ABSTRACTS.

GENERAL AND INORGANIC CHEMISTRY.

Examination of the Humite Minerals. C. von Wingard.

The three types of Vesuvian humite as well as chondrodite from Nyakopparberg and humite from Ladugrufoan were carefully analyzed by the author, who infers from his results a similar chemical structure and ascribes to them the common formula. $Mg_{13}.(Mg\ F)_4.(Mg.\ OH)_2\ (Si\ O_4)_8$ (*Zeit. anal Chem.*, 24, *344.*) F. P. V.

Detection of Fatty Oils when Mixed with Mineral Oils. F. Lux.

A. The fatty oil is in large amount—10% or more. A small piece of caustic soda is added to 5 C.C. of the mixed oils in a test-tube; boil 1–2 minutes. A burning smell is noticed and the fluid gelatinizes on cooling.

B. If a negative result is obtained above, take two medium-sized beakers fitting into one another, with a space of 1–2 cm. between the bottoms. In the larger, melt paraffine till it fills half way between the sides of the two beakers. The inner beaker is filled with paraffine to the same height. This forms a convenient oil-bath, and a thermometer in it marks the temperature. Two test-tubes hold portions of the oil. In one, small pieces of sodium, in the other, a little stick of caustic soda is put. They are heated, without shaking, 15 minutes at 200–210°C and then cooled. Even 2% of a fatty oil gives a jelly on cooling. (*Zeits. anal Chem.*, 24, *357.*) F. P. V.

Composition and Analysis of Commercial Quinine Sulphate. W. Koppeschaar.

Pure quinine sulphate has, according to most chemists, the formula $(C_{20}H_{24}N_2O_2)_2.\ H_2SO_4+7H_2O$. It generally contains cinchonidin sulphate, and the presence of this has caused, in the author's opinion, a loss of 1% in the water determinations. He agrees with Hesse, Flückiger and Robiquet in assigning $8H_2O$ to the crystals. The assayer of quinine usually contents himself with a water determination. The quinine, which really decides the value, should be directly determined. This can be done by three methods: the herapathite method; the separation of ether; the optical method. These methods are discussed and the inaccuracy of the ether separation shown. Special stress is laid upon the advantages of the optical method. (*Zeit. anal Chem.*, **24**, *362.*)

F. P. V.

ORGANIC CHEMISTRY.

On o-Nitranilinsulphonic acid and a New Method of preparing o-Nitranilin. R. Nietzki and T. Benckiser.

The sodium salt of acetylsulphanic acid was dissolved in 5 pts. of strong H_2SO_4, cooled, and treated with the calculated amount of HNO_3, (previously mixed with a little H_2SO_4). The reaction-product was poured upon ice, the acid neutralized with lime, and the dark yellow solution of the easily soluble lime salt freed from $CaSO_4$ by filtration. During this process the acetyl group is partly eliminated. The solution of the lime salt was concentrated by evaporation, and the complete removal of the acetyl group accomplished by adding a little dilute H_2SO_4, and boiling for a few minutes. The nitroamidosulphonic acid formed yields a well-crystallizing K salt.

In order to determine the position of the NO_2 group, it was necessary to remove the SO_3 group. This was accomplished by heating the K salt in a sealed glass tube with strong HCl. From the reaction-product orthonitranilin was isolated. The NO_2 group is therefore in respect to the NH_2 group, in the ortho-position. Finally it was tried to sulphonate acetanilide directly, and by nitrizing this to obtain an amidonitrosulphonic acid. This the authors accomplished, producing a compound identical with the above. (*Ber. d. chem. Gesell.*, *1885*, *294.*)

J. H. S., Jr.

Reten. Bamberger and Hooker.

