

Conservation

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Development of Canadian Fisheries

Education for Both Producer and Consumer—Modern Meth- ods of Transportation and Storage Required

Education was the keynote of the recent conference on fisheries held by the Fisheries Committee of the Commission of Conservation at Ottawa. Dr. J. W. Robertson urged the necessity of supplying maritime districts with schools to train boys and young men for the fisherman's vocation, while Mr. D. J. Byrne, President of the Canadian Fisheries Association, emphasized that, to increase the consumption of fish in Canada, consumers must be educated to realize the value of fish as food, not simply as an occasional change in diet, but as a nutritious staple that should appear on the table at least twice a week.

There was a general conviction that Canada's harvest from the sea is neither properly garnered nor adequately utilized, merely through ignorance of the proper methods and a lack of appreciation of the value of fish.

Dr. Robertson pointed out that Great Britain, France, Holland and Germany have schools where fishermen are taught not only the arts of navigation but the best methods of curing and preparing fish for the market. He advocated the establishment of such schools in Canada because the right sort of education is the practical training which prepares young people for their life work.

Mr. Byrne referred to the great need for better methods of shipping fish by express, as well as of storing it after it reaches the retailer. The express companies furnish no special facilities for perishable products. Retailers ought to have a portion of their stores devoted to fish, where the products of the sea should be displayed in refrigerators with glass covers. It is necessary to keep the fish in good condition right from the time it leaves the sea till it reaches the consumer. He pointed to the example of the Old Country, where special fish

trains are run, which have precedence over all other trains, even the mails. The Canadian fisherman's proper market is the home market, but until, by judicious encouragement, the public can be stimulated to demand more fish, this valuable commodity will not receive its merited attention.

The policy of the Fisheries Department in paying one-third the charges on shipments of less than one car-load was a step in the right direction, though a natural com-

with the annual meeting of the Canadian Lumbermen's Association, Wednesday, January 19th, forestry problems will receive special attention on the first day of the meeting.

The Canadian Society of Forest Engineers, the membership of which is made up of men engaged in professional forestry work throughout Canada, will hold its annual meeting Tuesday evening, January 18th. Thursday, January 20th, is the date set for the

Shells from Our Inland Waters

One of Canada's Little Known Resources Being Utilized in the Manufacture of Buttons

Canada has natural resources of which little is known. One of these, which is of but recent development, is the clam-shell fishery. In many of the inland streams, large quantities of shells may be found. From the Grand river, in south-western Ontario, alone no less than 165 tons of the clam or washboard shell have been taken. Other species found in the Grand river are the mucket shell and sand shell.

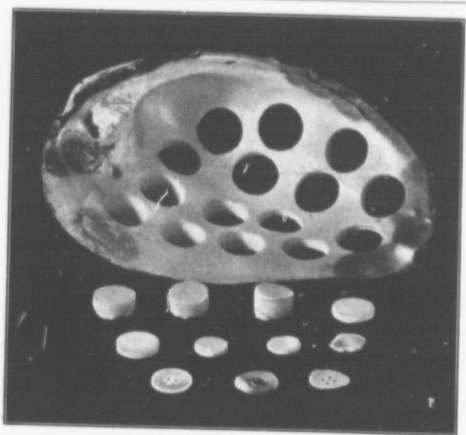
A use has been found for these shells in the manufacture of fresh water pearl buttons. For this purpose, from two to three hundred tons are used annually, a considerable portion of which comes from the United States. These shells have a market value of from \$14 to \$25 per ton. The fishing for the shells is done under license from the Ontario Fisheries and Game Department, under a royalty of one dollar per ton.

As shown in our illustration, the button discs are cut from all parts of the shell, some of the discs being 11/16 of an inch in thickness. They are afterwards split to the required thickness for buttons.

After the discs are cut from the shell, there is still a use found for what might be considered a factory waste. The perforated shell is ground up and sold for chicken grit, for which it is admirably adapted.

There is no doubt that, were it generally known that the shells have a market value, a much larger supply could be secured from the inland streams in other parts of the country.

British Columbia paper and pulp mills will shortly introduce safety first schedules and devices. A committee has recently been investigating conditions in the Wisconsin mills with that object in view.



