soluble in ammonia to give a brown solution in which a faint cloud cannot be seen.

As chloride of silver is agglomerated into heavy clots by agitation, like cupric and plumbic sulphides, the white-cloud obtained, by pouring a titrated solution of sodic chloride into a solution of nitrate of silver, may be observed against a black background. This may be had by carrying on the precipitation in a flat dish of black glass, or in one of clear white glass, the under side of which has been covered with lamp black. The solution never clears up so completely by agitation as the alkaline solutions of copper and lead, but the slight milkiness of the liquid does interfere with the observation of the white cloud due to the formation of even very small quantities of chloride of silver.

The best temperature for the agglomeration of chloride of silver is about 65° C.

FOREIGN PATENTS.

Condensed from R. Biedermann's Report to the German Chemical Society, by Otto H. Krause.

A. R. Pechiney, Salindres : *Manufacture of sodium bicarbonate* (Eng. P. 2098, May 24, 1880). This invention relates to the manufacture of soda by the ammonia process. The apparatus employed consists of a horizontal cylinder, which can be turned upon its long axis, and which is divided, first, by a perforated diaphragm parallel to the latter, and then into several compartments by discs placed at right angles to this. The discs have openings in the centre. The axles upon which the cylinder turns are hollow, to allow the gases and liquids to enter and pass out. Ammoniacal solution of sodium chloride enters, and unabsorbed gases pass out through the axle at one end, whilst the axle at the other end, which has two concentric openings, serves for the exit of the liquid containing the suspended sodium bicarbonate and for the entry of the pure carbonic acid resulting from the calcination of the latter. Impure carbonic acid, from kilns or furnaces, enters the outer concentric opening, and is led by means of pipes through the first three compartments of the cylinder and delivered into the fourth. The cylinder makes half revolutions at regular intervals. Ammoniacal solution of sodium chloride fills the apparatus, flowing through the holes in the discs, and passes into it continuously, whilst carbonic acid enters at the other end. On its way through, the liquid meets a current of gas, which latter gradually becomes richer in carbonic acid, the last three compartments receiving the pure gas.

R. I. T., N. T. and H. L. Hawksly, Oldham: *Forming salt into balls*, (Eng. P. 3789, Sept. 18, 1880). Salt intended for the manufacture of soda is formed into balls by means of a press, which also delivers them automatically upon the bottom of the furnace without breaking them.

W. Thompson, London: *Manufacture of white lead*, (Eng. P. 4056, Oct. 6, 1880.) Lead is placed in a chamber, the temperature of which is kept at 27— 50° C. Vessels containing dilute acetic acid are placed on the floor. Carbonic acid and air enter through pipes placed above to complete the reaction.

Wilhelm Kayser, Ilmena: *Material for preventing boiler incrustation*, (Germ. P. 14189, Sept. 26, 1880.) Corkwood is pulverized and impregnated with barium chloride, sodium carbonate, or other substance suited to the water to which it is to be applied. The material so prepared pervades the water evenly, and gradually deposits after receiving the precipitate upon itself.

H. Kolbe, Hamburg: *Mercurial thermometer with electric alarm and variable contact*, (Germ. P. 13166, June 4, 1880.)

T. B. Lightfoot, Dartford: *Cooling apparatus*, (Eng. P. 4065, Oct. 6, 1880.) An air ice machine in which the compressed and cooled air is expanded in two separate stages. In the first stage it is only expanded to such a degree as to deposit the greater part of its moisture. In the second stage it is then further expanded.

A. R. Pechiney, Salindres: *Calcination of sodium bicarbonate in the ammonia soda process*, (Eng. P. 2099, May 24, 1880.) The invention consists essentially in heating the bicarbonate by means of heated carbonic acid resulting from a previous operation. This is done in four chambers of masonry enclosed in an iron casing which is pivoted upon the piston of a hydraulic press so that the whole can be lifted several inches. The heated carbonic acid gas is passed into the first compartment through the bottom, and heats the sodium bicarbonate placed on a grate. Through flues in the masonry the gas then passes in the same way through the second and third compartments, whilst the fourth is being discharged and refilled. When the contents of the first chamber has been sufficiently heated the apparatus is lifted and a quarter revolution given to it. The second chamber is then put into direct communication with the heated carbonic acid, etc. The carbonic acid evolved from the apparatus is passed through condensers to eliminate the water and then into holders to be used over again.