Taking the so-called dioxyretisten as a starting point, all of the important reactions of phenanthrenchinon were repeated with it, showing a perfect analogy between the two bodies. The presence of carbonyl having been shown, the more accurate name retenchinon is given to the body. The empirical formula is also corrected to $C_{16}H_{16}(C_2O_2)$. By oxidation of retenchinon with potassium permanganate in alkaline solution an acid, $C_{17}H_{14}O_4$ is gotten. This is oxidized by sulphuric acid and potassium bichromate to a second $C_{15}H_8O_5$: by melting this with potassium hydroxide a third is gotten, $C_{15}H_{10}O_6$, which is broken up into carbon dioxide and the hydrocarbon $C_{12}H_{10}$: by sodium amalgam a fourth, $C_{15}H_{10}O_4$ is formed, which, distilled with lime, yields a hydrocarbon $C_{13}H_{10}$. By examination of these products the authors are led to the conclusion that retenchinon is methylpropylphenanthrenchinon. Reten is then methylpropylphenanthren. (*Annalen der Chem.*, **229**, *102.*) F. P. V.

On Azonaphthalene. R. Nietzki and O. Goll.

As the constitution of this body had up to the present time not been satisfactorily explained, the attempt was made to convert amidoazonaphthalene into azonaphthalene by Griess' method. After a number of fruitless attempts the authors finally succeeded in doing this by decomposing α-diazonaphthalene with boiling alcohol· (*Ber. d. chem. Gesell., 1885, 297.*) J. H. S., Jr.

Contributions to a Knowledge of the Diazo-Compounds. T. Gasiorowski and A. Waijss.

From experiments of J. Effront, made in this laboratory, it was found that when the chlorides of diazo-compounds are treated with tin-salt, the hydrocarbons themselves are formed.

The object of this paper was to ascertain if the chlorides of diazo-compounds would react similarly with others than tin salts. (*Ber. d. chem. Gesell, 1885, 337.*) J. H. S., Jr.

Perchlorphenol from Perchlorbenzene. A. Weber and N. Wolff.

From experiments made in this laboratory, it was found that perchlordiphenyl on being heated with alcoholicpotash is converted into perchlordiphenol. Other aromatic perchlor-hydrocarbons show an analogous behavior. By this reaction perchlorbenzol is also easily converted into perchlorphenol. (*Ber. d. chem. Gesell, 1885, 335.*) J. H. S., Jr.

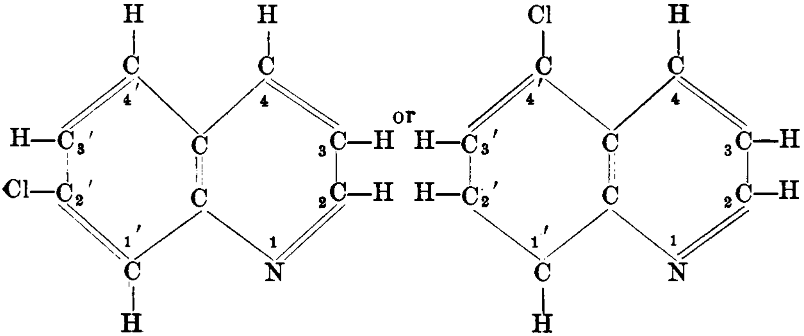
On Phenol-dyestuffs. H. Brunner and W. Robert.

In the preparation of nitrosoresorcin, and nitrosoorcin by the action of amyl nitrite on the mono- sodium salts of the respective phenoles, and precipitating with dilute $H_2 SO_4$, it was found that the washings deposited, after a while, dark crusts, which at first were taken to be azoresorcin, and the corresponding compound of orcin. An examination, however, showed that only a mere trace of these compounds were present, while new coloring-matters had been formed. (*Ber. d. chem. Gesell., 1885, 373.*)

J. H. S., Jr.

On Methylformyl-o-amidochlorbenzoic Acid and Methyl-pseudo-chlorisatin from m-Chlorchinolinmethylchloride. W. La Coste and J. Bodewig.

The m-chlorchinolin discovered by the authors some time since must be represented by one of the following two formulæ :



In the course of experiments made to determine the relative position of the chlorine atom in this compound, a derivative of isatin was obtained, whose formation from a chlorchinolin is not without interest. (*Ber. d. chem. Gesell., 1885, 428.*) J. H. S., Jr.

On β-Amidoalizarin. H. Brunner and E. Chuard.

