

Conservation

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C.N.R. Appoints Fire Inspector

Company Organizes Special Department to Handle Protective Work

The Canadian Northern Railway has taken a very progressive step in connection with the prevention of fire along its lines by the appointment of Mr. William Kilby as Fire Inspector. Mr. Kilby is to have general charge of all phases of the Company's fire protection work. This practically involves the creation of a new department in the Company's organization. This includes right-of-way clearing, fire patrols through timbered country, and the construction of fire guards through prairie sections in Alberta, Saskatchewan and Manitoba. The prosecution of these lines of work is required by the Railway Act and the orders of the Board of Railway Commissioners.

The Canadian Northern is the first large railway Company to organize a special department to handle fire-protection work. Experience has demonstrated that the best results in this class of work are secured by specialization. The example of the Canadian Northern might be followed to excellent advantage by other lines.—C.I.

ATLANTIC LOBSTERS FOR BRITISH COLUMBIA

Experiments in transplanting Atlantic oysters to Pacific coast waters have been sufficiently successful to encourage the Department of Marine and Fisheries to undertake similar experiments with lobsters. A number of shipments have already been made and others will follow. It will be necessary at the outset to ascertain at what points a suitable environment can be found for lobsters, and until this has been done the success of the effort will be more or less in doubt.

As the Atlantic lobster is much superior to the California variety, their successful transplantation to the Pacific will add very markedly to the value of the fisheries of British Columbia, and will still further augment Canada's premier position in the lobster markets of the world.—A.D.

FARM JOURNALS—ATTENTION!

On page 3 of this number of "Conservation" there appears a special article on "The Essentials of Farm Book-keeping." Like all other matter printed in our bulletin, this may be freely reproduced in any Canadian publication.

It is the opinion of experts that many farmers do not receive enough income to pay the interest on their investment and at the same time compensate them for their labour. If this unfortunate state of affairs is true, then the sooner they realize the fact, the sooner will a remedy be found. The only way in which the truth can be revealed is by every farmer keeping books. All journals devoted to the interests of the farming class should not only urge their readers to do this, but should endeavour to place before them practical systems of book keeping, adapted to farmers' needs.

Farmers and students of agriculture may obtain free copies of this number, by applying to the Commission of Conservation, Ottawa.

Bee Keeping

Bee keeping is being carried on with both profit and pleasure by men and women in all parts of the Dominion, and, while, as a rule, it is not the sole occupation of those who pursue it, there are many localities where experienced beekeepers can make a good living by devoting their entire time and attention to this line of work. The average annual yield of honey per colony should be from sixty to seventy-five pounds, many well managed apiaries yielding much more. The money return to be obtained from this crop depends entirely on the market and the method of selling the honey. If sold direct to the consumer, extracted honey should bring from 10 to 15 cents per pound and comb honey from 15 to 20 cents per section. If sold to dealers, the price will be from 3 to 5 cents per pound less. All these figures depend on the quality and neatness of the product.—J.F.

Water Meters Make Householders Careful

By April 1st, 1914, every house in the village of East Syracuse, N. Y., will have a metered water supply. The meters, which will cost \$8.50 each, will be charged to the property owners.

The inordinate waste of water by the consumers forced the Water Commission to take action. During a recent water famine in the village, they willfully disregarded the orders of the commission to conserve the supply and used more than three times as much water as was deemed necessary.

Every municipality in Canada, having a public water supply, would do well to install water meters. No one begrudges water that is used for domestic and commercial purposes, but the people generally suffer financially by reason of the unwarrantable waste which unfortunately is to be noted everywhere.—C.A.H.

TO NEWSPAPERMEN

"Conservation" is a press bulletin for newspapers to clip from, and for that reason is printed on one side of the page only. To further public interest in conservation subjects, our cuts will gladly be loaned to Canadian journals. It is requested that orders be by number, stating the date when the cut is required to be used, and that a copy of the publication in which the illustration appears be sent to our office.

Familiarity Breeds Contempt

And Contempt of Danger Brings Disaster—An Illustration

An inspector going through a plant in Illinois observed a set-screw projecting on a revolving shaft. He considered it particularly dangerous because the shaft was near a passageway and workmen were continually going back and forth past it. He called the manager's attention to it. "Don't you think," he said, "that that set-screw had better be cut off? Someone will get hurt some day if it is left that way." "I don't think so," the manager replied, that set-screw has been like that for years. No one has ever been hurt by it. The fact that it is exposed and can be observed by anyone renders it safe from causing an accident." The manager had a habit of gesticulating when speaking, and, as he waved his arm to emphasize what he was saying, the sleeve of his coat came in contact with the set-screw and caught on it, and in an instant he was whirled to death.

