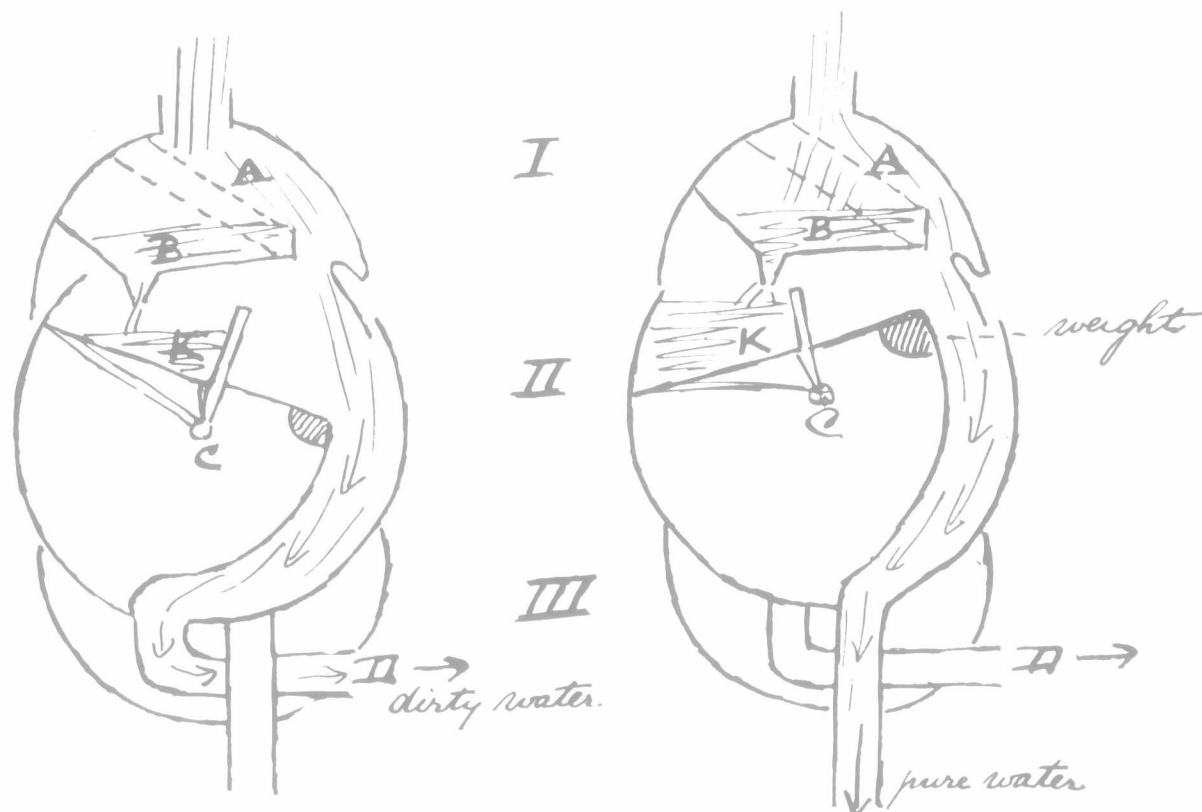




Principle of Roberts' Rainwater Separator
Price 10-15 Dollars.

THE FARM.

Rain-water Supply of the Farm.

1. Is rain water pure, and suited for drinking purposes?
2. What is the best way to collect rain water on a farm?

These questions were asked by a farmer from Ontario, and, as the answer is certainly of general interest, we thought it advisable to publish our reply in the form of an article in one of our principal rural papers.

