Conservation

A monthly bulletin published by the Commission of Conservation, Ottawa, Canada.

VOL. IX NOVEMBER, 1920 No. 10

Standardization of Fur Trade Names

Protection of the Fur Buyer and Seller by Well Understood Names is Essential

Misleading names for the pelts of some of our fur-bearers have been the cause of much confusion in the public mind. Processes have been developed by which varieties of furs are produced in imitation of others until only an expert can identify the original skin. This has led to the use of many fanciful names and to substitution and misrepresentation by unscrupulous dealers.

At the Fur Trade Conference, held in Montreal in February last, under the auspices of the Commission of Conservation, a committee composed of leading furriers and the Deputy Head of the Commission of Conservation was appointed to consider the question of "trade names" for furs. This committee, after careful consideration, has requested the government to introduce legislation prohibiting the use of inaccurate or misleading names of furs. The committee recommended that, "in cases where pelts have been so dyed and treated as to appear different from their natural state, the original name should be retained, with the use of a properly descriptive adjective prefixed."

Under this regulation "Hudson" or "Baltic" seal would be described as "sealed muskrat" or "seal muskrat" or "seal-dyed muskrat." "Near" or "electric" seal would be "seal-dyed rabbit", and "Alaska sable" or "black marten" would be known under its own name as "sable-treated skunk", or "sable-dyed skunk" or "marten-dyed skunk" or similar name which includes the name of the fur-bearer whence the pelt was derived.

Canada is the home of many different species of fur-bearers, and is also cultivating a large fur-farming industry. It is, therefore, essential that this industry and the purchasing public be protected by the sale of furs only under properly authenticated trade names.

Preliminary work on the development of the Bridge River power site near Lillooet, B.C., is being carried on. The development will entail an expenditure of $30,000,000; the head will be 1,600 feet and 400,000 horse-power will be available.

Live Silver Fox Exhibition

The first international exhibition of live ranch-bred silver foxes will be held in Montreal, Nov. 24th, 25th, and 26th, under the immediate management of the Commission of Conservation. Many entries are expected, not only from Prince Edward Island, the centre of the fox-farming industry, but from fox-breeders in other provinces and in the United States.

During the exhibition it is proposed to form a fur-breeders association of Canada to organize and manage the future exhibitions which it is expected to hold annually and to include ultimately not only foxes but mink, beaver, muskrat and other fur-bearers reared in captivity. It will, therefore, be of exceptional interest and advantage to all interested in the Canadian fur industry to attend this exhibition.

The secretary is Mr. F. C. Nunnick, Commission of Conservation, Ottawa.

Fashions in Fish

Red Salmon Holds the Market Despite Flavour and Edibility of Pinks

British Columbia salmon provides one of our most important food fishes. Three species of this fish are utilized by the canners, namely, sockeye, pinks and chums. The sockeye is what is known as the red salmon and is always in demand; as a result of the heavy demand, the species is threatened with ultimate extinction. Prices have risen to the point where sockeye salmon may be considered almost a luxury.

An anomalous condition existed during the recent salmon fishing season on the British Columbia coast, when the Alaska fisheries were shipping their red salmon to British Columbia, while British Columbia fisheries were shipping their pinks and chums to United States canneries. This was due to the lack of a market in Canada for pinks and chums; whereas there was a demand for them in the United States.

Red salmon is in demand only because it has been accepted by fashion or usage as its choice. Dr. Edward Prince, Chairman of the Biological Board of Canada, in addressing the Commission of Conservation, said: "When I say that the value of canned salmon rests more on the colour of the meat of the fish than upon its flavour, you see how important it is to know to what the colour is due. The best flavoured salmon on the Pacific coast is least in demand on the market because the colour is pale. The inferior salmon, of a rich red colour, brings the best price, and takes the lead, because of its colour, this having no relation to excellence of flavour or edible superiority."

