

seaward side. The following residues show the fineness of this sand, which is typical dune sand:—

Residue on 50 X 50-mesh sieve ... ..	1.0
Through 50- and caught on 76-mesh sieve ... ..	44.0
Through 76-mesh sieve ... ..	55.0
	<hr/> 100.0

The shape of sand particles affords an index of their mechanical history. It has been inferred from experiment that completely to round a grain of quartz sand  $\frac{1}{16}$ th of an inch in diameter the coincident abrasion must be equal to that of a travel of 3000 miles. The fact of quartz sand being found polished and rounded is, in the vast majority of cases, evidence that it is æolian sand, and that the action of grinding down its sharp angles and reducing it to the condition of a smooth pebble in miniature has been caused by the sand having been blown backwards and forwards under the impulsion of wind. Small pebbles and gravel under attrition, due to current or wave travel, tend by slow degrees to become smooth and spherical, and this action goes on to considerable ocean depths. The slow grinding of the sea forces is in effect similar to the action of the tube mill, in which the material to be reduced to powder is revolved in a cylinder laden with large flint boulders, until the product is pulverized to the fineness of flour. The late Mr. W. Pengelly, F.R.S., has left on record the fact that a jar sunk in 36 fathoms of water became partly filled with sand and gravel, thus proving the existence of motion in deep-sea deposits under the impetus of tidal current and that of wind pressure induced by gales. Such action below low water is intermittent and slow, whereas there are few days in the year when there is not sufficient wind to set in motion the superficial sand of an exposed coast-line and cause its attrition.

Recent observations in Egypt have demonstrated the fact that the sand of the desert blown from the surface of dunes is heavily charged with positive electricity. Moreover, the canopy of air over the Libyan Desert shows about 50 per cent more ozone in comparison with that of the oases. The local physical perturbations thus indicated may afford the key to the phenomenon