THE FUTURE MEAT SUPPLY

For weeks prior to the removal of the American tariff on cattle, speculators were busy gathering live stock in Canada and then, for some weeks after, quite a formidable procession crossed the border. This gathering process has resembled a clean-up, but it is extremely improbable that either Ontario or Quebec can supply the same number to American markets a year hence. In some districts nearly everything has been shipped away except dairy cows.

Another cause of the beef shortage is the vealing of so many calves, few more being kept than are really necessary to replenish the dairy herds. The beef industry in Canada should not be allowed to dwindle to the production of veal only. The heifers should be kept for the purpose of producing more calves, to utilize the rough feed on the farm and to make manure to maintain soil fertility. Vealing heifer calves, while it may give the farmer a quick return, is destroying good beef-making material and is too much like killing the goose that lays the golden eggs.—F.C.N.

Extravagant Use of Water in American and Canadian Cities

Europeans More Economical—Metered Supply Restrains Waste, yet is Cheaper to Householder

The average American or Canadian citizen is wantonly wasteful in the use of water. Statistics of water consumption show a great difference between the amount consumed by cities in Europe and in America. The average daily consumption in the seventeen large cities in England, Germany and France is about 37 gallons per capita, the highest being about 66 gallons, at Glasgow, and the lowest about 20 gallons, at Nuremberg. The per capita consumption in the average American or Canadian city is nearly four times as great. In New York city the daily consumption is about 130 gallons per capita; in Chicago, Philadelphia and Pittsburgh, it is close to 200 gallons. The excess of the per capita consumption of water in America over Europe can be traced almost directly to the personal habits and financial status of the two peoples. Although water for toilet use should not be stinted in amount, and although there is no disposition among the advocates of water economy to discourage habits of cleanliness, it is a fact, established beyond all disproof, that the present consumption is largely in excess of the amount necessary to secure the desired end. Consequently the use of water meters on house service has become very common, not, it should be emphasized, to reduce the necessary consumption, but to impart to the householder the habit of giving thought to needless waste.

European countries seem to be taking the lead in so reducing the price of electrical energy as to make it a serious competitor of coal and gas in the domestic cooking and heating field. Up to the present, the champions of electricity, in enumerating its advantages for cooking and heating, could only bring forward arguments as to its greater convenience, such as safety from fire, cleanliness, absence of odour and ashes.

Cooking and Heating by Electricity

England and Sweden Take Lead in Reducing Price of Current—Comparison of Cost with Coal and Gas

In several towns of England and Sweden, electricity can now be obtained at as low a rate as 1c. per kilowatt-hour and, at this rate, it is more economical than coal or gas.

In the English cities of Bradford, Sunderland and Southampton, the rate is 1c. per kilowatt-hour plus a small fixed charge. In Southampton, since the reduction to this new rate, the number of electric heaters in use has increased from 20 to 1,000.

In Sweden, the town of Boras, with a population of 21,000, is considering very low rates on domestic electricity. There are to be three tariffs, a rate of 1c. to 1½c. per kilowatt-hour for cooking, of 1½c. to 2c. per kw. hr. for heating, and a higher rate for lighting.

Canada is also following the good example and low rates are now enjoyed in many municipalities supplied with electrical energy through the Ontario Hydro-Electric Power Commission. Among these, probably the lowest is Fort William, Ont., where a special rate of 1½c. per kilowatt-hour is offered for cooking purposes.

In connection with this subject the following table is of interest. It shows at a glance at what price electricity should be sold for heating purposes, to be on an equal cost footing with gas or coal. The figures given are based on average conditions met in practice, that is, coal is taken as having an efficiency of 10 per cent, gas an efficiency of 20 per cent, and electricity an efficiency of 80 per cent.

COMPARISON BETWEEN GAS AND ELECTRICITY.

Price of gas per 1,000 cubic feet	Corresponding price per kw. hr. for electricity
\$0.50	1 cent
.60	1½ cents
.70	1¾ cents
.80	1½ cents
.90	2 cents
1.00	2½ cents
1.25	3 cents

British Columbia Dairy Inspection

Compilation of Milk Records—Protest against Importation of Nontested Cattle

A new policy has been introduced into the dairy industry of British Columbia by the Provincial Minister of Agriculture. The value of permanent milk records has long been recognized by the Provincial and Dominion Governments as an actual asset to the farmer and a benefit to the dairy industry, and after months of careful investigation of the procedure followed in the principal dairy countries of the world, a plan has been evolved by the department that, it is believed, will increase the value of these animals.

A competent inspector, trained in the science of cow-testing, and with a complete outfit for his operations, will be allotted to every district in the Province pasturing at least 400 cows within certain limits, the cost of his employment being borne partly by the cow-testing associations of this district and partly by the Provincial Government. This work will be supervised by the dairy instructor, and will involve the bonusing of the associations by a sum amounting to \$250 to \$500 per year.