With pink salmon priced at one-half that of the red, we seem to be paying a high price for a preference of colour only, while at the same time we are neglecting a food supply which is available at a very moderate price.

Farmers are Keeping Accounts

Twenty thousand *Farmer's Accounts Books* have been supplied to Canadian farmers by the Commission of Conservation for the purpose of keeping records of farm accounts.

This farm record book enables the farmer to keep a complete account of all financial transactions on the farm—the receipts and expenditures for the several branches of work, for horses, cattle, sheep, swine, poultry, field crops, etc., and for labour and miscellaneous. It provides also for an inventory of lands and buildings and of live stock, feed and supplies, and machinery, together with a summary of the year's business. Instructions for keeping the accounts are clearly set forth. Additional valuable features are a yearly crop yield record, a live stock service record, and aids in taking inventories.

The Commission of Conservation still has a number of the Farmer's Account Books on hand, in both English and French, which may be obtained at 15 cents per copy.

New Manitoba, north of latitude 53, last year produced from natural resources $3,500,000 worth of commodities, including copper and gold ores, fish, furs, timber and agricultural products.

Source of Large Waterworks Losses

Defective Fixtures and Corroded Pipes Permit Waste of Water

The great benefits derived from a water waste survey cannot be too strongly stated. In almost every waterworks system which has not been tested in this way, large leaks or other wastes are certain to exist.

Even the most efficient systems, when tested by pitometer surveys, almost invariably reveal poor, but easily remedied conditions at one or more points. These conditions, if allowed to remain, usually involve an unknown, but very expensive, drain on the operating expenses or a loss in revenue.

A recent example, typical of conditions revealed by such a survey, is that of the waterworks system of a city in the state of Indiana, which supplies a population of some 75,000. In this case, the survey exposed conditions which when corrected reduced a daily consumption of some 10,000,000 gallons by an average of 669,000 gallons. The underground leakage amounted to over 500,000 gallons per day which, at 5 cents per thousand gallons, represented a waste of over $9,000 per annum. Many other defects were brought to light, including the service to a large packing plant supplied on meter rate; a supposedly disused 4-inch service had never been shut off and unmetered water was being supplied through it. The meter on the other supply pipe for this packing plant, due to a wrong set of gears on the dial, was registering 45 per cent slow. The annual loss to the department in this case alone was estimated to be over $3,000. In another portion of the system, where the piping was old, the night consumption was out of all proportion to the day rate. Investigation exposed a 1-inch connection discharging full into an abandoned vault and three 1-inch services broken off at the mains. Approximately 35,000 gallons were wasted daily in a public school where the fixtures were running continuously night and day.

Among other defects were numerous bad leaks on service connections, a drain line valve partly opened, fire hydrants with drain valves discharging into sewers and several unauthorized connections from which no revenue was realized.—*L. G. Denis.*

Cheap Power for Alberta is Urged

Associated Boards of Trade Take Action to Promote Power Development

Public opinion in Alberta appreciates the fact that the production and distribution of cheap electrical energy is of cardinal importance to the general progress and prosperity of the province. At a recent meeting of the Alberta Associated Boards of Trade the following resolution was passed:—

"That in view of the beneficial results in other provinces, we urge on the Provincial Government the extreme importance of the development of cheap power in Alberta, whether from water-power, coal, natural gas, or other source, at the earliest practicable moment."

The urgent necessity of providing for a comprehensive system and policy of power production and distribution in the Prairie Provinces has on a number of occasions been pointed out by the Commission of Conservation. Mr. James White, Deputy Head of the Commission, in a paper read at the Calgary Industrial Congress last year, indicated that the proper future solution of Alberta power problems lies in electric generation from coal in comparatively large super-power central stations properly located both with regard to coal mines and power distribution centres and using small coal that would otherwise be wasted. The paper reviews the various other possible sources as follows:—

"Owing to its unique characteristics, its special adaptability for various purposes, and the possibility of its rapid exhaustion, natural gas should be zealously conserved for use in its sphere of greatest efficiency. In my judgment, this sphere is not the development of power on a wholesale scale.

