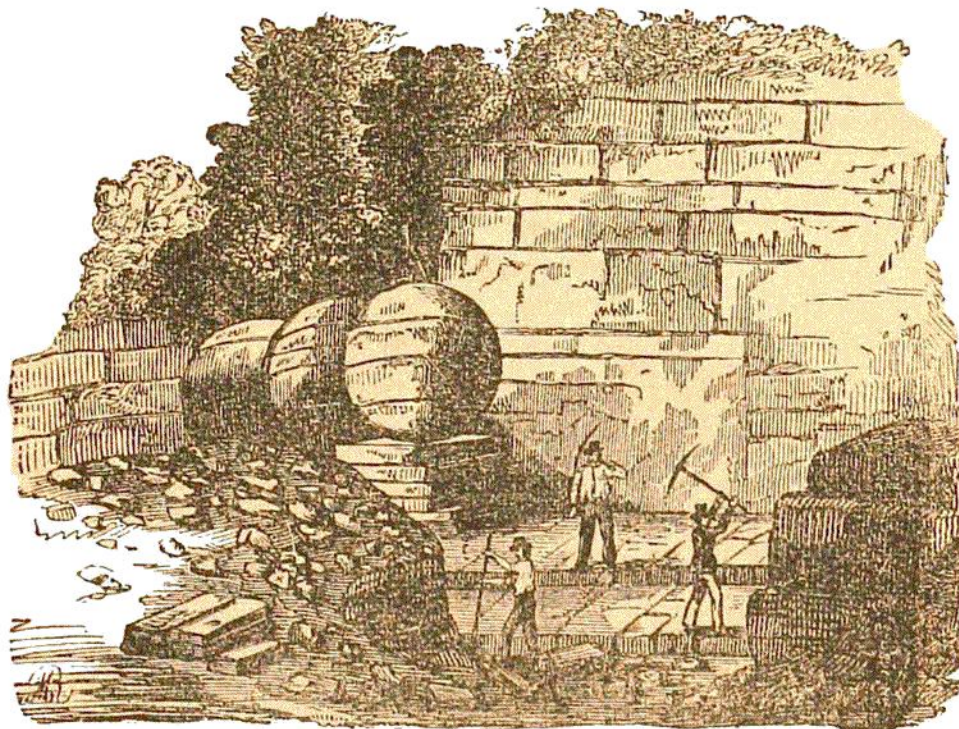


many feet, but many yards in diameter. Fig. 27 represents some

Fig. 27.



Concretions in Sandstone, Iowa.

large concretions of carboniferous limestone, at Muscatine, in Iowa, as described by Professor Owen.

UNSTRATIFIED ROCKS.

The unstratified rocks occur in four modes. 1. As irregular masses beneath the stratified rocks. 2. As veins crossing both the stratified and unstratified rocks. 3. As beds of irregular masses thrust in between the strata. 4. As overlying masses. Fig. 36 illustrates these modes.

The phenomena of veins, being very important, require a more detailed explanation.

Veins are of two kinds. 1. Those of segregation. 2. Those of injection. The former appear to have been separated from the general mass of the rock by elective affinity, when it was in a fluid state; and consequently they are of the same age as the rock. Hence they are often called contemporaneous veins

Fig. 28. represents a boulder of granitic gneiss, in Lowell, Massachusetts, about five feet long, traversed by several veins of segregation, whose composition differs not greatly from that of the rock, except from being harder and more distinctly granitic. Where veins of this description cross one another, they coalesce so that one does not cut off the other.