

TO BURN COAL TWICE

Henry Ford is not the only man who undertakes to "burn coal twice." The process recently acquired by him, and described not long ago in *The Literary Digest*, is only one of a very large number for the "low-temperature carbonization" of coal. No less than eleven American processes are described in *The Chemical Age* (New York) by Charles V. McIntire, chairman of the Low-Temperature Carbonization of the American Gas Association; and this takes no account of English, German and other foreign processes. Mr. McIntire believes that all these are still experimental and in no shape to be taken up by the small investor, although he notes that both the engineer and the layman continue to feel that the pressing need of a suitable substitute for anthracite coal as a domestic fuel will be met by some process of low-temperature carbonization. He continues:

"The distillation of coal at low temperature holds a certain fascination for the layman as well as for the chemist and the inventor. It should be said here that there have been no developments which would justify any assumption that the art has passed from the experimental into the commercial field. Distillation of coal at low-temperatures has most certainly not been done on a money-making scale, yielding profits sufficient to carry the operating costs and the capital charges. It has been tried experimentally; and in one case in a full-sized commercial plant, but none of these attempts has been entirely satisfactory. No process has yet made public any data which would justify the small investor in investing in it, and the development of any process is a matter only for large capitalists. One of the greatest misconceptions held with regard to low-temperature carbonization, even on the part of some technical men, is the assumption that the by-product yields from low-temperature processes are so superior in value to those derived from high-temperature processes that the revenue from them would immediately remove low-temperature coke from all fear of competition with by-product coke."

"When low-temperature tar is made in large quantities, and the fractions become available to the industrial arts, a market will undoubtedly arise to absorb them, most authorities agreeing that these tar-oils are potentially more valuable than the secondary tars of the coke-oven. This showing in favor of the low-temperature process, however, is almost balanced, under present conditions, by the much larger quantity of saleable gas produced by the coke-oven. Ammonia yields are also in favor of the coke-oven."

"The men who are backing the various processes do not agree with one another as to the nature of the product they are striving to produce. Some are trying to make, in a one-stage process, a coke possessing all the excellent physical characteristics of by-product coke plus a relatively high content of volatile matter, to give it free burning qualities; some wish to produce a semi-coke, high in volatiles, porous and soft in structure; others have as their objective a small-sized porous semi-coke which they intend to prepare for the market by briquetting. All are striving to make the ideal smokeless domestic fuel, an anthracite substitute."

"We are not concerned with the definition of the ideal domestic fuel; but we wish to set down the opinion that low-temperature coke is not inherently superior to coke-oven coke unless it is improved physically by briquetting or some other means."

The chief American process before the public are now described at some length. The reader who has been led to believe that the one acquired by Henry Ford is the only one, will be surprised at their number. There is "carbocool," whose inventor, Harry A. Curtis, is now professor of chemical engineering at Yale. An attempt to make it commercially has now been suspended in favor of renewed experimental work on a large scale. The Piron process, also called the Caracristi process, is the one controlled by Ford. Large plants for its employment are now under construction. The Greene-Laucks process, in course of development at Denver, uses a vertical cylinder, within which revolves a hollow screw that receives coal at the bottom, slowly hoists it, and discharges it as coke at the top. The Wallace process, invented by an East St. Louis man, was in operation at Petersburg, Virginia, for two years, and a plant to use it is now being built there. It uses a brick shell with a hollow, perforated metal core, around which the coal is charged. The Richards and Pringle process, developed in England, makes a product called coalite.

The Babcock process, developed by Dean Babcock of the University of North Dakota, uses a "battery" of small brick chambers, and is of the by-product-recovery type. The Johns process, developed in Denver in connection with the distillation of oil-

shale, is to be used with lignite, and the product is to be briquetted. The Brown process, also designed for the treatment of shale, is now in the market. It uses a retort consisting of three horizontal revolving drums, heated externally. The West process, under experimentation at Pittsburgh, is intended to be used in connection with the production of blast-furnace coke. The Strausfield carbonizer, developed by the Lignite Utilization Board, a body financed by the Canadian Government, has been used in a semi-commercial plant at intervals. The Hood-Odell process, designed by the chief mechanical engineer of the United States Bureau of Mines, is to carbonize lignite cheaply and does not recover by-products. The product will probably be briquetted.

The author of this article, Mr. McIntire, was largely responsible, he states, for the design of the plant to be used for the Carbocool process, mentioned first in his list, and will have active charge of the experimental work connected with it. While this fact must doubtless be taken into account in rating his judgment of other processes, his caution that all processes must still be regarded as experimental is significant as emanating from one so closely connected with their development. — *Literary Digest*.

