thick reclines steeply (but it is said conformably) against gneiss. It consists of phyllite-gneiss, mica-schist, and chlorite-schist, with four bands of dark graphitic schist and one or two seams of limestone. The plant-bearing graphitic schist is full of plant-remains (Calamites ramosus. Pecopteris lonchitica, Lepidodendron phlegmaria, etc.). The association of plants and the occurrence of bands of graphite, representative doubtless of former beds of coal, indicate that these carbonaceous rocks belong to the well-known Schatzler group of the lower Coal-series of Silesia. The whole succession of schists of which these plant-bearing beds are members, forms one continuous group, which Stur recognized as traceable for a long distance on the northern margin of the central range of the northeastern Alps. He insisted that this group of schists cannot be the result of original chemical deposition, but, on the contrary, that it is shown, by a great series of facts, to be the metamorphosed equivalent of what, elsewhere, are unaltered Carboniferous strata. The distortion of the fossils, which proves that the rocks have behaved like plastic masses under the strain of mountain-making, the alteration of their substance into anthracite or graphite, and its replacement by micaceous silicates, are evidence of a serious metamorphism. On the other hand, the occurrence of unaltered plant-bearing Carboniferous rocks elsewhere in the Alps shows that, as usual, the metamorphism has not been everywhere equally intense. Stur concluded that there was every encouragement to search for fossils in the schist envelope of the central Alpine gneiss."

Baron von Foullon describes the petrographical characters of the various members of the group of schists in which the plants occur near Leoben. As to the thoroughly crystalline character of the phyllite-gneiss, mica-schist, etc., there can be no dispute. It will be enough here to refer briefly to the constitution of the graphite-schist in which the plants occur. Hand-specimens present a dull fracture, on which none of the components, except the graphite, can be recognized, though sometimes they show a greenish fibrous asbestiform mineral. In thin slices, the rock is

<sup>&</sup>lt;sup>17</sup> He had, many years before this, announced his belief that the schistose envelope (Schieferhülle) of the Alps probably represents Palæozoic rocks. Stache, in 1874, wrote that "the question now is how far Cambrian or Silurian rocks are represented." Jahrb. Geol. Reichs. 1874, p. 159. In 1884 he thought that the epicrystalline condition of the Silurian rocks in the Alps might be due to original crystalline precipitation; Z. Deutsch. Geol. Ges. 1884, p. 356.