

is proposed to designate the larger fragments, pebbles or allied forms which are easily distinguished from the ground mass or cementing material. They, the phenoclasts, may be of several orders of size. The term is convenient, as it is not always correct to refer to the major constituents of a conglomerate as pebbles, or even brecciated fragments. For instance, in the edgewise "conglomerates," the "pebbles" and cement are apt to be formed from the same material; also the shape of the "pebbles" is hardly pebble-like, neither are the "pebbles" true, brecciated fragments. Also, in certain types to be described later, the bioglomerates, the phenoclasts are obviously neither pebbles nor angular material. Their outline is as peculiar and distinct as is their origin. Thus we find all variations, from sand-like particles to pebbles and breccias, and all of them conspicuously distinct from the cement or ground mass.

#### CLASSIFICATION.

(See table on page 35.) The stratigrapher is primarily interested in the "sequence of events," as exhibited by the relative position of, and the structures and fossils within, the formations which he studies in the field. He must observe texture and structure as well as fossils—in short, he should be lithologist and structural geologist as well as paleontologist. What little the present day stratigrapher knows regarding the texture of the sedimentary rocks, he has acquired with the methods of the petrologist, methods largely developed for the investigation of the igneous or crystalline rocks. The petrographer studies his thin sections and classifies his specimens according to their macroscopic and microscopic textures and mineral contents; the resulting data, together with the structural details and occurrence of the rocks in the field, are used by the petrologist to build his classification of the igneous rocks and to promote his theories as to their history and origin. Thus, studies in "paragenesis" and "order of crystallization" within veins and hypothetical rock melts have resulted in our present knowledge, through facts and hypothesis, regarding the main, great division of the rocks which form the earth's crust. Microscopic investigation of the sedimentaries, and especially of the limestones, has not appealed to the petrographer. The supposed lack of variation in texture, and more or less homogeneous mineral composition, has failed to raise the same amount of interest in their classification and origin as in the igneous rocks. Even granting the fact that with the limestones are associated, in many cases, the relics of past floras and faunas, which should stimulate investigation as to the history of the rock's formation,