shore of Massachusetts Bay from Marshfield to Cohasset, and the southern half of Ipswich Bay north of Cape Ann, because in both these regions the profile of equilibrium appears to be well developed. The jelly was found in every haul and on every sort of bottom. In the shoal water near shore, 20–150 feet deep, much fresh material is present, that is, the plant fragments are still identifiable. The entangled sand grains here range as high as fine beach sizes. The mud zone on the Massachusetts coast begins at a depth of about 225–300 feet. From a depth of 200 feet outward, the jelly was a homogeneous mass in which the organic detritus can not be identified. Some of the fresher material taken near shore was allowed to stand about four months in sealed jars. At the end of that time, the plant fragments had rotted down so that the jelly resembled that found in the mud zone. The sediment collected at 350 feet of depth, which was the deepest taken, ranges from clay and silt sizes to very fine sand. A bottom core, five feet long, taken at this depth in Ipswich Bay, shows about 10 per cent. fine white sand, and the rest clay and silt. It is homogeneous in composition for its whole length.

As might be expected, there seems to be a definite relationship between rough and calm weather and the condition of the jelly. During periods of calm the very top of the jelly layer flocculates and collects in light feathery masses. After a period of rough weather the entire layer is churned up and samples taken at such a time present on settling a much more uniform and compact appearance. Further settling of the very fine particles again produces the flocculent appearance of the top layer. This condition may be duplicated by violent agitation in a jar in the laboratory.

The transporting power of this jelly is further illustrated by the fact that during and after every storm it may be taken, with its entangled sand, from surface water. The roiling, so noticeable in coastal waters after every storm, is probably due in a large measure to this jelly and not to free sediment. The day after a 60-mile easterly gale, three gallons of surface water were taken off the entrance to Cohasset harbor in 25 feet of water. This position is protected from the full sweep of the seas by a string of ledges a mile or more off shore. After filtering and washing with fresh water, the sample was ignited to remove the organic material. .2604 gram of actual sand and silt remained. The largest sizes are included in Wentworth's "very fine sand" class with sizes ranging from 1/8–1/16 mm. These grains are largely quartz. It is obvious that if this amount of sediment was in suspension at the surface, greater quantities would be encountered near the bottom. The total carrying capacity must be enormous. This may explain in a large measure the rapid silting of harbors and estuaries; it enables sediment to travel along the bottom and in suspension in a current the velocity of which would otherwise be powerless to move it. On the day in question the flood tide entering Cohasset harbor was so muddy with jelly that an object two feet below the surface was invisible. The ebb was noticeably clearer.

The main significance of this material, whatever may be its origin, lies in its obvious importance as an agent in the transportation of sand grains. Samples of the material dried and weighed after the combustion of the organic matter shows that about 85 per cent. by weight consists of grains of various sizes, from fine sand to silt. Since only the slightest amount of current is necessary to transport this jelly, it could be widely and easily distributed without evoking the aid of any strong currents near the sea bottom.

If Petersen is correct in his contention that most of the organic matter in the coastal waters is decomposed eel grass, then there is a periodicity in transportation. Eel grass being a deciduous plant, the new supply of vegetation is an annual product, the decay beginning with the shedding of the leaves in the fall. The thin brown layer which Petersen found in large areas of the sea bottom around Denmark is believed to be decomposed eel grass which had come to rest below the wave base. It is, therefore, possible that since heavy storms are likewise seasonal, the jelly may have another significance in that it may possibly form parting planes, and in some places at least may happen to be buried and produce the appearance of varves, which is not infrequently observed in marine strata. It seems more probable that eel grass is only one of its constituents and that algae probably play a large part. The chemical analysis is now being carried out, and next summer a survey of its distribution will be made in the Gulf of Maine and adjacent waters.

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