In the hope of obtaining a compound analogous to alizarin blue, β-nitroalizarin, erythrite, mannite, glycose or sacharose, and concentrated $H_2 SO_4$, were heated together ; in each case, however, the same product, namely, β-amidoalizarin, was obtained. From this it will be seen that the polyatomic alcohols do not react in the same manner with β-nitroalizarin as glycerine ; on the contrary, a reduction of the nitro- group takes place. (*Ber. d. chem. Gesell., 1885, 445.*)

J. H. S., Jr.

Synthetical production of Thiophen. J. Volhard and H. Erdmann.

If succinic anhydride and phosphorus pentasulphide are heated to 140° C. a violent reaction takes place. The reaction-product is distilled, and the distillate shaken up with NaOH + aq, (in order to remove noxious-smelling products) and fractioned. The fraction boiling between 83–84° C. is identical with V. Meyer's thiophen obtained from coal-tar benzene. A larger yield of thiophen is obtained from sodium succinate and phosphorus trisulphide. (*Ber. d. chem. Gesell., 1885, 454.*) J. H. S., Jr.

On Nitrosophenols. H. Goldschmidt and H. Schmid.

A short time since it was shown that the production of nitrosophenols from chinons and hydroxylamine is an easy matter, and the authors now find that the reaction is a general one.

In this way phloron was converted into nitroparaxylenol. According to this new manner of production, nitroso-p-xylenol may be looked upon as a phloronoxim.

Phloronoxim on being oxidized with potassium ferricyanide, yields nitroparaxylenol, C_6H_2, OH^1, $NO_2{}^4$, $CH_3{}^2$, $CH_3{}^5$. On heating phloronoxim with tin and hydrochloric acid, amidoparaxylenolchloride is obtained, which on being treated with a dilute solution of chromic acid is converted, quantitatively, back into phloron. Alkalies precipitate the free amido-p-xylenol from the chloride. Experiments to determine the constitution of the two o-nitrosonaphtols were likewise made. (*Ber. d. chem. Gesell.*, 1885, *568.*)
J. H. S., Jr.

Upon the Action of *p*-Amidodimethylanline on Aldehyde. G. Nuth.

It was shown a short time since by A. Cahn, that benzaldehyde reacts with the greatest ease upon *p*-amidodimethylaniline, forming a compound $C_6H_5CH{=}N{-}C_6H_4N\ (CH_3)_2$ which he called benzylidenamidodimethylaniline. The present investigation was undertaken with the view of ascertaining whether other aldehydes would react in the same manner with *p*-amidodimethylaniline.

Salicylaldehyde gave *o*-oxybenzylidenamidodimethylaniline, $C_6H_4(OH)CH{=}N{-}C_6H_4N(CH_3)^2$. Fine crystals, melting at 134° C., and easily soluble in alcohol and ether. The compounds turn red on being exposed to the air.

From cuminol under the same conditions, cumylidenamidodimethylaniline [$C_6H_4(C_3H_7)CH{=}N{-}C_6H_4N(CH_3)_2$] was obtained. This compound is easily soluble in alcohol and ether.

Anisaldehyde gave *p*-methoxybenzylidenamidodimethylaniline, $C_6H_4(OCH_3)CH{=}N{-}C_6H_4N(CH_3)_2$.

Paraoxybenzaldehyde, cinnamic aldehyde, and piperonal were likewise tried, and in each case gave the corresponding benzyliden-compound. (*Ber. d. chem. Gesell.*, **1885**, *573.*) J. H. S., Jr.

On the Products of the dry distillation of Benzene sulphonate of Ammonium. Karl Egli.

When the ammonium salt of benzene sulphonic acid is submitted to dry distillation for the purpose of removing the HSO_3 group, besides the benzene, a small amount of a high-boiling oil is obtained, the nature of which forms the subject of this paper. After the benzene had been distilled off at 85°C., the remaining high-boiling oils were shaken up with NaOH and aq., then acidified, which caused a few drops of a bad-smelling oil to separate out. This, on xamination, was found to be phenylmercaptan C_6H_5SH. The oils remaining from the treatment with NaOH, were shaken up with HCl, which, when made alkaline, gave a small amount of chinoline. The oils not soluble in NaOH, and HCl, were fractioned, and from the raction, boiling at 240°-280°C., sulphobenzid ($C_6H_5{-}SO_2{-}C_6H_5$) was obtained. From the same fraction after removing the sulphobenzid, diphenyl, and phenylsulphid, were obtained. (*Ber. d. chem. Gesell.*, **1885**, *575.*) J. H. S. Jr.

