QUERY

FARM ENGINEERING

QUERY:

"Kindly tell me how to make a concrete underground cistern for the catching of rain water off a building. Also please describe how to arrange for the water to run into the cistern, and how to arrange for pumping the water into the kitchen. Would the rain water that would come off the roof be clean? Which would be the best place to put the cistern, in the cellar or outside, or would it cause dampness in the cellar? Would it be all right to put a concrete foundation under a building that at present has a stone foundation? Would concrete be any better than stone? Could the cement be put on top of the stones? Would a cellar be frost-proof with a 12 inch concrete wall without having it banked in the fall?"

Mrs. H. J. T. O'L.

ANSWER:

1. **Re cistern for house.** There are two possible locations for the cistern, one in the cellar, the other outside beneath the ground level. The question as to which is the better location is largely a matter of circumstances and individual preference. In farm houses the cistern is usually found located in the cellars, as there is usually plenty of room in them, and I have never heard of any complaints about this location, provided that the cistern was properly built. It may be different for town and city homes where there is not so much room available in the cellars, where we find the cistern sometimes outside. There should be no trouble with moisture from cistern inside if cellar be properly ventilated.

The best construction for the cistern is concrete, whether built inside or outside the cellar. The capacity, of course, varies with the size of the family and the number of uses to which the cistern water is put, but it is always advisable to build it big enough, probably a size 6 to 8 ft. square and 5 or 6 ft. deep would be ample for most homes. The wall should be 8" thick, and some form of reinforcement like heavy wire should be used every 2 ft. along the depth of the wall, and the whole wall and floor should be built at the same time, so as to insure a good bond throughout the wall. Use clean, sharp gravel and Portland cement in the proportions of 6 to 1. Mix the ingredients thoroughly while dry and again after wetting. Put concrete into the wall in a medium wet condition, tamp it well, and keep all large stones away from the edges of wall. The forms should be tight and rigid and strongly tied together. After the forms have been removed give both inside and outside of cistern two coats of neat cement (1 part cement to 1 part fine sand), in order to make the tank waterproof and finished in appearance. In one side of the wall near the top put a 3 or 4 inch over-flow pipe and carry it down to a good drain. If the cistern be in the cellar it may be practicable to put in the bottom of the wall a 2 or 3 inch pipe and connect it to the overflow drain for the purpose of emptying the cistern easily when it is necessary to clean it.