

Securing Dry Cellars.

In localities where a porous or sandy soil exists to the depth of six or more feet, cellars are usually dry without the use of any preventive to dampness, but where compact soil exists usually about 80 per cent. of all present cellars are more or less subject to dampness, as few have been waterproofed; that concrete, like brick and stone, is a conductor of dampness is known, but that it is more readily adapted to waterproofing only those experienced in waterproofing walls below the grade line have appreciated.

That a large amount of sickness is

drainage sewer nearer to the building than beyond the last trap shown in the illustration.

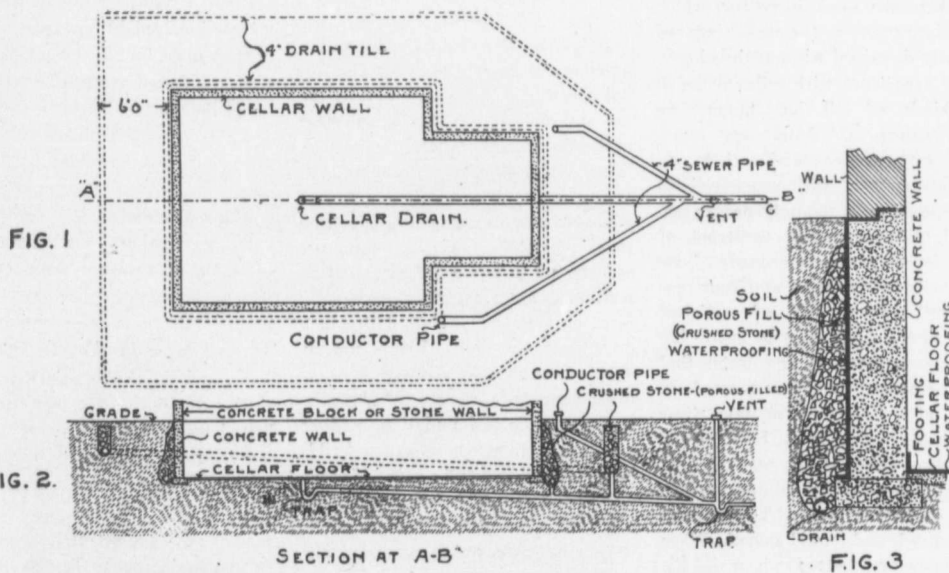
In Fig. 3 is shown a monolithic concrete wall below grade, it being the cheapest and strongest, and when waterproofed on the outside and on the top with the offset shown with any positive waterproofing it will insure dry walls, but causes water to remain on the outside, which is also injurious to health, and nothing but proper drainage will overcome this evil. Perhaps the best method is that shown in Fig. 3, consisting of loosely placed crushed rock against the wall, with a four or six inch porous drain

depth to insure proper nourishment for the lawn.

The two drains carry away the water, thus freeing the premises of all dampness.

One party became such a strong convert to my idea of drainage that he believes waterproofing unnecessary, and two years ago erected a dwelling, using a thirteen inch brick wall without waterproofing, but with the two drains shown in Figs. 1 and 2, which proved sufficient for local dampness, but not for rain storm periods of several days' duration.

I believe the waterproofing to be the most essential, but that the drains



caused by damp cellars our physicians have long ago realized, but as waterproofing does not add to the appearance while adding to the cost it is usually omitted, though medical bills more than make up this additional cost in a few years.

Health being more essential than beauty, I advise building along healthful lines, and a dry cellar is the most important part of a healthful residence.

In the illustration it must be remembered that the piping shown is for drainage only, and no provisions are shown for sewerage plumbing, which will require separate piping and should never be connected to, the

tile, whose joints are not cemented, placed in the bottom of the trench. The drain tile must have no less than one foot fall or drop in twenty feet, which is shown by Fig. 2. The size of the drain tile depends upon the length of wall, and four inch is sufficient for buildings less than sixty feet long.

In localities where clay soil or hardpan is found it is necessary to place another drain six feet from the building wall, which is placed in a trench of sufficient depth to be free from frost; this drain is also covered with crushed stone or brick bats, allowing space to cover with soil of sufficient

are also necessary can not be doubted, for it not only provides a healthful soil around the building but is a protection for the waterproofing. There are numerous materials that can be used for the porous fill, crushed sand stone or brick bats being perhaps the best, but gravel or coarse cinders are acceptable.

In no instance shall any part of the drain nearest wall be above the cellar floor level, but it may be much lower, the outside or lawn drain depth being governed by frost depth.

The cellar and conductor drains should be made of socket sewer pipe well cemented at the joints and have a trap at every opening on the inside