

will be no such thing as a cellar connected with a dwelling house, and when all dwellings will be built on arches, giving as free circulation of air under as around the house. So long as cellars are used they should be well-lighted, and so constructed as to be as dry as any other rooms of the dwelling. If they are not thus dry the dampness will pervade every part of the house. Hence there should be a system of tile underdrains many feet below the cellar floor. Ground air and dampness cannot be wholly shut out by cement walls and floor, therefore, the air in the soil, under and around the cellar, should be rendered dry, as well as pure.

In building on soils retentive of moisture, even if well underdrained, there should be what is called a "damp course," put in the walls of the foundation a little below the cellar floor, and another a foot or two above the ground level and rain-water splash. The importance of this may be understood from the following: In a house built by Mr. Eassie, C.E., near London, he estimates "that the foundation walls occupied 8,000 cubic feet, or 115,000 bricks; under ordinary circumstances the bricks will contain 5,000 gallons of water, and if the subsoil is very humid or porous, the bricks will absorb and retain 7,000 gallons of water plus the matter contained in the mortar. This wet will be continuously striking up into the walls by capillary attraction exerted over 2,400 cubic feet," unless prevented as above indicated by a "damp course." He adds, dampness from these sources has often been traced up thirty feet in height above the ground.

LIGHTING THE DWELLING.

A house to be healthy must be well lighted. Window glass must be freely used. The houses in Ottawa are for the most part very badly lighted—that is, the medium sized houses, built chiefly to rent.

But very few are well lighted. Windows are too commonly obstructed, too, with blinds and curtains, and more windows are needed on this account.

THE BUILDING MATERIAL.

The kind of material for the walls of the house is not of so much consequence so long as it be dry. On this it will be as well to give the following lines from Dr. Hunt's paper above referred to: "The idea of a perfect building material is but an extension and modified application of the idea of a perfect ground structure on which to build. While there is more need of compactness in order that it may resist or accommodate itself to forces above ground, the idea of porosity or perviousness must be preserved. It must be material which admits of the circulation of air through it, yet in such a sieve-like way as not to cause draught. Brick, because it is a form of compact but aerated ground, and porous stone, because it is another form of earth structure, are valuable for this purpose. Some stone is so compact as too much to exclude air, and thus becomes too damp for building material. So walls may be painted and successively papered to an extent which makes them too impervious. The art of healthy house building is so to combine materials as to secure this properly distributed circulation of air, and if possible secure it at proper temperature, to govern the admission of light, as adapted to human beings, and thus follow out the natural laws which govern man in his relation to his enclosed condition, and the adjustments which within certain limits are allowable. But it is wonderful how wise it is for us in all artificial constructions to study closely the laws of natural philosophy, and not only conform thereto, but, in deviations make our deviations on the basis of the law. It is of great import that now scientific tests unite with practical experience to enable us to decide many questions