a solid and a liquid portion. The former, when purified, fuses at 58° C., and consists of mono-nitrophenetol, identical with that obtained by Fritzsehe,* by the action of iodide of ethyl upon the silver salt of of para-nitrophenol. The author obtained the same compound by the action of potassium ethylic sulphate and potassic hydrate upon para-nitrophenol : also, by heating together iodide of ethyl, potassic hydrate and para-nitrophenol. Para-nitrophenetol, when reduced with hydrochloric acid and tin, yields para-monamido-phenetol, which forms an oily liquid, boiling at 253° C. This body somewhat resembles aniline, also combining with acetyl chloride to a crystalline solid.

Bulletin de la Société Chimique de Paris.

Abstractor, E. H. S. Bailey, Ph. B.

Vol. XXXII., No. 1, July 5, 1879.

On the Determination of Methyl Alcohol in Commercial Methylene, Ch. Bardy and L. Bordet.

Noticed elsewhere.

On Di-amylbenzine, Amory Austin.—Di-amlybenzine is made by the distillation of amylbenzine, anhydrous aluminic chloride and chloride of amyl. The reaction is expressed by the equation :

$$C_6H_5(C_5H_{11}) + C_5H_{11}Cl = C_6H_4 = (C_5H_{11})_2 + HCl.$$

It is a colorless, slightly aromatic, inflammable liquid, insoluble in water, but readily soluble in benzine, alcohol and ether. It boils at 265–270°, and has a tendency to oxidize at high temperature.

Action of Bromine upon Di-chlorhydrine, E. Grimaux and P. Adam.—This subject has been studied by Carius, Clauss and Wolf, and they have arrived at different conclusions. The author has investigated the matter, with a view of reconciling the different statements, and obtains results which agree with the last article of Carius. The product of this action, then, is dibrom-dichlor-acetone ($CBr_2Cl—CO—CH_2Cl$). This, exposed to moist air, readily takes up four molecules of water. The hydrate thus formed melts between 55–56°, and is permanent in the air.

On the Presence of Meta-nitrotoluene in Commercial Nitrotoluene, P. Monnet, F. Reverdin and E. Noelting.—Nitrotoluene was oxidized with potassic permanganate, the excess of nitrotoluene distilled off, and the liquid, after being filtered, evaporated to smaller

---

* Petersb. Acad. Bull., 17, 145.

bulk and precipitated by hydrochloric acid. The dried precipitate was treated with hot water, which left an insoluble residue of paranitrobenzoic acid. This acid melts at 236°. From the mother liquor ortho-nitrobenzoic acid was also obtained.

Idem, No. 2.

Claim of Priority of "A New Method for the Determination of Sulphur, by C. Fahlberg and M. W. Iles," B. DELACHANAL and A. MERMET.

Idem, No. 3.

A New Method for the Determination of Sulphur in various Natural Sulphides, A. COLSON.

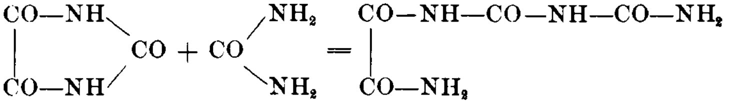
Noticed elsewhere.

On the Thermic Formation of Hydrogen Silicide, J. OGIER.—The gas was prepared by the decomposition of tribasic silici-formic ether by sodium. An apparatus similar to Berthelot's was employed. The gas was free from hydrogen, and was burned in oxygen. From the experiments, it is proved that by the union of Si and H_4, there is a disengagement of +24.8 calories of heat. This is nearly the number for the formation of marsh gas, viz. : +22 cal.

On the Thermic Formation of Silicic Ether. J. OGIER.—This was determined in two ways. By the analytical method the silicic ether was decomposed by a large excess of water, at the ordinary temperature, into silica and alcohol. This gave +21.6 calories as the heat disengaged. Taken with a contrary sign, it expresses the heat absorbed in the formation of pure silicic ether from alcohol and silicic acid. From this number, by subtracting the heat corresponding to the solution of four equivalents of alcohol in water, is obtained —11.44 calories, or the true heat of formation.

