

## ABSTRACTS.

## GENERAL AND INORGANIC CHEMISTRY.

**On an Oxide of Manganese Soluble in Water.** W. SPRING and G. DE BOECK.

The result of the reduction of potassium permanganate is said to be a body of the composition  $\text{KH}_3\text{Mn}_4\text{O}_8$ —,  $\text{KH}_3\text{Mn}_4\text{O}_{10}$ . M. Lunge has shown that this body has not a constant composition, the quantity of potassium disappearing in proportion as it is washed. The authors have treated permanganate with sodium hyposulphite, and have washed large quantities with water by decantation. At the moment that the washings remove no more potassium the water becomes more and more brown in color; the addition of a salt would precipitate this brown body. The analysis of the residue of the evaporation of the brown solution gave  $\text{Mn}_7\text{O}_{12}$ ,  $4\text{H}_2\text{O}$ —or  $4(\text{MnO}_2, \text{H}_2\text{O})\text{Mn}_3\text{O}_4$ . The authors have studied the influence of certain salts on the coagulation of this soluble oxide, which is less stable than the soluble copper sulphide; the solutions cannot be filtered on paper, as they are immediately coagulated by contact with it. (*Bul. Soc. Chim.*, 48, 172.) M. L.

**On the Displacement of Ammonia by Magnesia.** BERTHE-AND ANDRÉ.

The experiments of the authors show the difficulty and tardiness of the displacement of ammonia in double salts, and the incapacity of magnesia, and in some cases of lime, to displace ammonia, even at  $100^\circ\text{C}$ . and after several hours of distillation, especially in the ammonio-magnesium phosphate. For instance, having taken 0.5112 grms. of crystallized ammonio-magnesian phosphate in one litre of water, and boiled one hour with 5 grms. of calcined magnesia, no ammonia was evolved. In a second experiment with 0.4736 grms. of the same salt, some ammonia was obtained but only 1.01 instead of 7.6.

In operating with double salts, such as double chloride of magnesium and ammonium, the authors have remarked similarly

that an oxide or a basic compound of ammonium and magnesium is formed that will even resist to the decomposing influence of soda during an ebullition of an hour. (*Bul. Soc. Chim.*, **47**, 838.)

M. L.

**On the Water of Crystallization of Alums.** P. DE BOIS-SIEU.

Maumené's alum would not answer to the formula  $(\text{SO}_4)_3\text{Al}_2 + \text{SO}_4\text{K}_2 + 24\text{H}_2\text{O}$  but crystallizes with 29 molecules of water. (*Bul. Soc. Chim.* **46**, 261 and 807.)

The author has never obtained under any circumstances more than 24 molecules of water, but thinks that the existence of an alum with less water can be presumed; he thinks that an alum containing between 6.55 and 15.8 mols. of water does exist. (*Bul. Soc. Chim.* **47**, 696.)

M. L.

**On Zinc Ferrite — Artificial Production of Franklinite.** A. GORGEN.

The author evaporates a solution containing 1 eq. of sodium sulphate, 1 or 2 eq. of zinc sulphate and  $\frac{1}{4}$  to  $\frac{1}{2}$  eq. of ferric sulphate; the residue is submitted to red heat. The fused mass is treated with boiling water, then with dilute acetic acid. The crystal of zinc ferrite is an octahedron, modified by the rhombic dodecaedron. These crystals resist the action of the different acids to a great extent. It is not magnetic, unlike the natural franklinite, and does not, like the latter, yield chlorine with H Cl. This is due, as the author believes, to the presence in the natural mineral of Haussmanite. The author obtains crystals with the properties of natural franklinite by adding 10% of manganese sulphate to the above mixture. (*Bul. Soc. Chim.* **47**, 377.)

M. L.

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### ORGANIC CHEMISTRY.

**Preparation of Allyl Iodide. Formation of Allylic Alcohol.** A. BEHAL.

The author has modified the process of Berthelot and Luca (glycerine and phosphorous iodide) and finds it of great advantage.

He gives the following directions: Into a tubulated retort of 4 litres capacity put 2,000 grms. of glycerine, 60 of iodine and 200 of amorphous phosphorus; stir well; connect with a cooler. The tubulure of the retort is connected with a bromine apparatus. Dissolve 440 grms. of iodine in the allyl iodide of a preceding operation, or in the first portions of allyl iodide that pass in the distillation; 160 grms. will be enough to dissolve this amount of iodine; heat the retort and when the liquid foams moderate the heat, and let the solution of iodine drop slowly; the allyl iodide that passes is slightly yellow, but, being redistilled when all the iodine solution has been poured into the retort it will pass colorless. When the operation is ended the application of a gentle heat gives a distillate of an aqueous solution of allylic alcohol; the allylic iodide must be washed with water to remove some allylic alcohol. The yield of iodide for 200 grms. of P and 500 grms. of I is 610 and 637; whereas, by using 180 grains P only, it was 635; the theoretical yield is 661 for 500 of I. (*Bul. Soc. Chim.*, 47, 876.) M. L.

