

growth of coral-building polyps. This substance affords an excellent illustration of the way in which organic structure may be effaced from a limestone entirely formed of the remains of once living animals. Though the skeletons of the reef-building corals remain distinct on the upper surface, those of their predecessors beneath them are gradually obliterated by the passage through them of percolating water, dissolving and redepositing calcium carbonate. We can thus understand how a mass of crystalline limestone may have been produced from one formed out of organic remains, without the action of any subterranean heat, but merely by the permeation of water from the surface.¹³⁰

Chalk—a white soft rock, meagre to the touch, soiling the fingers, formed of a fine calcareous flour derived from the remains of *Foraminifera*, echinoderms, mollusks, and other marine organisms. By making thin slices of the rock and examining them under the microscope, Sorby has found that *Foraminifera*, particularly *Globigerina*, and single detached cells of comparatively shallow-water forms, probably constitute less than half of the rock by bulk (Fig. 22), the remainder consisting of detached prisms of the outer calcareous layer of *Inoceramus*, fragments of *Ostrea*, *Pecten*, echinoderms, spicules of sponges, etc. It is not quite like any known modern deep-sea deposit. A microscopic investigation of chalk from the neighborhood of Lille showed that, besides the usual organic constituents, the rock contains minute grains and crystals of quartz, tourmaline, zircon, rutile, garnet and feldspars,¹³¹ these minerals being among the most widely diffused and persistent ingredients in the finer sediments that are derived from the denudation of crystalline rocks (see p. 228).

Crinoidal (Encrinite) Limestone—a rock composed in great part of crystalline joints of encrinites, with *Foraminifera*, corals, and mollusks. It varies in color from white or pale gray, through shades of bluish-gray (sometimes yellow or brown, less commonly red) to a dark gray or even black color. It is abundant among Palæozoic formations, being in Western Europe especially characteristic of the lower part of the Carboniferous system.

¹³⁰ See Dana's "Coral and Coral Islands," p. 354; also the account of the Devonian and Carboniferous limestones in the present volume. Dupont has shown that many of the massive limestones of Belgium have been formed by reef-like masses of *Stromatopora* or allied organisms.

¹³¹ L. Cayeux, Ann. Soc. Géol. Nord. xvii. (1890), p. 283.