The Chilliwack dairy district has been chosen as the first experimental base for this new work, and two inspectors have already been assigned to this field. The 63 dairymen in this area own approximately 1,200 milk cows, and the night and morning milk of every cow will be weighed and tested at least once every month, the records so obtained being subsequently tabulated so as to ascertain the annual yield of each cow.

Dairymen of British Columbia are vigorously protesting against the action of the Government in allowing milk from herds of cattle that have not been put through the tuberculin test to be brought into the Province, while they are compelled to have all their animals tested. At the last meeting of the Lower Mainland Milk and Cream Shippers' Association the suggestion was made that they would be fully justified in resisting further tests, and it was resolved to bring the question to the immediate attention of the authorities.—U. S. Daily Consular and Trade Reports, Nov. 26, 1913.

COMPARISON BETWEEN COAL AND ELECTRICITY.

Price of coal per ton	Corresponding price per kw. hr. for electricity
\$4.00	1 cent
5.00	1½ cent
6.00	1¾ cent
7.00	2 cent
8.00	2½ cent

—L.G.D.

AVERAGE PER CAPITA CONSUMPTION OF WATER IN REPRESENTATIVE CANADIAN AND AMERICAN CITIES

Region	Number of cities	Daily consumption in gals. per capita
Canada	9	108
New England	49	86
Middle Atlantic states	44	137
South Atlantic states	15	90
Ohio valley	55	88
Upper Mississippi valley	53	73
Lower Mississippi and Gulf region	6	53
Rocky Mountain region	5	283
Pacific coast	5	204
Total	241	100*

*Weighted average.

Two objections are urged by those who oppose the introduction of water meters.

(1) Many claims relative to their alleged disease-breeding qualities have been made, but all have been shown to be absolutely unfounded.

(2) The most common and the most sincere objection advanced by uninformed persons is that, with metered services, the charge for water results in diminished personal cleanliness, which might contribute indirectly to disease. There is no evidence that such an effect was ever produced and a moment's consideration will show that such an occurrence is most unlikely. The difference between personal cleanliness and personal uncleanness is represented by such a small amount of water that it is negligible.

Many opponents of meters who base their objections on the ground of cost to the poor man are in ignorance of the fact that the minimum rate under the metered system is so low that the poor man

actually effects a saving, and, furthermore, the amount usable for the minimum rate is ample for ordinary use—but not for wasteful use.

The city of Milwaukee, Wis., has a population of 374,000. Last year 2 per cent of the population paid less than 50 cents; 11 per cent paid between 50 cents and \$1.00; 26 per cent paid between \$1.00 and \$2.00, and 18 per cent paid between \$2.00 and \$3.00. In other words, 58 per cent of the people in Milwaukee paid less than \$3.00 for their water and 70 per cent paid less than \$4.00; while the 100 largest consumers paid nearly half the entire revenue of the water department for 1912.

Does that look like discrimination against the poor man?

In what city in Canada can the poor man get his domestic water supply for less than \$1.00?—Abstracted, in part, from *Water-Supply Paper No. 315, United States Geological Survey.*

Save the wood ashes and keep them in a dry place. They are a splendid fertilizer.

Siam exports about nine million dollars' worth of teak a year.

The Essentials of Farm Book-keeping

Objects to be Sought

Book-keeping is the art of keeping a faithful record of business transactions. It is a meter for detecting leakage and measuring progress. It would seem to be emphasizing the obvious to say that every man engaged in any sort of business enterprise should keep a set of books. Yet it is an astonishing but undeniable fact that many hundreds of farmers keep no systematic record of their affairs. That fact is sufficient excuse for the appearance of this article.

To merely preach the necessity of keeping books is easy; it is not easy to give some practical help by drafting a system according to which they may be kept. The writer intends to make a modest attempt to fulfill this more useful function. The method, must, however be regarded as tentative or suggestive, as the subject of farm book-keeping has not heretofore, particularly in Canada, received the attention it deserves, and very little information is forthcoming as to the success or failure of any plan in actual practice.

The system to be here outlined is adapted, so far as possible, to the needs of the average Canadian farmer. It aims at presenting the simplest possible scheme that can be of any practical use, and to include essential features only, but it may be modified or amplified to suit each individual case.

Most writers on farm economy classify income under three heads: (1) interest on investment, (2) wages for the farmer and his family, (3) profit, or any surplus left over after the legitimate claims of capital and labour have been satisfied. The business is not really flourishing unless there is a fair sum to be placed under each of these three divisions; it is very unsatisfactory if it does not cover at least the first two.

