is reported in the press that a farmer at Kippen, Ont., harvested 146 bushels of clean seed off 18 acres, which he sold at \$15 a bushel. That represents a total of \$2,190 or at the rate of \$121 an acre. Such returns, however, are apt to last only so long as few people know about them.

INFORMATION ABOUT OYSTERS

The Commission of Conservation has for distribution a number of copies of Dr. Joseph Stafford's comprehensive report on "The Canadian Oyster." Anyone who is interested in oysters, whether technically or commercially, should have a copy of this valuable work. Copies may be obtained from the Commission free of charge.

Commission of Conservation CANADA

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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 proper conservation, and the publication of timely articles on town-planning and public health.

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OTTAWA, MARCH, 1919

MIGRATORY BIRD ACT STANDS

Some time ago, a wholly unfounded report was current that the United States legislation ratifying the Migratory Bird Treaty with Great Britain had been declared invalid by the United States Supreme Court. The constitution of the United States provides that a treaty is supreme and that any legislation which provides for the enforcement of the terms of a treaty cannot be declared unconstitutional, consequently the legislation passed by Congress last August giving the United States Department of Agriculture the authority to apply in the United States the terms of the treaty cannot be successfully attacked or this or any other grounds. A few years prior to the ratification of the Migratory Bird Treaty, Congress had passed legislation which purported to give protection to migratory birds, and it was desirable that it be declared invalid that all conflict with the 1918 act be avoided. The act of August, 1918, has not been attacked and cannot be attacked successfully.

REGISTER OF POPULATION

As the census registration in Great Britain is made only decennially and, therefore, rapidly becomes out of date, the necessity for a national register of population was urged at a recent meeting of the Commission for the Reconstruction of the National Birth-rate. Again, there are, at the present time, only partial registers, which are independently compiled and maintained and the information they contain is seldom available for the purpose of comparison.

The Registrar General proposes that a single master register should be kept to include the name of every man, woman and child in the country, with particulars of name, address, sex, age, occupation, date of birth, together with information as to marriage and family.

As no single register could possibly contain all useful information, it is proposed to link up each unit with the master register as part of a co-ordinated system; providing for the communication to each of the special registers of information of common interest collected by the general registers. For this purpose, the master register might record, in code form, the necessary particulars and information respecting removals, and these could be communicated to the local branches as required.

Registers of this kind would, of course, deal with many millions of names and would necessarily have to be arranged by districts. At the same time, an index to the local registers would be kept at headquarters. To this central index, would also be referred all births, deaths and removals.

The objection that this new proposal reveals family secrets, is without foundation inasmuch as it would not increase the present statutory powers of the Registrar-General. It would simply alter the form in which it is now collected.

After the case had been presented and fully discussed, the Commission resolved:

"That, in view of the National Birth-rate Commission, there is immediate need for the improvement of the vital statistics upon which all its conclusions must be based by the formation of a joint register on the lines advocated by the Registrar-General."

The application of a similar scheme based on the present form of collection of births, marriages and deaths in Canada by the provinces could be undertaken by the Dominion Government and incorporated as a part of the functions of a National Department of Health. We have followed the English system of decennial census returns. If out of date in Britain, it is equally out of date in Canada. Great Britain is anxious to keep her hand on the pulse of national vitality and the method here outlined is a means to that end. We, in Canada, have not the means of securing a national return of vital statistics which is adequate for this purpose. The scheme suggested is a proper one and the example set us should be copied with such adaptations as the relationships now existing in this matter as between the federal, provincial and municipal authorities may call for.

—C. A. Hodgetts, M.D.

MANUFACTURE OF CARBOCOAL

In the manufacture of carbo-coal, a high-volatile coal, after crushing, is distilled at a low temperature, 850° F. to 900° F. This first distillation yields gas and tar and a product, called "semi-carbo-coal," which is high in carbon. The first distillation is continuous, the coal being agitated and mixed by a twin set of paddles. Thus all portions of the charge are uniformly distilled.

After mixing the semi-carbo-coal with part of the pitch obtained from the tar produced in the first distillation, the mixture is briquetted. The briquettes are then subjected to a second distillation at about 1,800° F., which yields carbo-coal, additional tar, and gas and a substantial amount of ammonium sulphate.

Carbo-coal is dense, dustless, clean, uniform in size and quality, and stands transportation without distintegration; its density is greater than that of coke and more nearly approaches that of anthracite; the briquettes can be made in any size from 1/2 oz. to 5 oz., the larger sizes being better suited for locomotives and the smaller for domestic use; the yield of tar and ammonium sulphate is greater than in the by-product coking process.