Cat No. 114

Clam Shell, after cutting; also some of the discs removed, showing thickness

plement of this is to secure a lower rate on car-load shipments.

Annual Meetings

Forestry Associations Will Meet in Ottawa on Synchronizing Dates

This winter a special attempt will be made to stimulate public interest in matters pertaining to forestry and lumbering by holding various annual meetings at Ottawa during consecutive days. The annual meeting of the Commission of Conservation, at which all aspects of the situation affecting the natural resources of Canada will be considered, will convene on Tuesday and Wednesday, January 18th and 19th. To avoid conflicting

annual meeting of the Canadian Forestry Association, whose publicity campaign has done so much to forward the interests of forestry in all parts of the Dominion. Separate programmes will be prepared for each meeting, having particular reference to the problems confronting the respective organizations. A special effort will be made to work along the lines of co-operation, since the fundamental interests of forestry and lumbering are identical.

It is expected that, as a result of holding these meetings conjointly, a much better attendance will be secured and greater interest manifested than would be possible under the previous plan of holding the various meetings at different times.

Lightning Rods Prevent Fires

Experience has Shown that
Good Results Come From
Their Use

In connection with the general campaign for a reduction of the enormous fire loss in Canada, the following statements, from authorities, giving actual experience with lightning rod protection, will be appreciated:

Mr. R. R. Cameron, Secretary-Treasurer of the East Williams Mutual Fire Insurance Co., Ailsa Craig, Ont., under date of Sept. 25, 1915, says: "With this company, the principal cause of fire losses is lightning. During the last six years, we have paid 54 claims for damage by lightning and only six claims for damage by fire otherwise started. In our case (insuring farm buildings) lightning rods seem to be the practical remedy."

Mr. W. G. Willoughby, Secretary-Treasurer of the Lambton Mutual Fire Insurance Co., of Watford, Ont., says: "Lightning has been the principal cause of our losses, and, if the amount paid on stock were added to the amount paid for losses on buildings by lightning, it would be more than fifty per cent. We have not had a rodded building burned for years, and the damage to them is very small—none in 1914 nor in 1915 so far (Sept. 30, 1915). We make a difference in rates in favour of rodded buildings, and over half are rodded."

Bert B. Buckley, Ohio State Fire Marshal, in his August Bulletin says: "During these three months, lightning is credited with 68 fires, with a resulting loss of \$91,165. In every case the buildings struck were not equipped with lightning rods. Not a single fire was reported where the building was rodded; in fact it is very seldom, indeed, that such a case is entered on the records."

In the face of the foregoing evidence, and in view of the small cost of installing lightning rod equipment, it would seem advisable for farmers to equip their property with this protection, and also to the advantage of insurance companies to give a preference in premium rates to risks so protected.

Fishing by Steam Trawlers

Advantages and Disadvantages of this
Method of Sea Fishing

When steam trawlers were first introduced in the Maritime Provinces, no little opposition was aroused among the fishermen accustomed to hooks and lines. They naturally feared the com-

petition caused by the tremendous catching power of the trawler, and as steam trawlers require an expensive gear, they were prevented from adopting this method themselves. Fears were also expressed that the trawl, a huge, bag-shaped net dragged over the bottom of the sea, would destroy the breeding grounds of the fish and lead to the depletion of the fisheries. In view of these complaints, the Dominion Government took action and prohibited the operation of steam trawlers within twelve miles of shore, so that the inshore fisheries, at least, are preserved to the hook-and-line fishermen.

There are certain undeniable advantages of the steam trawler, which make it certain that it has come to stay. Very often the hook-and-line fishing is suspended for various reasons, such as scarcity of bait or stormy weather. The otter trawl does not use bait and, as the fishing is not done from dories, it can be carried on without interruption. Moreover the dog-fish pest is not a serious menace to the steam trawler.



Cut No. 113 Ploughing Match for Boys, showing winning contestant.

Owing, therefore, to these advantages, the operators of steam trawlers can always depend upon having a catch, and can make contracts ahead for keeping the market steadily supplied.