Here and There

A new record has been established by the Department of Marine and Fisheries in the number of white fish eggs collected for hatchery purposes in the Great Lakes and the Lake of the Woods. A total of 464,560,000 eggs were obtained, which exceeds all previous collections in the province of Ontario.

A new deposit of soapstone has been discovered on Trap Lake, a small lake south of Wabigoon Lake, in northwestern Ontario. The quality of the stone has been reported as excellent for various industrial uses, and practical trials are under way. Water transportation is available direct from the deposits to Wabigoon and Dryden, on the main line of the Canadian Pacific Railway.

It is announced by the Canadian Pacific Railway that two free scholarships covering four years' tuition in architecture, chemical, civil, mechanical or electrical engineering at McGill University, are offered, subject to competitive examinations, to apprentices and other employees enrolled on the permanent staff of the company and under 21 years of age, and to minor sons of employees.

Canada's fisheries' production during 1923 is estimated to be worth \$40,000,000. At the beginning of the year it was not thought that anything like this mark would be reached, for the Fordney tariff had cut deeply into exports to the United States. But as the year wore on the demand and prices generally improved, thus giving fishermen along the Atlantic coast especially a much better market.

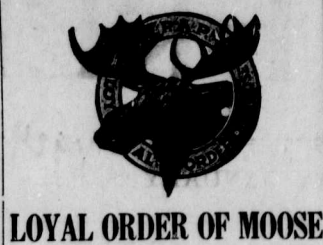
Approximately \$5,000,000 will be spent by the Dominion Coal Company to open up a new mine and colliery at Langan, Nova Scotia, and construction of a branch line of railway to the new site has already been started. The new colliery will be equipped with every modern device, and a model town will be planned in its vicinity. It will have a capacity of some 2,000 tons daily.

The tenth annual Ski Tournament will be held at Revelstoke, February 5th and 6th, in connection with which skiing, tobogganing, snowshoeing, skating, etc., will be featured. An endeavor is being made to secure the attendance of Uno Hilstrom, Sweden's champion ski-jumper, as well as other famous ski-jumpers from both Canada and the United States.

Canada in 1923 produced more coal, lead, cobalt and asbestos than during any other year since mining records have been kept. The output of coal was in the neighborhood of 17,300,000 tons, or 635,000 tons better than the best previous record, and 2,000,000 tons over that in 1922. The output of copper, nickel, cement and asbestos was also much above that for the preceding years. Gold production was down somewhat, but this was due more to a power shortage than anything else.

As a result of efforts on the part of Hon. J. A. Robb, Minister of Immigration and Colonization, a 20 per cent. preference rate on Atlantic passages for all British immigrants settling in Canada has been arranged to come into effect on March 1 and continue until the end of the main immigration season at the end of November. It will apply only to British immigrants coming direct to Canada from the British Isles, and will affect all lines coming to Canadian Atlantic ports.

Three delightful cruises have been awarded to agents of the Canadian Pacific Railway for services rendered the company during the past year. One of them, J. J. Forster, general agent at Vancouver, will sail on a round-the-world cruise on the "Empress of Canada"; W. C. Casey, general agent at Winnipeg, will spend sixty-eight days cruising the Mediterranean on the "Empress of Scotland" while D. R. Kennedy, general agent at Buffalo, will enjoy a twenty-nine-day cruise in the West Indies on the "Empress of Britain." The trips were awarded by the company in recognition of last year's work in connection with cruise bookings.



LOYAL ORDER OF MOOSE

Fernie Lodge No. 1335, Loyal Order of Moose are out on a campaign for new members. Their reason for so doing is that they want every good citizen to have an opportunity to help in the good work which is being carried on by the Order for children at Mooseheart, and the old folks at Moosehaven.

"Every child is entitled to at least a high school education and a trade." — James J. Davis.

The Loyal Order of Moose is an international fraternal-beneficiary society, consisting of more than sixteen hundred lodges in the United States Canada and throughout the English-speaking world, having an aggregate membership in all these Lodges of almost 600,000 men. Most of the Lodges provide for sick benefits and funeral expense funds for their members. Each Lodge is a complete unit in itself, with full local autonomy. Thirty-five facts regarding Mooseheart—

17. Play-grounds, thoroughly equipped and supervised, develop the girls and boys, through games and play, into strong, healthy and vigorous womanhood and manhood.

18. Although recruited from a much smaller group of eligibles, Mooseheart's football, baseball and track teams have proved superior to those of other high-schools, due no doubt to the clean, healthy, vigorous lives of the children.