"The water-powers of Alberta, valuable though they be, are, nevertheless, limited both with respect to magnitude and situation. Owing to low-water conditions, water-power must be augmented by power from other sources.

"Now, the great source to which Alberta must look for power is her coal. During recent years, the great advance made in the art of the production of steam-power is phenomenal. This advancement has given coal, as a prime agency for power development in competition with other prime agencies, almost a premier position. Those interested in the furnishing of power on a wholesale scale in Alberta must make their research into, and selection from, the achievements made in recent years in the field of power produced from coal."

In connection with this move for public or co-operative efforts towards well organized power production and distribution, it is of interest to note a recent statement by Mr. H. G. Acres of the Ontario Hydro-Electric Power Commission:—

"Under co-operative municipal ownership, a block of power delivered to the outgoing lines at Niagara is not valued by what it can profitably be sold for, at so many dollars per horse-power per annum, but by what it means to the individual citizen as an agency for increasing his comforts, conveniences and general standard of living, and for facilitating increased commodity production. Such conditions tend toward the building up of the greatest asset any country can possess, an increasingly prosperous and contented population."

Protection of the Farming Machinery

Closer Scrutiny of Costs of Production Necessary under Lower Price Conditions

One of the factors entering into the cost of farm production is the outlay for machinery. The present high prices of equipment are a serious cause of complaint from the farming interests, and yet many farmers are content to leave their machinery and implements exposed to the weather, often in the field where last used.

In a manufacturing plant, where all machines are under cover and well taken care of, 10 per cent depreciation is written off annually. What, then, must unprotected machinery suffer?

High prices for farm produce have been to a certain extent conducive to carelessness in the costs of farming. The lowering of prices will compel a closer scrutiny of farm expenses, and one of the important items will be cost of machinery and repairs.

Protection of the equipment from weather will largely reduce repair bills. At the end of the season, all wearing parts of the machines should be well greased, accumulations of dust removed, and they should be placed under cover. An implement shed will quickly pay for itself in saving in outlay for repairs, apart from the fact that it facilitates cleaning, repainting or repairing machinery during spare time.

Seasons and weather will not wait for farm machinery that is unready, and a heavy loss may often be the result. To the increasing number of farmers who are keeping accounts of their farming operations, this item of upkeep of plant will appear as an outstanding and largely avoidable expense, and the more general keeping of farm accounts may directly effect the reduction of the present waste.

Reports from the Arctic slope as to the quantities of fish available in those waters have been so encouraging that the Mackenzie Basin Fisheries Co. is installing a $700,000 cannery plant at Black Bay lake, Athabaska.

Many Sockeye Reach The Spawning Beds

Although an Off-year the Spawning Beds on Fraser River are Well Seeded

More sockeye salmon passed through Hellgate, in the Fraser River cañon above Yale, this year, and reached the spawning beds of the upper lake section of the Fraser basin than in any other season during the last five "lean" years, according to John P. Babcock, Deputy Commissioner of Fisheries for British Columbia and a member of the Commission of Conservation.

Hellgate on the Fraser was the scene of the great rock slide of 1913 which occurred during railway construction on the banks of the Fraser river, and prevented the salmon from reaching the spawning grounds. Unfortunately, 1913 was one of the "big" years, and this resulted in a much reduced migration to the spawning grounds in 1917, the next big year. Mr. Babcock quotes Fishery Overseer Scott, who has been observing conditions in the Fraser River cañon during the season, as reporting that the number of sockeye that passed through Hellgate this year was as great as in 1917.

