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ART. X.—*Mineralogical Notices;* by Prof. MENEGHINI of Pisa.*

* * * PROFESSOR C. BECHI, one of my friends, is about publishing some analyses of Tuscan minerals in our official report, and as they will be nearly lost to science in the large volume, I take the liberty of transcribing for you in brief, our observations. The analyses are by Prof. Bechi.

Galena.—Of the following galenas, No. 1, is a coarse granular variety from Bottino near Seravezra; 2, 3, fine granular, from the same locality; 4, fine granular from Argentiera in Val di Castello; 5, octahedral crystals (Jargionite of M. Bechi) from the same locality.

	S	Pb	Sb	Fe	Cu	Zn	Ag	
1.	12·840	80·700	3·307	1·377	0·440	0·024	0·325	= 99·013
2.	15·245	78·238	4·431	1·828	trace	——	0·485	= 100·227
3.	15·503	78·284	2·452	2·811	——	——	0·560	= 99·610
4.	16·780	72·440	4·308	1·855	4·251	——	0·650	= 100·284
5.	15·62	72·90	5·77	1·77	1·11	1·33	0·72	= 99·22

The last variety appears to resemble Bleischweif and is probably identical with *Steinmannite.* Its specific gravity is actually 6·932.

Fahlerz in fine crystals is found at Angina, Val di Castello. Analysis (agreeing closely with that by Kersten),

S	Sb	Cu	Zn	Hg	Fe	Ag	
24·1413	26·5240	37.7172	6·2311	3·0313	1·6360	0·4500	= 99·7309

Feather ore (*Heteromorphite*), *Boulangerite*, *Jamesonite* and *Meneghinite* from *Bottino.* Analyses:

	S	Sb	Pb	Cu	Zn	Fe	
1. Capillary Heteromorphite,	18·395	30·186	47·681	1·110	1·085	0·255	= 98·712
2. Acicular "	19·250	29·244	49·311	2·000	0·211	——	= 100·016
3. Massive Boulangerite,	17·994	26·085	53·154	1·242	1·407	0·350	= 100·232
4. Acicular "	17·822	26·740	55·390	1·250	0·085	0·230	= 101·517
5. Capillary Jamesonite,	20·5335	32·1576	43·3830	1·2453	1·7356	0·9450	= 100
6. Meneghinite,	17·522	19·284	59·214	3·540	——	0·344	= 99·904

A third variety of the *Boulangerite* is fibrous compact. These three forms are very distinct, and the last perfectly resembles Zinkenite; the analyses conduct closely to the Boulangerite formula, $3PbS+SbS^3$. The external characters of the *Jamesonite* are those of Heteromorphite, but the analysis gives the formula of Jamesonite $3PbS+2SbS^3$, as deduced by M. Bechi.

The *Meneghinite* is a new species, established by M. Bechi. It occurs in compact fibrous forms, very lustrous: H.=2·5. The analysis leads to the formula $4PbS+SbS^3$, a compound hitherto unnoticed.

* From a letter, to J. D. Dana, dated Pisa, March 10, 1852.

Copper glance (Chalkosine, *Beud*).—Analyses:—

	S	Cu	Fe	
1. Monte Catini,	20·50	76·54	1·75	= 98·79
2. "	17·631	63·864	2·426,	F̶e 15·750, = 99·671
3. Monte Vaso,	15·734	58·500	1·450	" 24·125, gangue 0·125=99·934
4. "	15·480	57·785	1·333	" 25·000
5. S. Biagio,	24·5249	40·8925	15·8282	—— gangue 17·9350=99·1806
6. "	15·9771	31·4370	8·8559	—— " 42·1195=98·3895

The last two analyses are only of metallurgical interest, as the copper glance was mixed with copper pyrites. The oxyd of iron in the three preceding, is evidently a mechanical mixture.

