

When Humboldt visited the town of Popayan, and ascended the volcano Puracé, which was close to it, he found a considerable stream at the height of 8136 feet, which there forms three large cataracts. The water is so strongly impregnated with sulphuric, and hydrochloric acids, as to cause the spray from the cataract to have a disagreeable effect upon the eyes of persons at a considerable distance. The stream runs into the river Cauca, and kills or drives away the fish for several miles down. The sources of this stream lie at the height of 11,200 feet, and it is called by the inhabitants the Rio Vinaigre. The water was analysed by Boussingault and Rivero, and they found in the litre—

Sulphuric acid,	1.080
Hydrochloric acid,	0.184
Alumina,	0.240
Lime,	0.160

According to the accounts of Leschenault de la Tour, similar streams are to be found in Java.

Professor Daubeny in his report on Thermal and Mineral Springs, says—"Hydrochloric and sulphuric acids in a free state, are found only in Springs connected with volcanoes, to which they are clearly referable."

Before I proceed to describe the experiments as yet made, I must beg you to consider this notice as nothing more than a rough sketch. I hope to be able to visit the locality myself this summer, and to obtain ocular information respecting several points, concerning which I have received very conflicting statements.

The water, as I have received it, is clear and colourless, of a strongly acid taste and reaction. Specific gravity 1.0038, at 60° Fahrenheit.

The addition of a solution of chloride of barium, produces a white precipitate insoluble in acids, showing the presence of sulphuric acid.

Nitrate of silver does not produce the least change.

Ammonia precipitates a reddish brown flocculent substance, sesquioxide of iron, and perhaps alumina.

Oxalate of ammonia added to the filtered solution, gives a white precipitate, lime.

Phosphate of soda, and carbonate of ammonia, added to the solution filtered from the oxalate of lime, gives a slight crystalline precipitate, magnesia.

Sulphocyanide of potassium produces a red colour, showing that peroxide of iron is present.

Ferrocyanide of potassium produces a dark blue precipitate.

Ferridcyanide of potassium produces only a green colour, showing that little or no protoxide of iron is present.

The quantities of sulphuric acid found in three analyses, in one pint, (7680 grs.) were—

	I. Grains.	II. Grains.	III. Grains.	Mean. Grains.
Sulphuric Acid, ...	21.630	23.597	22.049	22.425
Sesquioxide of Iron	4.070	3.831	—	3.950
Magnesia,	—	—	—	1.581
Lime,	—	—	—	3.685

One other experiment gave the lime much higher, viz., 7.68, which is probably incorrect.

No experiments have yet been made to detect alkalies, nor to determine whether alumina be present or not.

The water, therefore, contains a considerable proportion of free sulphuric acid; for if we calculate the quantity required to neutralise the bases, we shall find that it does not amount to much more than half the quantity found. It is apparently owing to the presence of this acid, that the water has been found to be serviceable as a medicine.

The presence of sulphuric acid in Springs, arising near active or extinct volcanoes, such as those in Java and South America, may be easily accounted for, but in the present case it would appear as if the acid were produced by the slow oxidation of some sulphuret of iron. If such were the case, sulphate of the protoxide of iron would be first formed; this by exposure would be converted into the double sulphate of the protoxide and sesquioxide of iron, and sexbasic persulphate would be precipitated.

A red substance is said to abound near the Spring, and should this prove to be the above salt, the foregoing explanation would be rendered probable.

The analysis of this substance, as well as a more careful examination of the water itself, and the gases contained in it, will form the subject of a second communication.

[Mr. Dr. Rottermund has announced that this spring water contains *antimony*. We beg to call Professor Croft's attention to this; we made unavailing attempts to get possession of some of this water some years ago for analysis.—A. H.]

Toronto, April 1846.]

Report of the Pennsylvania Hospital for the Insane, for the year 1845. By THOMAS S. KIRKBRIDE, M.D., Physician to the Institution. Published by order of the Board of Managers. Philadelphia, 1846.

"The Pennsylvania Hospital for the Insane" is another of those magnificent institutions, for the reception of insane persons, which proclaim in loud language the philanthropy of the Americans in this respect. It is, in reality, a branch of the Pennsylvania City Hospital; into which, in the city of Philadelphia, insane persons were formerly admitted. This hospital was founded in the year 1752, but in 1841, a new building having been erected for their separate accommodation, about two miles west of the city, the insane were removed into it. It appears that, before the separation alluded to, 4336