Table showing the percentage of silica present in various species of sponges, the weight of a volume of flint equal to that of the sponge being taken as 100:—

Tethya maza, Selenka, . . .	7·4	
Cinachyra barbata, Sollas, . .	5·5	(mean of 3 determinations).
Anthastra communis, Sollas, . .	5·05	
„ *pyriformis*, Sollas, . .	16·77	
Pachastrella abyssi, O. Schmidt, .	3·9	(mean of 3 determinations).
Cydonium hirsutus, Sollas, . .	17·5	
„ *pachydermata*, Sollas, .	9·9	
Azorica pfeifferæ, Carter, . .	6·44	
Corallistes masoni, Bowerbank, . .	14·6	
Vetulina stalactites, O. Schmidt, . .	25	(taken from a skeleton).
Theonella swinhoei, Gray, . .	13·4	(taken from a skeleton).

The mean of these results is 12·22 per cent.

Since $100 \div 12{\cdot}2 = 8{\cdot}18$, we may say that it would, on an average, require 8·18 sponges to produce a flint of the size of one of them.

It is now possible to form a rough estimate of the time required to form the material of a bed of flints.

The experiments initiated by O. Schmidt, and carefully carried out, first in the Adriatic and afterwards in the Gulf of Florida, agree in showing that it takes from five to seven years (say an average of six years) for a bath-sponge to grow from a cutting about one cubic inch in size into a saleable sponge. Now the size of this is not very different from that of an average-sized flint nodule; and assuming that the rate of growth of siliceous sponges is not very different from that of bath-sponges, we arrive at the following result:—It requires six years for the growth of a sponge equal in size to a flint nodule, and 8·18 sponges to secrete the silica of such a flint; supposing therefore these sponges to grow one after another end on it will take $8{\cdot}18 \times 6 = 49{\cdot}08$ years to grow sufficient silica for the formation of an average-sized flint nodule, and it would require no longer time for the formation of a whole bed of such flints. No one, I imagine, would have supposed without these data that the material for a bed of flints could have accumulated within an interval which is considerably less than a man's average lifetime.

It is very probably true that the rate of growth of bath-sponges and siliceous sponges is not the same, but a number of considerations combine to show that if the siliceous grow less rapidly than the others, yet this may be compensated for in other ways; chief amongst which we must regard the constant elimination of spicules from the living sponge already alluded to; furthermore, the silica contributed by the swarms of young sponges set free every breeding season, most of which probably perish before reaching maturity, may count for something.

Although the preceding observations prove the adequacy of sponges to furnish the