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requires further elucidation, and I am sure Dr. Thomson is too candid to object to its being fully discussed, however clear the evidences may appear to his own mind.

HARRY RAINY.

ARTICLE IX.

Descriptions of Two new Minerals. By Mr. A. Levy, MA. FGS.

(To the Editors of the *Annals of Philosophy*.)

GENTLEMEN,

AMONG many very interesting specimens, and several undescribed substances, which were in the collection of Marquis de Drée, and which Mr. Heuland, who lately bought it, has added to his own private collection, are the two of which I now send the descriptions for insertion in the *Annals of Philosophy*, and which belong, I believe, to two new species. For one of them I propose the name of Beudantite, in honour of Mr. Beudant, and for the other, at the suggestion of Mr. Heuland, the name of Königine, in compliment to Mr. König, of the British Museum.

Königine.

The characters which distinguish this substance from any hitherto described, were ascertained before the arrival of Marquis de Drée's collection into this country upon a specimen now in the possession of the Dowager Countess of Aylesford. The specimen which subsequently was found to belong to the same species had the following ticket (*cuius muriatè et phosphatè*). In both cases the mineral occurs in small crystals, emerald-green and blackish-green, translucent, and of either of the forms represented by figs. 1, 2, 3. These crystals cleave only and very easily in a direction parallel to the plane P of the drawing; the face obtained by cleavage is very brilliant, and at right angles to the lateral planes *m*. These lateral planes are generally dull

Fig. 1.

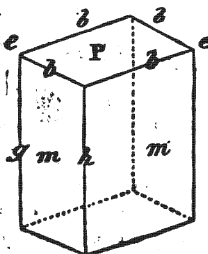


Fig. 2.

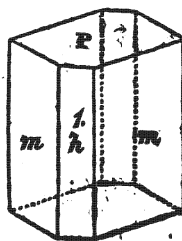
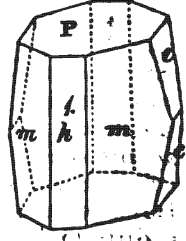


Fig. 3.

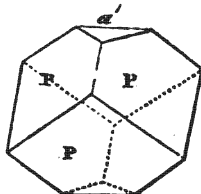


and slightly curved, and this last circumstance gives to the crystals, which are rather elongated in the direction of the axis, something of a barrel shape. For the same reason the incidence of the lateral planes could only be obtained by approximation by means of the common goniometer, and appears to be about 105° . A right rhombic prism of 105° may, therefore, be considered as the primitive form. The ratio between one side of the base and the height has not been determined, because the angle of P on e, fig. 3, could not be measured with sufficient accuracy. The hardness of the substance is nearly the same as that of sulphate of lime, and it is very easily pounded. The crystals are closely engaged together, and are placed upon amorphous ferruginous oxide of copper. The locality is Werchoturi, in Siberia. From the examination of a very small quantity of this substance by Dr. Wollaston, it appears to consist principally of sulphuric acid and oxide of copper, and might, perhaps, be considered as a subsulphate of copper. This result shows a great analogy between Königine and Brochantite, which last mineral, examined by Mr. Children, was also found to consist principally of sulphuric acid and oxide of copper. The hardness, colour, matrix, and locality, of the two substances seem also to be nearly the same, but their forms appear to be totally different. Brochantite occurs in thin rectangular tables whose angles are truncated and edges bevelled, without any appearance of cleavage. Königine, on the contrary, is met with in barrel-shaped crystals, with an easy and most brilliant cleavage in a direction perpendicular to the axis. When these two very rare substances may be procured in large quantities, it will, however, be worth the attention of mineralogists and chemists to compare them again.

Beudantite.

This substance occurs in small crystals closely aggregated, of the form represented by fig. 4, which is a slightly obtuse rhombohedron with the summits truncated. Their colour is black at the surface, and their lustre somewhat resinous, but thin fragments are translucent, and of a deep-brown colour. They cleave easily in only one direction parallel to the face α' , or perpendicular to the axis of the rhombohedron. This face of cleavage, however, is not sufficiently brilliant to allow the use of the reflective goniometer to measure its incidences upon the planes of the rhomboid. These planes themselves are generally brilliant, but sometimes slightly curved. The mean of several measurements obtained by the reflective goniometer has given for the incidence of P on P, $92^\circ 30'$. The primitive form of Beudantite

Fig. 4.



is, therefore, an obtuse rhomboid of $92^{\circ} 30'$. The hardness is sensibly greater than that of fluuate of lime. When pounded, the colour is of a greenish-grey. The matrix seems to be the same substance in an amorphous state with veins of fibrous hematite; it comes from Hohrhausen, on the Rhine.

I am also indebted to Dr. Wollaston for the chemical examination of this mineral, the result of which is very interesting, the only substances he has been able to detect in it being oxide of lead and oxide of iron.

ARTICLE X.

Description of the Process of Amalgamation as carried on in Germany. Extracted from a Letter to John Taylor, Esq. from John Henry Vivian, Esq.

AFTER some prefatory observations, Mr. Vivian proceeds to describe the Freyberg processes, which are stated to be thus conducted.

The silver is extracted from the ores of the mining districts of Saxony, partly by amalgamation, and partly by smelting; or, to make use of technical terms, some ores are treated in the *wet*, and some in the *dry* way. There are two works for smelting, and one for amalgamation, in the neighbourhood of Freyberg, which is the capital of the mining districts of Saxony. I shall confine myself, in the present paper, to the consideration of the processes carried on in the latter.

The Amalgamation-work is situated in a valley, near the village of Halsbrücke, at a distance of about two miles from the town of Freyberg, on the small river Mulda. I may here observe, that in selecting a site for a work of this description, regard must be had not merely to the proximity of the mines from which the ore is to be obtained, but to the supply of water, which should be constant, and in sufficient quantity for all purposes for which it may be required. With respect to the arrangement of the interior, the work at Freyberg may safely be taken as a model, or at all events a description of it will afford many useful hints in forming a similar establishment. Every thing is done with a view to save manual labour, and to prevent a loss of ore or metal in their removal from one place to the other, or pilfering on the part of the men. At the close of my remarks, after describing the processes, I shall revert to this part of the subject, which will be then the more readily understood.

The processes in an amalgamation-work are grounded on chemical principles. From this circumstance, and from the order and method that pervaded every part of the Freyberg esta-