They belonged seemingly to the Crustacean order of animals, somewhat resembling in their affinities, the crab, lobster and crayfish of these times. These trilobites must be regarded as the dominant types of the Silurian seas. The specimens here represented were about twenty inches long; but many smaller and some larger species are known. The eyes of these creatures are of interesting structure. They were composed of numerous lenses, so compounded as to present facets in every direction except on the inside of each orbit. The eyes of most species have been found to possess not less than 400 facets, and in one kind 6,000 facets have been observed. Fossil trilolites in great numbers occur near Antelope Springs in Millard county, and at other points in Utah.

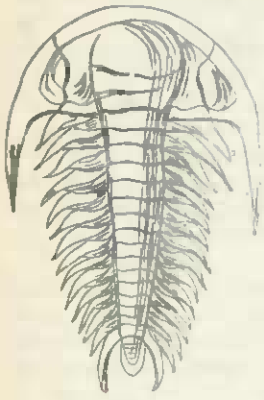

Fig. 4

All evidences of the former existence of living things, when occurring in the rocks are called *fossils*. Many superstitious notions have been harbored in early times as to occurrence of fossil remains. Some people attributed their existence to the direct agency of Satan, though what particular object his majesty could have had in distributing these caricatures of life through the rocks, it is difficult to imagine. They were, for years described as mere "freaks of nature," and, therefore, not susceptible of detailed explanation. Others looked upon them as remains of living things that were destroyed by the Noachian flood. Verbose discussions have been aroused among men to cover ignorance upon the subject. Mattioli, an Italian, says that fossils resulted from the "operation of a certain *materia pinguis* or fatty matter fermented by heat," whatever that may mean. Fallopio, supposes that they acquire their form by the "tumultuous movements of terrestrial exhalations." Mercati conceived that fossils owed their shape to certain influences of the heavenly bodies. In England, fossil bones were long regarded as belonging to fallen angels! Centuries were required to remove such absurd notions from the minds of men.

How came these trilobites to be fossilized? By a process similar to that now in operation, by which the bodies of animals and plants become buried in the sediment of lakes and seas; and there slowly undergo decay; the place of each particle, as it falls away, being immediately taken by the stony matter which is held in solution or suspension by the water. Thus Nature replaces the soft and perishable tissue by enduring stone, and preserves the petrified forms of bygone life. We are not justified in concluding that the earliest forms of life were animals, because the first fossils are of animal remains. It is apparently a law that plants shall constitute the aliment upon which animals subsist, but the early plants were of so soft and perishable a structure, that only the slightest traces of their form are found in the rocks. Indirect evidence, such as the occurrence of graphite and certain forms of iron ore in the primary rocks, teach us that plants probably existed from the earliest times.

Here (figure 5) is a remarkable fossil of Silurian times. It is a representative of the *Crinoids*—animals in shape almost resembling plants. They are sometimes called "stone lilies;" and living forms still exist in the warm seas. Crinoids possess a regularly radiated structure, the upper part expanding like the petals of a flower, borne upon a long stalk-like foot, which was terminated by an expanded disc, through which the animal was able to attach itself to the sea bottom, or any convenient support. Hugh Miller has remarked that the beautiful ribbed appearance of crinoids might furnish many ideas to the student of architecture. The fossilized stalks of crinoids, broken into discs, all perforated by a central canal, abound in many parts of Utah. The loose stones upon the hills about Salt Lake City, often contain numerous crinoidal stems, and, when polished, such stone assumes a strangely beautiful appearance, and is frequently sold at high prices as encrinital limestone. The loose stem discs were threaded and used as rosaries in the middle ages. They were called St. Cuthbert's beads, and were noticed by Scott in his "Marmion:"

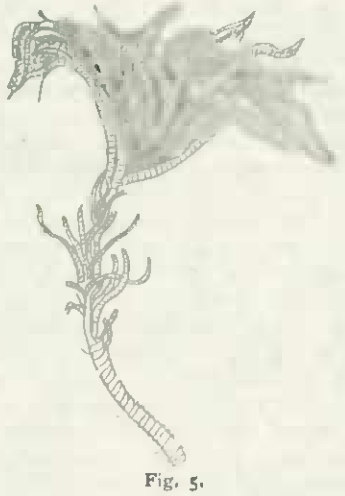

Fig. 5.

"On a rock by Lindisfarne
St. Cuthbert sits, and tries to frame
The sea-born beads that bear his name."

Crinoids usually show five main arms, like petals, branching from the central stem, These divide and subdivide often into a thousand fine filaments. "Pentacrinites" is another name by which they are known.

In the Silurian age, corals were abundant; their remains now forming large rock masses. To-day, corals only exist in comparatively warm seas; a temperature below 68° F. is fatal to them. If Silurian corals were of the same nature, we must conclude that a great uniformity in temperature prevailed, for coralline remains are widely distributed. Here (Fig. 6) is a fine specimen of the family *Cyathophylloid*, or cup corals; one of the most numerous classes. The beautiful radiating hollow forms cannot fail to fix our attention. And this, be it remembered is but the house in which the animal lived. How interesting must have been the living form, for which the great Creator fashioned so attractive a home.

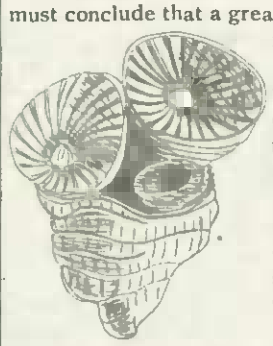

Fig. 6.

Another form of cup coral is shown in the view. (Fig. 7.) This is sometimes called from its appearance, "bird's-eye coral;" and the rock which results from the agglomeration of these structures, when polished, is among the most beautiful of ornamental stones. Man, in all his greatness, is eager to build his mansion and adorn his furniture with such stone—yet this is composed of the debris of the houses of creatures so humble as to gain the notice of less than one of us in a thousand. Beside the cup corals, the Silurian seas abounded in *Favositidae* or honey-combed corals, and *Halysitidae* or chain corals; both of which

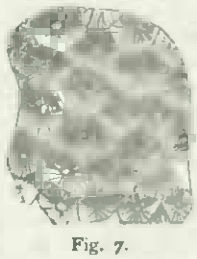

Fig. 7.