

At page 4, Mr. De R. says, "For the same reason, I have called the acid springs of Brantford antimoni-ferruginous, on account of the presence of that substance (Query, what substance—antimoni-ferruginous?) only recently found in mineral waters; and because it is one of the most remarkable substances as a remedy for several diseases."

Your medical readers, who may be fond of *material medica* will no doubt be glad to add this new substance antimoni-ferruginous to their Pharmacopœas, but I doubt whether any one besides Mr. De R. will ever find it in the Tuscarora Spring.

In the succeeding sentences, Mr. De R. objects to its being called an acid spring, and desires that it may be known by the above name proper to its composition. As I have shown it to be strongly acid, from the presence of free oil of vitriol, I do not see any objection to the name, especially as the carbonic acid springs are generally called "carbonated waters."

At page 10, Mr. De R. enumerates the substances contained in the spring, viz., hydrosulphuric and carbonic gas (I quote his words), sulphate of protoxide of iron, sulphate of alumina and potash, chloride of antimony, chloride of zinc, sulphate of magnesia and of lime, resinous substances, and vegetable albumen; from which no one would conclude that there is any free sulphuric acid present at all.

Mr. De R. speaks of three or more springs. That which I formerly examined was from the middle spring. Its specific gravity was 1.0038; it contained peroxide of iron, arising probably from its having been long kept. *It contains no antimony*, as I have again proved by new experiments. Some time since, through the kindness of Mr. William Boulton, I was put in possession of three small bottles of the water from the north, south, and middle springs. They were well sealed; but the water contained no trace of hydrosulphuric acid, which, however, does not prove that this gas may not be present in the fresh water.

The water from the Middle Spring had a specific gravity of 1.0037 at 50° Fahr., and contained no antimony.

From the North Spring, spec. grav. 1.0030—no antimony.

South " " 1.0060 "

Mr. De Rottermund says the water contains zinc. Water from each of the three bottles was treated with ammonia in excess—the filtered solution treated with hydrosulphuret of ammonium—

Middle Spring—contains no zinc.

North " " " "

South " " " "

Mr. De R. says the water contains chlorine. Water from each of the bottles was treated with nitrate of silver—

Middle Spring—a scarcely perceptible opacity, hence little or no chlorine.

North Spring—no change, hence no chlorine.

South Spring " " " "

The water from all the three springs contains protoxide of iron, as is shown by the greenish precipitate caused by ammonia; but the south spring contains the smallest quantity of protoxide, the precipitate consisting almost entirely of peroxide.

Several ounces of water from the middle spring were boiled with nitric acid and precipitated with ammonia; the precipitate washed and digested with a solution of caustic potash, the filtered solution neutralized with hydrochloric acid and precipitated with ammonia—a slight trace of alumina was found. In my first analysis I found peroxide, and not protoxide of iron, which was most probably caused by the oxidation of the protoxide from long keeping. This water was clear and colourless, while the specimens given to me by Mr. Boulton were of a yellowish colour.

I have shown in my first paper that the spring contains lime and magnesia; these were removed (after the separation of iron and alumina) by the well known process of precipitation by acetate of baryta, &c. &c. The treated residue boiled with water, the solution filtered, evaporated to a syrup, mixed with alcohol, and inflamed, communicated a slight tinge of yellow to the flame, showing the presence of soda; the residue dissolved in a very small quantity of water, and treated with bichloride of platinum, gave a yellow precipitate indicating potash.

I have, therefore, shown, that of the substances (exclusive of gases) said by Mr. De R. to exist in this spring, viz., iron, alumina, potash, chlorine, antimony, zinc, magnesia, lime, resins, and albumen, three are certainly not present, viz., zinc, antimony, and chlorine. That resinous substances should be present seems to me to be utterly impossible, for any work on Chemistry will inform Mr. De R. that resins are *insoluble* in water. The presence of vegetable albumen seems equally problematical, for its sulphate is insoluble in acid solutions, and no precipitate is formed in the Tuscarora water, either by ferrocyanide of potassium, or by bichloride of mercury (corrosive sublimate).

Organic substances certainly are present, for if the iron and alumina be precipitated by ammonia, and the residual solutions evaporated to dryness and heated, considerable blackening takes place; but we know that crenic and apocrenic acids are frequently found in mineral springs (Berzelius, Hermann), and we know that these acids combine with protoxide of iron to form soluble salts, while they produce insoluble ones by their union with the peroxide; and knowing, moreover, that