Chalcopyrite or Copper pyrites, and Erubescite.—Analyses:

	S	Cu	Fe,	Gangue.
1. Chalcopyrite, Castellina Marit.,	30·072	27·540	38·800	3·450 = 99·862
2. " Les Capanne Vecchie,	30·348	18·008	43·336	8·624 = 100·316
3. " Val Castrucci,	35·617	34·091	30·292	—— = 100·000
4. " Ferriccio,	41·306	15·960	38·484	4·250 = 100·000
5. " Mt. Catini,	36·155	32·788	29·750	0·863 = 99·556
6. " Riparbella,	30·092	27·540	38·832	3·250 = 99·714
7. " Campiglia,	34·030	31·300	34·670	—— = 100·000
8. Erubescite, Mt. Catini,	24·926	55·880	18·028	—— = 98·834
9. " "	23·363	59·472	13·868	0·750, F̶e 1·500 = 98·953
10. " "	23·415	59·672	13·868	2·687 = 99·642
11. " Miemo,	23·983	60·160	15·088	—— = 99·231
12. " Ferriccio,	24·700	60·007	15·889	—— = 100·596
13. " Castagno,	24·108	52·288	18·192	4·748 = 99·336
14. " Rocca a Sillano,	20·015	46·700	13·700	18·350 = 98·765
15. " L'Impruneta,	21·044	46·300	15·600	16·500 = 99·444
16. " Mnte Castelli,	22·031	58·276	12·134	7·560 = 100·001
17. " Les Capanne Vecchie,	18·088	45·130	11·125	25·750 = 100·093

The analyses of chalcopyrite appear to lead to the formula in which the proportions of the two sulphurets are variable, e. g. $4Cu^2S + 5Fe^2S^3$, $Cu^2S + 3Fe^2S^3$, etc. Those of Erubescite seem to establish for the species the single formula $(Fe, Cu)S$, instead of several formulas containing the two sulphurets in various proportions.

Zigueline.—Analyses:

	O	Cu	
1. From Les Capanne Vecchie,	11·22	88·78	
2. " Elba,	10·88	86·12	mixed with native cop. 3·00=100

The Elba zigueline is crystallized in cubes, and frequently with pseudomorphs of malachite.

White Antimony.—It occurs at Pereta with Stibine in small acicular crystals. Analysis:—

O	Sb	Fe	Gangue.
19·470	78·880	1·250	0·750=100

Marmatite.—Found at Bottino near Serravezra, well crystallized in tetrahedrons and also massive.

1. In tetrahedrons,	S 32·117	Zn 50·901	Fe 11·441	Cd 1·226	FeS^2 0·750=96·435
2. massive,	33·653	48·110	16·232	Cu and Cd *traces* =97·995	

The formula is $4(Zn, Cd)S + FeS$, or $(Zn, Cd, Fe)S$.

Oxyd of Zinc.—Occurs on the marmatite. Composition,

Zn O 31·725 F̶e 47·450 Ḣ 20·825=100

It is evidently a mechanical mixture, and the oxyd of iron may be derived from the Franklinite mixed with the oxyd of zinc.

Braunite.—A compact variety from the island of Elba afforded:

O 8·080, Ṁn 88·310, F̶e 4·750, Ḃa 1·025, S̈i 0·751, Ḣ 2·084=100, =Mn O+Mn O[3]

Chromic Iron from near Volterra. Analysis:—

C̶r 42·180 Ḟe 33·933 S̈i 4·750 A̶l 19·835=100·648

Silicated Chrome (Wolchonskoite?):

S̈i 28·357 C̶r 8·112 A̶l 41·333 Ḣ 22·750=100·552

An argillaceous earth containing oxyd of chrome occurring near Volterra afforded,

A̶l 63·158 F̶e 8·183 C̶r 5·770 S̈i 5·925 Ḣ 19·266=102·302

The point of especial interest connected with these three minerals is, that they have originated from the decomposition of the diallage of Euphotide. All the transitions from the diallage to the chromic ochre may be traced out. The chromic iron forms seams which thin out downward. The metamorphosis seems to have been due to ancient sulphur exhalations, ("Soffione,") traces of which are still seen in places even now emitting vapor and incrusted about with chalcedony.

I am also indebted to my friend, Prof. Bechi, for several analyses of silicates from the Gabbro rosso.