**On Glyceric Allehyde.** E. GRISNAUX.

Dessicated glycerine is mixed with commercial platinum black, of low activity. The oxidation is slow under these conditions; the reducing power, compared with glucose, reaches a maximum of 30 to 35% of the weight of glycerine. With a very active platinum black prepared by Mr. Zdrawkowistch (*Bul. Soc. Chim.*, 125, page 198) the action is so energetic that the glycerine must be diluted with half its weight of water. The solution has the properties of aldehydic bodies; it reduces ammonical silver nitrate and cupropotassic solutions, and gives yellow solutions with alkalies; mixed with sodium bisulphite it evolves heat, and alcohol precipitates a gunmy like body, etc., etc. Treated with yeast it yields alcohol and carbonic acid, but the presence of the excess of glycerine not transformed prevents complete fermentation. (*Bul. Soc. Chim.*, 47, 887.) M. L.

**On a Tannic Acid Contained in the Berry of Sorbus Tree.** C. VINCENT AND DELACHANAL.

The juice of the berries of sorbus tree (*Sorbus aucuparia*) contains, besides sorbine and glucose, an astringent principle. The

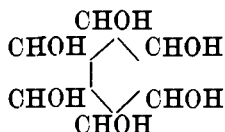


The formula of this acid answers to the condensation of 3 mols. of acetone with fixation of 2 COOH groups and loss of 1 mol. of O. (*Bul. Soc. Chim.* 47, 499.) M. L.

### Preparation, Properties and Constitution of Inosite. M. MAQUENNE.

The leaves of walnut are treated with boiling water. The liquid obtained is treated with milk of lime, filtered and treated with lead acetate; the filtrate contains all the inosite. This solution is treated with ammoniacal basic lead acetate, the precipitate treated with  $H_2S$ , and the solution obtained evaporated to a syrup; the boiling solution is treated by nitric acid of 7 or 8%; the inosite resists the acid and crystallizes after addition of a mixture of alcohol and ether. The crystallized mass is treated with dilute, boiling acetic acid, allowed to recrystallize and treated again with dilute nitric, alcohol and ether.

Inosite thus obtained and purified has, according to the author, the composition  $C_6H_{12}O_6 + 2H_2O$ . The author describes its physical and chemical properties and reactions, and says that it comes very near the aromatic series, it is hexybenzol hexahydride.



(*Bul. Soc. Chim.* 47, 290.)

M. L.

### Influence of Pressure and Temperature in the Action of Potassium Chloride on Crude Methylamine Carbonate. J. A. MULLER.

The result of the experiments of the author and M. Ortlieb show that to convert the potassium chloride entirely into bicarbonate, 2 mol. 14 of crude methylamine carbonate are required to 2 mol. of chloride, and by using a gas containing 25%  $CO_2$ , the carbonation can be made at the ordinary pressure at a temperature near  $0^\circ C$ , or at ordinary temperatures with a pressure of 3 atmospheres. (*Bul. Soc. Chim.* 47, 379.) M. L.

**On the Nitrogenous Principles of Vegetable Soil.** M. M. BERTHELOT AND ANDRÉ.

The authors claim to have found a great similarity between those principles and albuminoid matter. This is suggested to them by the action of hydrochloric acid on the soils studied, an action which results in the production of ammonia, the quantity increasing with the duration of contact with the acid, a fact already observed by them in the action of dilute HCl. on several albuminoid bodies. (*Bul. Soc. Chim.*, **47**, 849.) M. L.

**Decomposition of Amines.** BERTHELOT AND ANDRÉ.

The purpose of the authors was to study principally the degree of stability of some typical amides, that play an essential part in organic bodies. They show the remarkable decomposing action of HCl, even dilute, producing of course ammonium chloride. They have also studied the action of HCl, MgO, and H<sub>2</sub>O, on urea, asparagine, oxamide, aspartic acid and uric acid, insisting especially on this fact, that, for some amides, the acid acts with more energy than the equivalent quantity of potash or soda would, under the same conditions of temperature and concentration. (*Bul. Soc. Chim.*, **47**, 865.) M. L.

