

# Conservation

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NO. 11

## Sheep Raising is Profitable

Canada should be a Good Sheep  
Country—Farmers can make  
Small Flocks Pay

Conditions in Canada are as favourable for raising sheep as for cattle, horses or swine. Yet we find these latter have rapidly increased during the past thirty-five years, while there has been a considerable decline in the number of sheep raised during the same period. Various reasons are given for this falling off. Mutton and wool prices fell, and sheep-keeping, conducted carelessly, brought little profit. The thorough-going sheepman, however, did not find it necessary to abandon the business, and he has consequently reaped the reward of good prices and cleaner and richer land.

Much effort has been put forth to further the swine and cattle industries, but sheep culture has been allowed to drift along with the current of indifference. In 1911, however, work was undertaken by the Ontario Department of Agriculture having as its object to stimulate this neglected industry and to demonstrate that sheep-raising pays. Nine flocks, of from ten to twelve grade ewes per flock, in various parts of Ontario, were used in the demonstration. These were owned by the farmer in each case and the work was conducted in a manner quite within the reach of all other farmers who own, or could own, sheep. Interest on the capital invested in the flock and the cost of feed were in each case deducted from the receipts. In every instance substantial net profits were made, the average being within a few cents of \$39.00 per flock per year, or \$3.50 per head. Leading sheep papers of the United States are forecasting good times for sheepmen, and they do not seem far wrong; when it is considered that during the war there will doubtless be thousands of sheep destroyed in Europe, it would seem to be an opportune time for those contemplating entering upon the breeding of sheep to get a few breeding ewes and start a flock.

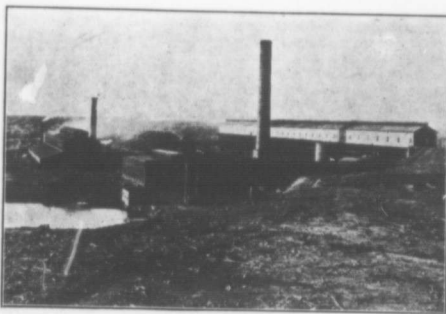
It does not cost much to start in the business, and the monetary returns are rapid; the wool and the lamb crop are saleable annually. Sheep eat almost all classes of weeds and, as their manure is rich and evenly distributed, they are great soil improvers. Expensive

## Canada's Nickel Mining Industry Weeds on Ontario Farms

The importance of Canada's nickel mining industry may be more fully realized when it is considered that Canada produces over 80 per cent of the world's output of nickel.

In 1913 The Canadian Copper Co.'s smelter at Copper Cliff, in the Sudbury district, treated 665,000 tons of ore, containing over 44,000,000 pounds of nickel, or about 90 per cent of the total output of Canada. The nickel was recovered as matte and shipped to the United States for refining.

Pure nickel is employed in small amounts for a number of purposes because of its strength and durability and its white colour, which resists tarnishing.



Cut No. 76

Canadian Copper Co.'s Smelter at Copper Cliff, Ont.

Though the importance of pure nickel is likely to grow, the chief use of the metal is in the production of alloys, particularly nickel steel, in which the greater part of the nickel now refined is employed.

Steel containing 2½ to 3½ per cent of nickel has certain of its properties greatly improved, so that for many purposes it is replacing ordinary structural steel. Its value for armour plate has long been known, and the rivalry of the great maritime nations in the building of dreadnoughts is one of the causes for the recent increased demand for nickel.

In 1913, Canada exported 43,341,307 pounds of nickel, contained in ore or matte, to the United States and 4,826,783 pounds to the United Kingdom.—W. J. D.

buildings and constant care are unnecessary.

"Sheep-Raising Pays." Try it with a flock of ten or twelve grade ewes, and a pure bred ram, and increase the profits from your farm, and at the same time, you will be cleaning and enriching your land.—F. C. N.