Rain Water.—Rain is condensed vapour; thus, rain at the moment the drops are formed, is absolutely pure. In passing downwards through the air, this rain water takes up a proportion of the gaseous constituents, but, besides, washes from the air all floating impurities, whatever their nature. Therefore, the rain which first falls always contains the largest proportion of these impurities. In the neighborhood of towns or densely-populated districts the air is very impure, and the rain falling in these districts contains soot and other matter derived from the combustion of coal; also, decomposing animal and vegetable substances, and, further, the exhalations from the bodies of men and animals. These substances, together with various micro-organisms, are found in all rain water. In the country, the circumstances are much more favorable, and the rain is sufficiently pure at the moment it comes down on the roof of a building. This roof, however, is far from clean, and the rain water may become seriously contaminated by the excrements of birds, decaying vegetable matter, soot and dust. To collect rain water in good condition, a roof ought to be washed before each shower, and, with this object in view, the first part of each shower is used to wash the roof, and is not collected in the water tanks, but allowed to run away. Many devices have been patented to arrange this separation of dirty and pure rain water, and we will describe here Roberts' Rain-water Separator, one of the best on the market, which costs from \$15 to \$30, but the simple form shown in our sketches could be constructed at a cost of only \$5.

RAIN-WATER SEPARATOR.

The sketches give a clear insight into the principle of this apparatus, so that a short explanation will suffice. It consists of three pieces, I, II, and III, of which the parts one and three are stationary, but part two can revolve around its center (C). The right half of this revolving part is heavier than the left half, through the addition of an iron weight, so that, under ordinary circumstances, the right half is in its lowest position as represented in the first sketch. In this position, the stack pipe coming from the roof is directly connected with the drainage pipe (D) at the bottom. Thus, when a heavy shower comes, the first filthy water, which contains all the impurities from the air and which has washed the roof, runs at once into the drainage system, and does not pollute the water supply.

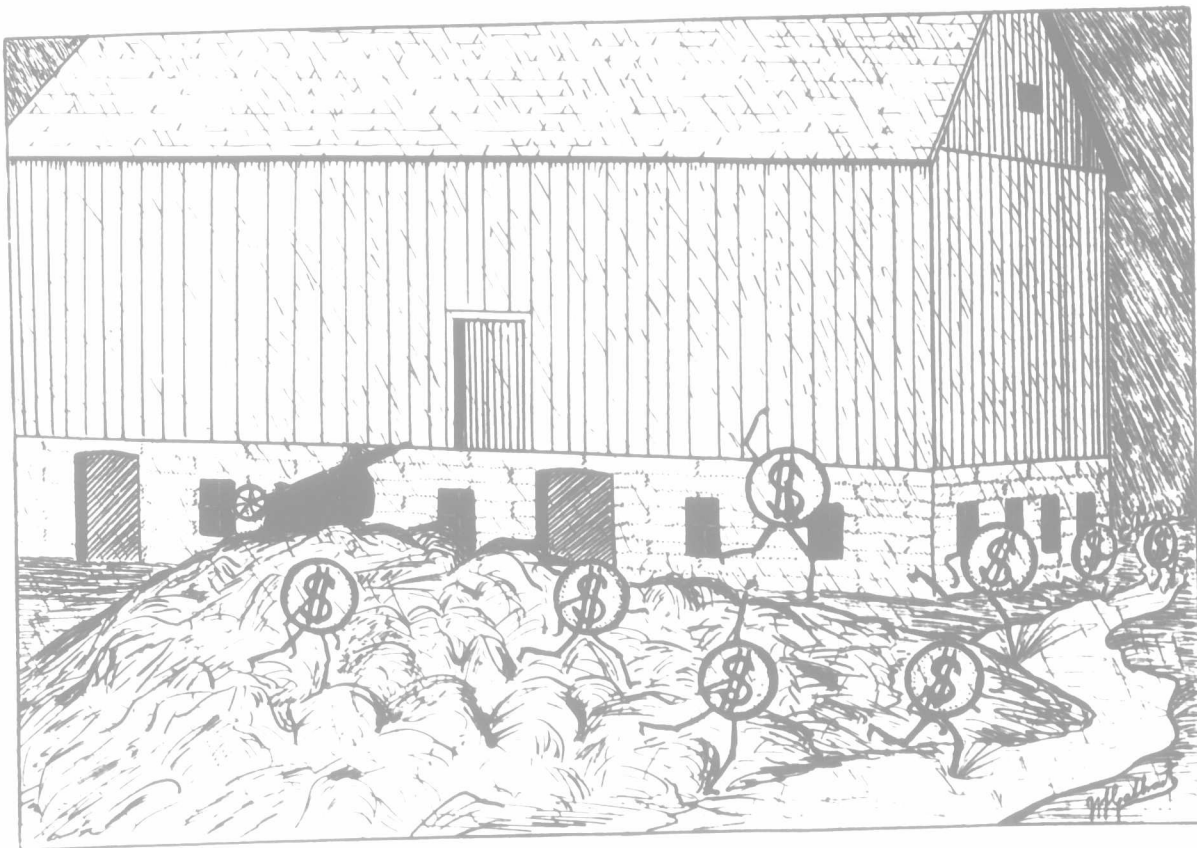
When entering the apparatus, the water runs

