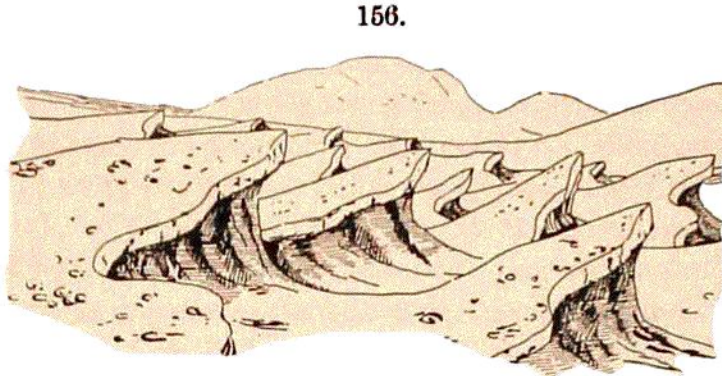


Other views in Mr. Walther's book represent deep excavations in nearly vertical bluffs, sometimes in regular alternation with narrow columns—the latter the part which descending solutions of some kind (perhaps calcareous or ferruginous) had hardened; often they are very irregular in form.

A blast of sand propelled by steam is now employed (after Nature's suggestion) in grinding and carving glass, gems, and even granite. Glass covered by lace-work, or by paper having open patterns cut in it, is rapidly worn where its surface is exposed, while the lace or paper, owing to its yielding before the sand, shows scarcely any effect of the blast. Large cornices and mouldings of granite are shaped by a blast of steam and sand.



Upturned Cretaceous beds near Abu Roasch. Walther.

Thoulet, of Paris, has investigated the effects of air-blast abrasion (1887) and found, besides other results, that moist rock abrades most easily, and that the effect is small if the surface struck has a dip of less than 60° .

TRANSPORTATION AND DEPOSITION.

The deep deposits of earth over ancient monuments in Rome and other old cities is largely a result of eolian transportation. The most extensive drift-sand deposits occur over arid areas where there is little or no vegetation to fasten down the sands, and where nearly all the year through the work is going on. But the best known are those of windward shores where fronted by long beaches. The sands of seabeaches often extend out long distances in the shallow waters. The breakers come in sand-laden, to throw the sand up the beach, and in ordinary weather the beach takes the whole. But storm-winds carry the sands from the breakers and the beach over the low surface beyond and pile it into ridges, often making a series of parallel sand-drifts. The sand keeps moving landward with each season of storms, unless stopped by steep declivities, or by vegetation whose encroachment is favored by moist soil; and sometimes it drifts up the sea-border hills to heights of 100 to 200 feet. The surfaces of drifted sands are often covered with ripple-marks.

The effects are greatest (1) where the sands are fine, and most purely siliceous and therefore incoherent; (2) where the coasts are well open to the winds; (3) in regions exposed to the most violent storms; and (4) especially on projecting points where the work is carried on in succession by the winds of both sides of a rotary storm, and by storms of different directions. Ordinary winds have little effect, and hence on the Pacific coral islands the