The fish caught by this promiscuous method are, however, apt to be damaged, owing to the rough handling. The otter trawl scoops up everything from the bottom of the sea and the whole mass is dumped unceremoniously on the deck. Consequently the fish often arrive in the market with scarcely any scales on and with the flesh bruised and thus deteriorated. Moreover, the steam trawlers often remain a considerable time at sea before delivering their catch on shore. The best fish are certainly those taken inshore on the hook and line, carefully handled and quickly landed and sold. Fish so taken are perfectly fresh, and their flesh is firm and in the choicest condition.

Overheated pipes during cold spells are the cause of numerous fires.

Encouraging the Boys

The 36th annual ploughing match of the Sherbrooke County Ploughman's Association was held on October 13th at Capleton, Quebec. One of the notable features of this match was the great interest in the boys' classes, of which there were two, one for single-furrow walking ploughs and one for two-furrow gangs. Both classes were well filled and the competition keen. The boy shown in the accompanying cut has won prizes in three successive years, and is now only 12 years of age, having begun to plough at the age of nine. This lad, who is being trained on the farm in the things that count, will eventually become master of the art of ploughing. He is also receiving a good school education, which, along with the practical training, will make him a happy and useful citizen.—F.C.N.

try of the world, Canada is at the present time exporting fish to the Old Country. This, of course, is owing to the war. So many trawlers have been taken by the Admiralty that the normal catch of fish has been greatly reduced—it is said as much as 60 per cent. Fish forms such a staple article of diet in Great Britain that this unwanted shortage is very serious. Under these circumstances, Mr. Bonar Law, the Colonial Secretary, appealed to Canada to come to the rescue, and a sample shipment has been sent over in the hope of developing a market for Canadian fish in London, at least for the duration of the war. Part of the shipment was fresh, frozen fish, but the greater portion was smoked and prepared. If the experiment proves a success, this consignment will no doubt be the forerunner of many more and larger cargoes. It is even possible that a market may be thus established for certain kinds of high-grade fish which will remain after peace is concluded and become a permanent item in Canada's commerce with the Motherland.

CANADA'S TIMBER SUPPLY

According to R. H. Campbell, Director of the Dominion Forestry Branch, Canada's present supply of commercial timber has been variously estimated to be between five hundred and seven hundred billion feet, board measure, and to cover an area of approximately 170,000,000 acres. This estimate of quantity and area refers only to timber of commercial value as saw-timber. It does not include pulpwood, firewood, tie and pole material nor small timber of any description, although this has undoubtedly a very large commercial value.

The Commission of Conservation is engaged upon an investigation of the forest resources of Canada, which, when completed, will furnish the basis for a more accurate estimate of the amount of timber in the various sections of the country than has previously been practicable.—C.Z.

Shipping Fish to England

Hope of Establishing a Market for
Canadian Fish

Although the United Kingdom
is the greatest fish-producing coun-



Cut No. 116 Result of a successful ploughing match.

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 the proper conservation of the same, together with timely articles covering town-planning and public health.

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OTTAWA, DECEMBER, 1915

GOVERNMENT CONTROL OF WATER POWERS

An item published in a recent issue of the "Canada Gazette" furnishes an admirable illustration of the change that has occurred during the past decade in connection with the public policy concerning the control of water-powers. The item referred to is a copy of an order in council authorizing Mr. J. B. Challies, Superintendent of the Water Power Branch, to recover for the Dominion, at a cost of approximately \$100,000, lands disposed of by auction about ten years ago. The property in question, situated along the Winnipeg River, is of immense value owing to its proximity to undeveloped water-powers. Since it was alienated in 1905, the federal government has adopted the principle that "no permanent title in any form should pass from the Dominion for a property dominating water-power." While it is manifestly impossible to make such a policy generally retroactive and thus correct past errors, the instance in question is one where the necessity for recovering the Dominion's interest is imperative. The entire scheme of Winnipeg power development would be jeopardized by the failure to remove this property from private control. The order in council approves the arrangements concluded by the Superintendent of Water Powers for repurchasing the lands and the adjacent water-power will be preserved unimpaired for future development under the Dominion water-power regulations.

From reports presented at the annual meeting of the Safety Council of the United States, it was demonstrated that eighty per cent. of accidents are due, not to faulty machinery, but to carelessness or ignorance on the part of the employees.

