

far as these fossiliferous primary limestones are concerned, as an established fact.

So early as 1853, after investigating the primitive rocks of eastern Bavaria, which are connected with those of the Bohemian forest, I expressed the opinion that, although eruptive masses of granite and similar rocks occur in that region, the gneiss was of sedimentary origin, and divisible into several formations. I at that time endeavored to separate these crystalline schists into three great divisions, the phyllades, the mica-schists, and the gneiss formation, of which the first was the youngest and the last the oldest; all these formations having essentially the same dip and strike.

These results, obtained from very detailed geological and topographical researches, were subsequently more fully set forth in the Survey of the Geology of Eastern Bavaria, (Book IV., p. 219 *et seq.*); where I endeavored to assign local names to the subdivisions of the primitive rocks of that region. Beginning with the more recent, I distinguished the following formations:

1. Hercynian primitive clay-slate.
 2. Hercynian mica-slate.
 3. Hercynian gneiss.
 4. Bojian gneiss.
- } Primary gneiss system.

In some cases, within limited regions, I even succeeded in tracing out still smaller subdivisions. It was in this way established that definite and distinct kinds of rocks, as for example hornblende-slate and mica-slate, may replace each other and, as it were, pass into each other, in different parts of the same horizon.

After Sir Roderick Murchison had established the existence of the fundamental gneiss in Scotland, and recognized its identity with that of the Laurentian system of Canada, he turned his attention to the primitive rocks of Bavaria and Bohemia. My researches and my communications to him disclosed the important fact that these rocks belong to the same series as the oldest formations of Canada and of Scotland. On one point only was there an apparent difference of opinion between Sir Roderick and myself; which was that he was disposed to look upon the whole of the gneiss of the Hercynian mountains as constituting but a single formation, corresponding to the Laurentian gneiss of Canada and of Scotland; while I had endeavored to distinguish two divisions, the newer grey or Hercynian gneiss, and the older red