

rising continent, a precipitation of materials for shale would take place. For days, perhaps, in the vast quiet deep, the shower of clay and sand would continue. Now the upheaving earth causes a change of currents, the deposit of materials for shale ceases, and water containing sand flows over the mound made by the placement of the mass of trees and deposit of shale.

Whenever an obstruction exists in a current, the water is made to swirl around it, and if the current carries sand, it will be deposited in mounds on each side, and the end of the mound opposite the direction of the current. These mounds would be more or less elevated, and hence they would deflect the current flowing towards them, so that in time the mass of trees, lodged as described, would be surrounded by great mounds of sand until a depression would be formed above the coal formation, which would then draw the current downward and impede it. Then the mass of trees, which will be termed coal formations, would receive a deposit of sand to the depth of hundreds of feet in some instances, and a score of feet in others. I have read of water-spouts which have burst in portions of the Western States, which made floods which have covered the fields through which the flooded stream ran, to the depth of two and three feet. Now, let the reader fancy an ocean current carrying ten times more sand than was in the stream made by the water-spout, and lasting for a week, and during that time not only making a continuous deposit adjacent to the coal formation, but also above it. Then a partial conception can be made of the quantity of sand that would be precipitated around and above the coal formation.

But the current changes, and another flows over the coal formation, and with it another mass of impacted trees. As there is another basin above the first formation, the second coal formation is drawn above the first and lodged on it, and why? Why, simply, one end of the impacted trees strikes a great sand mound that had been formed as described, and is thus stopped. Not only by the rising of the bottom of the ocean to form a new continent, but because the mass of trees now stopped would have a tendency to sink. The second coal formation would be lodged above the other.

Feathers and dust are heavier than air, but when the air is put in rapid motion these substances are carried along and do not sink to the earth until the air becomes quiet. At the time of the flood, as now, the water in places would be in a comparative state of rest. In any part of the rapidly moving water, masses of trees and leaves slightly heavier than water, would not sink, nor would the very fine par-

ticles of clay and sand sink, but when the water in which they existed became somewhat quiet, they would sink to the bottom. In consequence of the greater weight of the larger particles of sand, quite a strong current of water is necessary to make it move from place to place.

I have seen a bay which was made turbid by tumultuous waves rushing into it, which stirred up the muddy clay mould which had lain on the bottom. I have noticed that a day, or even more of still weather, was necessary to permit the mud to sink to the bottom. A consideration of these facts will make it easy to understand why the materials for shale were deposited at one time, and sand at another, and the materials for indurated rock at another time. Again, if two currents moving in opposite directions meet, they will suddenly deposit the sand carried in the currents sufficient to form a layer. All that would be necessary to make a separation between such a layer and a subsequent one would be a precipitation of clay. The ebb and flow of the tides twice a day for a month would make sixty of such layers, provided that when the tide ebbed a counter current should cause a precipitation of sand. No scientist need be told that the tides continued to ebb and flow during the general flood, or the earth continued to rotate, and the moon to exert her attractive influence. From the fact that the primordial rocks are composed mainly of sand, it is inferential that the quantity of particles of sand swimming in the waters of the flood was greater than all other materials in the water.

There was time enough during the Noachean deluge for all the deposits found above the coal measures.

At the time of the flood, the sand which now constitutes the solid sand rocks, doubtless was softer than it is now. Some of the sand rocks which are quarried in the present era are quite soft until they are exposed for some time to the action of the air. In the centuries following just after the flood some of the limestone formations may have been as soft as chalk, which is a carbonate of lime, so that great rivers would cut extensive and deep channels through them in a few centuries, whereby those who do not hesitate to wrest the Scripture from its true meaning, in order to make it harmonize with their dogmas, have been led to conclude that it required the lapse of hundreds of thousands of years for some rivers to cut the channels through which they run.

I have before observed that the present continents were the depressed parts of the solid parts of the earth before they were upheaved, and that the depressions were dished from the outer edges of them, or rather from