While the above classification of income is perfectly sound and not over difficult to understand, yet, as the writer's aim is a minimum of complexity, and as the word "profit" is so commonly employed in a sense different from that of economics, it would seem desirable to consider income as of two kinds only: (1) the *labour income*, or wages for the farmer and for any of his family who are not paid in cash, (2) a *dividend* on the capital invested, which is the surplus left over after the farmer's wages have been allowed for. The percentage that this dividend bears to the capital invested is the measure of the farmer's success in his business, and the writer's aim is to present the simplest system of accounting by which this all important ratio can be determined.

What Accounts are Necessary

To accomplish the object set forth in the preceding paragraph, at least four separate records are essential: (1) an inventory, (2) a cash account, (3) a produce account, (4) a dividend statement. The *inventory* is a complete schedule of all the assets and liabilities of the farm. It provides us with two indispensable pieces of information: first, the total of the capital investment, on which the interest for the forthcoming year will be computed, and second, by comparison with the inventory of the preceding year, the increase in net worth during the twelve months. The *cash account* records all receipts and expenditures which are strictly cash. Money received from other sources than from the farm must not be entered in it, unless it is taken care of in a special column. Personal and household expenses must be carefully kept separate from farm expenses. The *produce account* should show the value of all supplies furnished by the farm to the household. It may also keep a record of produce bought or sold and not paid for at the time. The dividend statement is made annually after completion of the inventory. It takes the material furnished by the other accounts and presents in a condensed form all information necessary to obtain a clear idea of the financial condition of the farm business.

Specimens of each of these records will now be subjoined, with explanatory notes on each.

INVENTORY. MARCH 1, 1913

ASSETS	
Land (including fences, drains, well and other improvements) 125 ac. at \$40. per acre.....	\$ 5,000 00
Buildings:	
House.....	\$ 1,200 00
Barns and stable.....	2,000 00
Other buildings.....	550 00
	3,750 00
<i>Forward</i>	\$8,750 00

<i>Brought forward</i>		\$8,750 00
Horses:		
1 team heavy horses.....	450 00	
1 general purpose horse.....	200 00	
1 year-old filly.....	100 00	
1 colt.....	40 00	
		790 00
Cattle:		
20 cows.....	1,000 00	
5 heifers.....	150 00	
5 calves.....	50 00	
		1,200 00
Swine:		
12 pigs.....	60 00	
2 brood sows.....	50 00	
		110 00
Poultry:		
60 hens.....	45 00	
4 roosters.....	4 00	
5 turkeys.....	10 00	
		59 00
Implements (depreciated through use):		
Gang plough.....	23 00	
Walking plough.....	8 00	
Disc harrow.....	14 00	
Tooth harrow.....	9 00	
Fanning mill.....	15 00	
Seeder (new).....	80 00	
Cultivator.....	21 00	
Mower.....	27 00	
Hay rake.....	12 00	
Binder.....	72 00	
Cream separator.....	50 00	
Wagon.....	41 00	
Sleigh.....	17 00	
Buggy.....	60 00	
Cutter.....	26 00	
Harness.....	80 00	
Other implements and tools (every article should be listed separately)	250 00	
		805 00
Supplies on hand:		
Oats, 300 bu. at 40c.....	120 00	
Potatoes, 50 bu. at 75c.....	37 50	
Seed oats, 40 bu. at 75c.....	30 00	
Seed barley, 12 bu. at 90c.....	10 80	
Seed corn, 8 bu. at \$1.50.....	12 00	
Hay, 14 tons at \$8.00.....	112 00	
Silage, 45 tons at \$2.00.....	90 00	
Straw, 5 tons at \$3.00.....	15 00	
Manure, 50 tons at \$1.00.....	50 00	
		477 30
Growing wheat (4 acres).....		30 00
Cash:		
On hand.....	55 65	
In bank.....	632 50	
		688 15
Accounts and bills receivable:		
A. S. McMillan's note for \$50. and accrued interest for 2 mo. at 7 per cent.....	50 58	
H. L. Humphreys, for potatoes.....	7 50	
		58 08
Total assets		\$ 12,967 53
LIABILITIES		
Farm mortgage.....	\$ 1,000 00	
Accrued interest on same for 3 mo. at 6 per cent.....	15 00	
		1,015 00
Net worth		\$ 11,952 53

The first question that arises in connection with the annual inventory is the date at which it should be taken. Every farmer must, of course, decide this for himself, but some time during the winter would appear to be most convenient, because at that season there is no field work to be done, and there are few growing crops, a species of asset whose value it is exceedingly difficult to determine.

