

exposed to the air, when it became slightly discolored and tasted of iron. This defect they removed by a system of aeration. They lifted the water to a tank 62 feet high, where it was broken up into raindrops or spray, and afterwards filtered, which completely removed the iron the water contained when leaving the water tube in the well.

It is a not unusual occurrence for two bright streams of water to become turbid and discolored when amalgamation takes place, because the chemical properties of the one stream act on those of the other and cause slight discoloration, and perhaps when the amalgamated streams have run on for a half mile together it will become bright and clear again, and often become of a purer quality, and more suitable for domestic consumption than either of the streams were when running separately. One of the streams that cross England is named Spa; its water is very soft and is of such a nature that cloth, wool, mohair, or yarns washed and cleaned with it secure an unusual softness and are pleasant to handle. When used to cook with it is simply perfection, and very much improves the material cooked, in excess of other waters. This undercurrent of water runs under and parallel with a fine seam of the best steam coal. Mitchel Brothers, manufacturers, of Bradford, England, happened to have their large factory built immediately over this valuable stream of water and bed of coal, though they were both situated at a great depth and required considerable capital to make a boring that would reach the current, but as they were anxious to capture a foreign trade they completed the boring and found it equal to the best gold mine, because their goods afterwards found a ready sale, at the best prices, and as the supply that boiled up the bore hole was largely in excess of their own needs, they sold the water by measure to the general public who would travel several miles to secure enough for drinking and cooking.

Those who have visited the Lake of the Mountain situated in Lake Ontario, near Deseronto and Picton, Ont., will have noted that the face of the sheet of water is almost level with the crown of the mountain, and the lake on this account cannot possibly have any drainage area to supply the waste caused by evaporation. There is no visible stream running into the lake, and the level is many feet higher than the level of Lake Ontario which surrounds it. The water it contains is always fresh and sweet, which proves that it is constantly in motion and changing by circulation, which must be by subterranean channels connected with some submerged reservoir or lake that is equal in level to the mountain lake, and which is probably many miles distant. The immediate strata under the soil and their contour may lead the rainfall that sinks below the soil miles away from the section of territory where the rain falls, in that case a boring made would be useless at that point, except it pierced through the non-water-bearing stratum and entered a water-bearing stratum at a lower depth, that held water in its pores, that could be drawn out by a pump. If a large quantity of water is needed, say a million gallons per day, then a well or pit must be sunk several hundred feet to some good water-bearing strata, and headings driven in various directions. Sometimes a heavy charge of exploding material is used to loosen the rocks all round the bottom to increase the water collecting area. When the pump lowers the level of water in the well to near the bottom, which is very seldom the case, all the water held by the earth for a great distance around the well would fall away from the rocks and gravel beds and gravitate to the foot of the well, so it may be reckoned that such a deep well or bore hole has a very large storage reservoir to draw from that is almost

inexhaustible, and may measure several hundred feet deep and a mile in circumference. The well or boring may overflow at the commencement, and the collecting area will in that case be small, but just in proportion that the water is lowered in the well by pumping will the collecting area be increased, which insures a constant supply.

All the local wells I have examined may be reckoned fever traps; they are generally less than twenty feet deep, the sides left either unwallled or walled with loose stone or brick, which allows the dirty surface water and domestic sewage to percolate and enter the well. In fact they are really swamp holes made near the house to keep the yards and surrounding land free from surface water, and the inhabitants of the premises that such domestic wells supply with water are actually drinking the liquid from their own refuse and surrounding soil. The sides of all wells should be strictly watertight until nearing the bottom. The top should extend about one foot above the surrounding land, and have a water-tight cover. The pump should be some distance from the well, the suction-pipe enter the side of the well, and great care taken to make the hole in the wall through which the suction-pipe passes from the pump to the interior of the well perfectly watertight. By so doing, reasonably pure water may sometimes be obtained. No wood should be used in constructing wells. Wells at present in use may be made sanitary, and yet yield the same quantity of water as before by filling up the well to the usual water level with clean, rough gravel, of course leaving the suction-pipe in its former position and taking great care neither to damage the pipe or block up the screen at the bottom, then finish filling up the well to the top with sand, by so doing a first-class filter and a first-class shallow well is secured that cannot be contaminated. I am at present living at a house in a town that receives its water supply from a well thirteen feet deep, sunk in seamy rock, that is void of any wall to keep back the surface water. The cover is level with the land, and consists of decayed boards with a similar wooden pump. Within ten yards there are two sets of privies, with large holes dug into the loose soil, filled with excrement that emits an abominable odor, and the liquids from each of those holes does most assuredly find its way into the well, because the level of water in the well is lower than the bottom of the privy pits, and the sides of neither are watertight, but simply sieves through which liquids pass.

A European should be excused if he expresses surprise that he finds such gross sanitary ignorance displayed in this enlightened age, and that such dangerous and unsanitary abominations should be tolerated in a market town by our modern governments. Then, can it be conceived that 3,000 people should live in a group having no means of giving their body a proper cleansing. People living isolated, and having no possible means of securing suitable water and appliances are excused, but when they have splendid facilities at hand it is a disgrace not to apply them. No town of over 3,000 population should be without a good swimming bath to freshen and encourage the children of the poor to learn to swim, and should have baths to hire cheap, so that those who cannot afford to rent houses with lavatories can wash their bodies occasionally.

Should I desire to find a supply of water in the earth, and was standing on a large section of flat land, I should note where there was a depression, and if the depression was long and narrow I should choose the place for boring for water because I should think there might be a water channel under the depression. I might be correct, yet not secure a supply of water except by going deep, because I might be over a deep cavern. The extra freshness and