NOTES.

The following deaths have to be recorded :—

Ronald William Henry Turnbull Hudson (1876–1904) met with a fatal accident on September 20 of last year while climbing in North Wales. He was the only son of Professor W. H. H. Hudson, of King's College, London, and after a distinguished mathematical career at Cambridge, where he was Senior Wrangler in 1898 and a Fellow of St. John's College, he was appointed Lecturer in Mathematics in the University of Liverpool. Although not a member of our society, he contributed to vol. xii of the magazine (with a supplementary note in vol. xiii) a mathematical paper having a bearing on crystallography.

Theodor Heinrich Behrens (1842–1905), since 1875 Professor of Microchemistry in the Polytechnic School at Delft in Holland. He was the recognized authority on microchemical methods of analysis, as applied, not only to minerals, but to a great variety of inorganic and organic substances, on which subject he published many memoirs and books; 'A manual of microchemical analysis' was published in English in 1894. In the same connexion he wrote on crystallites, and on the micro-structure of metals and of diamond; and was also the author of several papers on the petrography of the Dutch East Indies.

Joseph Patrick O'Reilly (1829–1905), for more than thirty years (1868–1899) Professor of Mining and Mineralogy in the Royal College of Science for Ireland, was born in the town of Monaghan on July 11, 1829, and died in Dublin on January 6, 1905. He was educated in Paris as a civil engineer, and for some years acted as engineer to mining companies in Spain, first at the zinc mines of Santander and afterwards at the sodium sulphate mines near Madrid. The results of the observations made by him in these districts were published, in conjunction with Dr. W. D. Sullivan, in 1863. He was the author of several papers on Irish minerals (one of which appeared in vol. xi of this magazine), but his work in other directions—in archaeology and in various branches of geology—showed that he had very wide interests. Professor O'Reilly was a most enthusiastic teacher and was much loved and respected by his pupils.

An interesting discovery of cassiterite has been made in eastern Ross-shire by the members of the Geological Survey. This mineral has hitherto not been recorded from Scotland, and the discovery is

of further interest on account of the unusual mode of occurrence of the mineral. The foliated granite-gneiss of Carn Chuinneag contains streaks and veins of granular magnetite, intermixed with which is cassiterite in amounts varying up to 17 per cent. This magnetite-cassiterite-rock has a foliated structure marked out by the interlamination of small quantities of quartz, felspars, micas, and rutile. A preliminary description of the occurrence is given in the 'Summary of Progress of the Geological Survey' for 1903 (1904, pp. 58, 81), and a special exhibit of specimens, maps, and photographs has been arranged in the Museum of Practical Geology.

An aegirite-riebeckite-gneiss has also been found in the granite-gneiss complex of the same district; this rare variety of hornblende-gneiss has not before been observed in the British Isles. Several other points of mineralogical interest might be mentioned from the volume quoted, for example, the discovery *in situ*, in a dyke-rock, of the withamite of Glencoe.

The enormous diamond found in the Premier mine in the Transvaal on January 25, 1905, has been described by Drs. F. H. Hatch and G. S. Corstorphine in the 'Geological Magazine' (April, 1905, pp. 170–172, plates vii and viii); their account is accompanied by process illustrations showing the stone in actual size from four different points of view. The stone weighs $3024\frac{3}{4}$ carats (=9600·5 grains or 1·37 lb. avoirdupois), and measures 4 by $2\frac{1}{2}$ by 2 inches. It is a portion, probably not more than half of the original crystal, of a distorted octahedron, and is bounded by four natural octahedral faces and by four cleavage surfaces; the former are marked with striations parallel to the octahedral edges, and with triangular etched pits. The crystal is of remarkable purity and approximates in colour to the so-called blue-white.

The largest diamond previously known is the 'Excelsior,' a stone of $971\frac{3}{4}$ carats, found in 1893 in the Jagersfontein mine, Orange River Colony. The size of the newly found stone considerably exceeds that assumed for the originals of the famous Indian diamonds, the 'Great Mogul' and the 'Koh-i-noor.'

