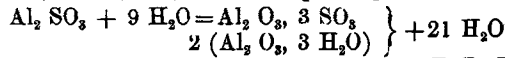


## Reviews and Notices.

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ON THE ALUMINITE OF KRALUP, BOHEMIA.—By R. Raffelt. (*Report Imp. Geol. Instit. Vienna*, November 19, 1878.)

This mineral has lately been found in small white reniform masses in a Quader-sandstone, with traces of coal, plant remains, and saline efflorescence (probably alum). Its chemical components are: Alumina, 89·84, sulphuric acid, 23·15; water, ·47; thus corresponding with the formula of Aluminite,



T. R. J.

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ON SOME AFRICAN LATERITE.—By Dr. O. Lenz.—(*Report Imp. Geol. Instit. Vienna*, November 19, 1878.)

The term "Laterite" is applied to a sandy and highly ferruginous loam, containing abundant and often very large concretions of hydrated oxide of iron, which is extensively spread over certain regions of tropical Asia and America, and covers wide areas in tropical Africa. In both east and West Africa the laterite seems to be connected, as to its extent, with gneiss and other schistose rocks of crystalline texture. A specimen of laterite from a sandy and intensely yellow loam on the banks of the estuary of the Gaboon, and probably a *derived* block, transported by water, was subjected to chemical analysis. Its specific gravity was 3·44; and it was found to contain, in a hundred parts—substances insoluble in hydrochloric acid (Silica, 10·40, Alumina, 5·42) 15·82; Alumina, 12·40; Oxide of Iron, 58·02; besides traces of Silica soluble in hydrochloric acid, and of Manganese; water set free at 100°C., 2·45; water set free by incandescence of the substance dried at 100°C., 12·95. Consequently this laterite is hydrated oxide of iron with an admixture of some silicate and hydrate of alumina. The portion insoluble in hydrochloric acid is a mixture of quartz with a kaolin-like substance. The soluble portion is essentially composed of the hydrates of alumina and oxide of iron. Neither sulphur nor phosphorus being present, this laterite must be regarded as a good iron-ore. The natives of Central Africa, who, low as they are in the scale of civilization, are frequently able blacksmiths, use the iron extracted from this laterite. Iron is also extracted from laterite in India and Brazil. In some parts of India and at Gaboon laterite is used as a building material.

T. R. J.

ON HALLOYSITE FROM TÜFFER, STYRIA.—By K. John.—(*Report Imp. Geol. Institut. Vienna, Dec. 3rd and Dec. 17th, 1878.*)

This mineral has lately been discovered by Mr. Ihne, Superintendent of the Coal-mines of Hrastnigg. It occurs in extensive, thick, vein-like agglomerations in the porphyry of Tüffer, without any admixture of other substances, in the form of irregular nodules of various sizes, frequently with a pellucid, steatite-like central nucleus, passing outwardly into a pure-white substance, greasy to the touch, in which are occasionally included minute pellucid granules. Outside, it passes into an earthy friable substance. All these varieties are connected by insensible transitions. Light-rose-coloured veins are visible in some specimens. The mineral adheres strongly to the tongue. Its specific gravity is 2·071. The results of chemical analysis are :

	Pellucid variety.	White compact variety.	Friable white variety.
Silica . . . . .	38·37	38·68	40·07
Alumina . . . . .	33·31	33·02	34·53
Water, set free at 100° C.	15·75	14·97	12·30
Water, „ above „	13·05	13·23	13·50
	100·48	99·90	100·400

Thus the chemical composition, omitting the water, is  $Al_2 O_3 \cdot 2 Si O_2 = Al_2 Si_2 O_7$ . The proportion of water is variable, being greatest in the pellucid variety in the centre of the nodules ; and therefore it may be admitted to have given rise to the other varieties by decomposition, namely by loss of water.

In the pellucid variety when reduced to fine powder, and exposed to the open air for some time, the quantity of water sank to  $21\frac{1}{2}$  per cent. As the mineral retained a constant proportion of water when dried at 100° C. it must be admitted that water is in chemical combination ; and doubtless constitutes, as usual, a centre of attraction for more water according to circumstances.

The mineral dried at 100° C. is composed of

Silica . . .	46·43	} <i>Per cent.</i>
Alumina ..	39·72	
Water ..	13·85	

The composition of kaolin is,

Silica . . .	46·40	} <i>Per cent.</i>
Alumina ..	39·68	
Water ..	13·92	

The formula of both these minerals is  $Al_2 Si_2 O_7 + 2 H_2 O$ .

