

described by me in this journal.\* The delessite which enters so largely into their composition can scarcely have been one of the original constituents, and has probably resulted from the gradual alteration of augite, since authenticated instances are on record of the conversion of that mineral into delessite and green-earth. The specific gravity of these rocks varies from 2.83 to 2.89. When ignited they lose 1.32 to 3.09 per cent. of their weight, the powder changing from light greenish-grey to a light brown colour. Digested with hydrochloric acid from 32.44 to 35.72 per cent. of bases are removed from them, the greater part of which belongs to the chloritic constituent. While the variety of melaphyre first above described is seldom found with amygdaloidal structure, the delessitic melaphyres are exceedingly prone to be developed as amygdaloids. In this case the rock contains amygdules of small size but very numerous, and they are either filled with delessite alone, or are lined with a coating or rind of that mineral, in which latter case calcspar generally fills out the centre of the cavity. Quartz or agate is comparatively rare in amygdaloids the matrix of which is delessitic melaphyre.

*Compact Melaphyre.*—When the small grained melaphyres above described become so fine-grained as to render the recognition of their constituents impossible, there results the fine-grained traps which are so numerous on the south-west coast of Mamainse and on Michipicoten Island. These rocks vary from reddish, bluish, greenish, or greyish black, to decided black in colour, and possess not unfrequently conchoidal fracture and resinous lustre. Their specific gravities vary from 2.67 to 2.898, and they fuse before the blowpipe to glasses of black or brownish black colour. Occasionally their material becomes less homogeneous, and presents the appearance of an intimate mixture of reddish grey and green coloured specks, which may perhaps represent partially developed constituents. They exhibit various phenomena as regards divisional joints. Some possess a rudely columnar structure, others have planes of separation forming various angles with the plane of bedding, several shew a tendency to separate into flags, while a few instances are observable of curved shaly separation, (*Krummschaalige Absonderung*). Transitions can frequently be traced from these compact melaphyres to others approaching in

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\* Vol. iii., Second Series, p. 2.