Caporcianite.—Monoclinic; the forms are referable perfectly to Heulandite and are very near that species in the angles; M : T= 131°, M : T on ā =150°. Cleavage extremely easy parallel to P and T, and easy also parallel to M: with a light shock the crystals fall to acicular fragments. Also in macles, and imperfectly radiated foliaceous. H.=3·5. G.=2·470. Color flesh-red; lustre pearly. Faces M minutely striated. Only the smallest fragments transparent. Composition:

S̈i	A̶l	Ċa	Ṁg	K̇	Ṅa	Ḣ
52·015	22·833	9·675	1·114	1·112	0·250	18·168=100·197

Formula, 2Ċa S̈i+A̶l[2] S̈i[3]+6Ḣ. The analysis agrees quite nearly with that by Anderson, and we might deduce from it the other formula, Ċa[3] S̈i[2]+2A̶l S̈i+6Ḣ, which, however, is much less accordant with analogies. Dissolves easily in acids and forms a jelly even in the cold. The solution gives a precipitate with oxalate of ammonia. Heated in a glass tube, yields water. B.B. fuses to a white enamel without intumescence. It occurs in geodes incrusted with crystals of calcite in the Gabbro rosso of Mt. de Caporciano at L'Impruneta and several other places; and sometimes it is accompanied by native copper.

Picranalcime.—Monometric; trapezohedral and cubo-trapezohedral. Cleavage cubic, very distinct. H. = 5. G. = 2·257.

Lustre vitreous; colorless to flesh-red and colophonite-red. Composition:

	$\bar{S}i$	$\bar{A}l$	$\dot{M}g$	$\dot{N}a$	$\dot{K}$	$\dot{H}$
1.	59·347	22·083	10·250	0·450	0·015	7·650=99·795
2.	58·875	22·083	10·000	0·450	0·015	7·688=99·111

Oxygen ratio 1 : 3 : 8 : 2, like analcime. Formula, $(\dot{M}g, \dot{N}a, \dot{K})^3 \bar{S}i^2 + 3\bar{A}l\,\bar{S}i^2 + 6\dot{H}$ = (supposing the protoxyds magnesia alone) $\bar{S}i$ 57·96, $\bar{A}l$ 24·14, $\dot{M}g$ 9·41, $\dot{H}$ 8·22 = 99·73. The formula $2\dot{R}^3\bar{S}i^2 + 5\bar{A}l\,\bar{S}i^2 + 10\dot{H}$ would correspond to $\bar{S}i$ 58·48, $\bar{A}l$ 23·05, $\dot{M}g$ 10·71, $\dot{H}$ 8·08=100·27; but the preceding is to be preferred. Dissolves in the acids, and the solution gives with potash a flocculent precipitate which moistened with nitrate of cobalt and heated, becomes of a blue color. In a closed tube gives water. B. B. fuses with difficulty. Covers the interior of geodes in the Gabbro rosso, or the surfaces of contact between the Gabbro and the Ophiolite, sometimes having a metallic nucleus and enveloped in the steatitic paste of the metalliferous dyke. Often accompanied with Calcite, Caporcianite and Picrothomsonite.

Picrothomsonite.—Trimetric. Mass radiated in one direction, and in a direction normal to this laminated according to two cleavage directions equally easy parallel to $\bar{M}$ and $\breve{M}$. H. = 5. G. = 2·278. Lustre pearly; white; transparent in small fragments; very fragile. Composition:

$\bar{S}i$	$\bar{A}l$	$\dot{C}a$	$\dot{M}g$	$\dot{N}a, \dot{K}$	$\dot{H}$
40·356	31·251	10·998	6·265	0·285	10·790=99·940

Formula $2(\dot{C}a, \dot{M}g)^3\bar{S}i + 5\bar{A}l\,\bar{S}i + 9\dot{H}$ = $\bar{S}i$ 40·08, $\bar{A}l$ 31·83, $\dot{C}a$ 10·55, $\dot{M}g$ 7·58, $\dot{H}$ 10·00=100·04. It differs a little from that of Thomsonite, in having the ratio of the protoxyd and peroxyd silicates 2 : 5 instead of 2 : 6, and in the proportion of water also being a little smaller. Dissolves even in cold acids and gelatinizes, and the solution is precipated by oxalate of ammonia. In a tube yields water. B. B. fuses to a white enamel with intumescence. Occurs with Picranalcime and Caporcianite in the Gabbro rosso.