Abstracts of American Patents Relating to Chemistry.

(*From the Official Gazette of the U. S. Patent Office.*)

October 6th, 1885.

327,514.—Waterproofing compound.—D. Blackburn.

Composed of glue, soap, flour, salt and water.

327,541.—Method of making illuminating gas.—W. P. Elliott.

A generating furnace is charged with fuel and the products of combustion are passed through the retort chamber and around the retorts. Steam is then decomposed in the furnace, and the resulting water gas also passed through the retort chamber and around the retorts. Hydrocarbon liquid is admitted directly into the retort chamber and vaporized around the retorts, the vapor being immediately taken up by the water gas. The gas and products of distillation mingle, and are delivered at the ends of the retort chamber and retorts most distant from the generating furnace.

327,567.—Peptone-Pepsin.—M. B. Manwaring.

A solution of pepsin is allowed to act upon an acidulated mixture of coagulated egg albumen with water, and the resulting product is reduced to scale by evaporation.

327,599.—Apparatus for dyeing and sizing.—S. Sanford.

327,618.—Gas furnace.—W. Swindell.

327,636.—Process of treating butter.—E. J. Woodruff.

White wine, rennet, sugar, salt, sodium bicarbonate, potassium bicarbonate, alum and butter are added to the milk.

327,646.—Filter.—C. W. Bingham, Jr.

327,678.—Manufacture of paint from metallic lead.—W. E. Harris.

Lead is burnt in contact with coke, coal or charcoal, and the resulting fumes are condensed

327,709.—Retort and crucible furnace.—J. R. Moffitt.

327,804.—Charcoal kiln.—W. A. Lovelace.

327,813.—Waterproofing fabric.—F. S. Mitchell.

The fabric is immersed in an alkaline solution of an aluminium soap, dried, and then passed through a solution of a metallic salt.

327,844.—Gas generating apparatus.—F. R. White.

Brief.—Gas from benches of coal distilling retorts, oil vapors, products of combustion from a furnace, and heated air are passed in a heated condition into one or two mixing chambers having fuel chambers below and loosely laid brick above, and provided above the brick with suspended iron chains for removing certain impurities from the gas. The retorts of each bench are connected at alternated ends by valved pipes, and valved pipes connect the lower retort of each bench with each mixer. The hydrocarbon oil vaporizer is placed in he lower and rear portion of the retort furnace, and is connected to each mixer. An air pipe opening above a water pipe in the base of the retort furnace connects with the base of each mixer.

327,871.—Compound for harness oil.—C. M. Ely.

Consists of paraffin oil, neat's-foot oil, gum, gum arabic, raw linseed oil and ivory black.

327,929.—Fire extinguishing compound.—G. W. Eddison.

Consists of vinegar, oil of vitriol, copper sulphate, zinc chloride, alum and phosphorus.

327,953.—Production of blue dye stuffs.—A. Kern.

Triphenyl rosaniline is prepared by the action of carbon oxychloride (phosgene) upon methyldiphenylamine, digesting the warm mass with zinc chloride and carbon oxychloride, separating the base and finally purifying by washing with acids.

Issued October 13th, 1885.

327,981.—Carburetor.—C. F. Andrus.

327,984.—Glass furnace.—J. Ashcroft.

327,985.—Paraffin oil freezing machine.—W. Asher.

328,016.—Apparatus for preserving by vacuum and pressure.—D. H. Dickinson.

328,024.—Method of treating cottonseed oil.—J. B. Grant.

The cottonseed oil is distilled in presence of nitrogen. The oil is treated by distilling, freezing, pressing, mechanically agitating with other fat and freezing the combined product. Oil is frozen by direct contact with compressed carbon dioxide.

328,042.—Combined cupola furnace and converter.—Mr. Lysett.

328,066.—Apparatus for making solutions of bisulphites.—E. B. Ritter and C. Kellner.

