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special knowledge, is particularly valuable—it was agreed that the moth represented sitting on a tree-trunk forcibly reminded one of the head of the tree lizards, members of the genus *Varanus*. An example is depicted on the plate. It is the "eye" on the wing of the moth that strikes the key-note of the situation; but in addition the shape of the wing, when the moth is resting, looks very suggestive. The moth is one which passes its larval state in the butts of Eucalyptus trees for the period of five or six years, but on emergence the perfect insect is not prone to fly, and would therefore be very liable to be attacked by birds. Hence the probability that my surmise of the striking resemblance to the head of the lizard being an instance of genuine protective imitation is correct.

The reptile photographed was not very specially selected, and others might perhaps have been used wherein certain features were more strongly marked. For instance, many members of the genus *Varanus* have a dark line passing from the eye backwards.

In conclusion, it might be well to point out that the marks on the outer margin of the visible wing of the moth are very suggestive of labials, while the various lines in front savor of the regularity of scales. Some of these tree-lizards and the moth are natives of New South Wales.

The log from which the moth figured emerged was collected near Newcastle, by Mr. W. Kershaw, late of the Melbourne Museum, and kindly presented to this Museum, thus affording us an opportunity of observing the living moth in its natural position and development.

SOME SUGGESTIONS REGARDING THE FORMATION OF "ENHYDROS" OR WATER-STONES.

By T. COOKSEY, PH. D., B. SC.

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THE mode of formation of these interesting bodies is still in considerable doubt, and therefore it seems to the writer that these notes attempting to explain their occurrence will not be without interest.

Mr. E. J. Dunn has given a description of the characters of those specimens which he obtained from Spring Creek, Beechworth, Victoria, and in a later paper in the same volume (page 71) Mr. George Foord more minutely described them, and also gave the results of a qualitative analysis of the liquid contained in one. He found it to be a dilute aqueous solution of chlorides and sulphates of calcium, magnesium and sodium, with a soluble form of silica. The author also sought to explain their formation on the supposition that a certain proportional mixture of colloidal and crystalline silica in solution might have a tendency on deposition to assume a definite crystalline form.

Prof. A. Liversidge, in the Records of the Australian Museum, p. 1 of the present volume, figured and described two large specimens acquired for our Collection, and suggested that they might possibly have been formed by the deposition of silica in hollows or cavities in clay which could have been caused by movements in the clay itself. I have not up to the present been able to find any other literature on the subject, with the exception of references to these bodies as pseudo-crystals, enhydros or water-stones.

A further detailed description is therefore quite unnecessary, but their character may be briefly summed up as follows:—

They consist usually of hollow quartz and chalcedonic formations frequently containing liquid, and are bounded externally by smooth perfectly even surfaces meeting in well-formed sharp straight edges. Some of them from their external appearance might easily be mistaken for true crystals, but a closer examination shews that such cannot be the case, for no two surfaces appear to correspond one with the other. This fact negatives the supposition that they might possibly be pseudomorphs. In some specimens the walls are formed entirely of chalcedony, in others the outer surface only is chalcedonic, while the interiors are either lined or completely filled up with quartz.

Some exactly similar formations were also discovered in Iredell Co., N. Carolina, America, and seven specimens were sent to this Museum labelled quartz-pseudomorphs after calcite. They are exactly similar in every respect to those from Beechworth, Victoria, with this exception, that five of these specimens are composed entirely of quartz, chalcedony appearing to have played no part whatever in their formation. The sizes of the enhydros in the possession of the Australian Museum range from that of half an inch to that of seven and one-eighth inches in length.

Leaving out of consideration for the moment their geometric form, most of these enhydros shew such a striking resemblance to many agates, that one is naturally led to the conclusion that a similar mode of formation must be common to all. Prof. Liversidge's suggestion that they may have been formed by the infilling of cavities in clay, seems to me to fail to account

* Proceedings of the Royal Society of Victoria, X., p. 32.

for the uniformly flat and even character of the surfaces, and the perfectly straight edges in which those surfaces meet. Mr. George Foord's theory, that a mixture of colloidal and crystalline silica might have a tendency to assume a definite form (that of plates) on deposition is obviously insufficient to account for them, in view of the fact that some of the specimens from America are composed entirely of quartz.

A more probable explanation appears to the writer to be this, that their geometrical form is due to the deposition of chalcedony or quartz on the walls of cavities formed by the intersection of tabular crystals of calcite, the latter having been afterwards removed in solution leaving the enhydros free. The thin septa frequently observed in them are formed in the same manner, the laminæ of calcite being very thin, and the complete specimens in reality a combination of two or more single ones. The occurrence of numerous plates of chalcedony with the enhydros is merely what one would expect, they are, no doubt, broken fragments of similar bodies which were too thin and fragile to retain their original form after removal of the calcite. The exterior surfaces of the enhydros would of course reproduce in an inverted manner those striations, markings, etc., which happened to be existent on the surface of the calcite laminæ, and might therefore lead to the supposition that the chalcedony itself partook of a crystalline character.

On the above assumption the angles between the surfaces of the enhydros must be those between the laminæ of calcite, and some among them would therefore be the same as those known to exist between corresponding surfaces of calcite tables in twin position. From among the numerous angles so formed, several were found to agree, as closely as could be expected from the rough means of measurement at my disposal, with the known angles 127° 29½′, 52° 30½′, 90° 46′, and 89° 14′.

The above view of their formation has been further strengthened by my finding among the numerous mineral specimens in the Museum Collection one in which thin tables of calcite intersect forming geometrical cavities, the walls of which have received a very thin coating of silica. This specimen may therefore be considered as shewing the enhydros in an initial stage of formation. Casts in gelatine taken of a few of these cavities gave forms very similar to those of some of the enhydros.

The latter bodies then, if the above explanation be the correct one, are casts of cavities; and a complete series of them, placed in the position in which they were originally formed, would constitute a mould of those calcite crystals on which the chalcedony and quartz were deposited.

16th September, 1895.

CORRECTIONS.

Page 91, line 17, read p. 35 instead of p. 1.

Explanation of plate xiii. fig. 2, read fig. 1 instead of fig. 2.

" " " 3, read figs. 1 and 2, instead of figs. 2 and 3.