## ADVANCED FORESTRY METHODS

The Laurentide Company, Limited, is enlarging its forest nurseries in order to provide for the systematic replanting, on an increased scale, of considerable areas of non-agricultural, cut-over lands in the watershed of the St. Maurice river,

Que. This work is being handled by the company's forestry division, which has recently finished a survey and map of the company's limits, comprising 2,350 square miles of land, mostly timbered. The map shows all drainage, roads, portages and trails, lookout station, telephone lines and timber conditions. This company is also importing reindeer from Dr. Grenfell's herd in Newfoundland to take the place of sled dogs, which are very troublesome to keep in summer and not very efficient in winter. This experiment is being watched with much interest. If it is successful, some of the deer will be supplied to the Indians, to supplement their present inadequate food supply.

## Agricultural Survey Shows Weeds are Increasing on Majority of Farms Visited

During recent years the Commission of Conservation has been directing agricultural survey work in various sections of the Dominion. The object has been to secure accurate information respecting the methods of the Canadian farmer, with a view to promoting scientific agriculture. No stronger proof of the need and value of such investigations could be found than the following report, respecting weed conditions in Ontario, commonly regarded as the banner farming province of Canada.

"The farms in nearly every district visited are reported as being badly infested with weeds; sow thistle, wild oats, wild flax, wild buckwheat, rib grass, Canada thistle and couch grass are very common. The weed problem is getting to be a serious one with many farmers, and one that interferes largely with the crops grown and the present methods of farming being practised. Those farmers who follow a systematic short rotation of crops have been able to keep the weeds fairly well in check. On the majority of the farms visited, however, weeds are increasing. The farmers are unable to tell definitely where the weeds come from. In many instances no attention is paid to exterminating new weeds when they first appear on the farm, consequently, by the time a farmer does make an effort to get rid of them they have become so numerous that the process is a difficult and expensive one. The old adage, 'a stitch in time saves nine,' would be one well worth heeding in connection with the weed problem."

The Dominion Government has established forest reserves in Manitoba, Saskatchewan, Alberta and the railway belt of British Columbia, totalling 28,027,424 acres, including the Dominion parks, which have the status of forest reserves.—C.L.

On the Deerledge national forest in Montana, one lookout station has the record of reporting accurately, by distance and direction, a fire that was sixty miles away.

## Creosoted Piling and Cross-ties

Their Durability Increased by Treatment—Extensively Used on Pacific Coast

Wherever the teredo is found in the Pacific, untreated Douglas fir piles have a remarkably short life.

In Southern California the life of Douglas fir ties is about two and one-half years, but, in more favourable cases, untreated ties have not been replaced for seven years.

Some form of treatment is therefore necessary, if wooden piles are to be used in the more permanent structures. After considerable experiment, treatment with creosote has been recognized as the best method and is now used extensively on the Pacific coast.

The engineers of a large company recently investigated the economy of treating piles, now that creosote costs 10.04 cents as against 7.25 cents per gallon in 1912. The result showed that an increased cost of one cent per gallon increased the cost of treated piles one cent per linear foot, and that taking the life of untreated piles at eight years, it would be economical to treat piles until the cost of treatment reached 22 cents per linear foot, which corresponds to a creosote cost of 22 cents per gallon. These figures were based on a cost for untreated Douglas fir piles of 10 cents per foot, as against 30 cents for creosoted piles.

The life of a treated pile will depend largely on the condition of its outside surface after it is driven. Mechanical injuries, such as result from hooks, or hammer blows, are to be carefully avoided, but even more serious than these is the checking that may result from treatment or in driving.

Cross-ties are now extensively being treated with creosote and the accompanying table from U.S. Forest Service Bulletin 118 gives the estimated saving due to the treatment of ties with preservatives:

