Singing Sands.

Until quite recently, but two of the so-called “singing-beaches” were known to exist—one in Europe, and the other at Manchester-by-the-Sea, Mass. Within the last few years, however, the attention of scientific men having been called to this subject, it has been found that their existence is far more common than was at first supposed. In the early part of 1884, the superintendents of the various life-saving stations on our sea-coast were instructed to furnish samples of this sand, wherever found, and twenty-six specimens, from as many different places, were received. It is said that the number of American localities has now been increased to seventy-four, while in foreign countries it has been reported in thirteen places.

Singing sands derive their name from the noise which they produce when walked upon, or otherwise disturbed. The sound is one of low pitch and intensity, and may be likened to a subdued crunching; it is shrill, but not metallic, nor crackling. The sound is slightly perceptible when the sand is merely stirred by the hand, is made quite audible by the pressure of the foot in walking on it, and is much intensified by drawing a board or plank over it. Prof. Bolton, of Trinity College, Hartford, who two years ago began the study of this subject, states that by simply driving a stick into the sand of the beach at Manchester, a sound was evoked, which, by actual measurement, could be heard one hundred and forty feet, even with the noise of the surf breaking on the beach. Without doubting this statement, it will not be out of place to say that, upon the occasion when this measurement was made, all conditions must have been very favorable for the transmission of the sound.

The singing beach at Manchester is about one fifth of a mile in length. The sand is coarse, and compact even when dry. The grains of sand are more angular—quite a proportion of them are flat—than the ordinary beach sand, and are mostly pure, glassy quartz, the others being feldspar. The sonorous phenomenon is shown only by the sand lying below the extreme high-water mark; but within that limit there are patches, here and there, closely contiguous to the musical portions, which are silent. The beach terminates in ledges of feldspathic rocks, which are intersected by numerous dikes.

The most information on this subject has been contributed by Prof. J. C. Bolton, before mentioned, and Prof. A. A. Julien, of the Columbia School of Mines. The facts, as far as known, are these: the singing sand may occur in comparatively small patches in the midst of ordinary sand; it always occurs between the limits of low tide and extreme high tide; the same sand does not produce sounds at all seasons, nor does it always give forth like sounds; when wet they do not emit sounds, and frequently become quicksands. It was also noticed that samples of this sand when transported in bags lost its sonorous property, but retained it when sent in bottles.

Of course, many theories have been advanced to explain this peculiar property of certain sands, but, to the knowledge of the writer, no satisfactory one has yet been offered. It was first said that it was caused by a thin film of salt deposited around the particles of sand by the waves, which being pressed gave forth the sounds previously described. This theory was exploded when sand having the same property was found on the shores of bodies of fresh water. Like many other inexplicable phenomena, this has also been ascribed to electricity. Some investigators say, that it is because of the friction of flat and angular surfaces of the component particles of sand; while others say, in addition, that there must be a certain proportion between the quartz and feldspar grains. There are several other theories, but the evidence seems to best agree with the last.

Prof. Julien considers that the conditions of sonorousness in sands are: perfect dryness, uniformity of grain, ranging from one fifth to one tenth of an inch in diameter, and freedom from dust. He thinks that any sand satisfying these conditions may be musical. Exception might be taken to the last statement.