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Titanite occurs as phenocrysts in characteristic lozenge shaped, twinned individuals, up to 0.7 mm. long.

The groundmass is apparently not completely crystalline. About 20 per cent of it consists of well-shaped rods of green ægirite-augite up to 0.1 mm. long, embedded in a mass of highly irregular interlocking feldspar grains, somewhat decomposed.

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Melanite Bearing Trachyte.

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A hand specimen (field number 5) of a breccia of well rounded rock fragments in a tufaceous, green matrix (collected from a bedded series of tuffs and breccias near the base of the volcanics on the West Branch Southfork river, just above Lost creek) shows several pieces of a trachyte containing roughly 40 per cent of tabular red orthoclase phenocrysts, up to half an inch long, embedded in a dense green matrix containing a number of shiny black, dodecahedral melanite phenocrysts. This type of trachyte is frequently observed as fragments in the breccias, and several varieties have been noted.

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These rocks are characterized in thin section by large phenocrysts of orthoclase, (in part sanidine) with smaller ones of ægirite-augite, garnet, and titanite, in a groundmass which varies in different specimens, but is characterized by laths of feldspar, doubtless orthoclase, ægirite-augites, and magnetite.

The orthoclase phenocrysts are usually somewhat altered, often show Carlsbad twins, and form up to 40 per cent of the rock.

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The pyroxene is up to 0.5 mm. in size, grass green in colour, with a grass green and yellow pleochroism, and occurs as eight-sided idiomorphic crystals. Extinction angles $C \wedge c$ of 75 degrees have been noted. In some rocks the ægirite-augite is altered to pseudomorphs of matted green scales, mostly chlorite, but is frequently found quite unchanged.

Melanite is usually under two millimetres in diameter, typically idiomorphic and of a yellow to deep brown colour. It commonly has beautiful zonal banding, and occasionally holds small inclusions of ægirite-augite. It is always fresh. The relations of the melanite to the groundmass and to the other