

work, American geology owes much to De Verneuil for his "note" of 64 pages in the *Bulletin of the Société Géologique de France*, iv., 1847, "On the Parallelism of the Paleozoic Formations of North America with those of Europe," which is followed by a list of the species of fossils common to the two continents, and of the rocks in which they occur, with critical remarks respecting each species; and to the paper of D. Sharpe, "On the Fossil Mollusks from the Paleozoic Formations of the United States," contained in the collections of C. Lyell, *Q. J. G. Soc.*, 1848.

#### AREAS OF GEOLOGICAL PROGRESS.

Archæan geography, as has been explained, largely determined the areas of later geological progress, and the character of continental geography through all the ages. The prominent points in North American geography, besides the fundamental one of the Archæan nucleus, are the defining of the two great Archæan chains of islands or island ridges, the Appalachian protaxis on the east, the Rocky Mountain protaxis on the west (page 24). By this means a vast *Interior Continental Sea* was divided off from an Atlantic border region on the east, and a Pacific border region on the west, the former (reckoning to the 100-fathom line, or the steep border of the Atlantic depression) averaging 300 miles in width, but becoming three times this in the latitude of Newfoundland; the latter, 1000 miles in mean width.

Besides this, the shorter Archæan ranges of the Atlantic border region to the north (see the map) divide the surface into a parallel series of broad channels or troughs, all of which open northward into the St. Lawrence valley region.

1. The *Champlain and St. Lawrence channel*: between the northern part of the protaxis and the Archæan lands; on the west stand the Adirondacks, and on the north the Canada Archæan.

2. The *Connecticut valley channel*, or trough, along the Connecticut valley, and reaching Long Island Sound at New Haven Bay, Conn.

3. The *Maine-Worcester channel*: covering Maine and western New Brunswick and extending down to Worcester, Mass.; apparently fading out southward. The fiord of the Thames River, from Norwich to New London, Conn., lies in its course.

4. The *Acadian channel*: extending from St. Lawrence Bay and western Newfoundland over eastern New Brunswick and much of Nova Scotia, with the Bay of Fundy between, as the remains of this part of the depression; thence southeastward along and off the coast regions of Maine to Massachusetts Bay, and over eastern Massachusetts to Narragansett Bay, on the Atlantic border.

5. The *Exploits River channel* of central Newfoundland, and two others to the eastward.

The importance of these channels, or troughs, becomes strongly pronounced in the course of Paleozoic history.

Over the Pacific border region the areas are less plainly indicated than