This heavy run of sockeye to the spawning beds augurs well for a successful fishing season in 1924, at the conclusion of the four-year cycle. As Mr. Babcock has said, speaking before the Commission of Conservation in 1918, "If the spawning beds are well seeded, you can confidently expect a run four years hence. It does not necessarily follow that you will, because, for three years, when the fish are out in the ocean you do not know what happens to them. You can seed the beds well and have a failure, but if you do not seed the beds you cannot have a run. The fish cannot possible be hatched in salt water, therefore, the spawning beds must be protected, and sufficient fish allowed to reach them, if we expect a continuation of the sockeye runs."

It must not, however, be inferred that the runs of the "big" years have recovered from the enormous injury done to them by the rock slide in 1913. The catch in 1921 may be so reduced that it will not be greater than one of the so called "lean" years.

Hydro-Electric and Man Power Compared

Higher Wages Demand Greater Use of Mechanical Power in Production

The direct relation of the intensive use of electrical energy to national prosperity is often much underestimated. The importance of electricity, and particularly of hydro-electric power, has been increasing at a very rapid rate. It is certain that in the near future, it will prove to be an even greater productive factor and it is, therefore, essential that we should jealously safeguard its primary source, our water-powers, by guiding them into proper channels of development and utilization.

Recent opinions expressed in Great Britain confirm this view. The *Times Engineering Supplement*, referring to conditions in England, states that, "it would be of national value if all classes of the community could be brought to understand what enormous productive power is implied in the universal employment of electricity. It is surprising how much more momentum is gained for fallacies than for truths in economic propaganda. The greater productive power per head in America is still industriously used as a proof that the workmen of the United States are more energetic. The fact is simply that the American worker has commonly two or three times as much horse-power to assist him. It is not his bodily energy but his electrical energy that produces these results. Formerly, when wages were low, it seemed to pay the British manufacturer better to put his money weekly into the purchase of human power than to incur capital expenditure in the installation of higher mechanical power equipment; but in the present circumstances conditions are obviously changed. There is profit in horsepower, as compared with anxiety and probable bankruptcy in lavish employment of man power".—*L. G. Dem.*

Utilization of Moleskins

Where moles are plentiful, it frequently becomes necessary to trap them to reduce their numbers. When this is done, the skins are well worth saving, as they are not troublesome to prepare and good skins bring 50 cents each or more. The largest and finest moleskins are obtained on the Pacific coast.

Specially designed traps are employed for catching moles. These are set in the underground runways and in such a manner that, when the animal follows its natural instinct to repair the runway or to heave up fallen earth, the trap is sprung. One type has scissor-like jaws which straddle the passage; another has choker loops which are set so as to encircle it. The soil must be loosened so that the trap may close through it. To place the trap in the runway itself is futile, as the animal will then make its way either under or around it.

With care, a mole can be skinned with a pair of strong scissors or a pocket knife. The skin should then be tacked on to a board, fur side inwards, and stretched as much as possible. It can then be dried, but not in the sunshine. After drying, skins may be stored indefinitely if kept free from mice and insects.

Moleskins are used to make neck-pieces and muffs for ladies' wear and sometimes for cloaks. The fur is soft, close and velvety and generally uniform in colour. A process of home-tanning moleskins is described in Farmer's Bulletin 832 of the U.S. Dept. of Agriculture, which also gives illustrations of the various traps, etc.

Commission of Conservation
CANADA

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CONSERVATION is published monthly. 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 housing and townplanning.
The newspaper edition is printed on one side of the paper only, for convenience in clipping for reproduction.

OTTAWA, NOVEMBER, 1920

Conservation the Duty of the State

Not Necessarily the Business of the Individual to be Concerned about the Future

Prof. John Bracken, President of Manitoba Agricultural College, introduced his address at the Conference of Soil Fibre and Soil Fertility, under the auspices of the Commission of Conservation, at Winnipeg, as follows:—

"I was pleased to hear the Deputy Head of the Commission of Conservation make a statement to the effect that the function of the Commission was not to develop our resources at the expense of the future, nor to retard present development for the sake of the future, but rather to develop our resources to the utmost without wasting them.

