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ENGINEERING FAILURES

PROGRESS in any sphere of activity is often achieved by failure rather than by success, and he is a poor engineer, or at least a small-gauged one, who never makes a mistake or experiences a failure. If mistakes are not made unnecessarily and the lessons which they teach are not neglected, they are a most important part of an engineer's experience; oftentimes more can be learned from them and greater benefit can be derived for the planning and carrying out of new work, than from all the successful work one has ever done. The contribution which failures make to successful work is no mean one.

It doesn't follow always that mistakes and consequent accidents in connection with the carrying out of any engineering undertaking can be laid at the door of incompetence and bad judgment; they are in many cases incidental to new ways and unknown conditions and are really part of the price that has to be paid for improved efficiency, rapidity and economy.

All we know or have has come to us through either our own experience or the experience, good will and initiative of others, and we should therefore be glad to pass along to others the lessons that our failures teach us.

Publishers of technical papers are usually able to obtain, sooner or later, illustrated descriptions of engineering work successfully done. On the other hand, memory fails to record any great degree of success in securing articles descriptive of failures or mistakes. Is it not reasonable to suppose that except in flagrant cases, descriptions of construction troubles and their remedies, benefit very much more than injure the interested parties, and that they will ultimately prove of more lasting value to the profession? One's own mistakes as well as those of his neighbor can be made to serve a useful purpose;

they at least sound a warning which enables the entire profession to side-step danger points, and the profession is certain to be duly grateful for the information.

While the tendency is ever to put on the soft pedal when a failure takes place, it is open to question whether this invariably is the wisest course to follow in the best interests of engineering as a profession.

RESEARCH COUNCIL'S PLANT FOR MANUFACTURE OF LIGNITE BRIQUETTES

FROM the poorest quality of lignite coal in Canada, the Honorary Council for Scientific and Industrial Research intends to manufacture carbonized lignite briquettes. A plant costing approximately four hundred thousand dollars will be constructed at once near Estevan, Saskatchewan. The proposal is to take two tons of the poorest lignite in the world, having about 32% of moisture and 7,300 B.t.u. per pound, and turn them into one ton of briquettes having 5% moisture and 12,000 B.t.u.

In the Northwest there is a demand for anthracite to the extent of about five hundred thousand tons per annum, for which the consumers are willing to pay from ten to twenty dollars a ton in order to get clean fuel. The Research Council proposes to manufacture anthracite, or its equivalent, in Canada for about half these prices, using for the purpose two waste materials: lignite of such poor grade that it cannot be stored or shipped; and sulphite liquor.

Sulphite liquor will be used as the binder; it is smokeless and odorless. This liquor is the waste product from our pulp mills. Its use will result in the production of what the United States government in its tests has demonstrated to be at least the equal of anthracite in burning quality.

If the Research Council succeeds in this enterprise as it is confident it will succeed, the Council will have accomplished a fine stroke of true conservation,—the production of a valuable domestic fuel from two practically waste materials; as the only function of the sulphite liquor to-day is to poison the fish in our streams, and the lignite slack is a powder which cannot be shipped.

The Research Council has stated that this is not a laboratory experiment nor even a super-laboratory experiment, as the work has been done. Briquettes to the extent of a number of carloads have been manufactured from the identical lignites that will be used. The present undertaking is for the purpose of demonstrating the commercial feasibility of the project in a full-size plant; to test the commercial success of selling the product in the open market and through the present dealer channels.

The coal interests of Alberta are said to be inimical to this briquetting project for fear that it will interfere with the market in Winnipeg which they have been trying to capture for the past twenty years. The Alberta interests will be benefited if the Research Council's project succeeds, because they will then be able to follow suit and briquette their slack, thus keeping their mines in operation during the summer months and producing a better domestic fuel than they are offering in Winnipeg at present.

Estevan was chosen as the site for the briquetting plant largely on account of freight rates. It was desired to locate the plant as conveniently as possible to the largest market and in the centre of an adequate supply of lignite. The quality of the lignite does not particularly matter, as satisfactory briquettes can be made from the