dominating peak (5215 feet), and it rises in such isolation as to look in the distance like a volcanic cone. That part of Maine lying south of the watershed is drained by streams running nearly south­ward. Like the Adirondack Wilderness, it is a district of numerous lakes, as might be expected, since it has no rapid descent in any direction, is underlain by impermeable rocks, and has a consider­able rainfall.

The general uniformity of character in the New England portion of the Appalachian system will be evident from what has been here stated. This region is marked by comparatively low swells of ground, on which rise groups of higher points, rather irregularly distributed, nowhere reaching the limit of perpetual snow, and nowhere presenting great obstacles to internal communication.

The geological structure of this north-eastern prolongation of the Appalachian system has been as yet only imperfectly made out, a circumstance due in part to the extreme scarcity of fossil remains, and in part also to the fact that the various sedimentary beds have been so metamorphosed as to be distinguishable only with great difficulty from the associated eruptive formations, while even the latter have frequently been themselves so much changed by chemical action, since their appearance at the surface, that it is only by the microscope that their real nature can be made out.

With the exception of a narrow belt of Mesozoic rocks in the Connecticut valley and a small basin of similar age in Woodbury and Southbury, Connecticut, and also with the exception of a very limited set of deposits of late Tertiary age on the eastern boundary of Lake Champlain and on the Atlantic coast, there are, so far as known, no rocks in New England more recent than the Palæozoic. Tertiary and Cretaceous formations are, however, found covering small areas on some of the islands adjacent to the coast. Along the western sides of Vermont and Massachusetts the rocks are clearly proved by their fossils to be of Lower Silurian age, and their structure has been made out in part. There are faults and synclinals,—limestones and chloritic and talcose slates being the predominating rocks. The dips are chiefly to the eastward, and the rocks are of more recent age as we go east from Lake Champlain, on the east side of which is a large development of the Potsdam sandstone. In and near the Connecticut valley, to the east of the region just noticed, fossils have been found (at Bernardston, Mass.) of late Upper Silurian age (Helderberg of the New York Survey). The stratigraphical relations of these rocks, however, remain obscure. The same may be said of nearly or quite all of New Hampshire, of eastern Massachusetts, and of a large part of Maine. At one point in New Hampshire (Littleton) fossils have been obtained of the same age as those discovered at Bernardston. In northern Maine, traversing the State in a wide belt running north­east and south-west, rocks occur of Upper Silurian and Lower Devonian age, well characterized by fossils, a part of this belt being clearly identical in age with the Oriskany sandstone of the New York Survey. The stratigraphical relations of these rocks are still obscure ; and south of this fossiliferous belt is a wide area in which no fossils have yet been found. At one point in Massachusetts (Braintree, near Boston) more than fifty years ago fossils of the lowest Silurian age (Primordial) were found, and there are other indications that the rocks near the coast of New England, from Cape Cod north, are very low down in the fossiliferous series; but in Massachusetts, as well as in New Hampshire and Maine, there is a wide area between the Devonian and Upper Silurian rocks of the Connecticut valley and northern central Maine, of the geological age of which nothing is definitely known, and of which the stratigraphical relations are still very obscure.

To the west and south-west of the Hudson river, in New York, the intricacy and obscurity of the orographic structure and geological age of the Appalachian system begin to be cleared up ; but it is not until we reach Pennsylvania that the characteristic features of this range are fully developed. (1) The first of these is, along its south-eastern edge, as we cross the system from south-east to north-west, at right angles to its trend, a series of elevations, at first comparatively unimportant and more or less detached from each other, but gradually, in going in a south-westerly direction, becoming more and more prominent and continuous, until, towards the extreme southerly end of the system, it forms the most imposing connected mass of high plateaus and still higher ridges anywhere exhibited in the Appalachian region. This south-easterly division of the system has no single distinguishing appellation. It is called in Pennsylvania the South Mountains, in Virginia the Blue Ridge ; and in North Carolina and Tennessee it has various names applied to its different portions. (2) The second important feature is the Appalachian region proper of the First Pennsylvania Survey, a region of wave-like folds or corrugations, not so metamorphosed but that the geological sequence can be distinctly made out, in which orographic disturbances and a peculiar erosion have de­veloped an interesting and intricate topography. (3) The third region, in crossing the chain from south-east to north-west, is that of plateaus, bounded on the south-east by an escarpment to which the name of Alleghany has been most frequently given, and by which that portion of the system which lies in Pennsylvania is still almost universally known. These are the three most prominent divisions of the system south-west of the Hudson, and between the first and second there is a pretty well marked depression which is a very conspicuous feature of the topography in Virginia and Tennessee (in Pennsylvania the Kittatinny, in Virginia the Great Valley, and farther south the valley of East Tennessee).

