with it, and, if you notice a man painting, he is always seen to be most carefully dabbing it thick on the weather line. Then, when the rain comes, it breaks through the joints onto the shingle below. The wood being dry and free from paint, absorbs the water, which soaks down to the weather line, there to be met by the wall of oil-soaked wood. The water must stop where it is until evaporated, and so it runs for three or four years, and then the butts start to break off and come fluttering down, and the water comes through the roof, and the idea is borne in on the owner that "shingles are no good," or at least not what they used to be.

A shingle of proper size, properly dipped, will give as good results as any roof I know of, but a painted roof, or a roof made of those skimped and pinched little pieces of wood, will never give satisfaction, and they will, I think, eventually put the public from using them entirely in all sizes and qualities.

I know of a roof near here that was shingled nearly 30 years ago with basswood, pine, cedar and hemlock, just as a test, and, strange to say, the basswood seems to be lasting just as well as any of the others, and the roof is still weather-proof. But don't understand me to say that I would recommend basswood as a material for shingles; that is only one test.

AN OTTAWA VALLEY MILL MAN.

Valuation of Fertilizers.

Trade values of elements of plant-food in raw materials and chemicals are given in Bulletin No. 304, recently issued by the New York Agricultural Experiment Station. The figures given correspond to wholesale prices in New York State for the six months preceding March, 1908, plus about 20 per cent. in the case of goods for which there are wholesale quotations.

The values given are:

	Cts. per pound.
Nitrogen in ammonia salts	17½
" in nitrates	18½
Organic nitrogen in dry and fine-ground fish, meat and blood, and mixed fertilizers	20½
Organic nitrogen in fine-ground bone and tankage	20½
Organic nitrogen in coarse bone and tankage	15.0
Phosphoric acid, water-soluble	5.0
" citrate-soluble (reverted)	4½
Phosphoric acid, in fine-ground fish, bone and tankage	4.0
Phosphoric acid in cottonseed meal, castor pomace and ashes	4.0
Phosphoric acid in coarse fish, bone and tankage	3.0
Phosphoric acid in mixed fertilizers, insoluble in ammonium citrate or water	2.0
Potash, as high-grade sulphate, in forms free from muriates (chlorides), in ashes, etc.	5.0
Potash in muriate	4¼

Continuing, the bulletin says: The total cost to the farmer of a ton of commercial fertilizer may be regarded as consisting of the following elements: (1) Retail cash cost, in the market, of unmixed trade materials; (2) cost of mixing; (3) cost of transportation; (4) storage, commissions to agents and dealers, selling on long credit, bad debts, etc. While the total cost of a fertilizer is made up of several different elements, a commercial valuation includes only the first of the elements entering into the total cost; that is, the retail cash cost in the market of unmixed raw materials.

The agricultural value of a fertilizer depends upon its crop-producing power. A commercial valuation does not necessarily have any relation to crop-producing value on a given farm. For a particular soil and crop, a fertilizer of comparatively low commercial valuation may have a higher agricultural value, while, for another crop on the same soil, or the same crop on another soil, the reverse might be true.

RULE FOR CALCULATING COMMERCIAL VALUE.

Multiply the percentage of nitrogen by 4, and add to the product the figures representing the percentage of available phosphoric acid and of potash. The sum expresses in dollars and cents the approximate commercial valuation of the fertilizer. For example, take the analysis of a sample that contains:

Nitrogen	2.52 per cent.
Available phosphoric acid	6.31 per cent.
Potash	6.64 per cent.

2.52 (per cent. of nitrogen) multiplied by 4, equals	$10.08
6.31 (per cent. of available phosphoric acid) equals	6.31
6.64 (per cent. of potash) equals	6.64
Total, per ton equals	$23.03

If a fertilizer contains only one or two of the three essential fertilizing ingredients, the rule can be applied equally well.

While the results given by this rule are not exact, they are fairly accurate, and the rule has the great advantage of simplicity. It does not take the insoluble phosphoric acid into consideration at all. A somewhat more accurate valuation would be made if the following rule is followed:

Multiply 4.1 by the percentage of nitrogen.

Multiply 0.9 by the percentage of available phosphoric acid.

Multiply 0.4 by the percentage of insoluble phosphoric acid (total minus available).

Multiply 1.0 by the percentage of potash.

The sum of these 4 products will be the commercial valuation per ton on the basis taken.

For example, the table of analyses shows a certain fertilizer to have the following composition: Nitrogen, 2.52 per cent.; available phosphoric acid, 6.31 per cent.; insoluble phosphoric acid, .89 per cent.; potash, 6.64 per cent. Following this method of valuation, the computation would be:

Nitrogen	4.1 x 2.52	$10.31
Available phosphoric acid	0.9 x 6.31	5.68
Insoluble phosphoric acid	0.4 x .89	.35
Potash	1.0 x 6.64	6.64
		$22.98

This latter rule assumes all the nitrogen to be organic, and all the potash to be in the form of the sulphate. If a considerable portion of the nitrogen exists in the fertilizer as the nitrate of soda, or as sulphate of ammonia, and the potash is present as the muriate, the valuation should be somewhat less.