By the synthetical method, or the action of chloride of silicon on alcohol, the heat of formation was found to be —11.56, after requisite corrections had been made. The average calculated for a single equivalent of alcohol becomes —2.9 calories.

On a New Derivative of the Parabanic Series, E. GRIMAUX.—By heating together, at 125–130°, a mixture of urea and parabanic acid, a white soluble powder is obtained, which has the composition, $C_4H_6N_4O_4$. From its method of decomposition, it appears to be an amide of oxalyl-biuretic acid. Its method of formation is represented by the equation :



$$\begin{array}{l} CO-NH \\ | \\ CO-NH \end{array}\!\!>CO + CO<\begin{array}{l} NH_2 \\ \\ NH_2 \end{array} = \begin{array}{l} CO-NH-CO-NH-CO-NH_2 \\ | \\ CO-NH_2 \end{array}$$

Oxalylurea, or Parabanic acid. Urea. Biuretic Derivative.

On Neutral Sugar and Inverted Sugar, P. HORSIN DÉON.—An effort is made to reconcile discordant results as given by various authors. From a variety of experiments, the following conclusions are reached. Neutral sugar and inverted sugar have the same composition, equal weights of glucose and of levulose. The true rotary power of glucose is its highest power, and that which has been determined as equal to + 53.23 corresponds to the highest hydrate. When sugar is inverted in absolute alcohol, glucose possesses its highest rotary power, which is supposed to be equal to that of levulose with a contrary sign, and from that time the inverted sugar formed is naturally neutral. Hence, neutral sugar seems to be a sugar inverted under such conditions that the glucose possesses its maximum rotary power; and it is probable that there is a sort of combination between the glucose and the levulose, since the water used as a solvent cannot make a hydrate of the glucose and destroy its neutrality. From a study of the action of simple boiling upon sugar, it is inferred that neutral sugar is the first state through which reduced sugar passes during the inversion of cane sugar. Therefore, the presence of neutral sugar: not coming in contact with sufficient water to act by its mass, the reduced sugar remains neutral. In this way can probably be explained the neutrality of Mitscherlich's sugar, as well as of the reduced sugar contained in raw sugar and molasses.

Palm Sugar from Calcutta, P. HORSIN DÉON.—The sugar made in Calcutta, from the juice of the date-palm, has the following composition:

Cane sugar	87.97
Reduced sugar	1.71
Gum	4.88
Water and volatile matter	1.88
Ash	0.50
Mannite, fatty matter, undet. and loss	3.06
	100.00

The reduced sugar contains: glucose, 1.53 per cent., and levulose. 0.18 per cent. An examination of the purified gum shows its rotary power to be $[\alpha]D = 193.32$.

New Researches in Regard to the Bacillus Ferment of Urea, P. MIQUEL.—The *bacillus* may be easily obtained, free from *torula ammoniacale*, from sterile urine, by the addition of a few drops of sewage. At the end of forty-eight hours fermentation takes place. *Bacillus ureae* is classified among the *anaerobies*.

On Sulphhydric Fermentation, P. MIQUEL.—There is a microscopic organism which has the power of causing sulphur to unite with hydrogen, producing hydrogen sulphide. This organism is found in sewage, in potable waters, and even in rain water. It attacks the insoluble albumen, slowly destroying it, and liberating most of its sulphur as hydrogen sulphide. It has the faculty of living and multiplying in a solution entirely deprived of air. This bacillus has also the power of attacking free sulphur, for if cultivated in a medium entirely free from sulphur or any of its compounds, it disengages carbonic anhydride and hydrogen; but if a little sulphur be introduced, hydrogen sulphide appears.

Idem, Nos. 4 and 5.

On the Use of Hydrogen Sulphide in the Dry Way in the Performance of Analyses, AD. CARNOT.

Noticed elsewhere.