—James White.

SPRING TIME IS PAINT TIME

At the recent annual meeting of the Commission of Conservation, Hon. Senator Edwards made the statement that unless Canada exercised more care with her forest resources, the day was not far distant when we would be without our supplies of lumber.

While this statement referred particularly to the protection of forests, it might with equal force be applied to the protection of our buildings, fences, farm implements, etc., for the reason that, in the latter case, there is not only the value of the original forest product to protect, but also the value of the human energy necessary for the transformation of that timber into its various wood products.

Spring, from time immemorial has been known as house-cleaning time. During recent years this period has developed a popular slogan, "Clean up and paint up." As a conservation measure this would be hard to improve upon. Wood, when exposed to the weather without protection soon deteriorates, it bears a shabby and neglected appearance, and is in a great majority of cases but an indication of the enterprise or carelessness of the owner.

Nothing adds more to the appearance of a building than a coat of paint; nothing will do more to protect the woodwork and prolong its life than covering it with a paint preservative. With building conditions as expensive as at present, and with the necessity of employing the available help in the construction of new houses, it is essential that present construction be protected.

Our soldiers are coming home, they are coming from a country of homes, where thrift is paramount, where the people take pride in their premises and keep them in the best condition. Can we not, this spring, bear this in mind, and let our boys see that the home folks have awakened to the advantages of cleaning up and painting up, that their homes bear that well-kept and cheery appearance that bids them welcome?

WAYSIDE HOSPITALITY FOR WILD GEESE

"Next spring it was asked; will the geese come back? On the 18th of March I heard a strange honking and I looked up and saw that they were coming—thirty-two of them. They came down within one hundred feet of us and I walked out near them and they didn't fly away. I had the privilege of seeing them introduce their families. The boys shot ten, and that left twenty-two to go away. . . . They started coming (the next year) on the 20th day of February. . . . When the first was lighting in the pond, I couldn't see the end of the string of those families that were coming.

"I don't know whether you have experienced it, but I have and there is nothing more embarrassing than to have more guests than you can feed. There I was, on Good Friday of 1913, with a five-acre field full of wild geese. We couldn't begin to feed them; some of the geese must have told their friends what was not true and induced them to come to a place where there was not enough to eat. We brought the feed close to the house and let the tamer ones come there to eat. I was speaking at the Rotary Club in London the other day, and one gentleman asked me how I moved the birds. "This was my explanation to him: If you want to move the people, or a certain percentage of them—present company always excepted, of course,—move a keg of beer out to West London and you will get along. If you want to move your birds, keep moving the food accordingly, and pretty soon you can put the spoon in your mouth and the birds will light on it."—Jack Miner at The National Conference on Game and Wild Life Protection.

FREAK CONDITIONS IN THE FISH INDUSTRY

There is no accounting for tastes, and that is being shown every day in the week in some sphere of life. In the fish industry, one has only to turn to those persons whose chief delight is to gorge themselves with a dish of devilfish. Some persons call it devilfish; in the east it is sometimes classed as sea-cat, while in the waters of the Gulf of Mexico, where it is sometimes taken in large quantities, it is called octopus or octopi. It makes very little difference what the name may be, the fish is considered a delicacy by Italians, Greeks, Japanese and Chinese. Five or six years ago devilfish sold in the Vera Cruz markets for about 35 cents a pound. Now, with the additional high cost of living, it is bringing higher prices, sales during the present week being made at 75 cents a pound, wholesale. Who says fish is high in price when devilfish brings more money in the wholesale market than any other variety outside of Kennebec salmon when it first comes to market?—*The Fishing Gazette.*

BETTER AGRICULTURE

At our first Annual Meeting, the late Mr. C. C. James said that the solution of the problem of better agriculture was not the taking of the farmer to the experimental farm, but the taking of the experimental farm to the farmer. The latter was the policy adopted by us in initiating illustration farms, in each province. Later, we transferred these farms to the Dominion Department of Agriculture, that they might be extended and carried on a much larger scale than our limited financial resources would permit. In addition, maintaining these illustration farms after we have attained our object, namely, the demonstration of their great value as educational agents, would have been semi-administrative work, which we have resolutely eschewed.—*James White, at Tenth Annual Meeting of the Commission of Conservation.*

Sufficient Power for Twenty Cities

Southern British Columbia Is Rich in
Important Water Powers

In British Columbia, there are many important water-powers. The investigation of the water-powers of British Columbia by the Commission of Conservation has disclosed the existence of two great water-power centres, namely, Nelson, with 400,000 h.p. within a radius of 50 miles, and Vancouver, with 300,000 h.p. within the same distance. Based on experience at Toronto, these quantities would suffice for a population of 1,700,000 at Nelson, or for 10 manufacturing cities of 170,000 each. The power near Vancouver would suffice for one manufacturing city of 1,250,000 population, or for 10 cities of 125,000 each.

