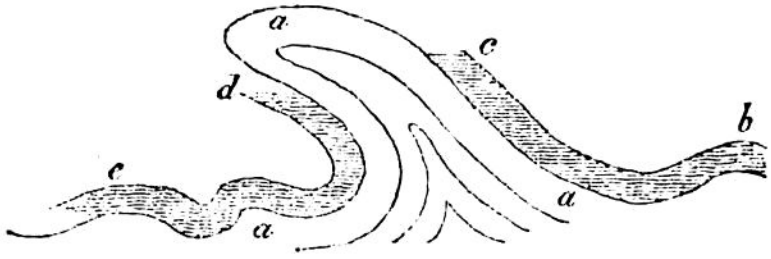
which they are still rare, if not altogether wanting. In the examination of these interesting remains, he must call the science of the zoologist and botanist to his aid, and thus he will discover that a great part of the genera, and a vast majority of the species, are entirely different from the animals and plants with which we are at present acquainted, as covering the face of the earth or occupying its waters.* Hence geology presents

taken into account, it will be obvious that in consequence of the flexures by which they are often bent backwards, a bed really superior in its general position, may appear to be inferior in partial observations: thus let *a a a* be



the contorted substratum of gneiss, and *b c d e* an incumbent bed of gryphite limestone following its flexures; it is clear that if this bed be visible only at the point *d*, it will appear to underlie the gneiss. A comparison with Dr. Mac Culloch's figures referred to, will shew that these contortions are not exaggerated.

* In speaking of the difference between recent and fossil species, it becomes us to be cautious in pronouncing that the latter do not at present exist because we are not acquainted with them in a recent state, and this caution is still more necessary with regard to those genera which the "dark unfathom'd caves of ocean" may possibly conceal in their recesses: we must remember that we were long acquainted with the encrinites, terebratulæ, and trigoniæ in a fossil state, before the analogous beings in a recent state had found their way to our collections; yet the general facts seem too strong to be entirely thus accounted for. With the exception of those contained in the most recent beds (the crag) only, nine out of ten fossil shells belong to species decidedly different from any known to exist. The family of ammonites, for instance, contains more than two hundred fossil species according to many authors, and it does not seem possible to reduce this estimate above one half; yet of all these not one is known recent, and the only recent species of the whole genus is a very minute shell; yet the fossil species sometimes measure three feet in diameter. Is it probable that a genus so numerous, and having species of such large size, can have been overlooked, especially as they are furnished with an apparatus whose use was evidently to give them buoyancy, like their allied family the nautilus? so that it is not likely they can remain concealed from inhabiting deep waters only. The same remarks will apply to the belemnites, of which no recent species is known. It would not be possible to point out the main features of the case in a more striking manner, than by referring an observer, well acquainted with recent conchology, to the shells contained in the carboniferous limestone of Derbyshire; he would at once recognise the total want of general resemblance: the difference also which we shall shortly notice between the shells in the different formations, affords a strong cor-