

*capping the tertiary plain, out of which grew large forest trees. I can prove that both sides of the Andes have risen in this recent period to a considerable height. Here the shells were 350 feet above the sea. On the bare sides of the Cordilleras complicated dykes and wedges of variously coloured rocks are seen traversing, in every possible form and shape, the same formation, and thus proving by their intersections a succession of violences. The stratification in all the mountains is beautifully distinct, and owing to a variety of colouring can be seen at great distances. Porphyritic conglomerates, resting on granite, form the principal masses. I cannot imagine any part of the world presenting a more extraordinary scene of the breaking up of the crust of the globe than these central peaks of the Andes. The strata in the highest pinnacles are almost universally inclined at an angle from 70° to 80°. I cannot tell you how much I enjoyed some of the views; it is alone worth coming from England to feel at once such intense delight. At an elevation of from ten to twelve thousand feet there is a transparency in the air, and a confusion of distances, and a stillness, which give the sensation of being in another world. The most important and most developed formation in Chili is the porphyritic concrete. From a great number of sections I find it to be a true coarse conglomerate or breccia, which passes by every step in slow gradation to a fine clay-stone porphyry; *the pebbles and cement becoming porphyritic, till at last all is blended in one compact rock.* The porphyries are excessively abundant in this chain, and at least four-fifths of them, I am sure, *have been thus produced from sedimentary beds in situ.* The Uspellata range is geologically although only six or seven thousand feet high, a continuation of the grand eastern chain. It has its nucleus of granite, consisting of beds of various crystalline rocks, (which I have no doubt are subaqueous lavas,) alternating with sandstone, conglomerates, and white aluminous beds, like decomposed felspar, with many other curious varieties of sedimentary deposits. In an escarpment of compact greenish sandstone, *I found a small wood of petrified trees in a vertical position, or rather the strata were inclined about 20° or 30° to one point of the trees, and 70° to**