The rafts on Red River are equally remarkable: in some parts of its course, cedar trees are heaped up by themselves, and in other places pines. On the rise of the waters in summer hundreds of these are seen, some with their green leaves still upon them, just as they have fallen from a neighbouring bank, others leafless, broken and worn in their passage from a far distant tributary; wherever they accumulate on the edge of a sand bar they arrest the current and soon become covered with sediment. On this mud the young willows and the poplars called cotton-wood spring up, their boughs still farther retarding the stream, and as the inundation rises, accelerating the deposition of new soil. The bank continuing to enlarge, the channel at length becomes so narrow that a single long tree may reach from side to side, and the remaining space is then soon choked up by a quantity of other timber.

"Unfortunately for the navigation of the Mississippi," observes Captain Hall, "some of the largest trunks, after being cast down from the position on which they grew, get their roots entangled with the bottom of the river, where they remain anchored, as it were, in the mud. The force of the current naturally gives their tops a tendency downwards, and, by its flowing past, soon strips them of their leaves and branches. These fixtures, called snags, or planters, are extremely dangerous to the steam-vessels proceeding up the stream, in which they lie like a lance in rest, concealed beneath the water, with their sharp ends pointed directly against the bows of the vessels coming up. For the most part these formidable snags remain so still, that they can be detected only by a slight ripple above them, not perceptible to inexperienced eyes. Sometimes, however, they vibrate up and down, alternately showing their heads above the surface, and bathing them beneath it."* So imminent until lately was the danger caused by these obstructions, that almost all the boats on the Mississippi were constructed on a particular plan, to guard against fatal accidents; but in the last ten years, by aid of the power of steam, and the machinery of a snag-boat, as it is called, the greater number of these trunks of trees have been drawn out of the mud.†

The prodigious quantity of wood annually drifted down by the Mississippi and its tributaries, is a subject of geological interest, not merely as illustrating the manner in which abundance of vegetable matter becomes, in the ordinary course of nature, imbedded in submarine and estuary deposits, but as attesting the constant destruction of soil and transportation of matter to lower levels by the tendency of rivers to shift their courses. Each of these trees must have required many years, some of them centuries, to attain their full size;

* Travels in North America, vol. iii. p. 362.

† "The boats are fitted," says Captain Hall, "with what is called a snag-chamber;—a partition formed of stout planks, which is caulked, and made so effectually water-tight, that the foremost end of the vessel is cut off as entirely from the rest of the hold as if it belonged to another boat. If the steam-vessel happen to run against a snag, and that a hole is made in her bow, under the surface, this chamber merely fills with water." — Travels in North America, vol. iii. p. 363.