An account of the new Premier mine, which is situated about twenty miles WNW. of Pretoria, has recently been published in the Report for 1903 of the Geological Survey of the Transvaal (Pretoria, 1904, p. 43). It is of the same type as the Kimberley mines, but much larger in size, the pipe containing the 'blue ground' measuring over half a mile along the longer diameter of its oval-shaped cross-section, the area of which is

estimated at 350,000 square yards. The pipe breaks through felsitic rocks which were earlier intruded in the quartzites of the Pretoria series.

A report on the progress of mineralogical chemistry during the year 1904 has been contributed by Dr. A. Hutchinson to the new volume of 'Annual Reports on the Progress of Chemistry' issued by the Chemical Society of London (1905, vol. i, pp. 222–244). Under the heading 'General and physical chemistry of minerals' are given reviews of the recent work of van't Hoff on oceanic salt deposits, of Judd and Cullis on dolomitization in coral reefs, and of Vogt on the crystallization of minerals in slags and molten mixtures of silicates. Brief descriptions are given of the new mineral species described in 1904, and some of the more important analyses of older minerals are quoted. A summary is given of recent work relating to the radio-activity of minerals, the artificial production of minerals, and several other points of interest. A list of meteorites analysed during the past year is also given.

A new mineralogical journal has appeared under the title 'Beiträge zur Mineralogie von Japan'; it is issued from Tōkyō by T. Wada. The first number, dated January, 1905, contains two papers by K. Jimbō, one on the crystalline form and etched figures of the fine crystals of danburite from Obira, and the other on the siliceous oolite of Tateyama; both papers are written in English and are illustrated with several figures. Short notes on Japanese minerals and on Chinese gem-stones are contributed by T. Wada, who writes in German.

A detailed and instructive account of the practical methods of drawing crystals is given by Professor S. L. Penfield in the American Journal of Science (1905, ser. 4, vol. xix, pp. 39–75). He has designed a special protractor for plotting crystallographic axes, and some special triangles for drawing lines parallel to these axes. The advantages of drawing an orthographic projection or plan in conjunction with a clinographic projection is specially insisted upon: this was first done by Koksharov in 1853 in his 'Materialen zur Mineralogie Russlands,' and has been used in this volume at p. 44.

The formula, Cu_8FeS_3, up to the present accepted for the common mineral bornite or erubescite is based on analyses made in 1839 on

Cornish crystals. Professor B. J. Harrington (Amer. Journ. Sci., 1903, ser. 4, vol. xvi, pp. 151–154) shows that this formula needs revision; his analyses of massive bornite from several Canadian localities, and of crystallized material from Bristol, Connecticut, lead to the new formula Cu_5FeS_4. The old formula is readily explained by the fact that the Cornish crystals are always impure and usually contain a nucleus of chalcopyrite ($CuFeS_2$).

A natural occurrence of the artificial product known as carborundum, first prepared in 1893 by E. G. Acheson, and extensively used, on account of its extreme hardness, as an abrasive agent, has recently been noted by Professor H. Moissan (Compt. Rend. Acad. Sci. Paris, 1904, vol. cxxxix, p. 778; 1905, vol. cxl, p. 405). It was found by him in association with diamond in the meteoric iron of Cañon Diablo, Arizona, as small, green, hexagonal plates, identical in characters and composition with the artificial silicide of carbon (CSi). For this new meteoric mineral Dr. G. F. Kunz has proposed the name moissanite.

Fiedlerite, a mineral found in 1887 by G. vom Rath in the ancient lead slags of Laurion, Greece, where it is associated with the closely allied minerals laurionite ($PbCl_2.Pb(OH)_2$), paralaurionite, and penfieldite ($2PbCl_2.PbO$), has recently been analysed for the first time by A. de Schulten (Compt. Rend. Acad. Sci. Paris, 1905, vol. cxl, p. 315). His analysis leads to the formula $2PbCl_2.Pb(OH)_2$.