Portite, (a new species dedicated to M. Porte, "qui a fait renaitre l'art minéraire en Toscane").—Trimetric; in radiated masses, with cleavage very distinct parallel to the faces of a rhombic prism of about 120°. H=5. G=2·4. White; opaque; lustre vitreous. Composition:—

$\bar{S}i$	$\bar{A}l$	$\dot{C}a$	$\dot{M}g$	$\dot{N}a$	$\dot{K}$	$\dot{H}$
58·125	27·500	1·759	4·873	0·157	0·100	7·917=100·481.

Formula $(\dot{M}g, \dot{C}a)^3\bar{S}i^2 + 4\bar{A}l\,\bar{S}i^3 + 7\dot{H}$ = $\bar{S}i$ 58·36, $\bar{A}l$ 25·95, $\dot{M}g$ 7·71, $\dot{H}$ 7·95. The resemblance of this formula to that of Harmotome will be noticed, and also to that of Phillipsite. We might almost consider it a magnesian harmotome; yet there is too large a difference in the proportion of water, which, I believe, justifies giving it a different name. Dissolves in acids even in the cold, and gelatinizes. The solution whitens slightly when gently heated with oxalate of ammonia and affords but a very small precipitate with potash. In a closed tube yields water. B. B. intumesces much and affords a milk-white enamel.

Sloanite.—Occurs with the preceeding. Trimetric; and in radiated masses with very distinct cleavage parallel to all the faces of a rhombic prism; M : M=75° and 105°. H=4·5. G=2·441. White; opaque; pearly; transverse fracture irregular, but frequently in a plane at right angles to the radiation of the prisms. Composition:—

$\dddot{\text{Si}}$	$\overline{\dddot{\text{Al}}}$	$\dot{\text{Ca}}$	$\dot{\text{Mg}}$	$\dot{\text{Na}}$	$\dot{\text{K}}$	$\dot{\bar{\text{H}}}$
42·187½	35·000	8·119	2·670	0·250	0·030	12·500=98·756½

Formula $(\dot{\text{Ca}}, \dot{\text{Mg}})^3\dddot{\text{Si}}^2+6\overline{\dddot{\text{Al}}}\,\dddot{\text{Si}}+12\dot{\bar{\text{H}}}=\dddot{\text{Si}}$ 42·47, $\overline{\dddot{\text{Al}}}$ 35·41, $\dot{\text{Ca}}$ 9·69, $\dot{\bar{\text{H}}}$ 12·41. The formula is analogous to that of the other zeolites (Mesole, Brevicite, Liebnerite, etc.;) and also to species out of this group, excepting the water, such as Rosite and Polyargite. I have named this species after Mr. Sloane, proprietor of the mine of Mt. Catini. Dissolves in the acids, even in the cold, and gelatinizes, and the solution is precipitated by oxalate of ammonia. In the closed tube yields some water. B. B. fuses without intumescence to a white enamel.

Schneiderite.—Occurs with the preceding, in the Gabbro rosso, along with Humboldtite (?). Mass confusedly laminato-radiate; white; opaque. H=3. Composition:—

$\dddot{\text{Si}}$	$\overline{\dddot{\text{Al}}}$	$\dot{\text{Ca}}$	$\dot{\text{Mg}}$	$\dot{\text{K}}$ & $\dot{\text{Na}}$	$\dot{\bar{\text{H}}}$
47·794	19·382	16·765	11·029	1·621	3·409=100.

Formula, $3(\dot{\text{Ca}}, \dot{\text{Mg}})^3\dddot{\text{Si}}^2+\overline{\dddot{\text{Al}}}^3\,\dddot{\text{Si}}^2+8\dot{\bar{\text{H}}}=\dddot{\text{Si}}$ 45·98, $\overline{\dddot{\text{Al}}}$ 19·16, $\dot{\text{Ca}}$ 31·49, $\dot{\bar{\text{H}}}$ 3·35. I have proposed this formula with much hesitation, finding no like compound among the known zeolites; the species is named after M. Schneider, director of the mine of Mt. Catini. Dissolves in acids, even in the cold, and gelatinizes, and the solution is precipitated by oxalate of ammonia. In a closed tube yields water. B. B. fuses with intumescence to a blue enamel.