"That is a motto that many of our public institutions might adopt. There are no resources that lend themselves to development and conservation at the same time to the same extent as our agricultural resources; and while this is a function of the Commission, I think it well to emphasize the fact that, if left to individual initiative, the problem of development and the problem of conservation tend to dissociate themselves. A farmer on the Portage plains or in the Qu'Appelle valley, or in the Moose Jaw district, finds it profitable, under favourable conditions, to grow wheat. As an individual he finds it returns him an immediate profit, but there is no getting away from the fact that he is growing that wheat at the expense of the soil—that, while he individually may make a profit, the state is the loser. In other words, in the way that our society is organized at the present time it is not necessarily the business of the individual to be concerned about the future of the state; it is rather the business of the state to conserve its own future. Hence we realize the great need for encouraging such organizations as that holding this conference to-day."

Did Not Expect It Would Spread

The Provincial Forester of New Brunswick, Mr. G. H. Prince, in his report on forest fires during 1919, makes special reference to the losses caused by settlers' clearing fires and camp fires. In 36 cases, action was taken against parties for violation of the fire laws. The officials of the Forest Branch made it clear to the offenders that they did not wish to deal harshly with them but that the fire laws must be observed, in the interests of themselves, their neighbours and the timber owners. The presiding justice severely reprimanded the offenders, pointing out the danger of neglecting slash fires, in which many of the delinquents had lost their homes. None of the defendants pleaded ignorance of the slash-burning law, but each claimed *he did not expect his little fire to spread so rapidly.* The losses due to these small beginnings exceeded $100,000.

What Constitutes a Load of Wood?

Standardization of Delivery Boxes would Promote Confidence and Enlarge Market for this Fuel

The fact that, on cut-over lands, hardwoods are becoming the preponderating species and that a very limited market exists for this timber demonstrates the desirability of the greater use of hardwood for fuel. The coal shortage could be largely offset by using the fuel which our forests provide.

One drawback to the more extensive use of hardwood for fuel has been the method of marketing. Prices are quoted per load, and a load may consist of any quantity, depending upon the dealer. Naturally the public is reluctant to purchase an unknown quantity.

The experience of one consumer with what is known as "millwood" emphasizes this point. The dealer refused to sell it by the cord but quoted it at $3.00 per load. Measurement of the load disclosed the fact that $3.00 per load was equivalent to $28 per cord. On the basis of heat values, this was equivalent to $56.00 per ton of anthracite. This class of wood was later sold by the municipality at $7.50 per cord, and hardwood (one cord equal to one ton of anthracite) at $13.50.

One Canadian city has standardized the size of wood delivery wagon boxes. A by-law provides that the capacity of a "double load" box must be 168 cubic feet, which is considered to be equal to one cord of wood as ordinarily thrown in. The box for a "single load" must have a capacity of 84 cubic feet. The by-law also requires that the driver of the wood delivery wagon shall before unloading invite inspection of the load by the purchaser or his representative.

This regulation might well be adopted by all municipalities; it would undoubtedly enlarge the market for wood fuel, as the consumer would no longer be compelled to purchase a load without knowing what quantity he was getting.

Alberta's Tar Sands

Probability of Successful Extraction Process Emphasizes their Importance

A recent Dominion order in council provides for the withdrawal from sale, lease or settlement of approximately 55,000 acres of land along the Athabaska river, this area embracing the well-known bituminous sands, commonly known as tar-sands. Dr. H. M. Tory, president of Alberta University, and a member of the Commission of Conservation, addressing the Calgary Board of Trade recently, stated that a noted scientist is engaged upon experiments looking to the successful extraction of bituminous and other hydro-carbons from the tar-sands, and he expected the problem would be solved within six months.