We next come to consider the region occupied by south-eastern New York and northern New Jersey. The Green Mountains are generally considered as being prolonged south-westwardly in the Hudson river highlands and the highland range of New Jersey. This latter range in New Jersey occupies a belt of country some­what over 20 miles in width on the New York line, but narrows down to less than half that on the Delaware. It includes no long unbroken ridges, the one which comes nearest to having this character being the Green Pond range, about 12 miles long ; nor are the subordinate ridges of which it is composed in a line with each other or with their axes parallel to the direction of the main range. The highest point is Rutherford’s Hill (1488 feet). The Kittatinny valley mentioned above is distinctly marked in New Jersey, where it also bears the same name. It is bounded on the north-west by a range called the Shawangunk in New York, the Blue Mountains in New Jersey, and the Kittatinny in Pennsylvania. It lies on the extreme north-western edge of New Jersey, and forms an almost unbroken straight line for about 40 miles within this State, from the Delaware Water Gap to the New York line. The straightness of this ridge and its almost level crest, from 1200 to 1800 feet in height, mark it as belonging to the peculiar topo­graphical belt of the Appalachian system which occupies central Pennsylvania. This belt is distinctly recognizable still farther east, in the vicinity of Catskill and east of the mountains of that name, where there is a miniature group of hills, called the Little Moun­tains, only a mile or two in width, and but a few hundred feet in height, which are made up of rocks of the same geological age as those in the central division of the Pennsylvania Appalachians, and with the same characteristic structure.

The plateau region occupies a large portion of the State of New York. Its northern edge extends along the south side of the Mohawk river, forming a distinctly marked escarpment (the Helderberg Mountains). Farther west, in central New York, only a few miles from the central depression through which pass the Erie Canal and the great lines of railroad connecting Albany with the west, are various heights rising 1000 feet above the surround­ing plateau, and from 1600 to 2000 feet above the sea (Fenner Hill, in Madison county, 1862 feet ; Ripley Hill, in Onondaga, 1968 ; Niles, in Cayuga, 1623; Milo Hill, in Yates, 1343; and East Hill, in Oswego, 2300). This plateau, with its extension to the south­west into Pennsylvania, forms the highlands in which rise the various branches of the Susquehanna, which traverses the entire Appalachian system, in a general direction from north-west to south-east.

In south-eastern New York there is a remarkable group of mountains, very conspicuous from the Hudson, and apparently quite isolated as seen from the eastern side, but which, as ap­proached from the west, are recognized as being in intimate con­nexion with the plateau region of central New York. This group is known as the Catskills, of which there are two divisions,—the northern, or Catskills proper, and the southern. The Catskills proper are a massive plateau, enclosed between the Esopus and Catskill creeks—affluents of the Hudson running in a south­easterly direction, nearly parallel with each other, and at a distance of about 25 miles apart. The mountain mass thus enclosed con­sists essentially of two border chains running parallel with the two streams, and from 10 to 15 miles apart. The highest point of the north-eastern border is the Black Dome, 4002 feet ; that of the south-eastern range, Hunter Mountain, 4038 feet. The southern group, lying south of the Esopus, the drainage of which on the west and south-west is into the Delaware river, includes Slide Mountain, the highest point of the entire Catskill group (4205 feet).

The Catskill range is, like the plateau region generally, of the Devonian and Lower Carboniferous formations. The upper 500 feet of the Slide Mountain is occupied by a cap of the Carboniferous conglomerate, the equivalent of the millstone grit, and the nearest approach to the Coal-measures in any part of New York.

From New Jersey southward the Appalachian system is very easily separated into those divisions which have already been indi­cated. Its eastern border—the Atlantic slope—is an area of land rising gradually from the sea towards the interior, to the foot of the Appalachian ranges, broadening out as we follow it southward, and at the same time acquiring a greater elevation before the mountains are reached. This gently rising area is hardly percept­ible in New England, but it occupies a considerable portion of the Atlantic States from New Jersey south to Florida. Its altitude at the eastern base of the mountains is, in Pennsylvania, only from 100 to 300 feet,—Lancaster and Harrisburg, which are on its western border, being respectively 350 and 320 feet. On James river, in Virginia, it is about 500 feet high (Lynchburg, 529 feet), but at the source of the Catawba it has risen to 1200 feet. This