are thick beds and lenticular masses of iron-ore (Dannemora, Filipstad, etc.).

Of obviously later date than the coarse gneisses with their accompaniments is another series of crystalline schists which spreads over vast tracts of country in Scandinavia. Among these rocks mica-schists, phyllites, quartz-schists, clay-slates, quartzites, and schistose conglomerates are conspicuous, and indicate that a large proportion of the whole mass is probably of clastic origin. But there are also included chloritic and hornblende schists, amphibolites, gneisses, and many other rocks which were probably of eruptive origin, whether injected as sills or thrown out contemporaneously with the sedimentation of the schists as tuffs and lavas. In many respects this important series of schists bears a close resemblance to the "younger gneiss" and Dalradian rocks of Scotland. But its actual stratigraphy has not yet been accurately elucidated. That some portion of it may be pre-Cambrian seems sufficiently probable. But its true relations are complicated by the discovery of Silurian fossils in some portions of the series and by the apparent gradation of comparatively unaltered fossiliferous Silurian strata into the schistose condition. Dr. Hans Reusch of the Geological Survey of Norway has shown that among the crystalline schists to the south of Bergen bands of fine mica-schist or phyllite with layers and nodules of limestone contain fossils probably of Upper Silurian age.[48] I have had an opportunity of visiting the district described by him, have collected fossils from all the localities which he enumerates, and can entirely confirm the account which he gives of the thoroughly metamorphic character of the rocks among which the fossiliferous bands occur. The phyllites are intercalated among white quartzites, quartzite conglomerates, green schists, hornblendic and actinolitic schists and gneisses. But for the occurrence of the fossils, a geologist would naturally class the rocks as probably of pre-Cambrian age. But the corals, graptolites, and other organic remains make it quite certain that the crystalline schists in which they occur underwent their great metamorphism not earlier than some part of the Upper Silurian period. It will be an extremely difficult and laborious task to disentangle the complications of these

[48] "Silurfossiler og pressede Konglomerater i Bergensskifrene," 1882; translated into German by R. Baldauf with the title "Die fossilien-führenden krystallinischen Schiefer von Bergen," Leipzig, 1883.