This is an apparatus for the continuous production of bisulphites.

328,073.—Composition for graining wood. A. Smith and P. A. Zelie.

Consists of beer, alcohol, benzoin, acid and turpentine.

328,097.—Furnace for the manufacture of zinc white. S. C. West.

328,134.—Gas scrubber. J. McKay.

328,149.—Apparatus for manufacturing gas. L. Stevens.

Brief: Illuminating gas is made by first distilling coal or carbonaceous material in connection with highly superheated steam passed through the coal retorts, and the resulting gases are passed through a vertical retort containing highly heated coke, and from thence through a more highly heated finishing retort, into which is also admitted the fixed gas obtained by the admixture of superheated steam with a volatile hydrocarbon within a highly heated retort, under great pressure, whereby the gas is enriched to the desired candle power. The hydrocarbon retort is placed within the mixing retort, and has a valve and opening at its rear end.

328,150.—Apparatus for manufacturing illuminating gas. L. Stevens.

Brief : Superheated steam, at a temperature of 1000° to 1500° F., is passed into the distilling coal in the lower chamber of the retort, and the resulting gases and vapors are fixed in the upper chamber of the retort. A horizontal partition of loose tile resting on side ledges forms the two chambers communicating at the rear end of the retort. The mouthpiece of the retort has a partition matching the tile partition, and the lid closes both chambers. Steam superheaters are placed in the furnace flues.

328,151.—Process of manufacturing illuminating gas. L. Stevens.

328,173.—Glass furnace. W. T. Armstrong and R. H. Thomas.

328,223.—Process of preserving. W. Ihuc.

Brewers' grains are preserved by first draining them, and then successively treating them with a solution of common salt, a solution of dextrine and a solution of potassium permanganate. The mass is then formed into cakes by pressure.

328,226.—Manufacture of mineral wool. H. Kennedy and J. W. Higgs.

A stream of molten slag is subjected to the action of an encircling jet or jets of steam or air.

328,227.—Apparatus for manufacturing mineral wool. H. Kennedy and J. W. Higgs.

328,239.—Alloy for coating metals. C. E. Manby.

Consists of tin, 23-36% ; antimony, 0.5–8.0% ; lead, 50–70% : bismuth, 0.25–5.0%.

328,250.—Fire extinguishing compound. W. H. Polleys.

The mixture, which is to be used for drying, preserving from decay, and rendering fireproof all kinds of wood material, consists of borax, potash, alum, mica cut in hydrochloric acid, glue, salt and water.

328,300.—Process and manufacture of cigarette wrappers, etc. J. de Susini.

328,309.—Process of purifying coal gas. J. G. Hawkins.

The oxide of iron is revivified in the purifying boxes by passing carbureted atmospheric air mingled with coal gas through the oxide of iron, the air being either at the normal temperature, or heated to a degree below that at which the heavy hydrocarbons of the tar are volatilized.

328,316.—Apparatus for distilling. F. T. King.

328,333.—Filter. E. Noppel.

328,334.—Apparatus for the treatment of sewage. S. K. Page, C. E. Robinson and W. Stevens.

328,359.—Automatic gas machine. J. Stubbers.

328,364.—Lactate baking powder. H. G. Underwood.

Consists of an acid lactate, and the carbonates or bicarbonates of the alkaline earths.

328,366.—Compositions for pencil leads and crayons. C. Walpuski.

328,389.—Regenerative 'furnace for steel making. F. W. Dick and J. Riley.

328,400. - Apparatus for the manufacture of illuminating gas. J. D. Guyer.

328,408.—Gas scrubber. C. W. Isbell.

328,419.—Baking powder. G. A. Marsh.

Consists of acid calcium lactate and an alkaline carbonate or bicarbonate; one or both being previously treated with an oleaginous body, to prevent a reaction during storage.

328,431.—Photographic sensitive paper. T. C. Roche.

The paper or other flexible support is covered with two separate sensitive faces of gelatine silver emulsion.

328,445.—Vermin poison. J. D. Womack.

Consists of carbon bisulphide, sulphur, potassium cyanide, phenol and phosphorus.

W. R.