Ventilation and Fresh Air

Supplying of Pure Air to Homes in Winter of Utmost Importance.

Live night and day as far as possible in the fresh air.

With the advent of the winter season, and consequent lower temperatures, comes the real sealing up process in the houses. A supply of fresh and pure air becomes secondary in importance to the exclusion of the colder atmosphere. The consequence is insufficient pure air to properly sustain life at its best.

The open air is the greatest disease-preventing and disease-curing agency in existence. The air we inhale daily is by weight twice as heavy as the weight of all the food and drink we swallow. A man may live for weeks without food, for days without drink, but only a few minutes without air. Much greater care should therefore be taken to supply to our homes, places of business, schools and public halls a sufficient amount of pure air.

Authorities agree that each adult requires 3,000 cubic feet of air per hour. On this basis the total air content of the room 10 x 10 x 10 should be renewed three times every hour. The secret of good ventilation is to renew the air in a room at least thus often, day and night, without creating a draught. Owing to this danger it is necessary that the foul air be removed and fresh air admitted to inhabited rooms at such places as will not give rise to draughts. The simplest method of natural ventilation is that of more or less open doors or windows. As the most impure air in a room is at the ceiling, and the freshest at the floor, windows should be made to open from the top.

Winter and summer the bedroom window should never be closed when the room is occupied, except during very damp or foggy weather. Sleeping in cold air is not at all dangerous, if one is properly clad, although it may be so if protection be insufficient, and especially if the cold air plays upon the sleeper's head.

The open window is quite as essential to a large bedroom as to a smaller one. It cannot be too often repeated that tuberculosis is not contracted by exposure to cold, as our sanatoriums are situated in the coldest and driest climates. Dust and badly ventilated houses and factories are the real cause of this disease. Sir Morell MacKenzie, physician to the late King Edward, said "The process of re-breathing air that has already been used, if long continued, leads to asphyxia and death. Short of this much so-called 'delicacy,' susceptibility to cold, languor, headache and

nervous depression are also due to the same cause."

Canada is fortunately gifted with a bracing and healthy climate, resulting in the developing of a race of sturdy manhood. When pure and fresh air means so much in life, why shut it out from our homes, seal ourselves in and re-breathe the air from which we have already extracted and absorbed the life-giving element?

Market for Cobalt Metal

Possibilities of Use in a Large Variety of Industries

Canada is practically the sole producer of cobalt ore; the cobalt content of the ores mined in the Timiskaming district, Ontario, exceeds 2,000,000 lbs. per year. The market for this, at present, depends altogether on its limited use as a blue coloring substance. Hence there is a large accumulation of cobalt oxide at the smelters and at Cobalt. Under present industrial conditions, the smelters refuse to pay for the cobalt and nickel content and the miner receives nothing for this valuable constituent of the ore. Yet the metal cobalt resembles nickel in almost all its properties. Its density, malleability, ductility, hardness, tensile strength, and electrical properties are, so far as they are known, very similar to those of nickel. These properties of nickel make it of remarkable industrial value in the composition of a great variety of alloys. Of these may be mentioned the high-grade steels, where toughness and hardness are desired; for automobile parts, steel tubes, gun steel, cranks and crank-shafts, boiler-plates, tires, connecting-rods and axles; the nickel-iron wires such as "invar" and "platinite," with low temperature coefficients of electrical resistance and of expansion respectively; and the variety of important nickel alloys with non-corrosive properties, for coins, boat propellers, etc. It would be surprising if cobalt could not be advantageously substituted for nickel to produce a better grade of some of the above products. As these are high-grade products, where superior qualities are desired, a high cost, within certain limits, would not be prohibitive. Hence, if research leads to the substitution of cobalt for nickel, even in the case of one of these products, a market for the metal cobalt at a reasonable price would be assured, and large sums of money would be annually added to the returns from Canadian natural resources.—*Mining and Scientific Press.*

School children should be taught fire prevention and fire protection.

Forestry in Japan

Conservation is the Keynote—Reforestation Being Vigorously Prosecuted

The forestry situation in Japan is interestingly described, in a recent interview, by A. Nakai, a district forester from Tokio, who has been making a trip through portions of the United States, studying the administration of forest areas by federal and state governments.