ESTIMATED ANNUAL SAVING DUE TO TREATMENT OF CROSSTIES WITH PRESERVATIVE AND USE OF TIEPLATES\*

Species	Estimated life in years			Cost of Ties			Annual Charge in Track			Annual saving of untreated over treated ties		
	A	B	C	A	B	C	A	B	C	B	C	
Cedar	11	7	5	\$0.46			\$0.103					
Langleaf Pine	7	20	10	0.52	0.80	0.90	0.159	0.103	0.103	0.056	0.042	
Douglas Fir	6	15	11	0.41	0.78	0.80	0.160	0.114	0.118	0.046	0.042	
Spruce	6	14	11	0.49	0.86	0.66	0.175	0.127	0.127	0.048	0.048	
Western Pine	5	17	12	0.53	0.90	0.70	0.215	0.115	0.123	0.100	0.092	
Lodgepole Pine	5	16	11	0.46	0.83	0.63	0.199	0.113	0.124	0.086	0.075	
Tamarack	5	15	11	0.41	0.78	0.58	0.187	0.114	0.118	0.071	0.069	
Hemlock	5	15	11	0.33	0.70	0.50	0.169	0.106	0.108	0.063	0.061	
Red Oak	4	20	12	0.45	0.82	0.62	0.240	0.098	0.114	0.142	0.126	
Beech	4	20	12	0.36	0.73	0.53	0.214	0.090	0.104	0.124	0.110	
Maple	4	18	12	0.45	0.82	0.62	0.240	0.104	0.114	0.136	0.126	

\*In each case a charge of 25 cents per tie for tieplates and 15 cents for placement has been added to the cost of the tie, and is included in the computed annual charge. Creosote was assumed to cost eight cents per gallon. Interest charged at 5%.

A, untreated; B, treated with 10 lb. creosote per cubic foot; C, treated with 4 lb. zinc chloride per cubic foot.—W.J.S.



Cat No. 77

Corn Shocking Horse

## Corn Shocking Horse

A Useful Farm Implement which can be Made at Home.

A useful corn horse for the shocking of corn in the field is shown in the above illustration. This implement may be made as follows: The main frame consists of a scantling 2x6 inches and 16 feet long, or a smooth cedar pole will answer. Two legs of 2x6 inch material, five feet long, should be mortised into and securely fastened to one end of the main frame; the other end is allowed to drag on the ground. A two-inch auger hole is bored through the main frame five feet from the upper end, so that a fork-handle may be put through to support the bundles or sheaves. A rope, with pulley attached, is used to draw the tops together, when they may be securely tied.—J. F.

It is better to be careful a thousand times than to be injured once. Get the safety habit. If you see a man acting carelessly, tell him about it.

Human interests demand, unconditionally, that useful birds should be protected, and that the destruction and increase of injurious ones should be controlled. This protection of useful birds depends on the supply of conditions necessary for their existence and increase.

## Destruction of Rats

Systematic Methods Necessary to Secure Permanent Results

There are various estimates regarding the annual loss of property caused by rats in Canada. In the United States the loss is estimated to be as much as \$300,000,000. Of grain alone, they are estimated to have destroyed \$100,000,000 worth, or enough to feed a laying hen for one year for every man, woman and child in the country.

Co-operation and organization in rat destruction must not be overlooked. To destroy the rats on only one farm in a community has little permanent effect, since they are soon replaced from neighbouring farms. If plenty of food is left unprotected and within reach of the rats, they are sure to multiply rapidly and become a serious pest. Care should be exercised to protect grain, roots, vegetables and other foodstuffs on the farm. Poorly-fed rats will not multiply so rapidly and are more easily trapped.

The use of concrete for floors or wherever rats burrow, will do much towards reducing the loss from these pests.

The value of dogs as ratters can hardly be over-estimated. Small Irish, Scotch and fox terriers can be properly trained and are superior to other breeds. Under reasonable favourable circumstances a good terrier may be relied upon to keep farm premises free from rats. Such natural enemies of rats as hawks, owls, and smaller predatory mammals should be given protection. Greater cleanliness about stables and farm buildings, care in construction of buildings and drains, the early threshing of grain, to remove food and harborage, the removal of piles of trash from the fields, and the systematic destruction of rats are important aids in limiting their numbers and in reducing the losses from their depredations.—F.C.N.

## The Dustless Cleaning of City Streets

Climatic Conditions in Canada Favourable to the Adoption of this Method

Canada's climatic conditions to a certain extent peculiar to herself, impose handicaps in the care of pavements which are hard to overcome.

