into it to the height of the place of outcrop. If the place of boring is lower than the outcrop, the water will rise above the surface. The water comes up with nearly the temperature acquired at the bottom of the well.

The sun's warmth penetrates daily but a foot or two in summer; and at night, much of this is lost by radiation. Not all, however, for the deeper warmth continues to descend; and next day's excess of warmth follows this. Thus the summer heat accumulates, and continues to descend. It grows less and less, however, and at fifty feet, can no longer be discerned. The winter's cold also penetrates slowly, and diminishing in intensity at every foot, ceases to influence the temperature at the depth of about fifty feet. At this depth then, the temperature is constant the year round. The depth of constant temperature varies, however, with the nature of the climate. If the surface fluctuations are excessively great, you can understand that the contrasts must be felt at a greater depth. In Minnesota, therefore, the depth of uniform temperature would be greater than fifty feet. In Florida, however, where the climatic extremes are much less, the depth of uniform temperature would be less than fifty feet. The uniform temperature under any region must be about the same as the mean annual temperature at the surface.

The heat of midsummer and the cold of midwinter penetrate the earth at the rate of about one foot per week. Hence the cold of January 1st is felt at a depth of twenty-five feet about July 1st; and so of the cold or heat of any other date. At twenty-five feet the temperature of water is higher in winter and lower in summer. So the popular opinion about certain wells is not entirely unfounded.

If, however, we employ means to ascertain the temperature at depths below the plane of constant temperature, we find it regularly increasing as we descend. We do not find the rate of increase exactly the same at different localities, but the average is about one degree (Fahrenheit) for every fifty or sixty feet of descent. The Artesian well at Charleston, South Carolina, is 1,250 feet deep, and the bottom