over the perforated surface (A), and, drop by drop, water trickles in the small reservoir (B). This reservoir (B) is connected by a syphon with reservoir (K), in the left half of the movable part II. At the moment B is full of water, the syphon empties suddenly all this water into reservoir K, and soon the left portion, to which all this water weight is added, becomes the heavier of the two, and the apparatus revolves to the left, and we have the position represented in the second sketch. And now the stackpipe from the roof is connected with the pure-water pipe going into the tank, and for the rest of the shower pure rain water is collected in the supply tanks.

When the shower is over, the reservoir (K) gradually empties out, the right half becomes heavier than the left half, and the apparatus revolves back to its former position, and everything is ready for a new shower.

This apparatus is very simple, and can be made at such a low cost that all farmers should order such a separator.

Tanks.—The pure water is collected in a tank. These tanks may be built of brick, and, if underground, should be well puddled with clay on the outside. The inside of the tank must be lined with Portland cement. These precautions are taken not only to prevent the waste of rain water by leakage, but also to prevent the access of ground water.



If manure is worth \$2.60 a ton applied green, can we afford to pile it carelessly in the barnyard, and during every shower have the little geats hiking off to the nearest creek?

Especially in districts surrounding manufacturing towns, rain water should never be stored in metal tanks, made of lead, zinc, iron, or galvanized iron, for the rain water is often distinctly acid.

The size of the tank is the next consideration. It should not only be large enough to contain the water collected from one shower, but it must hold at least one quarter of the yearly water supply.

In a country where the total rainfall would be 36 inches, only half that amount can be collected. Slight showers never reach the water tanks, the rain water running off through the waste pipe or evaporating on the roof, and, during heavy showers, part of the water runs over the eavestroughing and over the ends where there is no spouting. However, 15 to 18 inches of rain is a considerable amount, and, gathered from the roof of a medium-sized cottage (35 square yards), it provides 3,200 gallons of water, or 9 gallons per day. A tank should provide 3 cubic feet for each square yard covered by the roof, so that for such a cottage a circular tank should have the dimensions 4.8 feet diameter, and 6 feet deep, and a square tank should be 6 feet square and 3 feet deep. For all other circumstances it is very easy to figure out the dimensions of the tank.

Big farms could lay out rain-gathering area by making the surface of the ground impervious, and building tanks at the lower end, but this is a problem in itself.

Rain water is exceedingly soft, and well adapted for washing. Its taste is mawkish and objectionable, but this can be remedied by filtration, and the water can be made quite palatable. There are numerous devices to perform such domestic filtration. With or without filtration, however, rain water is advisable from a hygienic standpoint, if properly collected.

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Alfalfa on the Hill.

An interesting demonstration of the value of alfalfa has been made on a farm now owned by Andrew Dodds, one of the directors of the East Middlesex, Ont., Farmers' Institute. The plot is a scant two-acre hillside corner, from which the crops had always been small and unprofitable, the chief return being a great deal of hard and vexatious labor in cultivation and harvesting. It is a clay-loam soil, and was seeded to alfalfa in spring, about 15 lbs. of seed per acre, with less than a bushel of barley as a nurse crop. A very good catch was secured, and the stand has improved each year, the present being the third season. Ten loads of alfalfa hay were secured in the three cuttings, and the field by the end of October was well covered again. The results have been so encouraging that this season Mr. Dodds has seeded another and a much larger hill field.

Last spring we published a short item in "The Farmer's Advocate," recording that several farmers in Middlesex County had tried the experiment of sowing crimson clover seed on the thin spots of their red-clover meadows to thicken up the stand. Some of our readers have been curious to know the result. A note from R. H. Hard-