STONE CULVERTS.

In some localities good stone is plentiful and cheap, and this fact, with perhaps other local considerations, will sometimes make it
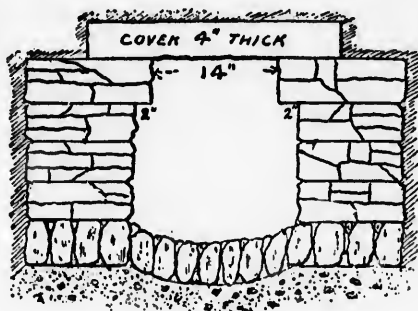

FIGURE 8.
Showing cross section of ordinary stone culvert.

seem best to reject the use of pipe and to construct a stone culvert. In nearly every case rough rubble masonry will answer every purpose.

The following brief suggestions will aid the reader in the general work of planning and overseeing the construction of a stone culvert : As already stated, rough rubble masonry will answer every purpose in making the culvert for an ordinary dirt road, but in laying the stone work plenty of " headers " should be used, so as to give the stone a strong bond, and heavy stones should be used at the angles of the up-stream end of the culvert to resist the action of flood trash and floating ice in the season of heavy freshets. The opening or water-way of the culvert should be ample to admit of the passage of large bodies of water ; the bottom of the opening should be paved with stones set on edge and given a downward curve in the centre, something after the style of an inverted arch.

The cover or top stone of the culvert should be at least several inches below the surface of the roadway, and the bottom of the culvert foundation should be below the frost line.

On this subject of drains and culverts, it may be well for the reader to know something of the question of rainfall. Each culvert or drain will naturally be required to pass an amount of water which comes from the adjacent " water shed " (or land from which the water will flow toward and through the culvert). One inch of rainfall per hour indicates a heavy downpour. This amount gives, in round numbers, 23,000 gallons of water per acre per hour, or about 377 gallons per minute per acre. Much of this water will, of course, be held back by various obstacles, and not more than 70 per cent.