

as they advanced, may have made their ebb or their flow over this more western part of the bay-like channel; and, by their rapid movement, have produced the assorting of the gravel and the accumulations of large stones or pebbles; and they may also, by some variation in their route, as time passed, have made pebble deposits locally at different levels. Such rapid tidal flows, causing the stones in shallow waters to slip over one another with each return of the current, would tend to make them flat, as in the Panama conglomerate, and not round as in ordinary round-pebble conglomerates, the latter being work of plunging waves along a beach and of strong currents.

BIOLOGICAL PROGRESS.

The progress of the systems of life through the Devonian era was continued into and through the following era without any abrupt transition, and the review of the subject is given for both eras after the account of the Carbonic era.

UPTURNING OR MOUNTAIN-MAKING AT THE CLOSE OF THE DEVONIAN.

Through nearly all of North America, where Devonian and Carboniferous rocks occur together, the two formations pass into one another continuously, as if one in series. But in eastern Canada at Gaspé, in Maine, and in Nova Scotia, and at Perry in southern New Brunswick, as reported by Dawson and Logan, there was an upturning of the Devonian and inferior beds, so that the overlying Carboniferous rests upon them unconformably. Dawson makes the unconformability general for the Acadian Provinces.

The upturning and crystallization of the Devonian and Upper Silurian beds of the Connecticut valley, as well as of those of Lake Memphremagog and the St. Lawrence valley, may have been a part of the events of this epoch. But it is equally possible and probable that the upturning took place at the close of Paleozoic time.

In Great Britain, Russia, and Bohemia, some evidences of upturning between the Devonian and Carboniferous have been observed, and not in central and southern France. But all these cases are small exceptions to the general fact that the Lower Carboniferous and the underlying rocks are conformable almost the whole world over. The epoch of transition was not an epoch of general disturbance. There were extensive oscillations of level; but for the most part they involved no violent upturnings. The following era opens with a period of marine formations; and the beds accumulated, in most regions where they occur, are a direct continuation of the deposits of the Devonian.