The tar-sands contain only 18-5 per cent of bitumen; and to be commercially successful, costs must be reduced to a minimum. Should the process be successful commercially, a large and rapidly expanding market is available, and a new Canadian industry would be developed for the utilization of this natural resource. Distance from the market will undoubtedly prove a handicap, but the opening up of the country will eventually secure to the district additional shipping facilities.

Waste Paper Buys Sporting Equipment

Children Take Keen Interest in Collecting When Returns Used for Athletic Purposes

The number of inquiries reaching the Commission of Conservation indicates an increasing interest in the saving of waste paper. Schools are taking up the work, and, in some cities, a friendly rivalry among the school children has resulted in a much larger quantity being secured.

The schools of Vancouver, B.C., have taken the work up with energy, and, during last season, sold over 60 tons. Great interest is taken by the children in this method of obtaining school funds, and the school teachers agree that the work teaches them thrift. The pupils also compete individually in collecting, but all money earned is pooled in the interest of the school. Baseball, basketball, cricket and other athletic equipment is purchased for the use of the pupils, and the possession of these outfits tends to promote inter-school competitions. School skating rinks can also be supported by these earnings.

Apart altogether from the financial returns, the work is one that is of national importance. The demand upon the forests for pulpwood is enormous, and, while the utilization of mixed waste paper for the manufacture of newsprint is not yet commercially feasible, it is being generally used in making building and roofing papers, boxboard, etc.

Unfortunately, in some portions of Canada, distance from a market renders the collection and sale of waste paper unprofitable, but this condition is rapidly being overcome by the higher prices being paid for the material. The Commission of Conservation will supply the names of dealers in waste paper and of paper mills utilizing waste paper to those desiring to undertake its collection.

Future Canadians Will Condemn Us

Natural Resources Not Alone for Present Generation—Waste Will Merit Censure

"Any person studying the political and constitutional history of Canada sees arising out of its mists a national form of beauty and strength, requiring still development. At the present time, Canada is in a stage of self-consciousness, a stage in which egotism may develop to its injury, or where it may be guided by sane thought into safe paths. Its greatest dangers are selfishness and waste, a selfishness which does not exist simply in the present disregard of the rights of others, but a disregard for the rights and interests of those who are to follow us, and for whom as well as for ourselves this heritage was given. The selfishness lies in a sacrificing of the future for the present. We are told that that which is seen is temporal but that which is not seen is eternal, and the Canadians of to-day are not simply to act for the present moment, but to build for the future; they are to conserve and save, not to exhaust or destroy any part of its heritage.

"Nature has been very prodigal in giving us such marvellous natural resources, the greatest of which is perhaps the fertility of our soil, for Canada is essentially an agricultural country, whatever else it may develop into. If from misuse and lack of care, the soil is exhausted, the country is going to suffer and future generations will condemn us. It is to consider the conservation of this soil and the present proper use of it that you are now assembled.

"Well might Canada as a whole, so abundantly supplied with all the provisions necessary to sustain the life of many millions in happiness and health, with bowed head and lifted heart ask the blessing, that our natural resources might be consecrated for our use, not to be abused, not to be dissipated, not to be wasted, and that the people of Canada so using them may be employed in the protection, the development and general service of our country. Why should it in any respect barter its future for its present wasteful enjoyment?"—*Sir A. J. M. Aikins, Lieutenant-Governor of Manitoba, in address of welcome to Conference on Soil Fibre and Soil Fertility of the Commission of Conservation at Winnipeg.*

Planning Road Widths

Unnecessarily Wide Roads Enhance Cost of Municipal Improvements

The present unscientific system of fixing the alignment of roads is accompanied by an equally unscientific system of fixing road widths. Most roads are too wide and many are too narrow, and those that are too narrow are restricted in width by reason of the law which requires the others to be too wide. It may be claimed that, both in rural and urban territory, a general average of 66 feet is wide enough for all purposes and that no community, even when relatively closely settled, can afford to lay out and pave streets of a greater average width.

