ters E, F, G, H. They are distinguished from the original octahedral faces by greater regularity and smoothness. The shape and relative position of these various surfaces can be seen in the diagrammatic projection depicted in the text-figure, which has been drawn in the Mineralogical Laboratory of the Oxford University Museum, by the kind permission of Prof. Miers, F.R.S. The drawing is to half scale.

Description of the Surfaces.—A is an original octahedral face showing typical striations, the bands varying from 0·1 to 0·4 centimeter, and running parallel to the edge A–E. B is a large surface slightly curved showing partial striations, which, however, are interrupted by the slightly mammillary character of the surface. C is also a natural surface showing a few striations parallel to the edge C–E. D. Between B and F, C, G, there is an irregular octahedral face D, showing distinct equilateral triangular indentations which resemble etched figures, except in regard to their comparatively large size, the largest having a side measuring 0·7 centimeter. D is parallel to E.

E, F, G, H, are cleavage planes. E is the largest of these, and is a very perfect cleavage plane. Parallel to it within the crystal there is a small air layer between two internal cleavages, producing a 'rainbow' or Newton's rings. F is the second largest of the cleavage planes and shows a small spot within the crystal. G is an irregularly shaped cleavage plane. H is another cleavage face showing series of cleavages in the corner bounded by E and G. Two spots are visible, one actually on the surface, the other about 1^{cm} within the crystal. Of the faces given, A and G, H and B, and E and D are parallel. In the case of B and H the parallelism is imperfect owing to the curvature of B.

The purity of the crystal is best seen on looking into face E, and the luster is well seen on the irregular natural face B, the broken cleavage on H causing a good deal of refraction which affects B to some extent as the facets of a cut gem would. For a large stone the crystal is of remarkable purity, and the color approximates to that of a blue-white.

The large size of the cleavage planes E and F indicates that a very considerable portion of the crystal is wanting. From the shape of B, D, and G, one can say that the entire crystal was irregular in shape, but A and D being octahedral faces, the presumption is that the complete crystal was a distorted octahedron, probably with dodecahedral faces developed on the edges. The portions missing probably amount to more than half of the original crystal.

The Cullinan diamond, as it has been named, after the chairman of the Premier Company, is more than three times the weight of the largest diamond previously known—the famous stone found in 1893 at Jagersfontein in the Orange River Colony, which weighed 972 carats.

4. *Moissanite, a Natural Silicon Carbide;* by GEORGE FREDERICK KUNZ.*—Professor Henri Moissan, at a meeting of the

*Read before the New York Academy of Sciences, Jan. 9, 1905.

Academy of Sciences of Paris, held November 14th, 1904, read a paper on an examination made by him of a block of meteoric iron from Canyon Diablo, Arizona, which weighed 183 kilograms (403·6 lbs.).* Professor Moissan determined this mass to be somewhat heterogeneous in its structure, and to contain iron, nickel, sulphur, phosphorus, silicon and carbon. He found the latter element in its several forms,—amorphous carbon, graphite, and diamond,—and was able to separate both the black and the transparent variety of the diamond. He also discovered as absolutely new, in connection with these, green hexagonal crystals of silicon carbide. This is the substance which has been so extensively manufactured and sold commercially under the name of *carborundum*, and which, having a hardness of 9·5, above that of all minerals except the diamond, forms an admirable abrasive material for sawing gems, engraving glass, etc.

As this is the first instance in which this compound has been proved to occur in nature, and therefore, as a mineral, is entitled to a distinct mineralogical name, it would seem that the name of Professor Moissan himself should be associated with it. I would, therefore, propose for it the name of *Moissanite*, as a slight recognition of his many services to chemistry, and especially of his researches on the artificial carbides and his study of the constituents of meteorites, and the reproduction of similar substances by means of the electric furnace.

Photographs made by Professor Moissan show that the specimens isolated were entire crystals and must have been formed in the meteoric mass itself; they were not fragments such as were found by an American investigator a few years ago associated with fragments of corundum, which upon a careful search of the material he learned had been ground into the meteoric mass from the abrasive used in sawing the meteorite. No saws were used by Professor Moissan with the mass examined by him.

5. *Occurrence of Palladium and Platinum in Brazil.* — A very full and interesting paper upon this subject is given by E. Hussak in vol. cxiii of the Sitzungsberichte of the Vienna Academy (Abth. I). An exhaustive summary of the historical data is followed by an account of the author's own extended observations.

The metal *palladium*, in the native state, was discovered by Wollaston in Brazil a hundred years ago, being identified with native platinum in sands from gold washings, probably at Conceicao. The author failed to find the metal in the platinum sands of this locality, but he proved that it did occur in irregular grains (not rolled) of dark gray to steel-gray color with platinum and palladium-gold in the highly auriferous "Jacutinga"† of the itabirites of Itabira do Matto Dentro, Minas Geraes.

* Comptes Rendus, cxxxix, No. 20, cxl, No. 5, p. 277; also Chem. News, Dec. 14, 1904, Feb. 24, 1905: this Journal, xix, 191, 323, 1905.

† The name "Jacutinga" is given to the narrow layers and bands, hardly 50^{cm} in thickness, that occur interbedded conformably within the itabirite (a quartz-hematite rock of schistose structure). The Jacutinga are often enormously rich in gold, which may be nearly absent from the surrounding itabirite.