

Sand partings will ordinarily be thinner than the clay partings for the reason that the fine sand is depositing over the basin only beneath the laterally shifting, stream-made current, while clays are making everywhere else in the longer time during which the stream fails to cover the much larger segment of the arc traversed by its swings. The thickness of clay layers and sand layers will be greater the slower the rate of lateral swinging of the stream; the sand layers will thicken toward the delta, the clay layers will thicken away from it; and at a distance beyond which the fine sand is carried in suspension, the deposit of clay will be from this cause alone continuous. The rate of lateral shifting will increase directly as the load carried by the stream since the excess of detritus left on the delta plain over that carried to its edge fills up the bed and causes the current to slide off on to the part not so much built up or to give off distributaries which will naturally start out from the side toward which the stream is shifting. Thus increase in load and marginal discharge will not give rise to a proportionate increase in thickness of the prodelta sand layers for the reason that the stream will not deposit sand for so long a time over a given space, because its cycles of swinging will be more rapid.

Delta streams tend to break up into minor streams or an interlacing of streams, so that there will frequently be many lines of prodelta sand deposition, introducing minor bands of sand and clay. The breaking out and shutting off of a distributary which ends independently on the delta edge will give rise to lenticular partings of sand over the prodelta floor.

The above statement is somewhat ideal, but the prodelta clays of the small esker fan at Drownville R. I. appear to the writer to illustrate the theory here presented. It is doubtful if the regular banding of larger bodies of clay miles beyond a delta margin with an even lamination of sandy partings can be so explained. The criterion of the applicability of the explanation to any given area will be found in the thickening of the sand partings in the direction of the delta and their passage into the segment of the "foreset" beds of the delta with which they are contemporaneous along any given portion of the delta front. Observation and experiment are required to determine the distance over which fine sands may be carried in suspension in fresh, salt and brackish water.