The dust of the asphalt pavements on business streets is the admitted cause of immense damage to stocks of merchandise and also is very disagreeable to the individual. This is especially so in early spring and late autumn, when the water sprinkled on the pavements freezes, resulting in accidents to horses and pedestrians.

Water used on pavements at such times is also the cause of serious damage to them, as it soaks into the crevices in the pavement, and freezing, causes the upheaval and disintegration of the asphalt. This is especially noticeable along the curbs and street car lines.

Dustless street cleaners, operated on the combined vacuum and sweeper principle, are in use in a number of North American cities. It is claimed that their work is entirely satisfactory, that after cleaning, no sprinkling is necessary, as the dust has been thoroughly removed. The advantages of this system are numerous, including the absence of the dust nuisance, resulting in conservation of both health and property; the saving of water and a large percentage of the cost of sprinkling; the saving of labour in street cleaning, and the avoidance of damage done by water to pavements in frosty weather.

This method of cleaning streets should appeal to the engineering departments of our Canadian cities as another step forward in sanitary science.

## Care Required in Storing Potatoes

Potatoes should be thoroughly dry and should be stored in a cool, well-ventilated cellar or storeroom which is perfectly dark. Do not pile the potatoes in heaps on the floor or against the wall; slats should be nailed about one inch apart and four inches from the wall; a temporary floor should be laid about four inches above the permanent floor, with openings between the boards. This will allow the air to circulate through the pile. Large piles should have ventilators running through them. These should be made of wood, with slats on two sides for openings. The temperature of the cellar or storeroom should be kept as nearly as possible at from 33 to 35 degrees. The cooler potatoes are kept without freezing, the better. If too warm, their value for seed is lessened, as they sprout too early.—J. F.

## Commission of Conservation

CANADA

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CONSERVATION is published about the first of each month. Its object is the dissemination of information relative to the natural resources of Canada, their development and the proper conservation of same, together with timely articles covering town-planning and public health.

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CONSERVATION is mailed free to those interested in the subjects covered by the work of the Commission.

OTTAWA, NOVEMBER, 1914

Every man who earns an honest living is entitled to a decent home. A reasonable measure of comfort and even beauty should be included in the construction of that word home.

I recognize that the future prosperity of Canada depends on scientific research and upon the efficient application of the results of that research to the industrial and physical life of the people.—Earl Grey.

All game protectionists now agree that the game laws of the past have failed to prevent the rapid decrease of game birds, and that their protection and increase can best be secured in the propagation of the birds by means of the game sanctuary.

To-day civic management requires men of foresight, men who are specially trained in solving difficult questions of engineering, sanitation and transportation, as they are affected by the growth of the city into the immediately adjoining territory.

As a result of the agricultural survey of the Commission of Conservation, it has been found that in a number of cases too many horses are kept to be profitable, while the number of cattle kept per hundred acres is seldom up to the capacity of the farms.

The practical and economic importance of modern town-planning in preserving human life, reducing disease and suffering, in improving the physical condition of citizens and so placing their earning power on the best possible basis; in providing for the comfort of the citizens, particularly those with the smallest incomes.

## DEATH OF COL. BURLAND

The very sudden death of Col. Jeffrey H. Burland, in London, England, on Oct. 9th removed one of Canada's philanthropists and an ardent advocate of the conservation of her resources. When the Commission of Conservation decided to investigate the question of housing and town-planning legislation and to prepare a model draught bill respecting these very important questions, Col. Burland was invited to accept the chairmanship of the special committee appointed for the purpose. To his activity and enthusiasm in the work much of the success of the movement in its initial stages may be attributed. Collaborating in the preparation of the draft town-planning measure submitted at the late International Town-planning Conference, his experience in charitable and philanthropic work in his home city of Montreal was of untold value.

Of a kindly and sympathetic nature, Col. Burland will long be remembered for his association with every movement for the public good. Among those receiving his special attention were the Society for the Prevention of Tuberculosis, the Boy Scouts, better homes for workmen, and that which of late has demanded and is receiving so much of the world's sympathy, the Red Cross Society, in the interests of which Col. Burland was in England at the time of his death. Col. Burland's death will be greatly regretted by his associates of the Commission of Conservation and by all with whom he came in contact.