T. R. J.

ON TWO NEW RESINOUS MINERALS, MUCKITE AND NEUDORFITE.—By J. Von Schröckinger.—(*Report Imp. Geol. Institut. Vienna, Dec. 17th, 1878.*)

These minerals have lately been discovered by Mr. Muck in the coal-beds worked near Neudorf in Moravia. This coal formation consists of two unconformable sets of beds, which strike north and south for 14 kilometres, and *dip* 10°—12° to W. Their *roof* is a black clay, overlain by Pläner-sandstone (Cretaceous). Their *floor* is a sandstone, strongly impregnated with coal at top, then reddish-brown in colour, and at last white, with an argillaceous cement. The mineral from the lower of the two coal beds, and for which the name "Muckite" is proposed, is disseminated throughout the coal in morsels of from 1 millimetre to 3 centimetres in size, and in small bands. In colour it is opaque yellow, or light-brownish yellow, and pellucid, with vitreous lustre. Its density is 1·0025; hardness between 1 and 2 of Mohs's scale. Alcohol dissolves 14 *per cent*; ether, 40 *per cent*; both solvents leaving a yellowish-brown residue. Sulphuric acid dissolves it into a dark-reddish-brown liquid, from which it is precipitated by water in a flocculent form. When oxidized by nitric acid, and the solution is diluted with water, a yellowish resinous acid is obtained, which gives a yellow solution with alcohol,—and when treated with potash, a reddish-brown resinatè with musk-like odour. Heated to 120°C., the mineral assumes a deep yellow tint, darkening as the heat increases, until at 260° it becomes dark-brown. The point of fusion is between 290° and 310°. Melted *in vacuo* it becomes opaque, and resembles yellow amber. Heated in contact with the air, it emits a turpentine-like smell, and gives a sooty flame, without leaving any residue. Dry distillation gives a thick, oily, yellow liquid, changing to greenish, of poignant aromatic odour, becoming brown and resinous when exposed to the air for some time. The residuum in the retort is very brittle, friable, nearly black, opaque, with intense vitreous lustre, nearly insoluble in caustic potash, readily soluble in ether and benzole, melting at 80° C., giving off at greater heat an aromatic smell, like that of pine-resin, and burning with a sooty, lucid flame.

The average result of four analyses is—

Carbon . . .	79·22	}	<i>Per cent.</i>
Hydrogen ..	9·57		
Oxygen ..	11·21		

answering to the empirical formula— $C_{20}H_{28}O_2$ . This, however, is far from exact, as the solubility of the substance indicates that it is a mechanical mixture of different resins. The percentage composition of the oily liquid, obtained by distillation (Carbon, 83·52; Hydrogen, 8·81; Oxygen, 7·67) leads to the supposition that it is a mixture of several hydro-carburets, some oxidized, others without oxygen.

The mineral from the *upper* coal bed occurs in rather larger pieces, easily detached from the surrounding coal. It nearly resembles the variety of Retinite called "Walchowite" by the late Professor Schrötter. It is, however, rather pale-yellow, with a waxy lustre; its fracture is conchoidal, and its specific gravity is between 1.045 and 1.060. The name proposed for it is "Neudorfite," from the locality where it has been discovered.

Dissolved in ether it leaves a whitish-yellow resinous powder, nearly insensible to the action of caustic potash, readily oxidized by nitric acid, soluble in heated sulphuric acid into a limpid reddish-brown liquid, from which it is precipitated unchanged by the addition of water. At 150° C. small fragments become pellucid, soft, and elastic; at 250° they adhere to each other, and take an intense dark-brown tint. The point of fusion is 280°. The melted portion cools into a transparent yellow resin, very similar to Succinite. The substances obtained by dry distillation are, an oily, brownish-yellow liquid with pungent aromatic smell; a very small amount of watery liquid; and scarcely any tar. The residue is an opaque, dark-brown, bright resin, insoluble in boiling alcohol, readily soluble in ether. Heated in contact with the air, it burns with a lucid, sooty flame, leaving between 1.5 and 4.3 *per cent.* of ashes. Traces of nitrogen (0.4 *per cent.*) and of sulphur were found. The per-centage analysis gave—

Carbon . . . . .	78.4
Hydrogen . . . . .	9.84
Oxygen . . . . .	11.98
Nitrogen . . . . .	0.14

answering to the hypothetical formula  $C_{18} H_{28} O_2$ , the nitrogen being neglected as adventitious.

The formula given by Prof. Schrötter for his Walchowite is  $C_{18} H_{18} O_2$ ; Neudorfite thus contains a smaller proportion of oxygen, as is also proved by the results of dry distillation.

