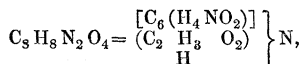


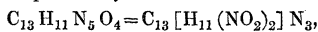
VII. "On Bromphenylamine and Chlorphenylamine." By E. T. MILLS. Communicated by Dr. HOFMANN. Received July 24, 1860.

Nitrophenylamine, when prepared from dinitrobenzol (*i. e.* by the indirect method), differs in so many respects from the isomeric base which is obtained from phenyl-compounds (*i. e.* by the direct method), that chemists have distinguished these two bodies as alpha- and beta-nitrophenylamine*—Bromphenylamine and chlorphenylamine have hitherto been produced only by the action of potash upon bromisatin and chorisatin, the indirect method, by which they were originally obtained by Dr. Hofmann; it appeared therefore of some interest to ascertain whether the bodies generated directly from

* The alpha-nitrophenylamine (nitraniline) was formed about sixteen years ago by Dr. Muspratt and myself (Chem. Soc. Mem. vol. iii. p. 112), by the action of reducing agents on dinitrobenzol. The beta-nitraniline was discovered by Arppe (Chem. Soc. vol. viii. p. 175), who obtained this compound when distilling pyro-tartronnitrophenylamide with potash. The two bases resemble each other in a remarkable manner; but there are differences in their physical and chemical characters which leave no doubt as to the fact of their having different constitutions. I may here remark that I have repeated Arppe's experiments, the results of which I can confirm in every particular. Since the phenyl-compound from which Arppe obtained his substance is accessible only with difficulty, I have endeavoured to nitronate a more easily procurable phenyl-compound. Acetylphenylamide may be used for this purpose with considerable advantage. A solution of the compound in cold fuming nitric acid yields, on the addition of water, a crystalline difficultly soluble precipitate, which is easily obtained pure by recrystallization. This substance contains



and yields, when heated with potassa, the beta-nitrophenylamine of Arppe with all its properties. I may here recall a former observation, which has now become perfectly intelligible. When studying the action of nitric acid upon melaniline, I found (Chem. Soc. Mem. t. i. 305) that the dinitromelaniline, which is thus formed, essentially differs from the dinitromelaniline obtained by submitting nitrophenylamine (alpha-) to the action of chloride of cyanogen. The two nitro-bases, which are both expressed by the formula



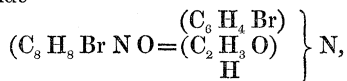
stand to each other in the same relation which obtains between alpha-nitrophenylamine and beta-nitrophenylamine. In fact, I have since found that the distillation of the nitro-base, obtained by treating alpha-nitrophenylamine with chloride of cyanogen, furnishes alpha-nitrophenylamine; whilst beta-nitrophenylamine may be detected amongst the products of the distillation of the dinitromelaniline which is formed directly from melaniline by means of nitric acid.—A. W. H.

compounds of phenylamine would exhibit differences in their properties similar to those which distinguish alpha- and beta-nitrophenylamine.

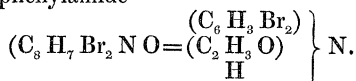
With the view of deciding this question experimentally, I have submitted acetylphenylamide to the action of bromine and chlorine, in the hope of thus forming directly from phenylamine the brominated and chlorinated compounds in question.

Action of Bromine on Acetylphenylamide.

A cold aqueous solution of acetylphenylamide, when agitated with bromine gradually added in small quantities until the yellow colour imparted to the liquid no longer disappears, furnishes a crystalline compound difficultly soluble in cold, but easily recrystallizable from boiling water. The substance consists chiefly of monobrominated acetylphenylamide



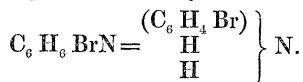
which is however invariably mixed with small quantities of dibrominated acetylphenylamide



I have not been able to find a method of separating these two bodies perfectly.

The brominated compound is readily attacked by potash. On distilling the mixture, the vapour of water carries over a volatile body which solidifies in the condenser into beautiful acicular crystals, acetate of potassium remaining in the retort.

The solidified distillate was purified by recrystallization from boiling water, and submitted to analysis. Both the combustion of the base itself and the platinum-determination of the beautiful golden-yellow platinum-salt proved this body to be bromphenylamine

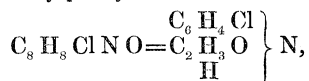


In its appearance, odour, and taste, as likewise in its deportment with acids and with solvents generally, the brominated base obtained from acetylbromophenylamide resembles perfectly the bromphenylamine produced from bromisatin, a specimen of which I ob-

tained from Dr. Hofmann's collection. There is only one point in which a slight difference was observed. Both compounds are capable of crystallizing either in needles or in well-defined octahedra, the former being generally obtained from water, and the latter from alcohol. The bromphenylamine, obtained from the acetyl-compound, appears to be more inclined to crystallize in needles than in octahedra. Circumstances have prevented me from entering into an examination of the products of decomposition of the two bromphenylamines; and the question whether these two bodies are really identical, or similarly related as the two nitro-compounds, must be decided by further experiments*.

Action of Chlorine on Acetylphenylamide.

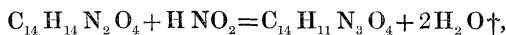
The phenomena observed in the action of chlorine on a cold saturated solution of the phenyl-compound are perfectly similar to those presented in the corresponding reaction with bromine. A crystalline compound immediately separates from the solution; as soon as the crystals cease to augment, the current of chlorine is interrupted. Washed with cold, and once recrystallized from boiling water, the chlorinated body is found to be nearly perfectly pure monochlorinated acetylphenylamide



which, when distilled with potash, furnishes abundance of chlorphenylamine, resembling in a marked manner the chlorphenylamine obtained by the action of potash upon chlorisatin.

VIII. "New Compounds produced by the substitution of Nitrogen for Hydrogen." By P. GRIESS. Communicated by Dr. HOFMANN. Received July 24, 1860.

In several previous notes I have called attention to a peculiar double acid which is formed by the action of nitrous acid upon amidobenzoic acid,



* These experiments have since been made by Mr. P. Griess, whose results are given in the next abstract.—A. W. H.

† H=1; O=16; C=12, &c.