## Fire Insurance is a Tax on the Consumer

Fire insurance is no doubt an institution of great benefit, especially after a fire loss. Nevertheless, it is a striking commentary upon the business judgment of the Canadian citizen that fire insurance is not also characterized as a tax, distributed, through the buying and selling process, upon the entire community; that every additional fire and every extra fire hazard tends to increase this tax, while every precaution for fire prevention and for the reduction in the number of fire losses tends to lessen the insurance rate. The business man must shift the cost of insuring his goods to the consumer, and, not only is the amount of this tax added, but, as this is part of the cost of doing business, he is entitled to a profit on it as well. Moreover, the amount of rent which the business man has to pay is influenced by the cost of insuring the premises occupied, and this tax too is concealed in the selling price of his goods. This fire insurance tax must also be added to the selling cost at every handling between the original raw material and the finished article.

## Lodgepole Pine For Pole Uses

When Treated This Wood Will Readily Take the Place of Red Cedar

Lodgepole pine, abundant in both the Rocky Mountain and Coast ranges, can be treated with preservatives and used as a substitute for red cedar, as a pole timber.

The tendency of lodgepole pine to decay rapidly when in contact with the ground has hitherto eliminated this timber as a competitor of the cedar, but the general adoption of preservative treatment by railway and telephone companies has changed the situation. At an additional cost for treatment, that still leaves the pine pole the cheaper of the two in most markets situated outside the cedar region, the pine may be made more durable than untreated cedar.

Fire-killed lodgepole pine, of which there is a vast quantity in the Rocky Mountain region, showed a strength, under test, equivalent to 80 per cent of that of live red cedar. In elastic values the two were practically equal, and, in stiffness, fire-killed lodgepole pine is quite comparable to the cedar. The prejudice against the use of fire-killed material is a mistaken one, for there is no inherent difference in wood seasoned on the stump and wood cut when green and then seasoned. On many areas, such material remains entirely sound for a number of years after the fire which killed it, and, therefore, is thoroughly seasoned and ready for preservative treatment as soon as cut.

## WIRE FENCING AND TREES

Occasionally, in running wire fences, it is necessary to attach the wires to trees. In doing this, it is bad practice to use staples to attach the wire directly to the trees, thus ensuring that the wire will become over grown and imbedded in the wood. Not only is the tree thereby ruined or injured but, further, it is impossible to remove the fencing without cutting either the wire or the tree.

A better way, protecting both the tree and the fence, is first to nail to the tree a strip of wood about four inches wide and one inch thick, of a length to suit the height of the fence. The wire fence can then be stapled to this strip. This will secure the fence and will not interfere with the tree growth.

A farmer in Eastern Ontario reports that his crop of roots for stock-feeding purposes was greater by two-thirds on the part of a field cultivated according to the suggestions of the Commission of Conservation than on the remainder of the field. Another farmer, a corn grower, had thirty bushels more corn to the acre.

## Alaska Coal Lands

Sections to be Reserved for Government Development and Use

The Alaska coal lands, which were so prominent in the conservation movement in the United States, after being locked up for a number of years are now available for mining under a leasehold system.

The bill, recently passed by the United States Senate, provides that the government shall reserve 5,120 acres of coal-bearing land in the Bering river field and 7,580 acres in the Matanuska, for government mining, the coal from these areas being reserved for the use of the U. S. government railways and navy.

Other lands are to be leased for not more than 56 years in 40-acre blocks and the maximum tract is not to exceed 2,560 acres. The royalty is to be from two cents to five cents per ton and rental twenty-five cents per acre for the first year, increasing to fixed charge of one dollar after five years; rentals are to be credited against royalty. Leases for local needs are to be made in tracts of not more than ten acres and without royalty or rental.

Attempts at monopolization are to be punished by forfeiture, and an eight-hour day underground is fixed as the maximum.—W. J. D.