The minimum standard in Ontario and elsewhere is 66 feet. This standard applies to the main arterial thoroughfare required to carry heavy traffic and to the short residential street required for the purely domestic needs of a few houses. In many districts acres of macadam, asphalt and concrete laid in a few streets might with advantage be used over twice the length of street now paved. One consequence is that the cost of local improvements in many localities is so great that money is not available for necessary purposes of public sanitation. Another is that the tax burden on the property owners is so heavy that they are proportionably limited in the capital available for making their houses sanitary and durable in construction, and they are compelled to crowd their land with buildings in order to put it to economic use.

But even at this late day, with all the lessons we have had of waste of land and unnecessary expenditure of capital in providing far too wide roads for purely local traffic, there are those who regard any suggestion to make streets narrower than 60 or 66 feet as reactionary. There are few, however, who will deny that it is impracticable, in any community where the density of building is comparatively open, as in Canada, to provide land and make satisfactory roads or streets to a greater average width than 66 feet. What happens is that the land provided for roads or streets, as the law requires, but that few of the roads or streets are ever properly constructed, the reason being that there is too much road surface for the population, even when the land is closely settled. *Excessively wide streets, instead of securing more air space, cause congestion, e.g., in the erection of apartment houses in towns, because without such congestion the frontages could not afford to meet the cost of local improvements.* This is being proved in Canada where the tendency towards the tenement building is being created by the wide street. In the rural districts, although land is plentiful and cheap, it stands to reason that all roads should not be of the same width, and that there should be variation to suit the requirements of traffic.—*Rural Planning and Development.*

Timber Cruising and Land Surveys

Inventory of Ontario Forest Resources Handicapped by Lack of Elementary Data.

Officers of the Commission of Conservation, who have been engaged upon the work of making an inventory of the forest resources of Ontario, have been struck by the lack of reliable information regarding the timber conditions in certain regions which have been opened up by railways for some time and for which it might reasonably be expected that fairly accurate and complete data would be available. There is a notable absence of the results of systematic cruising which could very economically be carried out in conjunction with land surveys. Undoubtedly, progress in the work of cruising timber areas was very severely handicapped during the war by the difficulty of securing the necessary staff.

In view of the frequent inquiries from foreign investors for authentic information respecting the timber and pulpwood resources that are available for exploitation in Eastern Canada, it is essential that the work of making thorough timber cruises and of compiling authentic forest maps be given sufficient staff and funds to ensure immediate and rapid progress. There is little doubt concerning the availability and the eagerness of capital to engage in the development of forest industries—the most urgent need is to make known the situation, character and quantity of the resources that are available for such exploitation. The Commission of Conservation is collecting and collating all of the authentic data that can be obtained in regard to Ontario, but the task is rendered doubly difficult by the fact that over many large and important areas satisfactory cruises have never been made.—*A. V. Gilbert.*

Water Power and Location of Plant

Industrial Supremacy Passing from Coal to Hydro-electric Energy.

The presence of coal has been one of the most important factors determining the industrial expansion of various countries during the past hundred years or so.

This condition is gradually changing through the exhaustion of coal supplies. A recent article by G. H. Ashley, State Geologist of Pennsylvania, emphasizing the necessity of replacing coal by water-power is particularly significant, coming from one who is well able to judge the situation in this great coal state. His statements are of special interest to Canada in view of the prediction that industrial supremacy will, eventually, pass from coal-depleted regions to areas where large water-powers are available. It is even pointed out that one way of keeping the industries where they are in the United States would be by the importation from Canada of enormous quantities of hydro-electric energy available on the St. Lawrence and at Niagara.

Mr. Ashley holds that: "The industrial East has maintained its supremacy because of cheap fuel and nearness to markets. Because of cheap fuel Pittsburgh afford to haul iron ore from Minnesota. It does not take a seer nor even a scientist to point out that, if our present increased use of power continues, a generation will see the exhaustion of cheap fuel in the East."

