Concentration of nitric acid by means of sulphuric acid

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it affords the only example of a nitrate which does not yield nitric acid by the action of sulphuric acid, and at the same time give up its base to this acid, more fixed and energetic than nitric acid.

When the proportion of sulphuric acid is most diminished, operating, for example, with ten parts to one of nitrate of ammonia, about three-fourths of the salt are decomposed into nitric acid and ammonia, and one-fourth into nitrous oxide and water. By gradually diminishing the proportion of sulphuric acid, but little nitrous oxide is obtained, so that with one equivalent of nitrate of ammonia and two equivalents of sulphuric acid, the phenomena coincide with those of the decomposition of a salt by a more fixed acid.

When a mixture of nitrate of ammonia and a large excess of sulphuric acid is heated only between about 200° and 250° Fahr. instead of 322° Fahr., nitric acid distils, but without the production of any nitrous oxide. When nitrite of ammonia is heated with a great proportion of concentrated sulphuric acid, it is converted as by the mere action of heat into azote and water.

It appears from the preceding statements, that very different results are obtained by varying the proportions of nitrate of ammonia, sulphuric acid, the quantity of water and the temperature employed. —*Journal de Pharmacie*, t. xxvii. p. 271.

PREPARATION OF AZOTIC GAS. BY M. PELOUZE.

M. A. Rose has observed that monohydrated sulphuric acid combines directly with nitric oxide, and absorbs very considerable quantities of it. Sulphate of ammonia being heated in this compound to about 322° Fahr., pure azote gas, perfectly unmixed nitrous or nitric oxide, was obtained. This experiment was varied by passing nitric oxide gas into concentrated sulphuric acid mixed with sulphate of ammonia, and heated from about 300° Fahr. to 392°. The nitric oxide was decomposed as in the preceding experiment, and pure azotic gas was obtained; it is mixed with nitric oxide only when the disengagement is too rapid. M. Pelouze is of opinion that this method of preparing azotic gas may be advantageously employed.

CONCENTRATION OF NITRIC ACID BY MEANS OF SULPHURIC ACID. BY M. PELOUZE.

It is stated in different chemical treatises, that concentrated sulphuric acid decomposes nitric acid into water, with which it combines, and hyponitrous acid. M. Pelouze doubted the accuracy of this statement, and was convinced that it was erroneous, by observing nitric acid distil from a mixture of nitrate of ammonia with great excess of sulphuric acid at 212°.

500 parts of concentrated sulphuric acid were mixed with 100 of nitric acid of specific gravity 1.448; the mixture was slowly distilled, and yielded 88 parts of nitric acid of specific gravity 1.520; this product, freed from red vapour by a gentle heat, was mixed with six and a half times its weight of concentrated sulphuric acid, un-

accompanied with any sensible increase of temperature. The mixture was colourless, and yielded very dense white vapours of nitric acid. When heated to a temperature which never exceeded 302° , and was kept as near as possible to 212° , 82 parts of nitric acid of specific gravity 1.520 were distilled; its density remained 1.520, and its boiling point was from 185° to 188° Fahrenheit.

A third rectification with sulphuric acid effected no change either in the properties, density or colour of the nitric acid.—*Journal de Pharmacie*, t. xxvii. p. 275.

COMPOSITION OF SUGAR OF GELATIN.

M. Boussingault observes, that the existence of sugar of gelatin discovered by M. Braconnot had been questioned by several chemists. It was obtained by him by acting on glue with sulphuric acid; and on following his directions M. Boussingault obtained the sugar in question, and leucin. The composition and constitution of this sugar, according to M. Boussingault, are,—

	By experiment.	By calculation.	
Hydrogen	6.44	6.36	H ³⁶
Carbon	33.85	34.	C ³²
Oxygen	39.71	39.59	O ¹⁴
Azote	20.	20.05	N ⁸
	100.00	100.00	

Sugar of gelatin is readily combined with oxide of silver; the compound forms colourless crystals, which are but slightly soluble in cold water. They consist of

Hydrogen	1.21
Carbon	13.66
Oxygen	12.31
Azote	8.07
Silver	63.95—99.2

Sugar of gelatin combines also with the oxides of copper and of lead; these two compounds are very soluble in water; the cupreous compound is a crystalline mass of an azure blue colour; that of oxide of lead crystallizes in fine colourless needles; its solution is totally decomposable by carbonic acid. The composition of both these compounds is analogous to that of the silver compound.—*Journal de Pharmacie*, t. xxvii. p. 35.

LACTATE OF UREA IN URINE.

MM. Cap and Henry some time since expressed it as their opinion that urea existed in urine, combined with lactic acid, and probably also the phosphoric; the correctness of these opinions having been questioned by M. Lecanu, the authors have again investigated the subject, and they are of opinion that the following experiments demonstrate the accuracy of their statement.

When fresh human urine is evaporated to about five-sixths of its bulk, at a temperature not exceeding 248° Fahr., there is obtained,