http://geology.19thcenturyscience.org/books/1902-Geikie-Geology/README.htm

side. Traced downward, the blocks become gradually smaller and more rounded. They are ground against each other and upon the rocky sides and bottom of the channel, becoming more and more reduced as they descend, and at the same time abrading the rocks over or against which they are driven. Of the detritus thus produced, the finer portions are carried in suspension, and impart the characteristic turbidity to rivers; the coarser sand and gravel are driven along the river-bottom.[134]

The presence of a moving stratum of coarse detritus on the bed of a brook or river may be detected in transit, for though invisible beneath the overlying discolored water, the stones of which it is composed may be heard knocking against each other as the current sweeps them onward. Above Bonn, and again a little below the Lurelei Rock, while drifting down the Rhine, the observer, by laying his ear close to the bottom of the open boat, may hear the harsh grating of the gravel-stones over each other, as the current pushes them onward along the bottom. On the Moselle also, between Cochem and Coblentz, the same fact may be noticed.

The transporting capacity of a stream depends (*a*) on

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[134] These operations of running water may be studied with great advantage on a small scale, where brooks descend from high grounds into valleys, rivers, or lakes. A single flood suffices for the transport of thousands of tons of stones, gravel, sand and mud, even by a small streamlet. At Lybster, for example, on the coast of Caithness, as the author was informed by Mr. Thomas Stevenson, C.E., a small streamlet carries down annually into a harbor which has there been made, between 400 and 500 cubic yards of gravel and sand. A weir or dam has been constructed to protect the harbor from the inroad of the coarser sediment, and this is cleaned out regularly every summer. But by far the greater portion of the fine silt is no doubt swept out into the North Sea. The erection of the artificial barrier, by arresting the seaward course of the gravel, reveals to us what must be the normal state of this stream and of similar streams descending from maritime hills. The area drained by the stream is about four square miles; consequently the amount of loss of surface, which is represented by the coarse gravel and sand alone, is $\frac{1}{12000}$ of a foot per annum.