"The total forest area of Japan, including Honshu, Shikoku, Kyushu, the Luchu islands and other smaller islands, is 56,820,000 acres.

The forests cover 78.3 per cent. of the total area of the Japanese islands. Of the 10,000,000 acres of forests in the principal islands of the group, two-thirds is in standing timber and the remainder is being reforested. The forests are classified into state, crown and private areas and the timber is chiefly cedar, spruce, birch and Japanese pine, which is similar in appearance to the red and white pine of the United States and Canada, but of different physical characteristics. It requires about 100 years for forest trees to attain a diameter of 14 to 15 inches at a point about five feet above the ground surface.

"Japan exports more timber products than it imports. Corea and parts of China and Europe, Australia and the United Kingdom consume most of the lumber exported, although the United States takes large quantities of our oak. The large timbers used in Japan come from the Pacific Northwest.

"Conservation methods work successfully in Japan and complete reforestation of denuded areas can be accomplished in from 80 to 100 years. Reforestation was commenced in Japan about 30 years ago and the system is now nearly complete.

"Patrol methods are followed in protecting Japanese forests from destruction by fire, a ranger's district covering from 5,000 to 6,000 acres. Volunteers fight the fires. When areas are cleared for reforestation, lines of about 40 yards in width are left open and kept clear to prevent the spread of fires. In Japan there are seven major forest districts and within these are 205 subdivisions, all under comprehensive control. Areas may be cleared for farming, but in Japan the farm units are small, averaging only three acres for each farm.

"Taking the timbered areas of Japan, including the southern portion of Sakhalien, which is 90 per cent. timbered, Formosa and Korea into consideration, it will be observed that Japan has a very large forest area—estimated at 54,000,000 acres in her colonies of Sakhalien, Formosa and Korea."

Co-Operation in Lumber Industry

Increased Efficiency in Fire Protection Secured Through United Effort

One of the most striking papers presented during forestry and lumbering week at the International Exposition at San Francisco, was that by Mr. H. D. Langille, of Portland, Oregon.

Mr. Langille's paper was entitled "Can manufacturers, timber owners and protective agencies unite to advantage?" The answer was in the affirmative, and the development of the subject constituted an admirable summing-up of the general trend of discussion in connection with the greater part of the extensive programme of the various conferences.

The present unsatisfactory condition of the lumber industry was shown to be due largely to lack of proper organization, and a strong plea was presented for more efficient co-operation among all branches of the industry.

The difficulty has been the result of retaining too long the old principles of individualism that other great industries have had to discard or greatly modify to reap success. The result has been an accumulation of evils, including over-production, unnecessary waste, undue loss of markets to substitutes, unfair tax legislation in some cases, inefficient fire protection over great areas, and a general failure of the industry as a whole to make a concerted effort to protect and develop its broad and legitimate interests in an intelligent manner.

The volunteer agencies have been numerous, but only partially effective, due mainly to lack of paid experts in charge of each branch of the work. Marked success has followed the efforts of the limited number of local co-operative organizations which have secured such men. Examples are the Oregon Forest Fire Association and the Western Forestry and Conservation Association. Similarly, success may be expected to follow the new campaign of the National Lumber Manufacturers Association, which has recently established a trade extension department, under a paid expert, to advertise the wider legitimate use of wood in all lines of industry. In Canada, similar examples of increased efficiency in fire protection work, resulting from a greater degree of co-operation, are the St. Maurice and Lower Ottawa Forest Protective Associations.

The program which Mr. Langille advocates is as applicable to Canada as to the United States. It is in the interest of true conservation, aiming to secure better



Cut No. 117

THRESHING CLOVER SEED IN QUEBEC

The above is a clover huller at work at Lennoxville, Que. It was purchased co-operatively by the farmers of the district, and this year threshed a very good crop of seed. When the farmers grow their own clover seed they will sow more crops to the acre, seed more acres annually, reap better crops and have more fertile farms.

utilization of our forest wealth, better fire protection, and, in general, the perpetuation of the forest, upon which the continued existence of the lumber industry must depend.

