

Journal fuer Praktische Chemie.

Abstractor, EDGAR EVERHART, PH.D.

On the Desulphurization of Guanidine Thiocyanate, SIEGMUND BYK (20, 328).—The author has attempted to obtain a substituted cyanguanidine by treating guanidine thiocyanate with various metallic oxides. The results were always negative, whether he treated the thiocyanate in alcoholic or in aqueous solution, or whether he heated it in sealed tubes. No desulphurization took place. The oxides of mercury and lead, in an alcoholic solution, have but little action on the thiocyanate, except to produce a slight decomposition into ammonia and carbonic acid. Oxide of mercury produces a precipitate in the aqueous solution, which the author regards as a compound of mercuric thiocyanate with guanidine thiocyanate and mercuric oxide, although it could not be prepared in a pure condition. On boiling with acetic acid, in which it is soluble, it yields guanidine thiocyanate and $C_2H_3O, HgCNS$; on boiling with concentrated hydrochloric acid, the double salt, $CN_3H_5, HCl + 2HgCl_2$, is obtained.

When the guanidine thiocyanate, however, is treated with metals or metallic oxides, when molten, a quite different reaction takes place, and a partial desulphurizing is brought about. When, for instance, plumbic oxide or finely divided lead is added to melted guanidine thiocyanate, plumbic sulphide and a body, having the formula, $C_7H_{15}N_{13}O$, which the author calls cyanmelamidine, are obtained. Hydrochloric or sulphuric acid, as well as potassium permanganate, decomposes the substance into melamine, $C_3H_6N_6$, nitric acid into ammeline and hydrocyanic acid.

On Ethylenechlorosulphocyanide and β Chlorethylsulphonic Acid, WILLIAM JAMES (20, 351).—By warming, on the water-bath, a mixture of ethylene chlorobromide with potassium thiocyanate, the author obtains the ethylene chlorosulphocyanide, $C_2H_4, Cl(SCN)$, as a colorless liquid, boiling at $202-203^\circ$, and having a smell something like mustard oil. The oil is highly refractive, very miscible with alcohol and ether, and does not solidify at -20° . When the foregoing substance is treated with fuming nitric acid, it is oxidized to chlorethylsulphonic acid, $CH_2ClCH_2SO_3H$. The barium salt crystallizes with $2H_2O$, in needle-shaped crystals, grouped in stellate forms. Its silver salt, when heated with ammonia to $100-120^\circ$, yields taurine.

Chemical Analysis of the "Ferdinandsbrunn Quelle," at Marienbad, in Bohemia, W. F. GINTL (20, 356).

On the Compounds of Lithium Chloride and Magnesium Chlorides with Alcohols, S. E. SIMON (20, 371).—The author prepares the compounds by dissolving the chlorides in absolute alcohol. All are very deliquescent. Lithium unites with ethyl alcohol, forming colorless, shining, deliquescent crystals, having an astringent taste, like lithium chloride. The formula for the ethyl alcoholate is $\text{LiCl} + 4\text{C}_2\text{H}_5\text{O}$. The other salts prepared were $\text{LiCl} + 3\text{CH}_4\text{O}$, $\text{MgCl}_2 + 6\text{C}_2\text{H}_5\text{O}$ and $\text{MgCl}_2 + 6\text{CH}_4\text{O}$.

Electrolytic Experiments, E. DRECHSEL (20, 378).—The author gives a preliminary article on the decomposition of substances by the galvanic current, when the direction of the current is quickly changed by a self-acting commutator. The substance first used in his experiments was ordinary ammoniac carbonate. Two platinum electrodes were dipped in the solution, and the commutator allowed to work with great rapidity for ten hours. There was no perceptible elevation of temperature. On evaporating the solution, a crystalline salt, containing 64.7 per cent. of platinum was obtained. Hydrochloric acid gives a light green, nitric acid a cerulean blue precipitate from its aqueous solution. When the galvanic current was allowed to act on the solution of $(\text{NH}_4)_2\text{CO}_3$, without changing its direction, there was a great elevation of temperature, and, on evaporating the solution, no platinum salt was found. On slowly changing the direction of the current, the temperature rose, but, on keeping the solution cool, from the outside, a platinum salt was obtained, having 38.6 per cent. of platinum. The author also describes another experiment, in which he used a solution of grape sugar, containing some sodic phosphate. Two large platinum electrodes, separated by a piece of filter paper, were dipped in the solution, and, after electrolysis, the platinum was found covered with brownish leaves, which, on burning, left decided traces of platinum.

