

among the Silurian rocks of the mainland of Scotland. Even the large masses of granite there, occupy but small areas when compared with the great extent of ordinary stratified and metamorphic rocks amid which they lie. It is chiefly in the Inner Hebrides that great masses of tertiary basalts occur. Igneous rocks exist even in much smaller proportions in Derbyshire, Northumberland, Devon, and Cornwall, excepting the occasional occurrence of large bosses of granite in the two last-named counties, as for example on Dartmoor, and at Land's End. If, however, we examine all the midland, southern, and eastern parts of England, we shall find hardly any igneous rocks whatever.

I have now briefly to indicate how we are able to distinguish igneous from aqueous rocks, in countries where there are neither active nor obvious craters of extinct volcanoes, such as those of Auvergne and the Eifel. To do this in detail would occupy a volume.

In a general way we can distinguish them from strata formed by aqueous deposition because many of them are *unstratified*, and have other external and internal structures different from those of aqueous deposits. To take examples: If we examine the lavas that flowed from any existing volcano, and have afterwards consolidated, we find that they are frequently vesicular. This vesicular structure is largely due to watery vapour, and partly to gases ejected along with the melted matter, which, expanding in their efforts to escape from the melted lava, form a number of vesicles, just as yeast does in bread, or as we see in some of the slags of iron furnaces, which, indeed, are simply artificial lavas. This peculiar vesicular structure is never found in the case of unaltered stratified rocks. Here, then, experience tells that modern rocks with this