The next point to notice is that the value of every asset, save cash and bills receivable, is an estimated value. It becomes necessary, therefore, to consider by what principles we are to be guided in making these estimates. Usually it will be our safest guide to take the price at which a thing can certainly be sold. In the case of real estate, land and buildings are generally, for sale purposes, considered as a unit. To arrive at the value of the land alone, the best way will be to deduct the value of the buildings from the worth of both together. The buildings themselves may be appraised by writing off from their original cost a certain percentage every year for depreciation. This percentage must be based on their durability. If, e.g., a barn be calculated to last, with ordinary repairs, for 50 years, the depreciation would be 2 per cent, so that, at the end of the period, its value would be zero. If any extensive repairs or improvements are made, their cost should be added to the estimate, while, of course, any extraordinary damage, e. g. due to fire, should be deducted. No hard-and-fast rule can be laid down with regard to depreciation, as it depends on so many variable factors, such as the degree of staunchness of the structures concerned, the care taken of them, etc. On most farms, probably about 3 per cent will be sufficient to allow for depreciation on average buildings.

Up to maturity the value of animals increases and then begins to diminish according to the same rule as dead stock. For example, if a horse comes to maturity in 5 years and may then be expected to live for 13 years longer, he will, theoretically at least, be worth $\frac{1}{3}$ less every year from the time he is 5 years old. But nearly all farmers have a fairly accurate idea of how much they can sell an animal for, and are not likely to go far astray in appraising their live stock. The estimates should, however, be conservative, too low rather than too high.

In making an inventory of implements and tools the golden rule is

to go into detail as much as possible. Owing to considerations of space, we cannot, in the example given, list all the small tools, but it is very important that this should be done in practice. The amount of money invested in minor articles of farm equipment is by no means negligible and they are, moreover, the very articles that are most liable to be lost. A complete inventory, once made, is not difficult to revise year by year, and much better care is likely to be taken of the tools when it is known that they will have to be accounted for at the annual stocktaking. Depreciation on implements and tools may usually be reckoned at 10 per cent per annum.

The evaluation of feed and supplies is not likely to present much difficulty to any farmer who knows his business. Care must be taken not to include household supplies, such as fire-wood, but only those connected with the farm business.

Probably the most difficult item on which to place a value is a growing crop. This is one of the strongest reasons for taking the farm inventory during the winter. The value of the 4 acres of fall wheat, mentioned in the example given, has been arrived at by computing what has been expended on the crop up to March 1st, i. e., the ploughing, harrowing, sowing, seed, etc., as worth about \$7.50 per acre. This estimate is taken from the *Census and Statistics Monthly* for March, 1912. Such a method of valuation seems better than one based on the probable worth of the crop at maturity, which must in any case be a speculative figure.

In estimating the cash, the total of any money received during the year from private sources, must be deducted.

No further remarks on the inventory appear to be required, unless a reminder be necessary that among the items under 'Accounts and bills receivable' and 'Liabilities' only business, not private debts, should be included.

CASH ACCOUNT

Date	Receipts	Amount	Business	Private	Date	Expenditures	Ch. No.	Amount	Business	Private
1913					1913					
April 1	<i>Cash on hand*</i>	\$ 63 20			April 1	Man's wages for March	55	\$ 25 00	\$ 25 00	
" 1	<i>Cash in bank</i>	591 00			" 5	Household expenses		20 50		\$ 20 50
" 2	Cream cheque	102 00	\$102 00		" 5	Monkey wrench		50	50	
" 5	2 calves sold	20 00	20 00		" 7	Leghorn rooster		2 00	2 00	
" 5	5 doz. eggs	2 00	2 00		" 15	8 bushels seed corn	56	12 00	12 00	
" 12	Dividend on creamery stock	50 00		\$50 00	" 15	Life insurance premium	57	40 00		40 00
" 12	6 doz. eggs	2 10	2 10		" 19	Household expenses		15 30		15 30
" 19	6 doz. eggs	2 10	2 10		" 19	2 tons bran	58	46 00	46 00	
" 26	7 doz. eggs	2 45	2 45		" 19	Pane for stable window		50	50	
" 30	10 bushels potatoes	7 50	7 50		" 23	Personal expenses		17 80		17 80
					" 26	Household expenses		22 20		22 20
					" 26	Pliers		75	75	
					" 26	Padlock		50	50	
					" 30	<i>Cash on hand</i>		39 30		
					" 30	<i>Cash in bank</i>		600 00		
		\$842 35	\$138 15	\$50 00				\$842 35	\$ 87 25	\$115 80

*The items in italics should preferably be written in red ink.

The form of the cash account is not so important as the principle on which it is kept. As its name implies, its purpose is to keep a record of cash transactions, and of them only. Only such receipts and expenditures as involve the actual paying out or receiving of money, must be entered in it. Indirect gains and losses will be shown by an increase or decrease in the inventory.