19. The children at Mooseheart are getting the real country life, but under city conditions as far as the school and home life go. They come in daily contact with the operation of a modern farm, but live in modern homes and attend modern schools within a few miles of several thriving towns and within an hour of the central metropolis of the continent.

20. Opportunities for social contact are provided under proper supervision, so that the children will experience much the same life and environment as they would in the ordinary home.

21. A weekly exhibition of carefully selected motion pictures in the Roosevelt Auditorium adds to the recreation and enjoyment of the children.

22. The Mooseheart boys and girls receive pay for work done outside the period for school work, vocational work, home duties and chores. The money earned is credited to their accounts in the "Students' Savings

"Miss America" Declares Tanlac Wonderful Health Giving Tonic



Miss Campbell as "Miss America" crown which she has won on two occasions.
Photograph by Atlantic Photo Service

Miss Mary Katherine Campbell, twice proclaimed "Miss America," has taken TANLAC and endorses it in a statement recently given to the women of America through International Proprietaries, Inc., distributors of this great tonic. In this statement, Miss America declares that Good Health is the basis of all Beauty, and advises women who would be beautiful to "first find good health."

Her complete statement as given is as follows: "I consider it a great privilege to be able to tell the thousands of women everywhere what a great tonic TANLAC is. Health is the basis of all beauty. Without good health, one is apt to be run down, nervous, underweight high-strung, anemic. Indigestion drives the roses from a woman's cheeks and robs her of that

radiant quality of womanhood that is real beauty.

"I have taken TANLAC and I do not hesitate to say that it is a wonderful health-giving tonic. It has brought relief and good health to many women, and with good health one may have a measure of beauty that will overcome shortcomings in face and figure.

"Rosy cheeks, sparkling eyes, a well-rounded figure, a lovable disposition, go hand in hand with good health. To those searching for beauty, I would say—'First of all, Find Good Health.' The TANLAC treatment has proven itself a boon to woman-kind, and I recommend it."

Miss Campbell has written a booklet on Health and Beauty which may be secured by filling out the coupon below.

INTERNATIONAL PROPRIETARIES, INC.

Department U-102 — ATLANTA, GA.

Gentlemen: I herewith enclose 10 cents, for which send me a copy of Miss Mary Katherine Campbell's Booklet on "Beauty and Health."

Name _____ Address _____

Bank."

23. These children are never "famed out." The families are kept together until after graduation.

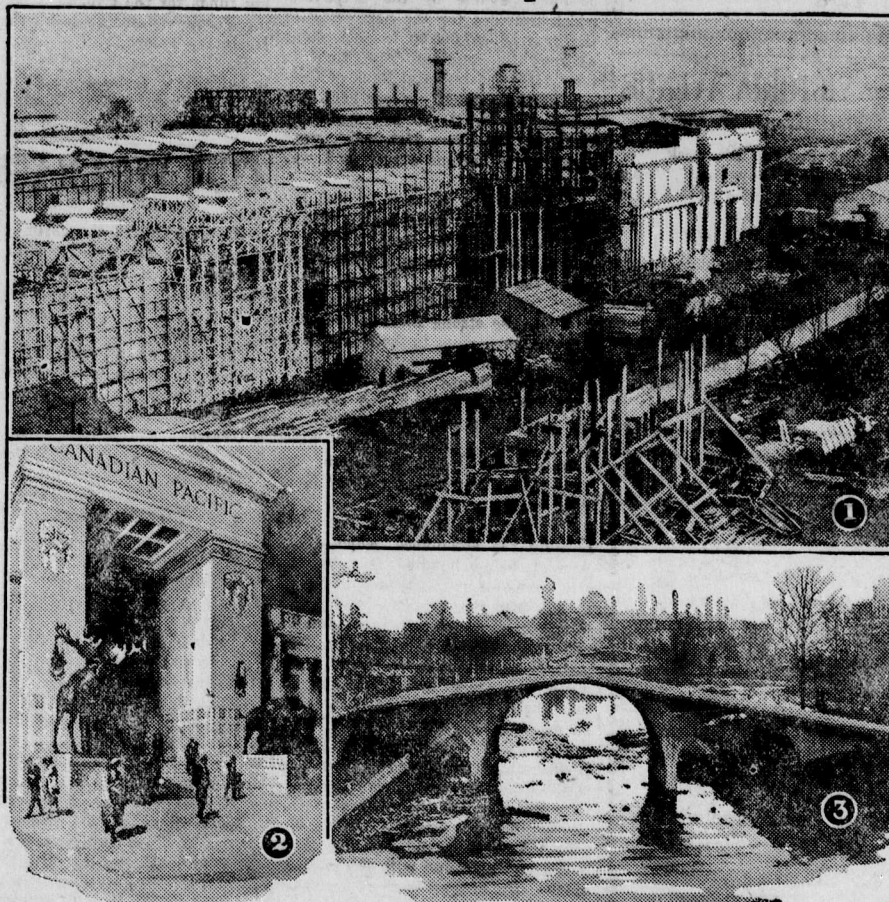
24. Whenever possible the mothers are admitted to Mooseheart with their children and are employed at such tasks as they can perform in connection with the care of the children, thus the entire family is kept intact until graduation. Further particulars from any mem-

