

shaped square. The long arm should be of a known length. The T-shaped staff when used is held vertical to the surface of the inclined beds to be measured, while the eye sights along the short arm in a direction at right angles to the line of strike to a point on the ground which will be the next station base for the staff. Each station occupied will have an elevation above the preceding one in the section corresponding to the length of the staff.

OBJECTS SOUGHT.

Brief consideration of some of the purposes for which fossils are collected will indicate to what extent the methods outlined in the preceding pages are essential in different classes of work, and whether they may be expanded or shortened in connection with collecting which has different objects in view.

There is probably no other branch of natural history collecting which may lead to the solution of such a variety of problems as the collecting of fossils. The problems of the palaeontologist include within their range those of structural geology, the restoration of ancient physical geographies, and the problem of evolution. Whatever the purpose of the collector may be, however, the precise location of the rocks furnishing the specimens and their relationship to other beds in the locality should always appear on the locality label.

During an earlier stage in the development of palaeontology the discovery of new species was the ultima thule of the collector. This is still an important and legitimate object of the collector's work, for many thousands of species as yet unknown to science doubtless remain to be discovered, described and systematically placed in the immense catalogue of the earth's extinct life. Many collectors and palaeontologists of an earlier generation were content to refer their new species to the Lower Carboniferous, the Upper Silurian, or to a major division of whatever system they were derived from. Our present ideal, though not always attained, is to indicate the place of a new species in the section where discovered with the utmost exactness. This kind of painstaking care on the part of the collector and the author of a new species will ultimately, if not at once, make possible its reference to its proper place in the general geological time scale with a precision comparable to that with which the railway engineer refers a particular station on his line to its exact position above sea level. This tendency toward greater refinement and precision in the methods of the palaeontologist is one of the factors which has led to an extensive revision and expansion of formational nomenclature. The description of a new species, important as it is, can at present be