

Now we wish to know more about the internal constitution of this deposit. This will be easy, for the Drift is all about us, and numberless deep excavations have been made for sundry purposes. Let us visit a gravel pit, or some deep railroad cut through a pile of these incoherent materials.

Do you find these loose sands and gravels arranged in regular courses? Yes, you say; and then you hesitate; and well you may; for the semblance of courses is exceedingly interrupted. Here is indeed, a layer or bed, or stratum of sand, but it thins out in one direction, and in the other, loses its upper and lower boundaries, and merges in a general mass of sand. Here is a bed of gravel, but it lies at a different inclination from the last, and in one direction it changes to sand, while in the other, it becomes split up into a number of subordinate layers which bend down and lose themselves. This bed also is composed of many oblique laminae, coarser and finer in alternation, which are cut off completely by the upper and lower surfaces of the bed or stratum. What is singular, the very next bed below this, which is also obliquely laminated, has its laminae tilted in the opposite direction. And then next to this is a long straight course of cobblestones and pebbles. Is not this a correct description of what you have all seen somewhere?

In some places are large beds of fine sand, which are taken out and used for mortar-making. In others we find extensive deposits of gravel and pebbles, which are used for paths and streets. Mixed in the sands are some cobblestones and large boulders. Here and there, too, are some beds containing much clay; and these are impervious to water. Now, all this is not a regular nor a perfect bedding or stratification. We may say the Drift here is semi-stratified. You can all recall some locality where this arrangement of materials occurs.

This cut or exposure, however, extends only fifteen or twenty feet down. How is the arrangement below? There are places where the bed-rock is not reached in less than a hundred or two hundred feet. There are wells fifty to eighty