ber of the Order or James Wilson, Secretary.

Join the Loyal Order of Moose now and participate in this great work.

The new United States ambassador to the Court of St. James declines to follow the precedent of his predecessors and wear satin knickers and low shoes at state functions. His custom will be "100 per cent. American" from hose to collar.

Canada at British Empire Exhibition



(1) The Canadian Pavilion with the towers of the Indian building in the background. (2) Entrance to the Canadian Pacific building. (3) Showing the progress made in the building of bridges and lakes with the Malaya Pavilion in the background.

Showing the Canadian Pavilion, at Wembley, under course of construction. As portions of the Canadian space allotment have been given over to the two great railway systems, the building which will house the Government exhibits will be somewhat smaller than those of other Dominions, but a great deal of time and money has been spent on its design and decoration, with the result that it promises to be the gem of the British Empire Exhibition. The photograph shows the progress made up to the end of December.

Inset is shown the entrance to the Canadian Pacific pavilion. This building is grouped with the Canadian Government pavilion with which it has been designed to harmonize. A massive imple entrance, two stories high,

deeply recessed with painted and coffered ceiling, richly colored doors and grilles of Canadian wood, approached by a broad flight of steps flanked on either side by a bronze moose and buffalo, is the centre of a facade enriched with decorated panels and columns. The strong color scheme of this entrance is emphasized at night by a unique lighting effect.

A visitor to the Canadian buildings will find displayed to good advantage examples of all Canadian natural and manufactured products, and agricultural exhibits which cannot but impress him with the magnitude of the resources of this Dominion and the vast opportunities which await the immigrant and settler.

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**SYNOPSIS OF
LAND ACT AMENDMENTS**

PRE-EMPTIONS

Vacant, unreserved, surveyed Crown lands may be pre-empted by British subjects over 18 years of age, and by aliens on declaring intention to become British subjects, conditional upon residence, occupation, and improvement for agricultural purposes.

Full information concerning regulations regarding pre-emption is given in Bulletin No. 1, Land Series, "How to Pre-empt Land," copies of which can be obtained free of charge by addressing the Department of Lands, Victoria, B.C., or to any Government Agent.

Records will be granted covering only land suitable for agricultural purposes, and which is not timberland, i.e., carrying over 5,000 board feet per acre west of the Coast Range and 8,000 feet per acre east of that Range.

Applications for pre-emption are to be addressed to the Land Commissioner of the Land Recording Division, in which the land applied for is situated, and are made on printed forms, copies of which can be obtained from the Land Commissioner.

Pre-emption must be completed for five years and improvements made to value of \$10 per acre, including clearing and cultivating at least five acres, before a Crown Grant can be received.

For more detailed information see the Bulletin "How to Pre-empt Land."

PURCHASE

Applications are received for purchase of vacant and unreserved Crown lands, not being timberland, for agricultural purposes; minimum price of first-class (arable) land is \$5 per acre, and second-class (grazing) and \$2.50 per acre. Further information regarding purchase or lease of Crown lands is given in Bulletin No. 10, Land Series, "Purchase and Lease of Crown Lands."

Mill, factory, or industrial sites on timber land, not exceeding 40 acres, may be purchased or leased, the conditions including payment of stumpage.

HOMESITE LEASES

Unsurveyed areas, not exceeding 20 acres, may be leased as homesites, conditional upon a dwelling being erected in the first year, title being obtainable after residence and improvement conditions are fulfilled and land has been surveyed.

LEASES

For grazing and industrial purposes areas not exceeding 640 acres may be leased by one person or a company.

GRAZING

Under the Grazing Act the Province is divided into grazing districts and the range administered under a Grazing Commissioner. Annual grazing permits are issued based on numbers ranged, priority being given to established owners. Stock-owners may form associations for range management. Free, or partially free, permits are available for settlers, campers and travellers, up to ten head.