On some Derivatives of Propionic Acid, B. FREYTAG (20, 380).—When thiocarbamide is heated in sealed tubes to 100° , with monochloropropionic acid ether, a crystalline salt of the hydrochlorate of lactylthiocarbamide = $\text{CS} \begin{cases} \text{NH} - \text{C}_2\text{H}_4 \\ | \\ \text{NH} - \text{CO} \end{cases} \cdot \text{HCl}$, is produced.

With platinic chloride, it gives a double salt, which is decomposed by water into lactylthiocarbamide and hydrochloric acid.

On warming, on the water-bath, propionic acid anhydride with thiocarbamide, the solution, when cold, solidifies to a crystalline mass,

which has the composition of propionylthiocarbamide. When chlorpropionic acid ether is heated to 150–160°, with potassium thiocyanate, thiopropionic acid ether is produced, $\text{CH}_3\text{CH}(\text{SCN})\cdot\text{CO}_2\cdot\text{C}_2\text{H}_5$.

Reply to Mr. Peter Classon, on the Action of Sulphuryl chloride on the Alcohols, PAUL BEIREND (20, 382).

On the Decomposition of Albuminoids in Pumpkin Seeds, E. SCHULZE and J. BARBIERI (20, 385).—*Ber. der d. chem. Gesell.* (11, 210, 1233).

On the Behavior of Arsenical Bismuth with Nitric Acid, and the Preparation of Basic Bismuthic Nitrate free from Arsenic, R. SCHNEIDER (20, 418).—The author finds that, when bismuth containing arsenic, is broken into lumps, and gradually added to five times its weight of nitric acid, and heated to 75–90°, the bismuth is dissolved, forming bismuthic nitrate, absolutely free from arsenic, the latter element forming an insoluble arsenate of bismuth. The bismuthic nitrate may be freed from the arsenate by allowing the liquid to stand for several days, and then decanting and filtrating. The filtrate, on evaporation, yields crystals of bismuthic nitrate, which may be converted into the basic salt by ordinary means.

On the Possibility of the Existence of Fungoid Growth in an Atmosphere free from Oxygen, J. W. GUNNING (20, 434).—A reply to M. Nencki (*vide Journ. fuer pr. Chem.*, 19, 337, and this JOURNAL, 1, 494).

On the Chemical Composition of Bacteria, M. NENCKI and F. SCHAFFER (20, 443).—The authors found that, when a liquid containing bacteria was boiled for a few minutes with an acid, as hydrochloric, sulphuric or acetic, the bacteria were precipitated as a white, compact mass, that can be easily filtered and washed. As no fluid precipitated by boiling could be used for propagating the growth of the bacteria, gelatine was chosen as the proper medium. After washing with alcohol, the bacteria were exhausted with ether. The ethereal extract, which greatly resembles fat, gave 72.54 per cent. C., and 11.73 per cent. H. The bacteria themselves contain about 84 per cent. of water; dried, from 6 to 7.9 per cent. fat, 3.25 to 5.03 per cent. ash, and 84 to 86 per cent. of albuminates, which, in turn, are composed of 53.07 to 53.82 per cent. carbon, 7.09 to 7.82 per cent. hydrogen, and from 13.82 to 14.34 per cent. nitrogen. The bacteria, after exhaustion with ether, dissolve almost completely in weak alkaline solutions, without the disengagement of either ammonia or sulphuretted hydrogen. This solution, after filtration and

saturation with hydrochloric acid, on the addition of a concentrated solution of salt, deposited a white, flocky precipitate, which has the composition, 52.37 per cent. carbon, 7.88 per cent hydrogen and 13.60 per cent. nitrogen. The authors call the new albuminoid mycoprotein. It has the same composition as the albuminoid substance of beer yeast, prepared in the same way. As sulphur was proven to be absent, it agrees well with the formula, $C_{25}H_{42}N_6O_9$. When freshly precipitated, it is easily soluble in water, acids and the alkalis, but, after drying at 110° , it is no longer completely soluble in water. Its reaction is feebly acid. It is lævo-rotary; acids convert it into peptone; with an alkaline copper solution, it gives a violet color.