Savite.—Dimetric. In acicular rectangular prisms, a centimeter long, very slender, terminating in pyramids or truncated; radiating; colorless; transparent. H=3·2. G=2·450. Composition:—

$\dddot{\text{Si}}$	$\overline{\dddot{\text{Al}}}$	$\dot{\text{Mg}}$	$\dot{\text{Na}}$	$\dot{\text{K}}$	$\dot{\bar{\text{H}}}$
49·167	19·663	13·500	10·520	1·230	6·575=100·675.

Formula, $(\dot{\text{Mg}}, \dot{\text{Na}})^3\,\dddot{\text{Si}}^2+\overline{\dddot{\text{Al}}}\,\dddot{\text{Si}}+2\dot{\bar{\text{H}}}=\dddot{\text{Si}}$ 49·555, $\overline{\dddot{\text{Al}}}$ 18·364, $\dot{\text{Mg}}$ 14·564, $\dot{\text{Na}}$ 11·079, $\dot{\bar{\text{H}}}$ 6·438. We might deduce $(\dot{\text{Mg}}, \dot{\text{Na}})^3\,\dddot{\text{Si}}+\overline{\dddot{\text{Al}}}\,\dddot{\text{Si}}^2+2\dot{\bar{\text{H}}}$, and there are some analogies for it as well as for the other. The oxygen ratio for the protoxyds, peroxyds, silica and water, 1 : 1 : 3 : $\frac{2}{3}$, is new; and I trust the species may prove to be well-grounded, and worthy to bear the name, justly famous, of M. Savi. Soluble in the acids; the solution gives with potash a flocculent precipitate, which affords a blue color when moistened with nitrate of cobalt and heated. In a closed tube yields water. B. B. fuses with great difficulty. Occurs with Picranalcime in the Gabbro rosso.

Humboldtite, (Datholite.)—Monoclinic, and apparently like the figures of Levy. Composition:—

$\dddot{\text{Si}}$	$\bar{\text{Al}}$	$\dot{\text{Ca}}$	$\dot{\text{Mg}}$	$\dddot{\text{B}}$	$\dot{\text{H}}$
37·500	0·852	35·341	2·121	22·033	1·562=99·413.

Formula, $2(\text{Ca}^3\,\dddot{\text{Si}}^4+3\dot{\text{Ca}}\,\dddot{\text{B}})+\dot{\text{Mg}}\,\dot{\text{H}}^2=\dddot{\text{Si}}$ 38·75, $\dot{\text{Ca}}$ 35·36, $\dddot{\text{B}}$ 21·93, $\dot{\text{H}}$ 1·87, $\dot{\text{Mg}}$ 2·09. The mineral of the Seisser Alp gives the same composition. Dissolves in the acids, forming a jelly, and oxalate of ammonia gives an abundant precipitate, which dried, dissolved in alcohol, and inflamed, affords a flame colored green on the borders. B. B. fuses very easily. Occurs with Schneiderite, in the same manner as at the Seisser Alp, associated with Apophyllite in geodes in the Gabbro Rosso.

Art. XI.—*Notice of A. Quekett's Practical Treatise on the use of the Microscope.**

The first edition of Mr. Quekett's work appeared at a time when there was a general dearth of books on practical microscopy. With the exception of the small works of Chevalier, Dr. Goring and Mr. Pritchard, all of which were written with a view to praise and sell the microscopes of their own construction, and in which the least possible amount of practical information was introduced, no book of any note or character had been for a long time published. In this lapse of time it was evident that microscopy had made considerable progress, and some work was needed, in which this progress would be faithfully detailed, as an assistance to those who were already workers in the field and as a guide to those who desired a practical acquaintance with the subject, and were unable to obtain the necessary information.

Mr. Quekett's work, evidently the result of much practical knowledge, was therefore warmly welcomed, and the rapid sale of the entire edition, has proved abundantly that the book was both needed and appreciated.

With all its value however, it had, as a general practical work, some important faults: many of omission and some of commission; these it was hoped and believed would be rectified in the second edition, which comes to us "with numerous additions,"

* A Practical Treatise on the use of the Microscope, including the different methods of preparing and examining animal, vegetable and mineral structures; by John Quekett, Assistant Conservator of the Museum, and demonstrator of minute anatomy at the Royal College of Surgeons of England. Second edition, with additions, illustrated with 12 plates, and 270 wood engravings. London: H. Ballière, 219 Regent St., and 290 Broadway, New York. 8vo, pp. 515. 1852.