and ornamental marble in West Rutland, Dorset, Pittsford, etc., Vt.; architectural marble in Lee, Mass., Canaan, Conn., Westchester County, N.Y., and in Pennsylvania; the Trenton, a beautiful mottled brown and reddish brown marble in east Tennessee in Hawkins County and Knox County; the lighter spots in it are delicate Corals (*Monticulipora, Stenopora,* etc.).

Iron ore. — The valuable iron ore, limonite, occurs in great beds along the junction of the Lower Silurian limestone and the overlying Hudson shales in all the states on the line from Vermont to Alabama, and in many places it is worked for the iron. But the ore is a result of the decomposition of the rocks long subsequent to the Lower Silurian era (page 126).

GENERAL OBSERVATIONS ON THE LOWER SILURIAN.

ROCKS.

It is a point to be noted that, during the Lower Silurian, the rocks of the Continental Interior over the Mississippi Basin were chiefly limestones; and that in the Trenton period the limestones extended in great force to and beyond the Appalachian protaxis. There is no evidence of their origin at abyssal depths. The beds were mostly made in clear waters near the surface, as in modern coral seas, and at moderate depths, probably not exceeding a few hundred feet. Magnesian limestones prevail below the Trenton, and occur to some extent within this formation; and such limestones (dolomytes) are strong evidence of a sea-marsh condition during their origin, or of shallow sea-border flats, as explained on page 133. Such an origin also explains that fine trituration of all the calcareous relics, which made the magnesian limestone so generally unfossiliferous.

CLIMATE.

No proof that a marked diversity of zones of climate prevailed over the globe is observable in the fossils of the Cambrian period, or of any part of the Lower Silurian era, so far as yet studied. The difference between the polar regions and the parallel of 40° was probably not greater than between cold temperate and warm temperate. It has been inferred that some difference in zonal temperature exists from the closer resemblance of fossils of northwestern Scotland to those of Canada (page 572) than to those of England, and the existence of the Gulf Stream of the Cambrian Atlantic is suggested by G. F. Matthew. The following species, common in the United States, and occurring at least as far south as Tennessee, have been found in the strata near Lake Winnipeg: *Strophomena* (*Rafinesquina*) *alternata, Leptæna* (*Plectambonites*) *sericea* (*?*), *Maclurea magna, Raphistoma lenticulare, Calymene callicephala, Monticulipora lycoperdon, Receptaculites Neptuni.*

The mild temperature of the Arctic waters is evident from the occurrence of the following species on King William's Island, North Devon, and at Depot Bay, in Bellot's Strait (lat. 72°, long. 94°): *Monticulipora lycoperdon, Orthoceras moniliforme* H., *Receptaculites Neptuni* De France, *Actino-*