it could reach the younger rocks above. Hence not only have they usually been dislocated and plicated, but they have been abundantly invaded by intrusive materials of all ages, and their internal structure has frequently been subjected to such mechanical stresses, with accompanying chemical and mineralogical readjustments of their component materials, that they have passed into the condition of schists. In this highly altered state they often cannot be distinguished from still more ancient schists, the true origin of which is not certainly known. In some regions, indeed, where the older sedimentary formations have been greatly disturbed, a gradation may be traced from unmistakable Palæozoic or Mesozoic sediments with recognizable fossils into thoroughly crystalline and foliated schists. Sometimes this transition is doubtless due to an actual extensive metamorphism of the sedimentary rocks, and in these instances there may be no means of separating the schists of which the sedimentary origin is ascertainable from those where it is not. The whole may be Palæozoic or Mesozoic. In other cases, there seems reason to believe that the gradation is rather due to excessive plication, whereby ancient schists and Palæozoic or Mesozoic strata have been so compressed that they agree in direction of strike, and have been so folded that portions of the one series have been inclosed within the other, considerable general metamorphism having at the same time been superinduced upon the whole.

From underneath these oldest sedimentary accumulations there rises to the surface a remarkable assemblage of thoroughly crystalline rocks, which range from amorphous masses such as granite, syenite, diorite, and gabbro, through many varieties of coarse and fine foliated rocks to the most silky schists and phyllites, and which further vary in chemi-