## AND THE CONSUMER PAYS THE BILLS

Carelessness in packing goods for shipment results in breakages and loss. The cost is carried as an overhead expense and the consumer pays.

Accidents happen. The employer carries liability insurance. The insurance company pays, but collects from the employers. The employer in turn collects the additional cost from the consumer.

On account of our excessive fire loss, cotton and wool, from the raw material to its manufactured state, must carry a heavy insurance burden through every process. The consumer has to pay the additional cost.

Fires are, to a great extent, the result of carelessness. The insurance companies pay their proportion of the loss, but the consumer pays in the end.

Forest fires occur, causing immense loss to timber. To provide for these losses the lumberman must collect recompense from the consumer.

A municipality lays a new pavement; a public service corporation a few days later cuts holes in it, and crudely attempts to repair the damage. This is part of their cost of doing business, and the consumer pays the bill.

Through defective plumbing and wastefulness in the use of water, excessive pumping expense is incurred. The corporation pays the bill, but collects from the consumer.

## Poultry Raising on the Farm

**Demand for Output Rapidly Increasing—Farm has Special Advantages for the Work**

Of the many get-rich-quick schemes there is perhaps none more delusive than that of poultry raising on paper, and yet, with the proper facilities and applied intelligence, possibly as handsome returns can be had from poultry raising as from any other industry in proportion to the amount of capital invested and the readiness with which results can be obtained. As a side line for the farmer, or often as an interesting and profitable occupation for the boys and girls on the farm, poultry raising offers great opportunities. The value of the egg as a food is gradually but surely being recognized, with the result that the market for eggs is rapidly increasing. This means that in future good prices for poultry products are sure to be realized.

Recent experiments have shown that flocks with unlimited range, such as they usually have on the farm, have given greater profits per few than flocks that were confined. The poultry house should be dry, free from draughts, and well ventilated, but need not be an expensive structure, as was once thought necessary. With better systems of marketing the products, and with plenty of reliable information regarding the business, now within the easy reach of all contemplating taking it up, there is no reason why there should not be a development in poultry raising in keeping with its importance. Splendid bulletins on the subject may be obtained from the Dominion Department of Agriculture and from the various Provincial Departments.—F. C. N.

## Wires Fences for Back Yards

**Their Use a Sanitary and Fire Preventive Measure**

Custom or habit has led to many abuses, and the high close-board fence, as at present almost universally constructed, is one of the most conspicuous. Without redeeming features, apart from a certain privacy, it has a great many disadvantages. Shutting off the sun from parts of the yard, the close-board fence is, at the same time, a shelter for accumulations of waste material and refuse, which not only litter up the vacant spaces, but, in many instances, are responsible for conditions which breed disease and are a constant and serious fire hazard. The advantage of privacy claimed for the high close-board fence is to-day almost inoperative. Modern construction of city homes has rendered privacy less necessary than formerly.

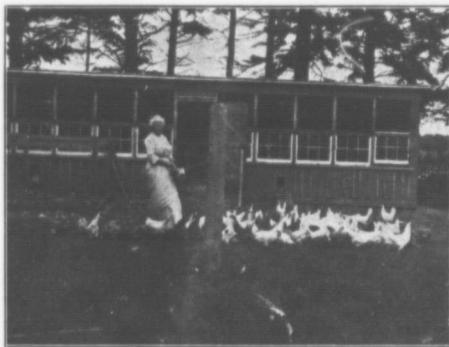
As a substitute for the closed in

## Permissible Descriptions of Furs

Reliable furriers do not use misleading names for their furs. Many of the smaller furriers, no doubt, are ignorant of the real names of their stock but cheap advertisers are frequently guilty of deliberate misnaming. Many advertisers giving private addresses mislead the public. When a lady, who is "going south", offers her "new \$150 Russian lynx set for \$25," the conclusion may readily be reached that it is "doctored" rabbit. However, the enterprise of furriers should not be wholly discouraged, as, otherwise, owing to the scarcity of really good fur, many ladies would have to appear in worsted scarfs and mitts for six months of the year. The pride they take in their "ermines," "foxes," "minks," and "chinchillas" and in their bargain "fishers" and black "martens" would probably be diminished if they knew they were only "doctored" rabbit, marmot, opossum and wallaby.

