

Correspondence.

*Letter from Capt. Marshall Hall to Prof. Heddle, with analyses of
Serpentine.*

Maison Allamand, Vernex-Montreux,

Canton Vaud, Switzerland, Oct. 2, 1879.

My dear Professor Heddle,

Seeing your interest in the formation of Serpentine, I venture to send you my figures as to three analyses made by me for David Forbes, who was "on" the question of Dolomite *versus* Serpentine. The minerals he told me were,—*i.e.* the first two—close neighbours, from Cornwall. Unfortunately he died before carrying out his investigations. Both rocks (pure minerals they were not), were translucent, light-green, but serpentine, rather than Dolomitic, gave no peroxide of iron, indistinctly crystalline (if at all), and shewed, to the best of my recollection, no specks. Of course I have not got them here.

Cornish—from David Forbes.

	Dolomitic.	Serpentine.
SiO ₂	3·43	39·48
FeO, Al ₂ O ₃ , &c.	1·15	1·65
(Iron, all protoxide)		
CaO	13·37	24·14
MgO	20·12	18·16
CO ₂	49·04	13·83
H ₂ O and loss on ignition	12·91	4·56
	100·02	101·82
Sp. Gr... .. .	2·83	2·80
Insol. in HCl.	4·53	72·314
Traces of Organic Matter		
Slight Manganese reaction.		

Impure Serpentine (also from David Forbes) from Lissoughton, Galway.

FeO, &c.	2·452
CaO	5·207
MgO	38·173
SiO ₂	37·332
CO	1·859
H ₂ O (ignition)	14·000
	99·083
Sp. Gr. (in lump)	2·50
Do. (in powder)	2·03
Insol. res. with HCl	38·010

Professor Renevier of Lausanne, is next year to bring out a book on the Vaudois Alps. M. Henri de Saussure sends me a lot of gabbros from the Saas Thal, and when I have done some work in connection with Professor Renevier's investigation, I propose to take these in hand. Next spring I want to visit the Saas Thal, which I can reach in one long day from this house, and where I have not been since 1849.

Not wishing to be a martyr to science I shall *not* go till summer of 1880. Meanwhile I hope to get the rocks to study and in part to analyse, and so be prepared to look out for the points of alteration. The gabbros (strictly euphotide) contain, I think, saussurite and diallage as principal minerals, whilst another seems like hypersthene, and to contain labradorite (or saussurite), and hypersthene. But I am only too weak in my mineralogy, and with no chance in this healthy but un-intellectual village of bettering my knowledge. I should like to live at Lausanne, but it is so much colder. Meanwhile I should like to send half of each stone to England, get sections cut, and somebody's opinion on the contained minerals. I think I see garnet, and there is lots of schistose serpentine connected with the gabbros. If you are interested enough you could compare these rocks with the Scottish forms, only I am in a "fix" that I did not get my stones from the locality myself, and can tell but little about them till I go to the Saas-Thal. Curiously enough the glaciers have brought down specimens to the lake side here!

I only wish I could induce *you* to come out and put your rocks side by side with the Valaisan stones. Without professing much I may lay claim to such a knowledge of the country as might do some service in the way of direction.

By the bye I have not your method of silicate analysis *here*—you gave me a copy of your work—I wish it were published separately, how it would conduce to uniformity if all were to work by the same exact method, sinking small differences of opinion.

I am much exercised as to the way to estimate boracic acid. I forget if you give a method?

Should you think anything in this letter of use for the *Mineralogical Magazine* pray send any extracts to it which seems unto you worth while.

Wishing you all in England and Scotland a merry Christmas two months hence.

Very truly yours,

MARSHALL HALL.

Professor M. Forster Heddle.