T. R. J.

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ON SO-CALLED HYPERSTHENIC ANDESITE OF ST. EGIDI, LÖWER STYRIA.  
—By E. Hussak.—(*Report, Imp. Geol. Institut. Vienna, Oct., 31, 1878.*)

The substance of this rock is of the pennine pyroxene-andesite type, and of the same structure as that of the lavas of Santorino, and the true andesites of Hungary, being a mass of minute prisms of light-grey pyroxene with a brown vitreous matrix. In this there are also many relatively large crystals of plagioclase, and prisms of a light-green mineral, as seen in thin slices, which has been regarded by M. Niedziewsky as having the

crystallographic characters of hypersthene. The plagioclase is occasionally a millimetre in diameter, and includes an uncommon proportion of a brown vitreous vesicular substance, generally disposed in a rather broad zone. Sanidine is of somewhat rare occurrence; peridot is absent. Rectangular granules of magnetite are dispersed equally throughout the mass.

According to M. Niedziewsky, the mineral regarded by him as *hypersthene* appears in rhombic prismatic sections, longitudinal and transverse, some irregularly, others regularly defined, and greenish-grey in colour. The long sections have longitudinal parallel figures. The rhombic transverse sections, sometimes almost square, have two cleavages, one corresponding with a pinacoid, the other prismatic and less distinct. Dichroism is scarcely perceptible; one of the optical primary sections is parallel to the longitudinal axis of the prism, and the other is vertical to the first.

A microscopical examination of thin slices in the Imperial Geological Institute gives the following results. The transverse sections of the light-green mineral are constantly octagonal, although nearly approaching the quadratic form on account of the prevalence of the pinacoid surfaces over those of the prism,—a peculiarity frequently observed in the pyroxenes of andesite-pyroxenes. The cleavage is decidedly prismatic, nearly rectangular in all transverse sections, without any trace of pinacoidal cleavage. Therefore longitudinal sections offer a cleavage parallel to the longitudinal axis, as in all such sections of pyroxene. Dichroism is scarcely perceptible. The intense pleochroism characteristic of hypersthene is absent, according to Dr. Tschermak. In the elino-diagonal longitudinal sections the optical primary sections are not vertical to each other, therefore the extinction is oblique, as peculiar to a monoclinical rather than to a rhombic pyroxene. In these sections the angle of extinction is very considerable, the stauromicroscope showing it to be between  $24^\circ$  and  $30^\circ$ . In some cases the long sections offer an optical orientation equal to that of the rhombic crystals. Such sections are from the zone  $OP : \infty P$ . In other sections parallel to the longitudinal axis the angle of extinction is only between  $2^\circ$  and  $5^\circ$ , the sections being somewhat inclined towards  $\infty P$ . The whole of these facts prove the light-green mineral to be merely a variety of pyroxene; and consequently the term “hypersthene-andesite” is not required in Petrography. The andesite of St. Egidii contains 61.37 *per cent.* of silica; other characteristic pyroxenic andesites have between 57 and 62 *per cent.* of this substance.

T. R. J.

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ARTIFICIAL DIOPSIDE.—(*N. S. Maskelyne, Phil. Mag. Feb. 1879*).

This was formed in a Bessemer converter at Blaenavon, and consisted of an interlaced mass of glistening gray crystals. A crystal found in a

cavity proved to be diopside, exhibiting the following forms; 110· 010· 221· 111. The following analyses are by Mr. Percy Gilchrist.

Fe O	.. .. .	1·63	..	1·63
Al <sub>2</sub> O <sub>3</sub>	.. .. .	2·47	..	2·47
Ca O	.. .. .	19·50	..	21·00
Mg O	.. .. .	14·45	..	16·49
Si O <sub>2</sub>	.. .. .	63·00	..	58·75
		<hr/>		
		101·05		100·34

J. H. C.

ENSTATITE ROCK FROM SOUTH AFRICA.—(*N. S. Maskelyne, Phil. Mag. Feb. 1879.*)

This occurs at Korn Kopje and near Holfontein in the Transvaal. Under the microscope it presents all the characters of a very crystalline enstatite without affording evidence of the admixture of other minerals.

Its analysis is as follows:—

Silica	.. .. .	53·
Alumina	.. .. .	2·6
Fe O	.. .. .	9·27
Mn O	.. .. .	2·
Mg O	.. .. .	25·5
Ca O	.. .. .	6·6
		<hr/>
		98·97

J. H. C.

ON A HORIZONTAL GONIOMETER.—(*V. Von Lang, Phil. Mag. Feb. 1879.*)

This cannot be understood without its accompanying illustration. It is intended primarily for the measurement of refractive indices at different angles of incidence.

J. H. C.