

industry which could come to this country. Canada is absolutely dependent upon the few southern States which grow cotton for all its vegetable fibre textiles, and the inauguration of this industry would make it possible for linen mills to spring up all over the Dominion and bring to Canada a type of immigration from the north of Ireland and from Scotland which the country has never been able to obtain before, because these people who have been trained in the linen business and knowing nothing else were afraid to come to Canada where the industry to which they had been trained from their youth was unknown.

"Canada in 1911 grew 1,500,000 tons of flax straw, which straw would have yielded under manipulation 300,000 tons of commercially spinable flax fibre. This flax in Canadian prices would have yielded last year 860,000,000 in Canadian exports. The seed alone on the flax grown yielded only \$11,855,000, while the entire value of rye, peas, buckwheat, mixed grains and flax in 1911 was only \$83,948,000.

"It is hoped that the Government will make a close investigation into these statements and these figures and try to obtain for Canada the results possible under the inauguration of a flax and linen industry in the Dominion, which would affect every part of the country, because, as has been proved, flax for seed and fibre can be grown in every part of the Dominion of Canada that has been broken to agriculture from the Atlantic to the Pacific."—*Census and Statistics Monthly.*

### Sub-divisions and Farmers in Saskatchewan

During the summers of 1910 and 1911, agricultural investigation work was conducted by the Lands Committee of the Conservation Commission on the farms in township No. 36, range 6, of the province of Saskatchewan. This township lies west of the city of Saskatoon and, in 1910, was being used for agricultural purposes. In 1911, some of the farms in the north-eastern part of the township were beginning to change hands for real estate purposes but, in 1912, it was found that a great part of it had been sold to speculators and was being sub-divided and sold for building lots. Many of the farms are grown up to weeds of all kinds and produce nothing of value. Sub-division signs are to be seen on both sides of the road leading west from the city as far as Cory on the C.P.R., which is eight miles out. Many of the farmers who have not sold are contemplating doing so. On account of these circumstances, the Commission did not establish an Illustration Farm in this previously surveyed district but chose a farm near Kinley, which is about 35 miles out and which, it is hoped, is beyond, for a few years at least, the would-be Saskatoon city limits.

### Legumes and Crop Rotation

Legumes such as clovers, vetches, beans and peas are excellent builders of soil fertility. Those of greatest importance, perhaps, are the clovers. The value of clover on the farm makes it desirable that a part of the area of the farm be at all times seeded to this crop. The possibility of obtaining a grain crop during the season when the clover is making its early growth, makes the utilization of this legume in maintaining soil fertility a thoroughly practicable one, not calling for an undue amount of special preparation, or of fertilizers to maintain successful stands on the ordinary farm. If the land be in a somewhat depleted condition as regards fertility, a 3-year rotation may be best, although on better soils a 4-year or 5-year rotation may be quite practicable. The length of the system and the crops grown in the rotation will depend on the branch of farming specialized in; the kind of soil, etc.

No hard and fast rules can be laid down as to what crops to grow. Different soils are adapted to different crops, and with the principles of systematic rotation ever in mind must be studied to find out the crops most suitable for them. When the land was newly cleared from the forest or was newly broken prairie, the cultivator was not so much perplexed as now, by baked soil after rains, dried-out soil after dry weather, or by blowing soils. It was full of vegetable decay, was mellow to cultivate, did not bake or wash, and retained moisture during dry spells. These difficulties have resulted from constant cultivation, and, in any system of improvement, we must make an effort to get back to the former new ground conditions. For this purpose, the legumes are the most efficient aid we can have. It would be easy to keep up these conditions if all farmers had an abundance of barnyard and stable manure each year, which is good humus forming material, the value of which cannot be gainsaid.

#### Clover Cheap Substitute for Manures

Clover is a cheap substitute for the vegetable matter in the manure. Even when the crop is sowed for forage, there will be a very considerable amount of the humus-making material left in the roots, as well as a goodly amount of the nitrogen which the roots have assimilated.