The cash account may be balanced as frequently as desired. In the form shown, it is supposed to be balanced monthly. The account is begun by writing at the head of the "Receipts" column the amount of cash on hand and in the bank. At the end of the month another inventory should be taken of the cash, and this should correspond with the difference between the totals of the two sides of the account. If it does not, and if one is absolutely sure that no mistake has been made in the arithmetical work, either some improper entry has been made or

some necessary item has been omitted. The more frequently the cash account is balanced, the less liable are such errors to occur.

It will be necessary, when the dividend statement is made out, to know the amount of the farmer's private (i. e. personal and household) expenses during the year, and also his private receipts, if any. It is desirable therefore that all items should be classified as "business" or "private" at the time of entry, and for this purpose two extra columns have been ruled in the form shown. The principle may be still further extended by subdividing the business column into the various departments of the farm. A suggested classification would be: under "Expenditures"—"Stock," "Crops," "Labour," "Implements," "Improvements and repairs," "Sundries," and under "Receipts"—"Grain," "Hay," "Orchard, garden," "Stock," "Dairy," "Poultry," "Sundries"

THE ESSENTIALS OF FARM BOOK-KEEPING

(Continued)

In a small business it is hardly necessary to keep an extra account with the bank, as the Bank Pass Book is usually sufficient for this purpose. To facilitate reference, however, it will be well, when any payments are made by cheque, to be careful to write full particulars of the transaction upon the stub and to enter the number of the cheque in the cash account in the column shown.

Household and personal expenses need not be itemized. A separate detailed account may be kept for them if desired and then only the totals need be entered in the main account as often as that is balanced.

At the time when sales or purchases are actually made, the amounts may be written in a pocket notebook and subsequently posted in the cash account—the same evening, if at all convenient.

PRODUCE ACCOUNT (SPECIMEN ENTRIES)

DATE	SUPPLIES FURNISHED TO HOUSEHOLD	VALUE
Oct. 20	Turkey	\$ 2 00
" 22	Eggs for week, 6 doz. at 40c	2 40
" 22	Milk for week, 35 qts. at 4½c	1 57
Nov. 10	Fire-wood, 10 cords at \$4. a cord	40 00
Dec. 15	Beef, 300 lbs. at 11c (half carcass)	33 00
Dec. 24	3 chickens	2 25
Jan. 3	16 evt. flour in exchange for 40 bu. wheat	32 00
July 25	12 qts. strawberries at 7c	84
Sept. 2	1 bu. table carrots	35

Of the produce account, little need be said except that it is absolutely necessary to keep one if the profit returned from the farm is to be justly and accurately calculated. Its purpose is simply to keep a record of all supplies taken off the farm to be used in the house. In the example shown, a few specimen entries are given, taken at various dates through the year. In practice, it would be well to find the totals and carry them forward month by month or perhaps week by week.

DIVIDEND STATEMENT

ITEM	Inventory, 1912	Inventory, 1913
Land, with fences, drains, etc.	\$ 4,875 00	\$ 5,000 00
Buildings	3,866 00	3,750 00
Horses	725 00	790 00
Cattle	1,240 00	1,200 00
Swine	100 00	110 00
Poultry	53 50	59 00
Implements	832 00	805 00
Supplies	452 50	477 30
Growing wheat	37 50	30 00
Cash	591 25	688 15
Accounts and bills receivable	35 00	58 08
Total investment	\$ 12,807 75	\$ 12,967 53
Mortgage and accrued interest	1,522 50	1,015 00
Net worth each year	\$ 11,285 25	\$ 11,952 53
Increase in net worth	\$ 667 28	
Personal, household and family expenses	1,086 40	
Year's interest on mortgage of \$1,500 at 6 per cent.	90 00	
Supplies furnished by farm to household	240 00	
Rent of house (interest at 6 per cent on its value)	72 00	
Gross farm gain		\$ 2,155 68
Unpaid personal and family labour	\$ 900 00	
Board of hired man	156 00	1,056 00
Dividend		\$ 1,099 68

1280775 10996800 8.5
10246200
7506000
6403875

\$1,099.68 represents a dividend of rather more than 8½ per cent on an investment of \$12,807.75 (as per inventory of March 1, 1912.)

Turning now to the Dividend Statement, the fundamental principle of it is to discover the gross farm gain and to subtract from this the value of all labour not paid in cash, the remainder being the dividend.

The first item in the farm gain is the increase in net worth during the year. To obtain this it will be necessary to compare the inventory of one year with that immediately preceding. It is desirable that a summary of the two inventories be placed side by side in the manner shown. Should the net worth unfortunately show a decrease, the amount of such must be added in with the value of the unpaid labour and deducted from the gross farm gain.

Besides the increase in net worth, the farmer has drawn from the profits of the business his own and his family's living expenses for the year—the total of which is given by the cash account—and has paid the interest on a mortgage; further, the farm has provided him with various supplies—the value of which is shown by the produce account—and has furnished him with a house to live in. The business must be credited with all these items, and, together, they make up the gross farm gain.