A. R. Pechiney, Salindres: *Separation of liquids from precipitates*, (Eng. P. 2100, May 24, 1880). Consists of a filtering cylinder for separating the liquid from precipitated sodium bicarbonate by means of hydraulic pressure.

W., T., and J. CHADWICK, Manchester, and I. W. KYNASTON, St. Helens: *Separation of iron from aluminium sulphate, &c* (Germ. P. 14185, Aug. 31, 1880; addition to G. P. 11137; see this Journal, vol. II, p. 440, and vol. III, p. 72). To separate the iron completely the inventors add calcium ferrocyanide. To facilitate the settling of the Prussian blue formed, small quantities of a metallic salt are added. Preference is given to cupric sulphate, as any traces of it which may have remained in the solution can subsequently be removed together with the arsenic with hydrogen sulphide.

F. G. SPONNAGEL, Berlin: *Improvements in the manufacture of silicate of soda*, (Germ. P. 14182, Aug. 10, 1880). Precipitation from a concentrated solution by means of ether in a hermetically closed vessel.

W. CONRAD, Wurzburg: *Method of preparing blue coloring matters from the sulphonic acids which are formed by the action of ammonium sulphite upon nitroso derivatives of tertiary aromatic monamines*, (Germ. P. 14014, Jan. 20, 1880). By allowing ammonium sulphite to react upon nitrosodimethylaniline, the sulphonic acid of the reduced base is generated. By treating the latter with hydrogen sulphide and ferric chloride (Lauth, Ber. dent. chem. Gesellsch. 1866, p. 1035) a blue coloring matter is produced.

C. TIMMERMAN, Braunschweig, and R. GRAETZEL, Hanover: *Method and apparatus for the preparation of eupittonic acid from wood tar*, (Germ. P. 13787, Nov. 12, 1880; addition to Germ. P. 9328, see this Journal, vol. II. p. 301). Differs from the original patent chiefly in the manner of oxidizing the precipitated redissolved and dried dimethyl ethers of pyrogallic and methylpyrogallic acids. The air being passed over the powder heated to 160—220° C., instead of passing it through its solution in alkali.

A. DOMEYER and J. MARZELL, London: *Preparation of pure artificial alizarine*, (Eng. P. 2784, July 7, 1880). The melt from the anthraquinone-sulphonic acid is treated with water and the alkali neutralized with sulphurous acid. After separating the precipitated alzarine, the filtrate is rendered caustic by boiling with lime and the sulphurous acid recovered as calcium sulphite.

E. JACOBSEN, BERLIN: *Method of preparing benzoic acid, benzoic ether and benzaldehyde together with organic acid chlorides, acid anhydrides, &c., from benzo tri-chloride or dichloride in presence of certain metals, metallic oxides and salts*, (Germ. P. 13128, May 25, 1880; addition to Germ. P. 11494, see this Journal, vol II. p. 462). The oxides, sulphides, hydroxides or other salts of the metals mentioned in the original patent can also be used in the processes there described.

E. PORION and L. MEHAY, Wardreques, France: *Manufacture of Alcohol*, (Eng. P. 2736, July 3, 1880). The raw material is saccharified by means of hydrochloric acid. In order to increase the value of the residues as fodder, the acid is freed from sulphuric acid by means of barium chloride. The sodium carbonate subsequentlyused to neutralize the acid must also be free from sulphate.

G. Wassmus Berlin: *Manufacture of Alcohol from potatoes*, (Germ. P. 13637, Oct. 17, 1880). The saccharification is produced by means of hydrochloric acid, under a pressure of three atmospheres. The liquid is neutralized with sodium carbonate to render the residues suitable for fodder.

A. Wunsche, Egeln: *Preparation of Acetic Acid*, (Germ. P. 13-165, May 11, 1880). The vapors containing acetic acid are passed through a rectifying apparatus, connected with a return condenser. Traces of acetic acid in the vapors leaving the apparatus are aborbed by some basic substance.