#### How Legumes Act on the Soil

The legumes have the power of fixation of free nitrogen gas from the air by bacteria within the nodules on their roots. This nitrogen is in a readily available form to be used by crops following. It must not be understood, however, that the growing of legumes and removing them from the land will permanently maintain the nitrogen supply. About two-thirds of the nitrogen contained in the clover plant is in

the tops and when the hay crop is removed this is lost to the soil.

The peculiar value of legumes as forage and hay-making crops lies in the fact that they have far more protein than the more carbonaceous grasses, hence they make a more complete ration for stock. It is becoming more and more evident that the farmer of the future must be a legume farmer.

### Railway Commission's Fire Inspection Work

#### Plan of Organizing Service—Work to be Extended

On account of the unusually wet weather which has prevailed during the latter part of the summer, there has been but little strain upon the organization of the Fire Inspection Department of the Railway Commission. Since June, few fires have occurred, and such fires as have occurred have, for the most part, been attributable to causes other than the railways. The work of the Fire Inspection Department of the Railway Commission has been organized in the Provinces of British Columbia, Alberta, Saskatchewan and Manitoba, under Order 16570 of the Board.

The requirements as to special patrols, reporting and extinguishing of fires by railway employees, and the disposal of inflammable material along railway rights of way, are being administered, and the work of the railway companies inspected, through a co-operative arrangement whereby certain officials of the British Columbia Forest Service and of the Dominion Forestry and Parks Branches, are appointed officers of the Railway Commission without additional salary. These officials handle the railway fire work as a part of their regular duties. The plan is working very satisfactorily, and it is hoped that when the work of the Fire Inspection Department is extended to the Provinces of Ontario, Quebec, New Brunswick and Nova Scotia, in the summer of 1913, similar co-operative arrangements will be made with these Provinces.

### Weeds Poison Crops

It has been generally supposed that the principal effect upon the soil, of weeds in the growing crops, was that they took away moisture and plant food that should go to the crops. Recent investigation at Cornell University has demonstrated that they have a deleterious effect upon crops in that they poison the plants by the intermingling of their roots. Corn and weeds were allowed to grow side by side in similar soil but with partitions placed so that the roots were kept apart. The corn and weeds grew normally. In another box the corn and weeds were placed so that the roots could intermingle, with the result that the corn was stunted and its growth materially retarded. It is a case of incompatibility of association.

### Forest Utilization in Relation to Conservation

#### Percentage of Waste in Production should be Lowered—Stumpage Value a Factor

To postpone the long threatened timber famine it is just as important to make careful use of our existing forest resources as to create new resources through the extensive operation of reforestation. In this connection some very interesting points were brought out by J. B. Knapp of the United States Forest Service at the Convention of the Canadian Forestry Association held at Victoria in September last.

In the older European countries, the primeval forests having already been exhausted, forestry consists largely of silviculture or the growing of timber. On the North American continent conditions are entirely different and our greatest forestry problem is the conservative utilization of the original timber crop which is still available to our use. We are endowed with vast quantities of merchantable stumpage, and it is our charge to utilize this stumpage according to the best economic practices. To waste an unnecessary quantity of timber by careless use, is as inexcusable as to destroy an equal quantity by fires carelessly set. The promotion of close utilization is as important an item of conservation as the growing of trees or the prevention of their destruction by fires.

#### Waste Larger Than Necessary

It is estimated that not more than 40 per cent. of the gross volume of the timber now being harvested reaches the consumer. Of the remaining 60 per cent., much of the so-called waste is necessary, and will always be so, because of the nature of the products manufactured from wood and for which wood is serviceable. However, the larger percentage of this waste will be unnecessary with the development of methods for utilizing it, and increased efficiency in the manufacture of lumber and other forest products.

Close utilization in lumbering is entirely dependent upon the value of stumpage and the price of lumber and other forest products to the consumer. Future high stumpage values and the higher cost of lumber will not be chargeable to increased costs of production or greater profit to the manufacturers, but will depend upon the cost of growing trees to merchantable size and the necessity for the use of wood by the trades regardless of the substitutes which are developed. Therefore, it may be said that high stumpage values and high lumber prices are the greatest incentive to close utilization.

The so-called "cause of death" given in death certificates is only the terminal cause. It is merely the "last straw" of the terrible load accumulated through life.