Some explanation should probably be made as to why the interest on a mortgage should be included here. It may be objected that this is a business expense, and, as such, should be charged against the business rather than counted in its favour. But we must remember to distinguish between the profit of the farm and the profit of the farmer. The point may perhaps be made clear if we regard the mortgage as a sort of a shareholder in the business, to whom a certain proportion of the dividend must be paid. The farm has made as much profit, no matter to whom it is paid, and therefore the mortgagee's share must be included as part of the farm gain. Another way to elucidate the matter would be to consider how the statement would appear if there were no mortgage. As no interest would have been paid, the amount of cash on hand—as shown by the 1913 inventory—and hence the net worth for that year, would be \$90 greater. The item "Increase in net worth" would then be \$757.28 instead of \$667.28, thus balancing the omission of the item. "Interest on mortgage" and making the gross farm gain the same as before, namely, \$2,155.68.

The gross farm gain having been found and the value of all labour not paid in cash having been deducted therefrom, we obtain a certain sum as dividend.

The next step is to work out what percentage this bears to the capital invested, a ratio which is found by multiplying the amount of the dividend by 100 and dividing by the total of the investment at the beginning of the year, as illustrated in the example shown.

Results

The system of book-keeping above outlined, while simple, supplies some very essential information, which every farmer ought to possess about his business, namely:

- (1) Amount of capital invested.
- (2) Increase or decrease in capital year by year.
- (3) Farm profit or loss.
- (4) Personal and household expenses.
- (5) Value of supplies drawn from farm for household.
- (6) Labour income of farmer and family.
- (7) Distribution of receipts and expenditures (if a classified cash account be kept.)

A more complex system would aim at providing much additional information, such as the precise profit obtained from a particular field or group of stock or the exact cost of producing a quart of milk or a bushel of wheat.

It may be desirable to keep many records that have no direct connection with money matters, e. g. to keep account of the number of hours worked by each man and each horse, the quantity of milk produced by each cow, the number of eggs laid day by day, the date of every animal's birth, etc., etc. But all such records are beyond the scope of this article, which aims, as its title indicates, at presenting merely the essentials of farm book-keeping. It is believed that any farmer who will conduct a system of accounting according to the principles here laid down, will obtain, at the expense of a few minutes every evening and one day a year for stocktaking, a clear insight into the financial side of his business and a sound basis for comparison with other occupations.—P.M.B.

Town Dump is Public Nuisance

In the Appellate Court of Indiana, the city of Newcastle, in that state, was recently found guilty of maintaining a nuisance in the nature of the "town dump." The judgment was that, while a town was charged with the duty of preserving the health of its citizens and was within the bounds of its governmental functions in providing a suitable place in which to deposit garbage, yet it might not deposit such garbage at such place in a careless and negligent manner, thus causing a nuisance, nor negligently permit it to escape upon the lands of another to his damage, also, that a municipal corporation has no more right to maintain a nuisance than an individual has, and for a nuisance maintained upon its property the same liability attaches against it as against an individual.—C.A.H.

Plumbers Demand Laws to Enforce Sanitation

The Commission of Conservation has received the following interesting and important resolution from "The Trades and Labour Congress of Canada":

Whereas, the heavy increasing death rate and infant mortality, particularly in some of our large cities, is due in a large measure to the unsanitary systems of heating, ventilation and sanitation, thereby causing a serious condition of life, and

Whereas, the present laws recognized by some of our Provincial and Municipal bodies are in many instances contrary to the laws of sanitation, lacking effectiveness and uniformity, and thereby endangering the lives of the people, and

Whereas, the question of the health of the community should be the first consideration of all our governing bodies, and as all important scientific and medical bodies declare the urgent necessity of the highest standard of sanitation for the conservation of human life and the adoption of modern systems by all cities and towns,

Be it resolved, that this Congress endorse the action of the United Association of Plumbers and Steamfitters in its efforts to establish Dominion and Provincial laws governing the installation of modern sanitary systems of plumbing and heating, and that the officers of this Congress along with the officers of the United Association endeavour to place this important matter before the Dominion Conservation Commission with a view to their recognizing the necessity of Dominion legislation in sanitation instead of the present unsatisfactory Provincial and Municipal laws governing this matter at present.

How to Construct and Use the Split-log Drag

Inexpensive Home-made Implement is Invaluable Aid in Maintaining Rural Roads in Good Condition

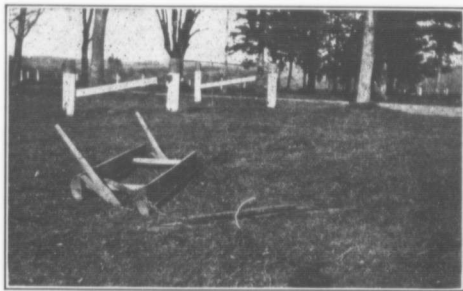
There are many miles of roads which must be maintained by some inexpensive means. The split-log drag has been found to be one of the most useful implements for this purpose. It is now in use in many localities, and this simple instrument is keeping in repair economically an increasing mileage of the rural highways of this country.