New names are still being given to imperfectly described minerals, but it is satisfactory to observe that many of these doubtful species, as well as some earlier ones, are being proved to have no existence. Such names need, therefore, only burden the lists of synonyms in the larger works of reference. Amongst identities recently proved, or suggested on good grounds, the following may be noted:—

Conchite = aragonite (R. Brauns, Centralblatt Min., 1901, p. 134; H. Vater, Zeits. Kryst. Min., 1901, vol. xxxv, p. 149).

Coolgardite = coloradoite + calaverite, &c. (L. J. Spencer, Min. Mag., 1903, vol. xiii, p. 268).

Dimorphite = orpiment (S. Stevanović, Zeits. Kryst. Min., 1904, vol. xxxix, p. 18).

Goldschmidtite = sylvanite (C. Palache, Amer. Journ. Sci., 1900, ser. 4, vol. x, p. 422).

Hessenbergite = bertrandite (F. Grünling, Zeits. Kryst. Min., 1904, vol. xxxix, p. 386).

Huelvite = rhodochrosite + tephroite (Chemiker-Zeitung, 1903, Jahrg. xxvii, p. 15).

Hussakite = xenotime (E. Hussak and J. Reitinger, Zeits. Kryst. Min., 1903, vol. xxxvii, p. 563).

Hydrogiobertite = brucite + ? (L. Brugnatelli, Centralblatt Min., 1903, p. 148).

Kalgoorlite = petzite + coloradoite (L. J. Spencer, Min. Mag., 1903, vol. xiii, p. 268).

Kilbrickenite = geocronite (G. T. Prior, ibid., 1902, vol. xiii, p. 186).

Ktypeite = aragonite (H. Vater, Zeits. Kryst. Min., 1901, vol. xxxv, p. 149).

Lacroisite = rhodochrosite + rhodonite (Chemiker-Zeitung, 1903, Jahrg xxvii, p. 15).

Lussatite = tridymite (F. Slavík, Centralblatt Min., 1901, p. 690).

Mamanite = polyhalite (J. H. van 't Hoff and G. L. Voerman, Sitz.-ber. Akad. Wiss. Berlin, 1904, p. 984).

Martinite = monetite (A. de Schulten, Bull. Soc. franç. Min., 1901, vol. xxiv, p. 325).

Metabrushite = brushite (A. de Schulten, ibid., 1903, vol. xxvi, p. 14).

Mooraboolite = natrolite (Min. Mag., 1903, vol. xiii, p. 373).

Palacheite = botryogen (A. S. Eakle, Amer. Journ. Sci., 1903, ser. 4, vol. xvi, p. 379).

Plusinglanz = argyrodite (A. Frenzel, Min. petr. Mitt. (Tschermak), 1900, vol. xix, p. 244).

Ramosite = basic volcanic scoria (L. McI. Luquer, Amer. Journ. Sci., 1904, ser. 4, vol. xvii, p. 93).

Reinite = wolframite pseudomorphous after scheelite (T. Wada, Minerals of Japan, Tōkyō, 1904, p. 76).

Simonyite = blödite (F. M. Jaeger, Min. petr. Mitt. (Tschermak), 1903, vol. xxii, p. 103).

Tamanite = anapaite (Zeits. Kryst. Min., 1903, vol. xxxvii, p. 267).

Torrensite = rhodochrosite + rhodonite (A. Lacroix, Bull. Soc. franç. Min., 1900, vol. xxiii, p. 254).

Viellaurite = rhodochrosite + tephroite (A. Lacroix, ibid., 1900, vol. xxiii, p. 253).

Wapplerite = rösslerite (A. de Schulten, ibid., 1903, vol. xxvi, p. 99).

Warrenite = jamesonite (L. J. Spencer, Nature, 1904, vol. lxix, p. 575).