The residue, insoluble in dilute alkali, consists of cell membrane, containing a little nitrogen, which may, however, have come from some unacted-on albumen.

The Empirical Formula of Skatole, M. NENCKI (20, 466).—Pure skatole, the production of which follows that of indole in the process of putrefaction, was obtained by allowing pancreas and muscle to putrefy for the space of five months. After acidifying with acetic acid, the mass was subjected to distillation. The skatole which distills off with the water, was acidified with hydrochloric acid, and precipitated with picric acid. On distilling the picric acid compound with ammoniacal water, and crystallizing the distillate from hot water, the pure skatole was prepared. The formula was found to be C_9H_9N .

On Carbamido-palladious Chloride, E. DRECHSEL (20, 469).—When either aqueous or acid solutions of palladium chloride and urea are mixed together, a brownish-yellow crystalline compound is formed, having the composition $2CH_4N_2O.PdCl_2$. As this compound is but very slightly soluble in water, and almost insoluble in alcohol, the author tried to use it for the separation and quantitative estimation of urea, but without success, on account of the incomplete precipitation. Palladium, however, can be completely precipitated from its solutions. By heating with an excess of water, this compound is gradually decomposed into palladio-ammonium chloride, $PdCl_2.2NH_3$, and palladio-diammonium chloride, $PdCl.4NH_3$. When evaporated with an excess of $PdCl_2$, it is decomposed into $PdCl_2.4NH_3$, with the formation of biuret, which, the author thinks, is produced by some free cyanic acid being formed, and entering into combination with urea. The author further attempted to form hydantoic acid by the action of carbamido-palladious chloride on glycerine, but

without success. The products obtained by the reaction were biuret, urea hydrochloride, palladium bases, and palladium amidoacetate.

On the Source of Hippuric Acid in the Urine of Herbivoree, O. LOEW (20, 476).—The author, in a former paper, has described the discovery of an acid in meadow hay, closely resembling quinic acid. He has not, however, been able to prepare it in a pure condition, owing to its admixture with a peptone-like substance. The acid shows the more important reactions of quinic acid.

Reports on American and Foreign Patents Relating to Chemistry.

American Patents.

Condensed from the Official Gazette of the U. S. Patent Office, by ARNO BENK.

March 2, 1880.

225,108.—*Coloring matter obtained from alpha-naphthol.* HEINRICH CARO.

The coloring matter is dinitroalphanaphthol-sulphoacid, and is obtained by the action of nitric acid upon alpha-naphthol-sulphoacid.

225,119.—*Glue cement.* JOHN FIRMBACH.

1 lb. of glue, 2½ oz. bichromate of potassium, ¼ oz. permanganate of potassium.

225,133.—*Slating compound, for erasable tablets.* HENRY W. HOLLY.

The compound consists of water-glass, oxide of zinc and silicate of magnesium.

March 9, 1880.

225,261.—*Composition of matter for making moulded articles of manufacture.* ORATOR F. WOODWARD.

“Gypsum and rosin mixed together under heat.”

225,279.—*Preparation of bank-note paper.* HENRY HAYWARD.

225,282.—*Process of treating paper for detective purposes.* NAPOLEON T. HECKMANN.

The details of this and the preceding patent must be looked for in the specifications.

225,300.—*Manufacture of aluminous cake.* CARL V. PETRAEUS.

White aluminous cake is manufactured from aluminous sulphate containing iron, by treating the aluminous sulphate, in solution, with alkaline sulphides.