There are 12 power-sites in British Columbia of 50,000 h.p. and upwards. With the exception of the South fork Quesnel and Peace river, all these powers are less than 125 miles from the 49th parallel.

Kootenay river, Upper and Lower Bonington falls, possible development	125,000 h.p.
Pend d'Oreille river, Waneta	73,000 "
Pend d'Oreille river, Salmon river	50,000 "
*Thompson river	100,000 "
*Fraser river, Helligate	200,000 "
Bridge River tunnel	70,000 "
Stave river, lower site	52,000 "
Stave river, upper site	52,000 "
Couitlam - Buntzen, North arm Burrard Inlet	84,000 "
Campbell river, possible	100,000 "
South fork Quesnel river	90,000 "
Peace River canyon	100,000 "

There are 18 power sites of between 20,000 and 50,000 h.p. Eight of these sites are distant less than 100 miles from the 49th parallel.

Kootenay river, Cora Lynn to Granite rapids	22,000 h.p.
Kootenay river, rapids near mouth	20,000 "
Pend d'Oreille river, Nine-mile falls	32,000 "
Pend d'Oreille river, Fifteen-mile creek	34,000 "
Columbia river, Long rapids	30,000 "
Adams river	30,000 "
Barriere river, ultimate development	20,000 "
Murtle river, Helmcken falls	20,000 "
Nahatlatch river, rapids below lakes	30,000 "
Jones lake (Fraser river)	25,000 "
Jordan river (25,000 h.p. developed), ultimate	38,000 "
Cheakamus river, Bear Mount canyon	40,000 "
Powell river (24,000 h.p. developed), ultimate	32,000-35,000 "
Nechako river, Grand canyon	30,000 "
Nechako river, Teta-chuck falls and rapids	30,000 "

*Development debarred owing to presence of railways.

Bulkley river, Hagwilget canyon	20,000 h.p.
Nass river, falls below Cranberry river	20,000 "
Nass river, rapids and falls below White river	20,000 "

There are 29 power sites of between 10,000 and 20,000 h.p. capacity and 585 of less than 10,000 h.p. The report of the Commission of Conservation on the *Water Powers of British Columbia* includes all available data respecting 644 water-power sites.—James White.

Market Hunters are Game Exterminators

The Sale of Game Must be Prohibited
Throughout North America

It is now a widely accepted principle of conservation that no wild species can long withstand commercial exploitation. It is an accepted fact that the surest way quickly to exterminate any wild species is by placing a cash price on the heads of its members.

Throughout the whole of the United States, and I think all of southern Canada, the conservers of wild life are a fixed and unalterable unit in opposition to the sale of game, anywhere, in those regions. That matter has been considered, and at times fought over, for fully ten years; and, if any principles in wild life protection can be regarded as settled for all time, it is the ban on the sale of game, and on the sale of the plumage of wild birds.

In view of the well-known and legally recorded beliefs of the wild life conservationists of Canada and of the United States, I now regard it as a waste of time to attempt to devise ways and means for the sale of wild game. The principle that lately has been so gloriously reaffirmed and so everlastingly fixed by the international treaty between Canada and the United States for the protection of migratory game birds against the market hunter and the game-dealer, must not now be discredited in the Far North. The time has come that the sale of game in Alaska must positively stop, before it has wrought more harm to the game and to the people of Alaska.

It would be placing a very low estimate on the mental fertility of Canadian and American law-makers to assume that it is impossible for them to provide a share of caribou meat and snow geese for the widow, and the missionary without the sale of game. To the lay mind it seems entirely possible to work out a scheme for having a certain amount of hunting by proxy, under special licenses, prepared and issued to meet such cases. The game warden or his deputy, or, in their absence, some other government officer, could determine the merits of each application and exercise the discretion of issuing or not issuing a license to hunt by proxy. The holder of such a license could be relied upon to find a suitable person to act as a proxy, go out and make the kill and haul in the meat, for a daily wage consideration. Such proxies should not be issued to persons able to hunt for themselves; and the transfer of game by barter

should be treated the same as the sale of game.

