

lative periods which elapsed in the production of such groups by their proportionate thickness, than in applying the method to the several strata and beds of the groups.

In a general sense, then, the total length of the scale of strata is of importance, as an element for direct computation of the total time elapsed in the formation of the crust of the globe. This length in some cases amounts to more than ten miles, and is seldom to be estimated at less than five.

Means of Investigation of Facts.

Having now sufficiently explained the nature and origin of that standard of time to which all geological phenomena are to be referred, it remains to be seen, 1st. What are the means in our power for collecting the facts concerning chemical, mechanical, and vital phenomena, effected in ancient periods, which are to be combined into a history of the physical changes of the globe? 2d. What are the methods of interpretation applicable to their phenomena?

Direct observations of the mineral composition of the globe are the groundwork of geology; but were our knowledge limited to the depth which is reached by actual penetration of the crust of the globe, by pits, wells, and other excavations, or seen in isolated mountain slopes, it would be of little value for the object proposed. — The deepest mine in the world (Kitzpuhl in the Tyrol) is only 2764 feet below the surface, the loftiest summits of the Himalaya only ascend 28,000 feet above it.—Yet in consequence of the manner in which the stratified materials are arranged in the crust of the earth, it is possible, by proper combination of direct observations, to know the structure of the globe to the depth of three, five, or ten miles, according to the situation and circumstances of the country. This will be understood by attention to the annexed diagrams where *fig. 3* represents a false, and *fig. 4* a true, repre-