

Regarding Dr. Pearson as typical of the group of American citizens that were murdered on the "Lusitania," we see how futile must be any attempt at "reparation" by the German Government.

We extend to the American Institute of Mining Engineers the sympathy of all Canadian members of the profession in the loss of this distinguished member, and must at the same time express our detestation of a system that has brought about this loss, that, as President Wilson has well said, "cannot be used without an inevitable violation of many sacred principles of justice and humanity."—F. W. G.

THE UTILIZATION OF OUR FUELS

Mr. B. F. Haanel, chief of the fuels and fuel testing division of the Mining Branch, has written a very instructive report on the value of peat, lignite and coal as fuels for the production of gas and power in the by-product recovery producer. The report is especially valuable, because it directs attention to means of utilizing our low grade fuels.

It is well known that Canada has enormous deposits of good coal, for Nova Scotia, British Columbia and Alberta are very large producers. But the producing districts are far apart and the central provinces have no coal. It is important that fuel should be readily obtainable in all parts of the country.

The report of Mr. Haanel shows how our peat and lignite deposits might be economically developed. Past failures are for the most part to be charged against the methods employed, rather than against the fuel.

Mr. Haanel says:

"The fuel problem which confronts Canada is, not conservation; but the best means of rendering available the various supplies of low grade fuels. The great Coal Measures of Canada are situated in the extreme east and west; but, lying between these points is a vast territory devoid of coal measures, which is, at the present time, dependent on some foreign source for a fuel supply. In one sense conservation is being practised to a very high degree, because, in certain parts of the country, practically all the coal required for industrial and domestic purposes, is being imported from the United States, while valuable fuel deposits are lying practically intact. But this kind of conservation never leads to commercial or industrial prosperity, and cannot, therefore, be recommended. In order to render those portions of Canada which are devoid of Coal Measures independent of foreign supplies of fuel, at least to some extent, it is necessary to convert into some convenient form the great source of potential energy represented by the peat bogs, which are of great extent and well distributed throughout the middle provinces; and the same necessity applies to the lignite coals which are found distributed throughout the prairie provinces.

"Many of the peat bogs, which are peculiarly adapted for manufacture into fuel for domestic and power pur-

poses, are conveniently situated as regards transportation facilities, and contiguous industrial communities. But notwithstanding this, the manufacture of the raw peat, contained in certain of the bogs, into a marketable fuel has not, up to the present time, met with much success; due, on the one hand, to the long list of failures recorded by those who have impracticably interested themselves in this problem during the past years, and on the other hand to unscrupulous speculators, promoters and so-called inventors. The failures, so far recorded, may be ascribed principally to the methods employed for manufacturing the fuel. It is a fact that a flourishing and permanent peat industry has been established in Europe for almost a century, but no one, in this country, thought of turning to the European peat-using countries for advice and enlightenment concerning the best process to employ for the manufacture of peat fuel in Canada. This seems incredible, especially at the present day, when the inventor of processes is still able to hold the attention and sometimes the purse strings of astute business men.

"In Europe the annual production of peat is large. In Russia alone, during the last year, over 2,500,000 metric tons were produced; together with a large output in Germany, and other countries. The process employed in all the European countries is the air-dried machine peat process, sometimes called the "wet process"; and this is the only economic process for the manufacture of peat fuel known to-day.

"Unless the manufacture of peat fuel is conducted on a bog situated reasonably near a community which is able to take over the entire output produced, peat manufactured for domestic or fuel purposes alone would not prove a profitable venture. This is due to the comparatively low heating value of the peat, to its moisture content, and to the large volume it occupies, per heat unit, as compared with coal; and when to these disadvantages is added that of high freight rates per ton, the reason of the foregoing statement will be obvious. But while peat may serve as a domestic fuel in only certain cases, it may be well adapted for the production of power, or as a fuel gas. This is especially so in the case of peat, which has a high nitrogen content, since this element can be profitably recovered in the ammonia gas formed in the by-product recovery producer. According to the process employed in by-product recovery work, the ammonia gas is fixed with sulphuric acid, and the resulting product "ammonia sulphate" is then sold for agricultural purposes. The demand for this commodity is, to-day, greater than the supply, consequently its price per unit is somewhat high. Whenever, therefore, the nitrogen content of the peat is sufficiently high, the production of a fuel, or power gas, accompanied by by-product recovery, would prove profitable. But in the case of the production of power, the same economies must be introduced into the manufacture of the fuel that apply to a domestic fuel, and even though the content of nitrogen is well above the average, any increase in the cost of fuel rapidly decreases the expect-