Farmers should be warned against judging fertilizers by their valuations. A fertilizer, the cost of which comes chiefly from the phosphoric acid present, would value much lower commercially than a fertilizer with a high percentage of nitrogen, and yet the former might be the more profitable one for a given farmer to purchase.

Royal Chieftain.

Shorthorn steer, two years old. First in class and reserve for breed championship, Royal Show, 1908. Bred and exhibited by H. M. the King.

Modern Conveniences in Country Home.

Editor "The Farmer's Advocate":

As to conveniences for the housewife, I will describe some that we have installed. Our house was built in 1901, and is comparatively new. In the pantry, we have a waiter running down to the cellar. When a meal is finished, all perishable food is at once placed on the waiter and lowered into the cellar. This saves the housekeeper many a trip up and down the cellar steps. The waiter consists of shelves fitted inside a box without top or bottom; sash cord attached to this runs over a large wooden pulley, and is made fast to a large cement weight, which counterbalances the weight of the elevator, and makes it easy of operation.

Our hard-water system consists of a well and windmill, situated about 125 yards from the house. The water is pumped into a galvanized-iron tank, placed about 15 feet above the barn floor. The piping leading to it is cased with cull hemlock lumber, and packed with sawdust to prevent freezing. The tank has a tight-fitting lid, and is also cased and packed to prevent any possibility of a freeze-up. The pipes enter the house cellar beneath the wall, and from there run to the wash-room and summer kitchen. There is a tap in the cellar, one in the wash-room, and one in the summer kitchen. The installation of the piping, exclusive of the pump and windmill, cost about $60, but we would not be without the water for double the amount. When the men are in the fields, it often falls to the lot of the women to carry water, and carrying water is very little short of drudgery for a woman.

Then, as to our soft-water system, a cistern built of brick, with cement mortar, and plastered on the inside with cement, is situated in the cellar. A small force-pump, connected by lead piping, brings the soft water up to the wash-room, where there is a sink, with a lead-pipe trap beneath to prevent the escape of sewer gas. The sink is connected with the drain from the bath-room. The bathroom is situated upstairs, and has a tank capable of holding about 150 gals., hung from the ceiling by iron rods, which go through the attic floor, and are held by cleats. The eavestrough runs into this tank. When it is full, the water escapes through an overflow pipe, and enters the cistern in the cellar. Beneath this suspended tank is the iron reservoir, from which pipes run down to the kitchen range, thus giving a supply of hot and cold soft water for the lavatory and bath. A closet and bath are also features of the bathroom. A soil pipe runs out through the roof, and is connected at the bottom end with a sewer-pipe drain. This drain empties into a cess-pit about 20 yards from the house. This first cess-pit catches all the solid matter from the bathroom, and the second cess-pit receives the overflowing liquid, which filters away through the soil. This arrangement has been in use for eight years, and has never yet required to be cleaned out. The cess-pits are simply holes four feet square and six feet deep, dug in the ground, and boarded up to prevent caving. They are covered with lumber. In the top of cess-pit No. 1 is a tile standing on end for ventilation. The system has worked well, no sewer gas being ever perceptible in the bathroom. As to cost of fixtures, an A, guaranteed bathtub costs about $30; a closet fixture can be obtained for $15, and a lavatory for $10. If my memory serves me, I think the whole system, including bath-room fixtures, with boiler and piping, together with cost of plumbing, cost about $225. A system less elaborate, and with less piping, could be installed for very much less money, but my advice to those contemplating such a move would be to do well whatever they attempt in this line; put in the best materials, and employ skilled labor, and you will be amply repaid in comfort during the ensuing years. We have yet to have the slightest particle of trouble with our system, which gives us all the advantages of city waterworks, minus city water rates.

The lavatory, closet and bathtub are all fitted with traps, which prevent any odors from the soil pipe escaping into the bathroom. The traps are U-shaped, and are always full of water. The closet is of the siphon pattern, with low-down water-box, which is much superior to the old-fashioned high water-box. The tank suspended from the ceiling gives plenty of pressure for both closet and bathroom. This tank is connected with the force-pump in the wash-room, so that if it should be run dry, water can be pumped up from the cistern in the cellar.

Middlesex Co., Ont. W. E. WILLIAMS.

Results of P. E. Island Auto Legislation,

Editor "The Farmer's Advocate":

Knowing the deep interest you take in the farmer's welfare, I thought you would like to know the result of prohibiting the running of automobiles on the streets and roads of Prince Edward Island. Since the passing of the Act, we have been held up to ridicule by papers in the United States and the Provinces; so, we would just say to those people to mind their own business, and we will mind ours.

Previous to the introduction of the auto, or "devil wagon," one could scarcely look on our roads without seeing a horse and carriage passing; but as soon as the automobile was introduced—presto, change—scarcely a horse was to be seen passing, and those who did went in fear and trembling. Runaways and upsets frequently occurred in town and country, resulting in serious injury, and in some cases maiming for life. But, change again the automobile is barred from running on the Island by an Act passed by our local Legislature at its last session, by the imperative and almost unanimous demand of farmers and