A dry, sound, red cedar log is the best material for a drag, the hardwoods being usually too heavy for this purpose. It should be from 7 to 8 feet long, from 10 to 12 inches in diameter, and carefully sawn down the middle. The heaviest and best slab should be selected for the centre, both flat sides to the front, and should be set on edge 30 inches apart. The back half is given a setback of 16 to 18 inches at the right-hand end, so that when the drag is drawn along at an angle

parallel to the ditch on the right hand side of the road, the extremities of the back half will be directly behind those of the front half, as, otherwise, the ditch end of the rear slab would project past the ditch end of the front slab, resulting in crowding into the bank and interfering with the proper working of the drag.

Two cross-pieces are wedged in two-inch auger holes bored through the slabs and, on the right-hand side, a piece of scantling is inserted between the ends of the slabs. This is of great value in strengthening and stiffening the end of the front slab. In working a clay or gumbo road it is advisable to put iron on the lower edge of both flat sides.

Handles may be attached to iron shoes shaped like sled-runners, the shoes to be stapled to the back of each end of the front slab in such



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a way as to allow motion sideways as well as up and down. By pressing the handles the drag can be raised, thus depositing a load of dirt when desired to fill a hollow or increase the crown at some particular spot.

A platform of inch boards held together by three cleats should be placed on the stakes between the slabs. These boards should be spaced at least an inch apart to allow any earth that may heap up and fall over the front slab to sift through upon the road again. The end cleats should be placed so that they will not rest upon the cross stakes, but drop inside them. These cleats should extend about an inch beyond the finished width of the platform. An extra weight may be added if necessary, but it is seldom needed.

To use the drag, attach a chain to the left cross piece, which is be-

hind the front slab, running the other end of the chain through a hole in the front slab near the right end or around the front end. It is a mistake to hook this end of the chain over the front slab as in the case of the other end, for when the drag strikes a stone or snag there is great danger of toppling forward. With the right end of the chain drawn through the hole in the slab as suggested, this danger is obviated.

The operation of the drag is very simple. For ordinary smoothing purposes the drag may be drawn up and down the road one or two rounds, commencing at the edge and working towards the centre. Usually it is drawn at an angle of about 45 degrees. For the last stroke or two the drag may be drawn backwards with the round side of the slab to the front and with comparatively little angle.

Make the life and work on the farm so attractive and interesting that the boys and girls will not want to leave it.

Quebec is Active in Forest Work

Sixteen Trained Foresters Now Employed—Surveys of Crown Timber Lands

The Forest Service of the Province of Quebec now employs a total of sixteen professionally trained foresters. Nearly all these men have received their professional training at the Forest School at Laval University, Quebec.

During the summer of 1913, the Forestry Branch had fourteen parties in the field, each in charge of a technically trained forester. The work undertaken by ten of these parties was a valuation survey of unlicensed Crown timber lands. Of such lands, there are approximately 125,000 square miles in the Province of Quebec. The Crown lands under license aggregate approximately 70,000 square miles. The revenue from these lands during the past year has aggregated nearly one and three quarter million dollars.

In addition to the ten parties engaged as above, four parties were engaged in an examination of licensed lands, to determine the boundaries of permanent forest reserves. It is the policy of the Quebec Government to segregate non-agricultural forest lands into permanent forest reserves as rapidly as the necessary information can be secured.—C.L.

Crowded Cars Cause Coughs and Colds

Dwellers in Canadian cities are all too familiar with the sight of overloaded street cars. At this season of the year, when the climatic conditions render closed windows a necessity, the over-crowding of the aisles and platforms with people is particularly dangerous. Sneezing and coughing are continually heard, and it is evident that the air rapidly becomes filthy with injurious germs from diseased throats and lungs. The ventilators, if any exist, cannot be sufficient to keep the air pure when the cars are so overcrowded.

The only remedy is the putting on of additional cars during the rush hours and the enforcement of a by-law allowing only a limited number of passengers in each car. The statement that this is impracticable is without foundation. In many European cities it is the practice to have all cars plainly marked with the seating capacity, and, when the car contains its proper quota of passengers, no more are admitted by the conductor. Surely what is done successfully in these crowded centres can and should be done in our Canadian cities.—C.A.H.

France has spent \$35,000,000 in planting trees on the watersheds of important streams.

The Automobile Club of America, through its bureau of tours, is urging automobilists to use care with fire in timbered regions.