

## Editorial

### THE MANUFACTURE OF NITRATES AND ITS RELATION TO THE EXPORTATION OF ELECTRICITY.

The *Canadian Engineer* called attention editorially in its issue of July 27th, 1916, to the dangers involved in the Niagara export power situation; and in the same issue an article entitled "Exportation of Electricity," by Arthur V. White, of Toronto, consulting engineer to the Commission of Conservation, showed the advisability of retaining the water power assets of Canada as a working basis upon which a *quid pro quo* could be given in exchange for coal or other commodities, should it become more difficult in the future to import these from the United States.

Pointed emphasis is given to the correctness of the stand taken in the above-mentioned editorial and article, by a circular which has been distributed to United States chemists and scientists, calling to their attention that in the event of war a very large portion of the bituminous coal supply of the United States would be needed for the production of nitric acid for government use.

From the statistics given in the circular it is evident that, under present industrial methods of coal treatment, practically the entire bituminous coal output would be needed to produce annually as much nitric acid as is now being used by Germany. It is stated that the apparatus for recovering the coal nitrogen in the form of ammonia, and then converting it into nitric acid, is not nearly so expensive as the plant needed to take nitrogen from the air; and that the methods by which Germany has increased her annual output of air-nitrates by 100,000 tons of nitrogen since the beginning of the war, are "far more expensive than those open to us."

The warning of Sir Wm. Crookes in 1897 that the world would begin in 1926 to face a nitrogen famine unless steps were taken to prevent it, has led to many important new discoveries and inventions, all aimed at putting off or indefinitely postponing that fateful time. The people of the United States are congratulating themselves that the dormant nitrogen supplies of their coal beds, combined with the new methods accessible to render that supply valuable, make them independent in regard to their nitrogen sources for a long time to come.

The new values and new importance being attached to the coal beds make it more likely than ever that the day will come when the United States will prohibit the exportation of coal unless in exchange for other products that are equally valuable. It is highly important, then, that Canada should export no more electricity and that she should stop as much of the present exportation as possible, so as to add to her own capacity for producing air-nitrates, should the need appear, and also by so doing to retain, as Mr. White says, the *quid pro quo* that will ensure her future coal supply from the United States.

Neither Canada nor the United States should act in such matters prompted by any spirit of coercion; but each country is within its rights in seeking, first of all, to conserve its natural assets either for its own people or else for satisfactory exchange.

### TOWNSHIP ROAD ORGANIZATION AND SUPERVISION.

There are in the province of Ontario 55,000 miles of road. Of this total mileage about 13,000 miles are but little improved; about 20,000 miles are well graded roads; about 22,000 miles have been surfaced with gravel or broken stone. These figures are taken from a pamphlet recently issued by the Ontario Department of Public Highways entitled "Regulations Respecting Township Road Superintendents."

It is claimed that less than 20 per cent. of this total, if properly improved, would carry 80 per cent. of the traffic. Such a system of leading market roads is in need of thorough construction or at least resurfacing, which is being carried out under the county organization plan. The greater mileage of roads must, however, remain under township control. It is very evident that if the most lasting results are to be obtained it is essential that:

1. Responsibility should be definitely centralized, and fixed in one overseer so that there is a strong incentive for him to obtain the best results and avoid mistakes.
2. The undertaking as a whole, and each detail of it, should be carefully studied and planned in advance. This can only be done by making it the permanent business of one man, who can advise and guide the council from year to year.
3. Experience and skill should be brought to bear on the work. A township overseer should be kept in office just as permanently as is a clerk or treasurer, and in this way only can townships build up an efficient plan of experienced road management.

At the present time, when the amount of money available is perhaps somewhat reduced, it is very desirable that township road management be brought to a high degree of efficiency.

As it is now, there are some thirty-five or forty thousand pathmasters in Ontario, with the result that in many instances at least there is considerable overlapping and in other cases there is not enough work to do to keep them all constantly employed.

If, instead of this plan, it were possible to place in every township a single permanent road superintendent it would tend to more efficient handling of the problem.

If the responsibility could thus be placed upon one specific party instead of, as now, on several, it would surely lead to better results. Such an official, knowing what was expected of him, could plan his work according to the season. Grading could be done in the spring and not left until the ground is dry and hard and consequently more costly to put in shape. Culverts could be placed at the proper time and not left until the autumn when frost and rain make it inadvisable and expensive to carry out such work.

There are very many good reasons why the more general adoption of this township road superintendent plan would prove more efficient than that which now obtains, and it is hoped that township councils will more generally give the plan careful and favorable consideration.