has time to consolidate and become dried by the sun and air before the next tide, much better impressions are preserved; and lastly, on those parts of the shore which are reached only by the spring tides, the mud of the highest tide of course may have several days to harden before the next tide reaches it, and in this case it becomes cracked by an infinity of shrinkage cracks, which, when it is next covered with the tide, are filled with new sediment. In this way is produced in great perfection that combination of footprints, or even of impressions of rain, with casts of cracks, which is so often seen in the older rocks. Where on the sides of channels or near the shore the mud has a considerable slope, another and very curious effect results. As the tide ebbs the water drains off the surface, or oozing out of the wet sand and mud, forms at the top of the bank minute grooves often no larger than fine threads. These coalesce and form small channels, and these, again, larger ones, till at low tide the whole sloping surface is seen to be covered with a smooth and beautiful tracery resembling the rivers on a map, or the impressions of the trunks and branches of trees, or the fronds of gigantic seaweeds. These "rill marks," as they have been called, are found in great abundance in the coal formation and triassic sandstones and shales, and I am sorry to say, have often been named and described as Fucoids, and illustrated by sumptuous plates. Sometimes these impressions are so fine as to resemble the venation of leaves, sometimes so large as to simulate trees, and I have even seen them complicated with shrinkage cracks, the edges of which were minutely crenulated by little rills running into them from the surface.

It is further to be noticed that all these markings and impressions on tidal shores may, when covered by succeeding deposits, appear either in intaglio or relief. On the upper surface they are of course sunken, but on the lower surface of the bed deposited on them they are in relief. It often happens