The following list has been published by the London Chamber of Commerce as permissible descriptions:

Name of Fur	Permissible Description
American sable	Canadian sable or real sable
Fitch, dyed	Sable fitch
Goat, dyed	Bear goat
Hare, dyed	Sable hare or fox hare
Kids	Karakule kids
Marmot, dyed	Sable marmot, mink marmot or skunk marmot
Mink, dyed	Sable mink
Musquash (muskrat), pulled and dyed	Seal musquash
Nutria, pulled and dyed	Seal nutria
Nutria, pulled and natural	Beaver nutria or otter nutria
Opossum, sheared and dyed	Beaver opossum
Otter, pulled and dyed	Seal otter
Rabbit, dyed	Sable coney
Rabbit, sheared and dyed	Seal coney or musquash coney
Rabbit, white	Mock ermine
Rabbit, white, dyed	Chinchilla coney
Wallaby, sheared and dyed	Skunk wallaby
White hare	Imitation fox or mock fox
White hairs inserted in foxes or Sables	Pointed fox or sable



This farmer's wife thought she could not keep poultry on account of her garden. Cat No. 78. She moved her garden out to the farm, with this result.

the, the woven wire fence is rapidly coming into use. As a sanitary measure this class of fence is in a marked manner an incentive to cleanly yards. By having all back yards exposed to the view of neighbours, a condition of rivalry is set up. Each resident of a section endeavors to have his yard as tidy or as well kept as that of his neighbor, while the fact that the result of his neglect can be seen by his neighbours, is often the means of awakening the careless man to the benefits of tidiness. Other advantages of the wire fences are that sunlight is not excluded,

allowing the ground to be cultivated to its fullest extent; it does not allow of ashes or refuse being piled against it, producing unhealthy conditions; it is much cheaper both in erection and maintenance, is more lasting, more cleanly and more sanitary. The wire fence, in some patterns of weaving, has a decidedly pleasing appearance, and retains this condition for a much longer period than the close-board fence. Nothing can be a greater eyesore than the old, dilapidated board fence, hiding as it so often does, an accumulation of rubbish.

## City Roadway Construction

**Reinforcing of Pavement on Recently Excavated Streets.**

An innovation in the construction of permanent pavements has been adopted on a section of roadway recently laid in an eastern city. The policy of the city's engineering department had been to lay all underground services—such as sewers and water and gas mains one year previous to the laying of the pavement, to allow the filling in of the excavations to become fully settled and to give a firm foundation.

To provide work for the unemployed it was decided to lay the pavement on a street shortly after the construction of the underground services, which included a sewer at the centre of the street.

In the construction of the new pavement, after the excavation of the full width of the roadway had been completed, a trench six inches deep and four feet wide was taken out in the centre of the roadway. In laying the concrete this trench was first filled to the depth of six inches. Laid on top of it and embedded between the two layers of concrete was a reinforcement of fine wire of the full width of the lower panel of concrete. This extra depth of reinforced concrete, extending beyond the edges of the sewer excavation, acts as a bridge, and precludes any possibility of the roadway sinking or breaking through, owing to the settling of the earth over the sewer.

It is claimed that the additional cost of the reinforcing was fully offset by the security afforded and also by the work provided for the needy, when other employment was not obtainable.

## Forest Fires and Soil Fertility

**Destruction of the Timber only Part of the Immense Damage Done**

Experts state that forest soils have lost and are losing much fertility owing to forest fires which, doing apparently little immediate damage, rob the soil of accumulations of humus. In many sections land is being cleared for farming, and, where such forest land has not been burned, there is a large percentage of vegetable matter which provides considerable fertility and a good texture. Moreover, as this soil has a greater capacity to absorb and retain moisture, it is less likely to be washed and gullied under heavy rains. For these reasons, in addition to the damage to standing timber, authorities agree that woodlands should be very carefully safeguarded against fire.