**Abstracts of American Patents Relating to Chemistry.**

[*From the Official Bulletin of the U. S. Patent Office.*]

*April 12th, 1887.*

- 360,840.**—Batch for making glass. J. T. Adams.  
The batch is partly composed of a volatile hydrocarbon.
- 360,852.**—Apparatus for separating metals from ores or alloys. H. R. Cassel.
- 360,853.**—Apparatus for separating metals from ores or alloys. H. R. Cassel.
- 360,893.**—Process of and apparatus for disinfecting. D. T. Lawson.
- 360,904.**—Process of treating certain descriptions of auriferous and argentiferous material, etc. E. B. Parnell.
- 360,944.**—Process of and apparatus for generating illuminating gas. J. D. Averell.  
Wood is distilled in a retort, with a suitable supply of oil and steam.
- 360,945.**—Process of and apparatus for generating wood gas. J. D. Averell.
- 360,947.**—Method of preserving timber. S. B. Boulton.  
Wood is impregnated with a solution of metallic salts, and the moisture is expelled; the impregnated wood is then subjected to the action of a heated bituminous body, in a closed vessel in which a partial vacuum is maintained.
- 360,967.**—Process of making red oxide of iron from pyrites. A. D. Ledoux.
- 360,977.**—Gas apparatus. A. Taylor.
- 360,996.**—Apparatus for extracting fat from bones. W. Büttner.
- 361,026.**—Process of obtaining muriatic acid. G. Rumpf.  
Metallic oxides are chlorinated by passing vapor of ammonium chloride over the heated oxides. The resulting metallic chlorides are then subjected to a mixed current of air and steam.
- 361,045.**—Preserving milk. A. Brin.  
Milk is impregnated with oxygen under pressure.
- 361,190.**—Process of and apparatus for manufacturing gas. T. G. Springer.
- 361,249.**—Process and apparatus for tanning by electricity. E. Worms and J. Balé.

*April 19th, 1887.*

**361,355.**—Manufacture of soda by the ammonia process. H. Frasch.

**361,396.**—Apparatus for the manufacture of sugar in blocks. T. C. A. Carré.

**361,404.**—Combination of tetrazodiphenyl chloride with resorcin. P. Friedlander.

A red azo dyestuff, obtained by subjecting an alkaline solution of resorcin to the action of tetrazodiphenyl chloride or tetrazoditoyl chloride.

**361,429.**—Revolving furnace for chemical processes. J. Mactear.

**361,622.**—Process of and apparatus for the manufacture of soda by ammonia. H. Frasch.

**361,638.**—Disinfectant. B. Laclaverie.

**361,641.**—Apparatus for manufacturing heating and illuminating gas. W. A. Myers and S. H. Altice.

**361,658.**—Process of producing soluble alkaline phosphates. T. Twynam.

Soluble alkaline phosphates are produced from the phosphorus contained in pig iron, by first forming a monophosphate in the converter, and subsequently rendering the phosphoric acid contained in this soluble by combining with sodium carbonate.

*April 26th, 1887.*

**361,690.**—Production of a new ethyl ether. R. Gnehm.

A product having the formula  $C_{14}H_{24}N_2O_4$ .

**361,761.**—Process of obtaining sulphur from furnace gases. E. Haenisch and M. Schroeder.

The furnace gases are passed through water, and the sulphurous acid gas absorbed is then separated by heat in a gaseous form, and the gas passed over a glowing bed of fuel.

**361,788.**—Manufacture of starch. S. Spitzer.

**361,795.**—Method of eliminating carbon from steel. E. D. Wassell.

The metal is subjected to the action of molten slag while immersed therein.

**361,820.**—Gas making apparatus. F. H. Hambleton.

**361,923.**—Ozone apparatus. A. Brin.

Air or oxygen is passed between layers of divided or granular conducting material, connected with the poles of an electric generator, so that numerous sparks are caused to pass through the oxygen or air.

**361,996.**—Water-gas furnace. C. W. Develle and R. B. Stapp.

**361,999.**—Process of treating raw hides. E. F. Grether and C. Mosher.

This is a process for rendering the hide hard, elastic and waterproof. It



consists in washing the hide, treating it with lime at a temperature not above 90° F., to remove the hair, stretching and nearly drying it, immersing it in dilute phenol or bromochloralum, passing it between rollers under pressure, again nearly drying it, immersing it in a bath of sodium silicate, and finally drying at a temperature not above 112° F. and varnishing it.

**362,018.**—Regenerative furnace. L. G. Laureau.

**362,022.**—Apparatus for separating metals from ores or alloys by electrolysis. H. Liepmann.

*May 3d, 1887.*

**362,123.**—Method of coloring glazed earthenware. M. C. Stone.

A fluid coloring matter is applied through an opening in the glaze to the body portion beneath the glaze.

**362,233.**—Process of and apparatus for manufacturing gas. T. G. Springer.

**362,234.**—Gas machine. B. T. Stauber.

**362,235.**—Process of deodorizing tank water. J. Van Ruymbeke.

**362,236.**—Obtaining cyanide and ferrocyanide from tank water. J. Van Ruymbeke.

**362,257.**—Process of depositing iridium, and product of the same. W. L. Dudley.

The solution is kept saturated with the metal by an anode consisting of a plate or ingot of iridium phosphide.

**362,441.**—Production of aluminium and aluminium bronze. R. Graetzel.

A double fluoride of aluminium and an alkali is melted with chloride of magnesium, calcium, barium or strontium, and an electric current is allowed to act on the molten mass.

**362,467.**—Apparatus for generating an illuminating and heating gas. W. T. Stewart. W. R.