

Abstracts from American and Foreign Journals.

Bulletin de la Societe Chimique de Paris.

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On the Explosion of a Platinum Retort used for the Concentration of Sulphuric Acid, F. KUHLMANN, JR. (33, 50).—The theory of the explosion, supported also by experiment, is that if a small quantity of acid remained in the bottom of the retort, and if water was added and heat gradually applied, there would be a time when the acid would suddenly combine with the water, and heat enough would be generated in this combination to produce the disastrous results described.

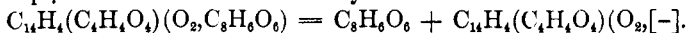
Action of Acetic Anhydride upon some Aldehyde-phenols, PH. BARBIER (33, 52).—The phenylic aldehydes are capable of giving rise to three kinds of acetic ether derivatives :

1. Those derived from the aldehyde function or part, and which have the formula, $C_{2n}H_{2m}(H_2O_2)O_2, C_8H_6O_6$, and act like a monatomic phenol.

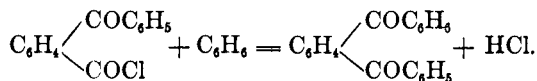
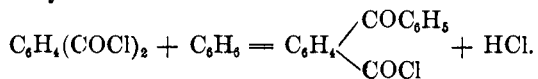
2. Those resulting from the etherification of the phenol part, having the formula, $C_{3n}H_{2m}(C_4H_4O_4)(O_2)$, and the properties of a monatomic aldehyde.

3. Those resulting from a combination of the two previous processes, which have the formula, $C_{2n}H_{2m}(C_4H_4O_4)(O_2, C_8H_6O_6)$, and the properties of an ether.

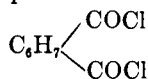
Those of the second variety, only, can give the coumarins, as previously announced. If salicylal and acetic anhydride be heated in a sealed tube, at 180° for six hours, and the resulting product be distilled, that portion of the distillate coming over at $250-260^\circ$ is acetosalicylal. In a similar way are made the aldehydes, acetylparaoxybenzoic, acetyloxytoluic (solid) and acetyloxytoluic (liquid). When acetic anhydride acts upon the aldehyde, the reaction is the following: $C_{14}H_4(H_2O_2)(O_2[-]) + 2C_8H_6O_6 = C_{14}H_4(C_4H_4O_4)(O_2, C_8H_6O_6) + C_4H_4O_4$. If the product from the above sealed tube be treated with a moderately dilute solution of caustic potash, the ether of the phenol part is attacked, giving: $C_{14}H_4(C_4H_4O_4)(O_2, C_8H_6O_6) + KHO_2 = C_4H_3KO_4 + C_{14}H_4(H_2O_2)(O_2, C_8H_6O_6)$ or diacetic salicylal. If, however, the product be distilled, the ether of the aldehyde is decomposed, and a product of the second variety results :



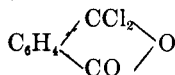
On Isophthalophenone, E. ADOR (33, 56).—From a study of the salts, the author concludes that the same reaction does not take place in the case of chloroisophthalic acid, as in the case of chlorophthalic acid, when acted upon with benzole. It is not the oxygen which is replaced by two phenyl groups, but the two atoms of chlorine are successively eliminated. The two reactions are



If, in place of giving to the phthalic chloride the symbol



as suggested by M. Baeyer, we substituted the expression



the facts observed by him would be readily explained.

On the Reversion of Phosphates in the Superphosphates used as Fertilizers, A. MILLOT (33, 98).—In a previous article, it has been noted that those phosphates which became insoluble in the process of manufacture, were phosphates of iron and alumina. Only in case the quantity of acid was not sufficient, did the reverted phosphate contain bicalcic phosphate. If chalk be acted upon by concentrated phosphoric acid, the outside of the grains is changed to bicalcic phosphate; then comes a layer of tricalcic phosphate, and the interior consists of carbonate of lime, unchanged. The reversion noticed in the part soluble in citrate of ammonia, seems to be due exclusively to the action of phosphoric acid and acid calcic phosphate upon sesquioxide of iron, with the formation in the latter case of bicalcic phosphate. In a moist sample, where oxide of iron is present, even in a strongly acid medium, basic phosphates of iron are formed, which are not soluble in citrate of ammonia.

On the Composition of Slate, E. J. MAUMENÉ (33, 101).—Slates are usually classified as silicates of alumina, iron and magnesia, free from carbonates. This composition would not explain the action of acids and of atmospheric agents upon them. One specimen analyzed contained over 50 per cent. calcic carbonate. Many others—some of them of excellent quality—contained small

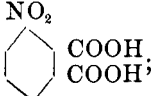
quantities. The presence of calcic carbonate must have a marked effect upon the quality of the slates. The specimen mentioned above had a fine appearance, and was susceptible of high polish, but was readily attacked by acids and atmospheric agents.

