



LXIV. Examination of the composition of several mineral substances

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As the parent cell is forming, the new discs within it gradually become red, and are at length liberated to give origin in like manner to new discs, or to be appropriated in some other way.

6. From § 4 it will be seen that the disc, or so-called "cytoblast," is originally a pellucid globule; which globule therefore is the true cell-germ.

7. Sometimes the quantity of the pellucid substance in the blood-cell is very much increased. This takes place at the expense of the red colouring matter which surrounds it. The blood-corpuscles, now cells, I have seen in various parts collected until the capillaries were completely *filled* with them, and until they had become pressed together into many-sided objects. I have met with vessels at the edge of the crystalline lens, some parts of which presented no other than the pellucid semifluid substance, arisen in the manner now described, and no longer contained within the cells.

8. This originally colourless substance, derived from the nuclei of blood-cells, and nearly filling the capillaries as I have found it, appears to constitute the essential part of coagulable lymph, to organize the same, and to give origin to the tissues, &c. in the manner I have elsewhere described. It seems to be this same originally colourless substance, derived from the nuclei of blood-cells, that forms the exudation-corpuscles of authors, the fibres of false membrane, and the filaments in coagulating blood — filaments which, as I have shown, here and there arise while this substance is still within the cells.

LXIV. *Examination of the Composition of several Mineral Substances.* By CARL HOCHSTETTER*.

Analysis of Augite from Piko, one of the Azores.

THE specimens submitted to examination were found amongst some fragments of decomposed basalt; they consisted of perfectly clean-maced crystals of the usual form. Their specific gravity was = 3.174.

The analysis gave in 100 parts—

			Containing Oxygen.
Silicic acid	50.40	...	26.17
Protoxide of iron	22.	...	5.
Lime.....	21.10	...	5.92
Magnesia.....	2.40	...	0.92
Alumina.....	2.99	...	1.41
Loss upon heating...	0.30		13.25

99.19

* From the *Journal für Praktische Chemie*, No. 22, 1842. Translated and communicated by Mr. E. F. Tschernacher.

The result of the analysis shows that the quantity of oxygen in the silicic acid is twice as great as that contained in the bases, from which the formula $\dot{R}_3\ddot{S}_2$ results, which perfectly agrees with the composition of augite hitherto examined. The proportion of the bases is however different from any former analysis.

In most of the augites from volcanic districts the quantity of alumina amounts to about 6 per cent., and with it is present a considerable quantity of magnesia, while the protoxide of iron amounts at most to 12 per cent. In these crystals of augite the protoxide of iron and the lime are present in nearly equal atoms, the magnesia and alumina only in small quantities, so that these belong to the class of lime-iron augites*.

Analysis of a new Mineral—Hydrotalcite.

This mineral was examined at the request of Dr. Marchand, who received it from Professor Scheerer; it accompanies the steatite from Snarum, and has the appearance of foliated talc: the first result of the examination showed the entire absence of silex, while talc contains a considerable quantity. It is massive, investing steatite in foliated masses, white, giving a white streak with a mother-of-pearl lustre, transparent, flexible, with a soapy feel; hardness = 2. Heated in a tube it gives off much water; at a red heat it becomes reddish yellow; dissolves nearly completely on boiling with acids.

Composition.		Containing Oxygen.
Magnesia	36·30	14·15
Alumina	12·	7·27
Peroxide of iron . . .	6·90	
Carbonic acid	10·54	7·62
Water	32·66	28·31
Insoluble residue . . .	1·20	
	<u>99·60</u>	

* The analysis by Rose of Hedenbergite from Tunaberg nearly agrees with the above.

Silicic acid	49·01
Protoxide of iron	26·08
Lime	20·87
Magnesia (containing manganese)	2·98
	<u>98·94</u>

D. RED.

The analysis of the reddish-brown malacolite of Dagero in Finland by Berzelius, is still more similar in composition.

Silicic acid	50·
Protoxide of iron	18·85
Protoxide of manganese	3·
Magnesia	4·50
Lime	20·
Loss upon heating	0·90
	<u>97·25</u>

E. F. T.

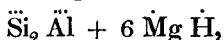
The analytical result shows that, on account of the insufficient quantity of carbonic acid, the alumina and the oxide of iron must act the parts of an acid and be considered as forming an aluminate with part of the magnesia. This is the view taken of it by Professor G. Rose, who gives the mineral the formula $(3 \text{ Mg}_2 \ddot{\text{C}}) + (2 \text{ Mg}_3 \ddot{\text{Al}}) + 24 \text{ H}$. As this mineral is different in composition from any other, it has been named Hydrotalcite, on account of its similarity in its physical characters to talc, from which however it is easily distinguished by the water it contains.

Analysis of Steatite from Snarum.

The composition of the steatite on which the foregoing mineral was found, is—

		Containing Oxygen.
Magnesia	37·52	14·52
Silicic acid	32·03	16·63
Alumina	12·52	7·21
Peroxide of iron . . .	4·48	
Water	16·19	14·39
	<u>102·74</u>	

If it is attempted to arrange these different substances, as shown by this analysis, in chemical order, it is evident that, for the expression of a simple formula, there is an excess of silicic acid present. But as the analysis shows an excess of 2·74 per cent., it may possibly arise in the determination of the silicic acid, particularly as the mineral examined was not as pure as could be wished; under these circumstances the following formula would represent the composition—



which upon calculation gives—

$$\begin{aligned} 2 \ddot{\text{S}} &= 1154·95 \dots 28·71 \\ \ddot{\text{A}} &= 642·33 \dots 15·98 \\ 6 \text{ Mg} &= 1550·10 \dots 38·53 \\ 6 \text{ H} &= \frac{675·00}{4022·38} \dots \frac{16·78}{100} \end{aligned}$$

M. R. F. Marchand adds in a note to the above paper, that Dr. Giwartowski from Moscow had analysed the same steatite and found it composed of as follows:—

Magnesia	37·9
Silicic acid	30·2
Alumina	13·2
Peroxide of iron	3·1
Water	17·
	<u>101·4</u>