

## Straw a Basis for Paper

Year after year Canada destroys many million tons of straw which in European countries is utilized in some way or other. Now that the Federal Government and the C. P. R. have appointed scientific research commissions, the one by the government being largely of an educational nature, and the survey appointed by the big railroad dealing essentially with the utilization of by-products—Canadian farmers and paper makers will be able to get a line on how this wastage can be stopped and the straw in the form of something else become a useful article. Mr. E. B. Biggar, late editor of the Pulp and Paper Magazine deals with this subject in the Toronto Globe in a very instructive article, from which we take the following excerpts:

To seek and to save that which was lost is as true redemptive work in the economic sphere as in the spiritual world, and the need of such saving was never more urgent in Canada since the factory system was established. If one could gather with a visible aggregate the value of the products which annually go to waste in our industrial processes as now carried on, the total would be amazing.

A scientific authority in the United States has calculated that the wood now wasted in the yellow pine lumbering industry in that country would, if distilled by the steam process into turpentine, equal all the turpentine now produced from pine gum. Tanning extracts are now largely produced from chestnut trees, and specially for that purpose, and yet the waste limbs and slabs of the chestnut would make all the tanning extract now realized from the destruction of all this timber by present processes. If all the waste of Canadian wood now adapted to the chemical pulp industry were now utilized it would sustain a chemical pulp industry from three to five times the present output. These illustrations, taken from the wood industries, might be multiplied in dozens of other fields of work.

### Example of Straw Waste.

The recovery of waste is not alone a problem of raw material, but of bringing science and skill and mechanical power and transportation to bear on that raw material. These factors must be united to bring success. Given a unity of these elements, what a field is open to utilizing some of the waste of our Prairie Provinces. Take for example, straw. More of the grain straw should be returned to the soil as manure, but the native fertility of the prairies tempts the farmer to ignore this, and much wheat and oat straw is burned for fuel in the thrashers, while flax straw which is not so readily rotted, is burned in the field "to get rid of it." Yet it is from flax fibre that linen fabrics and real linen paper are made, so that a raw material of incalculable value is here lost.

There are difficulties of a rather obstinate nature in the utilization of the flax straw of the Canadian prairies for linen fabrics. Flax in the Canadian west is grown primarily for flaxseed, which is sold for linseed oil and for the making of oil-cake and other forms of animal food. For the greatest production of seed flax is sown thinly so that the stalks branch out and produce a greater quantity of seed. The fibre, therefore, is short and of comparatively little use for the textiles. In growing flax for linen trade the seed is grown thickly, and the main stalk grows long and straight and with unbroken joints, but there is little yield of seed. Then to get the best results flax is pulled by hand, and not cut by a machine. Hand pulling is out of the question in the west owing to scarcity and dearness of labor, and no successful mechanical flax-puller has yet been devised, although many thousands of dollars have been spent in experiments in the western States to this end. A linen textile industry is not yet in sight in the Canadian west, except in the use of the short fibres in mixed goods and for special purposes such as linen for medical dressings, etc.

### Flax as Basis for Paper.

The flax as produced in the west may be used in the paper industry, and here, without question, is a flourishing field for a new Canadian industry. The flax crop of the United States in 1915, grown on 2,200,000 acres, yielded twenty million bushels of seed and 1,600,00 tons of straw. The flax crop of Manitoba, Saskatchewan and Alberta in 1915, grown on 801,000 acres, yielded 10,559,000 bushels of seed and about a ton per acre of straw—say 800,000 tons. Of the flax crop of the United States, only about 200,000 tons a year are put to any profitable use, so that 1,400,000

tons a year are wasted. Such a tonnage would, it is estimated, make all the wrapping paper used in the country and double the amount of writing paper used in normal trade, and it would give to the farmers of the United States an annual revenue of \$5,000,000 from the raw material now wasted.

### Worth Three Extra Millions to Farmers.

The progress in Canada for a new branch of our paper industry are more favorable than in the United States—first, because the paper industry of Canada, relative to population and wealth, is much greater, and second, because the growth of yield and flax in Canada is greater in proportion to the total tilled area while at present practically no use is made of flax straw except in Ontario which is not now under consideration. The present product of flax straw in the Prairie Provinces, now amounting to 800,000 tons a year, will soon be increased to a million tons, and on the basis of the present output the raw material would bring to the western farmers a new-found revenue of \$3,000,000 a year. If all this were turned into linen paper the finished product would be worth from \$7,000,000 to \$15,000,000 a year, according to the class of paper made. The first and most easily made variety of paper would be wrapping, and this would be a class of paper not inferior to the average Graft paper, now in such demand for wrapping purposes. The second class of flax paper would be fibre board, for which it is eminently suited, and the third which would involve bleaching, would produce a more expensive, but more valuable class, real linen, bond and writing. Then there is another important use for the raw material which would be a by-product of the preparatory processes, that is flax tow and so-called flax waste, which would be a valuable contribution to the textile industries, and for twine, also packing, medical dressings, insulating material and many other uses. In Ontario there are a number of flax cutting mills, chiefly in the counties of Waterloo and Wellington, producing tow and fibre, for twine, but in the west nothing of this kind exists, outside of the household flax and linen-making in some of the foreign settlements.

### New Branch of Paper Industry.

Now that paper and paper making materials have reached such unprecedented prices that there is a general hunt for new fibres, the question of using Canadian flax straw for paper becomes important. The remarkable expansion of the paper industry of Canada in the last twenty years is well known, but this industry is based exclusively on wood as the raw material. To add a new branch based on flax fibre would round out the business as one of the great basic industries of Canada, and would open up a new field for the export trade which could not be developed upon wood pulp and paper alone.

### LAND VALUES AND MARKETS.

In connection with the establishing of land values and credits, the matter of markets is, of course, very important. Land values should be based on the net returns which the farmer can get from this land under proper cultivation. If the Government wishes to help the farmer by establish land values and credits, it will be necessary that he be given better shipping and marketing facilities. The matter of sample markets is now under consideration. As an example of how grain grading has been handled, the following is an actual case in hand. On December 21st, 1916, a party billed two cars of wheat to his own order from Melville, Saskatchewan, consigning them to a firm in Fort William; on January 2nd, he received inspection report from Winnipeg. Not being satisfied with the grading he demanded a re-inspection and on January 4th, the grading was confirmed. The owner was not satisfied with the grading and decided to divert this grain to Minneapolis, the freight charge from Melville being the same to Fort William or Minneapolis. He came to Minneapolis with samples of this grain and there sold it on the sample market for 50c a bushel more than he was offered at Winnipeg. Since that he has shipped several cars more and the same thing was held true. This is only one of many cases which have occurred this fall and winter. It would seem that there was something wrong when the same wheat brought 50c a bushel more at Minneapolis than at Winnipeg. If the Government is desirous of helping the farmer such matters as this should have their attention.