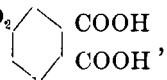
On the Determination of Urea by the Alkaline Hypochlorites and Hypobromites, A. FAUCONNIER (33, 102).—Noticed elsewhere.

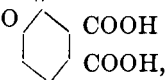
Influence of Sugar upon the Determination of Urea in Urine, M. JAY (33, 105).—Noticed elsewhere.

On Active Methylpropylcarbinol and Various Fungi which Destroy it, J. A. LE BEL (33, 106).

The α and β Positions in Naphthalene, F. REVERDIN and E. NOELTING (33, 107).—Since, by the oxidation of nitronaphthalene an α derivative has been obtained—namely, ordinary nitrophthalic acid:

I. ; and the other isomere corresponding to oxyphthalic

acid has been discovered, viz.: II. ,

oxyphthalic acid has the formula:  nitrophthalic

acid, fusing at 165° , must correspond to the formula II., and the one fusing at 212° to the formula I. The latter is obtained, as has been noted, by means of nitronaphthalene, an α derivative; hence, the α position is that in which the common carbon atoms are contiguous.

On the Volumetric Determination of Active Oxygen in Baric Binoxide and in Oxygenated Water, A. BERTRAND (33, 148).—Noticed elsewhere.

On the Artificial Production of Crystallized Arseniate of Iron, A. VERNEUIL and L. BOURGEOIS (33, 151).—To make artificial scorodite ($\text{Fe}_2\text{O}_3\text{As}_2\text{O}_5 + 4\text{H}_2\text{O}$), iron wire is treated, in a sealed tube, with a conc. (50 per cent.) solution of arsenic acid, at 150° , for several days. An abundant coating of gelatinous matter at first forms on the wire; this gradually, however, disappears, with the formation of scorodite. The mass is then treated with conc. solution of ammonia, which dissolves out the excess of arsenious acid. The substance obtained is identical with scorodite in specific gravity, specific heat, percentage composition, and crystalline form.

On the Reversion of Phosphates soluble in Citrate of Ammonia, A. COLSON (33, 153).—Bicalcic phosphate is not always soluble in citrate of ammonia. For instance, if an acid phosphate of lime be concentrated at a temperature of about 60°, phosphoric acid and bicalcic phosphate, containing an excess of water, are formed. This phosphate only partially dissolves in citrate of ammonia, even upon prolonged standing. Time may also be an important factor in diminishing the solubility of the bicalcic phosphate in citrate of ammonia. In some superphosphates there is a very rapid reversion, so that a loss of soluble phosphates amounting to 10 or 15 per cent. takes place in a few hours. Since a large quantity of sulphuric acid is used in the manufacture of many fertilizers, this reversion cannot be due to double decomposition, or to the action of unattacked oxides. It is possible that the free sulphuric acid, or that combined with iron and alumina, may act on the lime of the phosphate, and form sulphate of lime, which, taking away water from the phosphates, modifies their composition, and renders them largely insoluble in citrate of ammonia. Experiments seem to prove this to be the case.

Preparation of Pure Levulose, C. GIRARD (33, 154).—The sugar is first inverted by adding 20 c.c. HCl per kilogram of sugar, and heating to 60°. Slaked lime is then added, in excess, and the pasty mass is repeatedly pressed, to separate liquid glucosate of calcium from the solid levulosate. After suspending the latter in water, the lime is exactly precipitated by oxalic acid, and upon cooling (by means of ice and hydrochloric acid), most of the water crystallizes out of the filtrate, and the resulting levulose is completely dried in a vacuum.

Note upon the Reactions produced by Solution of Dimethylamine upon various Metallic Solutions, C. VINCENT (33, 156).

On the Properties of Bicalcic Phosphate, A. MILLOT (33, 194).—Bicalcic phosphate, containing five molecules of water, dissolves readily in ammoniacal citrate of ammonia. The phosphate with only one equivalent of water, dissolves much more slowly. Bicalcic phosphate loses its water of crystallization and is decomposed, in boiling water. If the phosphate is mixed with water, and gradually brought to the boiling point, the solution becomes acid, acid phosphate of lime is dissolved, and the residue consists of a mixture of bi- and tricalcic phosphates. If boiling solutions of phosphate of soda, chloride of calcium, and acetic acid are mixed together, bicalcic phosphate, with one equivalent of water, is obtained; this, however, is mixed with a little tricalcic phosphate. If this reaction takes place in the cold, a bicalcic phosphate is obtained, containing five equivalents of water.