

erates, and rocks of finer grain than this are termed *tuffs*. The definition is arbitrary, and the dividing line of size may not be agreed to by all, but the reader will at least know the general textural appearance of the rock from the name applied to it. It will be recognized that tuffs as here defined are rocks much in appearance like sandstones, while agglomerates, with their coarser grain, simulate conglomerates texturally. A rock like specimen 39, described below, containing several fragments of feldspar up to an inch in diameter, embedded in a fine tufaceous matrix, is here called a tuff, owing to the predominance of very fine material. Its analogue in the detrital sediments may be taken as a pebbly sandstone, but there are objections to the term "pebbly tuff."

Orthoclase Tuff.

Constantly recurring in the exposures of the volcanics are rocks in appearance greatly simulating porphyries, and at first mistaken for flows in the field. They are alike in containing rectangular crystals and broken fragments of orthoclase (sometimes soda orthoclase and sanidine) up to an inch long, embedded in a fine tufaceous matrix, whose clastic character is sometimes only certainly determined by the microscope. The resemblance between specimen 39, a soda orthoclase tuff, and specimen 35, an ægirite-augite trachyte, is particularly striking, in colour, size, and, to a great extent, shape, of the phenocrysts, and also in the colour and texture of the matrix. Specimen 87, a sanidine tuff, is also remarkably like a porphyry in the hand specimen, and numerous other cases have been observed in the field.

In the case of the two rocks just mentioned, it is thought that the ægirite-augite trachyte magma, on explosion gave rise to the soda orthoclase tuff. The question may be raised as to why the pyroclastic rock is not called ægirite-augite tuff, in conformity with its parent primary type. In the case of the trachyte, ægirite-augite is the definitive mineral, distinguishing it from other trachytes, while in the case of the tuff, soda orthoclase is the distinctive mineral of the rock.