The feeding of the refuse portions of game to sled dogs should be provided for by law and regulation rather than be permitted to continue unchecked in the total absence of regulations.

No; we can not agree to any sale of game; anywhere; because that policy is known to be extra destructive. At all hazards the big game of Alaska and Northern Canada should be conserved on a continuing basis, for the good of the residents of those difficult regions.—Dr. W. T. Hornaday, at The National Conference on Game and Wild Life Protection.

RELATION OF FOREST OFFICER TO PUBLIC

Much has been said of the proper relation of the forest officer to the public. As a rule greater stress is laid on his personal relations. He is enjoined to be tactful and helpful; to educate his neighbours in the importance of forest protection to every citizen, to reduce fire hazard so as to have fewer fires to fight, to teach compliance with law so punishment will be unnecessary, to be popular in order to win voluntary co-operation. All of which is so well recognized nowadays as important that few if any forest officers need it repeated to them. None know it better than they do. Enough is seldom said, however, of the assistance in gaining such community influence which lies in making the job stand for professional competence.

People respect, and usually admire, a man who has authority because he understands a difficult subject. No matter how superior the passenger may feel personally, he thoroughly respects the officer of the ship that carries him. He knows seamanship is as necessary as it is mysterious to him. The public is now fairly well educated in the importance of forest protection and, in time of hazard at least, it is appreciative of protective organization. But it is not sufficiently accustomed to regard the forest officer as master of a peculiar profession, who for this reason alone has been given grave responsibility for life and property. Just as he acquired greater dignity when he became the representative of the public or quasi-public organization of high public service than he had when merely the local employee of a timber owner, he has now acquired an immeasurably higher dignity with the exactness in this service for training and knowledge beyond that of other men. It is this standing, above all, which the forest officer should have in the community.

To gain it, he must take pride and interest in all the technical details of his profession and see that its progressiveness is realized by the public. The type of officer who will do these things is the one that will prevail.—From the *Fire Fighter's Manual*, published by the Western Forestry and Conservation Association.

It is rumored that a large linen plant capitalized at \$2,000,000 will be constructed in Western Ontario for the manufacture of the flax fibre which is now sent abroad.

Too Much Capital Invested in Mills

Lumber Mills of Pacific Coast Have a
Capacity More Than Double
the Actual Cut

The saw-mills of British Columbia were estimated in 1914 to have an annual capacity of 2,555 million board feet. As the cut for the highest year, 1913, was only 1,157 million feet, the present saw-mill capacity of the province is more than double the amount of the actual cut. A similar situation prevails south of the international boundary, so far as the excess of mill capacity over annual cut is concerned. For the year 1914, the mills of the United States portion of the Pacific Northwest, including Northern Idaho, Eastern Washington and Eastern Oregon, had an estimated annual capacity of more than 13.6 billion feet, while the annual cut is only 6.8 billion feet. Thus, half the saws in the region in question must remain idle, for lack of a sufficient market for the product.

This locking up of capital in mills and machinery was due partly to the over-confidence of the lumbermen in the ability of the markets to absorb lumber, and partly to the efforts of the millmen to realize quickly on their timber investments. In many cases, these efforts were forced by the pressure of economic conditions.—From "Forest Resources of British Columbia," shortly to be published by the Commission of Conservation.

POISON IN POTATOES

Being poisoned as a result of eating potatoes seems to be in the same category as getting intoxicated by drinking buttermilk. Neither of them is usual, but the former is possible, especially during the spring and early summer when only old stocks of potatoes are available. Consequently, a word of caution may be of interest and value to householders.

Recently, there was an outbreak of food poisoning in Glasgow which was due to the eating of potatoes containing an excessive amount of solanine. This substance is a poisonous narcotic drug which is found in solanaceous plants, of which the potato is one. The normal amount in the potato is extremely small, being given as from 0.002 to 0.006 of one per cent. There is a seasonal range of increase from 0.006 in May and June to 0.009 in November. Apparently this may be greatly increased, for in the case of the Glasgow outbreak of poisoning, the content was found to be 0.04 of one per cent. This increase of the poison is considered to be due to the action of two species of bacteria which develop rapidly in potatoes that have been allowed to become well-sprouted while in storage. Hence the need for caution in eating potatoes at this season of the year.

The symptoms of poisoning from this cause are: a sudden seizure with chills, fever, headache, vomiting, diarrhoea, colic and general prostration. An instance of poisoning of this kind is reported by Oler, where an examination of the remaining potatoes yielded 0.38 of one per cent. of solanine.—C. A. Hodgett, M.D.