

## UTILIZING MILL AND FACTORY WASTE

### Canadians Have Been Wasteful But Are Now Beginning to See Need of Conservation and Research

BY A. T. DRUMMOND, LL.D.

In discussing the importance of the conservation of waste products, Dr. Frank Adams, of McGill University, who, in his association with the commission of conservation, has devoted considerable attention to the general subject, points especially to our waste in the mining of coal, and to our wanton carelessness in the past in the use of natural gas, or the permitting it to escape. Only about 6 per cent. of the efficiency of coal is obtained, fully 50 per cent. being lost in the mining, and, of what remains, 88 per cent. of the efficiency being dissipated in the burning. He recalls an estimate made by Dr. Douglas, now the chancellor of Queen's University, that the great Rio Tinto mines lost in thirty years \$70,000,000 in sulphur alone through unskilful treatment of ores. As a people, we in Canada have in the past been prodigal in our waste in our forests, lumber establishments, factories, and water-powers, and in the criminally careless slaughter, both on land and in the sea, of our fur-bearing and other useful animals. There is, in these matters, a vast need of a changed sentiment among the people at large, as well as of a changed practice among those actively engaged in business pursuits. It is in both of these respects where the commission of conservation can be and is of distinct service.

Whilst not much has been done as yet at the universities' laboratories in this matter of our national tendency to waste, there is a very wide field for research. Wood waste at our saw mills and wood-working establishments is still being studied at the chemical laboratories of McGill and Queen's in connection with the products of wood distillation, for which there is just now a large market, as well as in connection with the briquetting and other mechanical utilizations of sawdust and similar wood waste.

#### Valuable Products Wasted.

The amount of money which has, in the past, been thrown into the rivers by saw mill owners, regardless of the blocking of navigation, or burned in compliance with unwise legislation, has been enormous, and, as a recent writer in the press puts it, is only equalled by the loss of coal tar products in the coke ovens of the country. The by-products of coal are, however, now receiving somewhat more attention at the works of the large steel and iron companies in Nova Scotia and at Sault Ste. Marie, where by-product ovens have been installed. The trinitro-toluene required in the manufacture of explosives for the shells presently being exported in vast quantities is, however, only one result from the by-products of the coke ovens. Mr. Edgar Stansfield and Mr. F. E. Carter, of the department of mines, have in a recent brochure drawn attention to the commercial products of coal tar, and to the important part which these products and their derivatives play in the industries of the country. There was a time when the market for such products was limited, but when, now, the output of our factories has reached the vast sum of \$1,400,000,000, and is being increased by a new export trade, there will be profitable openings which will warrant the commercial utilization of these by-products. The great diversity and importance of the applications of these coal tar by-products in our industries form a sufficient reason for referring to some of them.

#### Coal Tar By-Products.

Benzol and its derivatives are in wide use as the basis in the preparation of the numerous aniline dyes and in the manufacture of explosives, and are of importance in preparing iron varnishes, in supplying fuel for combustion engines, and in carburetting gas. Naphtha is required as a rubber solvent in the preparation of waterproof fabrics, and for cleansing purposes. Naphthalene is employed in the hide industry, in driving motors, and in carburetting gas. Carboic acid is not only an antiseptic and disinfectant, but gives rise to picric acid, so essential in explosives, and is the source of many substances used in the color industry and in photography. Creosote oil is an antiseptic, a timber preservative fast growing in use, a lubricant, and a binder in the manufacture of patent fuels. Anthracene oil is employed for lubricating, for timber preservation, and for dye

purposes. Finally, pitch is important for road-making, cable insulation, roofing, patent fuels, and the manufacture of varnish. The chemical laboratory becomes all-important to the manufacturers in the application of these by-products to their industries, and it is in just such cases where our university laboratories can and are performing a most valuable part in advising and assisting manufacturers in the establishment of their works on a scientifically secure basis.

Other problems investigated in the saving of waste include the utilization of the waste liquors of the sulphite pulp mills, successfully completed at Queen's for private interests, and the researches made by the department of mines into the briquetting of slack at our bituminous and lignite coal mines. From the commercial point of view, however, successful briquetting still awaits a final solution.

## DECEMBER FIRES

**Belleville, Ont.**—December 2—Old armories. Loss and cause not stated.

**Edmonton, Alta.**—December 2—Frome block, Whyte Avenue. Loss, \$2,000. Cause, overheated stove. Occupants, Messrs. J. A. and F. A. Morie, J. Macdonald and Mr. W. Beacock. Owner, Mrs. Skinner, Main Street.

**Fergus, Ont.**—December 3—Imperial Bank building. Loss not stated. Cause, supposed defective chimney.

**Oakville, Ont.**—December 5—Messrs. W. H. Carson's sash and door factory. Loss, \$7,000. Cause not stated.

**Pembroke, Ont.**—December 6—Mr. J. Vaillancourt's residence. Loss, \$500; insured. Cause not stated.

**Quebec, Que.**—December 6—Supplies at the citadel. Loss and cause not stated.

**St. Catharines, Ont.**—December 3—Boarding-house, Carleton Street. Loss not stated.

**Simcoe, Ont.**—December 5—Mr. W. Vernon Pettit's residence. Loss and cause not stated.

**Vancouver, B.C.**—December 1—Messrs. Walker Bros.' garage. Loss, \$9,000. Cause, gasoline leaking from car placed near furnace.

**Liverpool, N.S.**—December 5—F. L. Seldon and Son's building, Main Street. Loss, \$9,000.

**Glace Bay, N.S.**—December 5—McDonald's Block, occupied by Messrs. W. S. Rice and Company, men's furnishings; Mr. D. L. Macdonald, drug store; Maritime Dental Parlors; Mr. H. Samuels, meat market; Dr. E. O. Macdonald's office, and the Isle Royale Club. Loss, \$10,000.

**St. Catharines, Ont.**—December 7—Maple Leaf Milling Company's plant, the Napoli Macaroni Company's plant, owned by A. Puccini and Company, Toronto, and a building owned by Mr. Frank Wilson, occupied by the St. Catharines Improvement Company. Losses: Maple Leaf Milling Company, \$80,000; Puccini and Company, \$4,500; and F. Wilson, \$2,000.

**Sackville, N.B.**—December 6—A. E. Wry's factory. Loss, \$30,000. Cause not stated.

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