

as in all the LITUOLIDÆ, the walls are built up of foreign particles, siliceous or other, combined by means of an inorganic cement so as to produce a strong and often highly finished test. Although a considerable amount of selective power is frequently manifested, the nature of the extraneous materials is necessarily more or less determined by the character of the sea-bottom. Siliceous sand forms by far the most commonly employed building material, and sponge-spicules, either entire or in fragments, are also frequently used; but whilst a general preference is shown for siliceous particles, no uniform rule prevails, and the same species may be found in one locality building its test of siliceous sand, in a second of coral fragments, and in a third of dead *Globigerina*-shells.

From a chemical point of view, the chief questions of interest attaching to these arenaceous forms are those referring to the secreted inorganic matter or shell-substance, which serves to incorporate the extraneous particles of which the test is mainly constructed. The amount of inorganic "mortar" or "cement" varies exceedingly, not only in different species, but in individuals of the same species from different localities.

In *Rhizammina*, which takes the form of long, flexible, branching tubes, the mineral particles appear to be attached to the organic envelope without the assistance of any secreted inorganic matter.

Rhabdammina abyssorum, the test of which consists of rigid tubular arms radiating from a centre, furnishes an example of variability both as to chemical and physical characters. The following analyses are from examples obtained from different and widely separated localities. No. I. refers to specimens of light reddish-brown hue and rough exterior, dredged in the North Atlantic; No. II. to specimens of very dark colour, and comparatively smooth exterior (owing to the presence of a much larger proportion of cementing material) dredged in the Pacific, just south of the equator, between Papua and the Admiralty Islands.

Rhabdammina abyssorum.

	I.	II.
Silica,	94·7	88·26
Ferric oxide,	2·4	7·41*
Carbonate of lime,	2·9	4·01
	100·0	99·68

* Including a small quantity of alumina not separately estimated.

The closely related genus *Hyperammmina* displays as great or perhaps even greater diversity in the texture and superficial characters of the test, and a corresponding variability as to the relative proportions of extraneous and secreted constituents. The chemical examination of *Hyperammmina friabilis*, a large species with thick walls composed of loosely aggregated sand, gave results differing but little from those yielded by the rougher specimens of *Rhabdammina*, above quoted.