The plan advocated is the amalgamation of the many organizations of timber, manufacturing and marketing interests into single bodies as broad in scope as the requirements of the territory over which their respective activities should extend; these units are to be organized into departments, with competent men at the head of each, their work to be standardized and results required.

The activities of the timber department should include such subjects as statistics, forest protection, taxation, legislation, forest policy, publicity, and logged-off lands. The manufacturing department would cover such lines as logging methods, log scaling, accounting, grades and inspections, traffic and claims, production, utilization of present waste, and efficiency.

Under the marketing department, Mr. Langille suggests that the work include advertising, market conditions, building codes, designs and plans, wood-block paving, new uses, by-products, technical research, exhibits, trade marks, and salesmanship.

Beyond question, such organized effort would benefit not only the timber and lumbering interests but the entire country. In fact, many of the subjects have already received much study from various governmental agencies, and the legitimate interests of all concerned would be forwarded by closer co-operation and united effort.

—C.L.

Results from Poor Seed

Waste of Time and Effort When Seed is Not Satisfactory

In the spring of 1915, when the instructions were sent out to the various farmers carrying on

Illustration work for the Commission of Conservation, the advisability of sowing seed of first quality was strongly emphasized. Despite this warning, however, one farmer in western Ontario, neglected to procure a supply of good corn for seed. When planting time arrived, he purchased a quantity of ordinary corn and planted it, though ignorant of its quality. As the result showed, it was poor seed, and only about half of it germinated. The crop that came up was not very strong and was partly pulled by the crows. The field had to be replanted and when seen by the writer on August 3rd, was strong evidence against planting poor seed corn. This farmer admitted that he was entirely at fault in simply putting off getting good seed until too late, and said that he had been taught his lesson.

Where corn is grown and can be ripened for seed, the matter of selecting enough of the very choicest ears for next season's crop is so simple and, where corn is grown but cannot be matured for seed, the cost of procuring dependable seed is so small that no farmer can afford to sow anything but the very best.—F.C.V.

Great Waste in Mining

Over Capitalization, Requiring Maximum Production, Induces Disregard of Valuable By-Products

The losses sustained in other countries from lack of care and thought in this respect are enormous. Dr. James Douglas estimates, for instance, that at the Rio Tinto mines in Spain in a period of some 30 years, through the unskillful treatment of ore, about 7,000,000 tons of sulphur, valued at not less than \$70,000,000, were wasted, while with modern improvements in the method of handling the ore, about 1,000,000

tons of sulphur are annually saved to the world which would otherwise have been burned and served simply to pollute the atmosphere. He also points out that only about 60 per cent. of the hundreds of millions of dollars yielded by the Comstock lode was extracted at the time, and at first the rich tailings were not even collected, such was the haste of the miners to deplete that stupendous deposit which should have made Nevada prosperous for generations, instead of whirling the whole country into a mad dance of recklessness speculation.

The primary cause of a large part of this waste is over-capitalization, which involves a large output at any expense, if the value of the shares is to be raised and their price maintained. Over-capitalization generally demands over-production, which in its turn almost invariably involves waste at some stage of the progress of the metal from the mine to the consumer.—Dr. Adams, at Sixth Annual Meeting, Commission of Conservation.

Christmas Decorations

Many Fires are Due to the Use Of Unprotected Lights Near Decorative Material

Artificial light has become almost a necessity for decorative purposes, and consequently its use has been largely extended. This is especially so at Christmas festivities. In business houses the display of holiday goods is enhanced by the abundant use of electric light and other illumination. There is, however, danger in this, and, unless precautions are taken, serious fires may result. Great care should be taken that none of the decorative material comes in contact with the lights. Usually the decorations are very inflammable; when in close contact with even an electric light bulb they quickly become charred and start a blaze. Paper shades on lights, candles on Christmas trees, or in so-called Japanese lanterns have started many serious fires.

Especially at public entertainments, such as church festivals, great care should be taken. Fire extinguishers should be at hand in case of necessity. Where lighted candles are used on Christmas trees, the responsibility for seeing that the lives of those present are protected and every precaution taken for the safety of life and property, should be definitely assigned.

The electric iron left with current turned on has many fires to its credit.