



On nitro-benzide and sulpho-benzide

E. Mitscherlich

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as stable as the Rock itself, for the gradual changes in the members of so respectable a garrison are ever likely to renew its spirit. We are alluding to "The Gibraltar Scientific Society," of which Dr. Burrow, D.D., F.R.S., is the worthy president; and we hope soon to learn the names of the Council. One of that body, Captain W. H. Shirreff, R.N., and a Fellow of the Royal Astronomical Society of London, possesses a well-situated observatory, mounted with excellent instruments, in the use of which he has long been expert. This gentleman introduced two young officers of great merit to the December meeting, Lieut. Graves and Lieut. Stanley, of the Navy, on which occasion they were elected honorary members, as a mark of consideration for their hydrographical labours in the Archipelago. We look forward to the proceedings of this promising association with much interest.

The respected correspondent to whom we are indebted for the foregoing notice adds the following:

"From a letter from Sig. Cacciatore, of Palermo, I find that the University of Catania are about to build and equip an Observatory, partly at their own expense, and partly at that of the King of Naples. I have been applied to respecting instruments, &c."

LII. Intelligence and Miscellaneous Articles.

ON NITRO-BENZIDE AND SULPHO-BENZIDE. BY E. MITSCHERLICH.

Nitro-ben- **W**HEN hot and fuming nitric acid is gradually *zide.*— added to benzine, action ensues, accompanied with the evolution of heat; and a peculiar substance is formed, which remains dissolved in the hot nitric acid; but when cooled it partly separates, and floats on the surface. If the acid is then diluted with water, this product falls to the bottom of the vessel. By washing, and then distilling this substance, it may be obtained perfectly pure, as a yellowish liquid, possessing a very sweet taste and peculiar odour, somewhat between that of the volatile oil of almonds and oil of cinnamon. Its specific gravity is 1.209 at 59° Fahr., it boils at 415.4° Fahr., and distills unchanged. At 37.4° Fahr. it solidifies, affording acicular crystals.

This substance may be distilled unchanged with nitric acid. Diluted sulphuric acid does not act on it; but when the concentrated acid is boiled with it, it is decomposed, with the disengagement of sulphurous acid gas, and the solution becomes highly coloured. When heated with potassium, it detonates so violently as to break the vessel. It is almost insoluble in water; neither æther nor alcohol act on it. The strong acids, such as the nitric and sulphuric, readily dissolve it, better at a high than a low temperature. It is composed of

12	_____	_____	_____	_____
10	_____	_____	_____	hydrogen,
2	_____	_____	_____	azote,
4	_____	_____	_____	oxygen.

The specific gravity of the vapour is about 4.4.

1 volume of nitro-benzide is composed of
 3 volumes carbon,
 $2\frac{1}{2}$ ——— hydrogen,
 $\frac{1}{2}$ ——— azote,
 1 ——— oxygen.

The formation of nitro-benzide may be explained by supposing that a volume of nitric acid gas combines with a volume of benzene, whilst there separates $\frac{1}{2}$ vol. of hydrogen and $\frac{1}{2}$ vol. of oxygen.

Sulpho-benzide.—If benzene is mixed with anhydrous sulphuric acid it is not decomposed, nor is any sulphurous acid gas liberated; but a thick liquid, very soluble in water, is obtained, which, when diluted with water, affords a crystalline substance equal to about five or six parts for every 100 of benzene employed. This substance is very slightly soluble in water, and may be purified by washing with water. To completely purify it, it may be dissolved in æther, filtered, the solution crystallized, and the crystals distilled. At 212° Fahr. this substance melts, forming a transparent and colourless liquid, and boils at a temperature between the boiling-points of sulphur and mercury. It is inodorous, insoluble in the alkalies; but soluble in the acids, where it separates the water. Heated with sulphuric acid, it forms a particular acid, which forms a soluble combination with barytes. The other acids do not alter it.

It is composed of
 12 carbon,
 10 hydrogen,
 1 sulphur,
 2 oxygen.

It thus appears that nitro- and sulpho-benzide are formed by the union of nitric acid and sulphuric acid with benzene, and that during this combination water is separated. It is owing to this circumstance that the union of these substances is so stable as to resist the ordinary methods of separating the acids. M. Mitscherlich, from the analogy of these bodies with the *amides*, has proposed to call them nitro- and sulpho-benzide.—*Journal de Pharmacie*, Juin 1835.

FORMATION OF ÆTHER. BY M. MITSCHERLICH.

The decomposition of alcohol into æther and water is not interesting merely by the production of æther, but is especially so as an example of a particular kind of decomposition, which cannot be so well followed with any other substance, and which is manifested in the formation of some important products, for example, in that of alcohol itself. M. Mitscherlich has endeavoured to elucidate the phenomena of this decomposition by the following experiments: Take a mixture of 100 parts of sulphuric acid, 20 of water, and 50 of anhydrous alcohol, and heat it gradually until its boiling-point becomes 284° Fahrenheit. Alcohol is then allowed to fall gradually into the vessel which contains the mixture, and the current is to be so regulated that the heat of the mixture remains constantly at 284°. If, for example, the operation be conducted with a mixture of six ounces of sulphuric acid, one ounce and one fifth of water, and three