"A review of the field to-day shows that, in several of the districts, practically all of the thick coal has been mined out, while in others it is possible to count the years to the time when the supply will be gone. It may be argued that, as the cost of coal increases, the manufacturing interests of the East will turn to water-power. That argument leads to the question of the adequacy of the water-power of that region to take over the burden now carried by coal."

"In addition to the powers within the boundaries of the northeastern United States, there are large powers to the north in Canada. The St. Lawrence below the international boundary is estimated to have a potential horse-power of nearly 1,500,000, and the two provinces of Quebec and Ontario have been estimated to have a maximum of 6,000,000 h.p. each, including that from Niagara and the St. Lawrence. Already 125,000 h.p. is imported into New York from Ontario, and a small amount is imported into New England. If all of the Canadian water-powers were developed and Canada would allow the exportation of, say, one-half the power, or 6,000,000 h.p., it is probable that the northeastern corner of the United States could look forward to an ultimate utilization of not less than 10,000,000 to 12,000,000 water horse-power."

It need hardly be pointed out that the benefits accruing to Canada from the exportation of 6,000,000 horse-power would be relatively negligible. *One large manufacturing plant using, say, 1,200 h.p., would employ more men than the water-power plants generating 6,000,000 h.p.*

Mica And Its Uses

Its Heat-resisting Qualities Render it an Effective Insulator and Lubricant

Mica is one of the most useful minerals, the production and distribution of which is little known. Of the many varieties, only three are of commercial importance, and of these but two are available in any quantity—the muscovite, or white mica, and the phlogopite, an amber mica. The latter is the most important of the Canadian micas.

India is the largest producer of mica, providing over fifty per cent of the world's supply. Canada produces about 25 per cent, and the United States and other countries the remainder.

In Canada, mica occurs pretty generally. The most productive areas are situated along the lower St. Lawrence below Quebec, north of the Ottawa near Mattawa, and in the townships of Burgess in Leeds county, Lanark in Lanark county, and Loughborough in Frontenac county, also in a few areas in British Columbia. The production of 1919 was valued at $273,305.

Mica mining is attended with many difficulties. For successful exploitation it is essential that the miners be experienced in the mining of this material, and be familiar with the special conditions and problems it presents. Many good mica deposits have been abandoned on account of the lack of experience of the operators.

The general run of mine mica is of a small size. A very small percentage produces sheets of 4 x 6-inch surface, while fully fifty per cent will cut to 1 x 3 inch sheets only. Fortunately, a process of cementing the small sheets enables the building up of larger surfaces. This product is known as "micanite" or "mica board" and is mostly used in the electrical industry for insulation. Mica is largely used in the manufacture of boiler and steam pipe covering, its insulating properties exceeding by far that of any other known substance. Comparative tests have demonstated that the loss of heat from bare pipes has been reduced by 90 per cent when the pipes were enclosed in mica covering.

Owing to its resistance to shock mica is used for spectacles or goggles worn by workmen in industries where flying chips or sparks endanger the eyes, and in observing processes of melting and fusing in furnaces. The small pieces of mica, formerly wasted, are now used for various purposes. When ground fine in oil, mica forms a valuable lubricant, especially for shafting or journal boxes on locomotives or railway cars. Ground mica, when mixed with a flux, is also used in giving to wall-paper and other substances a silvery effect.

So many uses are being found for mica that what was formerly an industry with a very large proportion of waste, is now one in which the material is almost completely utilized.

Hardening Concrete

Experiments by the United States Bureau of Standards to develop a method of accelerating the hardening of concrete, especially when it is to be used in wet or damp situations, have shown that 4 per cent of calcium chloride added to the mixing water increases the strength of concrete at the age of one day 100 per cent or more. In some cases in two days the strength equalled 75 per cent or more of that normally attained in one month.