It is, therefore, not quite clear just why the Commission of Conservation in its eagerness to conserve would, indirectly perhaps, prevent utilization as exemplified in their opposition to application recently made to develop Coteau Rapids on the St. Lawrence. The commission took a similar obstructionist attitude a couple of years ago in regard to a proposed development of the Long Sault Rapids on the St. Lawrence.

To point out the alarming power shortage and to oppose private enterprise in its development, all in the one pamphlet, is an attitude upon which the commission owes more explanation to the public.

R. O. SWEEZEY, B.Sc.,
Consulting Engineer.

Montreal, P.Q., April 5th, 1918.

RESEARCH COUNCIL GETS APPROPRIATION TO BUILD LIGNITE BRIQUETTING PLANT

The Advisory Council for Scientific and Industrial Research has been informed officially that the government has approved the council's recommendation that a plant be erected in the province of Saskatchewan for briquetting lignite. The government has provided a sum of $400,000 for the construction and operation of the plant.

In this undertaking the Dominion Government is acting in co-operation with the governments of the provinces of Saskatchewan and Manitoba.

The council has received a request from the Ontario Government asking that R. A. Ross, E.E., one of the members of the council, be appointed to act with Arthur Cole, C.E., as a committee to take immediate steps for the development of the peat bogs of Ontario, and the production from them of a merchantable fuel. The Research Council has concurred in these appointments and the investigation will be proceeded with.

Leslie R. Thomson, C.E., who is at present on the staff of the Dominion Bridge Company, has been appointed as secretary to the council.

SASKATCHEWAN BRANCH, CAN. SOC. C.E.

A special meeting of the Saskatchewan Branch of the Canadian Society of Civil Engineers was held in Regina to deal with the first of a series of papers devoted to the subject of power. J. D. Peters, electrical superintendent of Moose Jaw, gave a paper on load factor and diversity factor, and their effects upon the production of power. In the discussion following the paper, members expressed the opinion that a great saving in power and coal might be effected by the establishment of central power distributing stations at the various coal fields. The engineers in the study and investigation being carried on now hope to arrive at some conclusion which will dispel the popular belief that Saskatchewan cannot produce cheap power because of the absence of large water powers.

CATALOGUES WANTED

The British American Nickel Corporation, Sudbury, Ont., advises *The Canadian Engineer* that it possesses practically no catalogues of engineering machinery and materials manufactured by Canadian firms, although the company is starting to build a $3,000,000 plant for the smelting and refining of nickel.

ELECTRICAL THAWING OF WATER PIPES*

By Fred C. Adsett
Hydro-Electric Power Commission, Trenton, Ont.

THE extremely cold weather this winter arrived early in December, before the snow came in sufficient quantities to afford a protection to the earth. Thus the frost got off to a good start in its descent through the ground, and soon succeeded in gripping the water pipes in a frigid embrace of no mean consequence. In view of the extensive trouble experienced on this account with the freezing of water services throughout the country, a description of the thawing apparatus used at Trenton, Ont., might be interesting.

Electrical thawing of water pipes comes near to being the ideal method of overcoming the difficulty. There is no digging, no splitting of pipes, nor shutting off of the water to other consumers. All that is necessary is to connect a wire to each end of the frozen pipe and pass sufficient current through the circuit. The chief drawback is the extremely severe weather at times encountered by the linemen while at this work.

The thawing outfit used at Trenton consists of a transformer, cut-out, water resistance, ammeter, switch, and reels of wire. A 15-kw. transformer has been used all winter, connected to give 110 volts on the secondary side. To regulate the current, a barrel of salt water is provided; the resistance used, however, is generally very small. The switch is on the secondary side; the ammeter is of the portable type. Near the transformer is a small reel of 8-w.p. wire; this wire is used to connect the cut-out to the live primary. Connection is made to a bare primary without danger by a clip device on a long wooden stick.

At the back of the sleigh are two larger reels each containing five hundred feet of No. 1 copper. These reels are turned by a crank when the wire is to be rewound. The primary distribution system in Trenton is 3-phase, 4-wire, with 2,200 volts between any phase and the neutral, or ground. Hence only one side of the transformer primary need be connected to the line. The other side is permanently grounded to one of the large secondary wires. Two men are required to operate the outfit efficiently; sometimes three are used. The entire equipment is hauled by one horse.

Practically all the trouble encountered this year has been in wrought iron service pipes. These are generally ½ inch pipes, but occasionally are 1 inch and two inches in diameter. For the ordinary ½-inch service pipes we have found that 180 amperes are the most efficient. This current is sufficient to heat the empty pipes to about 200° F. in fifteen minutes, but with water running in the pipes, this temperature will not be attained. At times, however, obstacles are encountered, such as where the water is frozen in the brass shut-off cock. For thawing services only, and where the main is free from ice, the two secondary wires may be attached at two different houses that are without water; both are thus thawed out at the same time.

The resistance of the main between the two services is naturally very small. Sometimes as many as six or eight services may be thawed at one set-up. To thaw a main, care must be taken to have one wire connected ahead of the freeze-up, and the other on any convenient lawn or house tap along the main. At times it is necessary to

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