MINERALOGICAL NOTES: No. XI.

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(Plates xxxviii.-xli.)

DIAMOND.

Near Boggy Camp, Inverell, N.S.Wales.

(Pl. xxxviii., fig. 1, Pl. xxxix., fig. 1.)

An interesting diamond crystal from this field was lent by Mr. D. A. Porter for measurement and description. The diamonds at this locality are found in deposits of sand and gravel, probably of Pliocene age, underlying the basalt capping of a number of isolated hills; they are accompanied by stream tin and a little gold.

The crystal weighs ·0443 grams. It is colourless, and consists of a hexakis-octahedron with indices near (111), twinned on an octahedral face (spinel law), and flattened parallel to the twin plane to form a triangular plate; diamonds of this shape are known at Amsterdam as *naadsteenen* (suture stones). Only six faces of each half of the twin are developed, forming a very low pyramid with curved edges and planes, each face striated in lines running roughly parallel to its intersections with an octahedral face, but towards the periphery the striations curve in conformity with the crystal edges and gradually disappear. A few small triangular depressions appear near the apex, the corners of the pits, as is usual in natural etch pits of the diamond, being directed towards an adjacent octahedral edge.

In order to investigate the "light paths," the crystal was mounted on a two-circle goniometer so that the plane of the triangular plate was approximately parallel to the plane of the vertical circle. Six trails of reflection were found, radiating in pairs from the apex (the centre of Pl. xxxviii., fig. 1), but not reaching quite to the centre. The crystal was adjusted so that the point of intersection of these six paths was approximately polar, and then a large number of readings was taken along each path. The results are plotted in stereographic projection in Pl. xxxix., fig. 1.

Two other diamonds from the same locality in Mr. Porter's collection merit a short description. Both are slightly yellowish; one is a distorted octahedron weighing ·1 gram and built up by a number of parallel and sub-parallel plates; the other, which weighs ·13 grams, is a symmetrical triakis-octahedron with rounded edges.