

only one locality, Sicily), the strata contain 95 per cent. of existing forms.

Supposing these statements (which might be fortified by other equally important but more refined results) are thought sufficient to establish the principle, that the affinity of fossils to recent forms, commencing with the geological date of the chalk, has gone on increasing gradually to the close of the tertiary period, and that, therefore, the relative age of tertiary strata is to be judged of by the proportion of recent forms in them, let us inquire what difficulties lie in the way of the practical application of the doctrine.

There is a real difficulty in determining upon what basis to make the required comparison between fossil and recent forms: whether the fossils of a particular region, as, for example, the subapennine countries, should be compared with the *whole* series of known testacea, or with the shells of the adjoining Mediterranean, to whose products they are extremely similar, and from whose waters they may be thought to have been raised.

In certain cases it appears probable that the strictness of the rule must be relaxed to avoid important errors. For example, the long basin of the Danube, the valley of the Rhine, the basin of Paris, contain a great variety of organic forms, which must have been peculiar to those arms and gulfs of the sea, as we find at this day peculiar shells in almost every partially insulated bay of the sea. But these tertiary tracts having been wholly raised to dry land, all their *peculiar* shells have perished; and the analogy of the fossil to recent types appears less than would be the case with strata like the subapennine beds, which are yet margined by the sea, out of which they were uplifted.

Peculiar shells live in the German Ocean and English Channel: the crag formation is supposed to contain many now living in these waters; but, had the whole of these seas been obliterated by the rising of their bed, the extensive shelly sand thus brought to the surface would have presented but slight analogies with the general catalogue of