On the Double Chemical Function, both as an Alcohol and as an Aldehyde, of various Monobasic Organic Acids, M. LOIR.—The author proposes to go farther than Gerhardt,* and not only to represent the anhydrides as ethers, but also to assume that the monobasic organic acids can, under determined conditions, comport themselves as alcohols, and their anhydrides, on account of their alcoholic function, would be ethers composed of the different alcohols. The organic monobasic acids and their anhydrides have reactions similar to aldehydes. The principle characteristic of an aldehyde is its property of changing to an alcohol under the influence of a reducing agent. A similar change takes place when an organic acid is treated in the same way. In the case of butyric acid, it not only forms a crystalline compound, when added to sodic bisulphite, but it decolorizes a solution of potassic permanganate. The same is true of valeric acid. Anhydrous acetic acid has the three characteristics of an aldehyde mentioned above, and also forms with ammonia a crystalline compound insoluble in ether. The mixed anhydrides, acetobenzoic and benzoacetic, have also the properties of aldehydes. From these and other facts stated, it is adduced that the various monobasic organic acids comport themselves like alcohol-aldehydes.

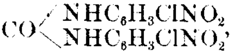
Action of Nitric Acid upon Diphenylguanidine Chloride, S. M. LOSANITCH.—Dichlor-diphenylguanidine, prepared according to Hofmann's process,† is dissolved in cold nitric acid. Red fumes are

---

* Annales de Physique et de Chimie, 3e series, 37, 333.

† Deustche chemische Gesellschaft, 2, 455.

given off, and brilliant yellow crystals of dichlor-dinitro-diphenylurea separate out. This body has the formula:



$$CO\begin{cases}NHC_6H_3ClNO_2\\NHC_6H_3ClNO_2\end{cases},$$

and is insoluble in water, slightly soluble in alcohol, and fuses at 208–210°.

Idem, Nos. 6 and 7.

Iodimetry, based upon the use of Permanent Standard Solutions, E. ALLARY.—Modified method of J. Pellieux and E. Allary. Noticed elsewhere.

On the Oxidation of Formic Acid and Oxalic Acid by means of Ammoniacal Oxide of Copper, P. CAZENEUVE.—If oxalic or formic acid is heated in a sealed tube, at 150°, with ammoniacal oxide of copper, it is quickly changed to carbonic acid. The reaction is represented thus for formic acid:

$$CH_2O_2 + 2(CuH_2O_2) + 2(NH_3) = CO_3H_2(NH_3)_2 + Cu_2O + 2H_2O.$$
$$CO_3H_2(NH_3)_2 + Cu_2O + O = CO_3Cu(NH_3)_2 + CuH_2O_2.$$

Journal fuer Praktische Chemie.

New Series, Vol. XIX.

Abstractor, EDGAR EVERHART, PH. D.

Pyromeconic Acid, HERMANN OST (19, 177).—The free acid has a constant boiling point of about 225°, and leaves only a slight carbonaceous residue after distillation. Its vapor density could not be estimated on account of its slow evaporation and partial decomposition. It has only feeble acid properties, turning litmus only slightly wine-red.

There are two classes of salts formed, both being well characterized, and crystalline; the neutral, $C_5H_3O_3M$, and $C_5H_3O_3M + C_5H_4O_3$. The latter are called dipyromeconates. Both classes of salts are unstable, have alkaline reaction, are decomposed by water at 100°, and deflagrate when heated strongly. When the base is added in excess, the pyromeconic acid is quickly decomposed with the formation of much formic acid.

HCl and H_2SO_4 form compounds with the acid, having the respective formulæ, $C_5H_4O_3HCl$, and $2C_5H_4O_3.H_2SO_4$. Both compounds are decomposed by water. Nitric acid, added to a solution of $C_5H_4O_3$ in acetic acid, forms a nitro-pyromeconic acid, $C_5H_3(NO_2)O_3$, which is decomposed by boiling water. The nitro compound crystallizes in yellow prisms, and easily forms salts with bases. Sn and HCl reduce