C. G. Bjoerkmann, London: *Explosive Compound*, (Eng.P. 2483, June 19, 1880) Glycerine is mixed with one third of its weight of a carbohydrate, such as glucose &c. and then nitrated. The liquid is then mixed winh combustible bodies containing oxygen, in such proportions that a powder results. It is said not to freeze and to be transportable without danger.

S. J. Mackie, London: *Explosive compound*, (Eng. P. 4230, Oct. 18, 1880). Dry sodium nitrate is ground in a mill together with loose gun cotton. The mass is pressed in moulds, a split tube being inserted, which subsequently receives the fulminate.

John Pearson, J. Whitestone and R. R. Gubbins, London: *Manufacture of Emery Wheels*, (Germ P. 12924, May 11, 1880). A cement composed of glue, tannin and methylic alcohol is mixed with powdered emery, at 105° C. and compressed in moulds.

S. Jaroslawski, Berlin : *Apparatus for carrying off the foul vapors from boiling animal matters.* (Germ. P. 13426, July 29, 1880.) —A pipe from the boiler ends in a nozzle like that of an injector and within a socket connected with a supply of water. The escape of the vapors under pressure aspirates a large amount of water which condenses and absorbs the bad odors.

R. C. Anderson, London : *Galvanic Battery*, (Eng. P. 4267, Oct. 20, 1880.)—Composed of carbon and zinc elements. The latter are immersed in solution of magnesium chloride, the latter in potassium chloro-chromate.

H. Grouven, Leipsic : *Method and apparatus for manufacturing ammonium sulphate from the nitrogen contained in peat*, (Germ. P. 13718, July 1, 1880. Addition to Germ. P. 2709.)—The retorts are placed horizontally instead of vertically, as described in the original patent. Peat, mixed with lime, is heated in a series of retorts which are so connected with each other that the vapors and gases from the first one are obliged to pass through the others.

The ammonium carbonate obtained from the cooled and condensed gases is converted into sulphate by digestion with calcium sulphate. The gases from the retorts after being deprived of ammonium carbonate and carbonic acid are burned in the retort furnace.

Bindschedler & Busch, Basle: *Method of preparing coloring matters by the action of halogens upon the azo-derivatives of resorcin,* (Germ. P. 14622, Dec. 30, 1880.)—The azo-derivatives of resorcin are obtained by the direct azotation of resorcin by means of a saturated solution of nitrous acid in sulphuric acid or by the action of nitroso compounds of phenols upon resorcin. Bromine (etc.) derivates are prepared from the azo-compounds in alkaline solution. Upon acidifying the coloring substance is separated and can then be converted into the potassium or sodium salt. The bromine product forms a violet-blue to blue coloring matter with beautiful fluorescence.

Badische Anilin, und Soda Fabrik, Ludwigshafen, am R.: *Method for the conversion of napthols into their corresponding primary, secondary and tertiary monamines,* (Germ. P. 14612, Feb'y 22, 1880.) By the direct action of ammonia or of substituted ammonias upon alpha and beta-napthol, alpha and beta-naphthylamine or their substitution products are formed. Of practical importance is the method for the preparation of the beta compounds, which hitherto could not be prepared on an industrial scale. For this reason also the azo-dyes of beta-naphthylamine and its derivatives have remained unknown until now. Two processes for the preparation of beta-naphthylamine from beta-naphthol are given.

W. Majert, Elberfeld: *Method of preparing a blue coloring matter,* (Germ. P. 14581, Aug. 3, 1880.)—If nitrosodimethylaniline in hydrochloric acid solution be allowed to react upon sulphocarbonic acid, the following reaction takes place: $3\ C_6\ H_4\ (N\ O)\ N\ (CH_3)_2 + CS_3\ H_2 = 3\ C_6\ H_4\ N\ S\ N\ (CH_3)_2 + CO_2 + H_2O$.

On treating the solution of the resulting product, to which chloride of zinc and sodium chloride have been added, with an oxidizing agent, a blue coloring matter separates in flakes, whilst a red coloring matter containing sulphur remains in solution. The solution of the latter, reduced by means of zinc and hydrochloric acid until decoloration takes place, yields a further separation of the blue coloring matter upon addition of an oxidizing agent.

W. Michaelis, Berlin: *Method of testing cements and cement mortars,* (Germ. P. 13808, Oct. 5, 1880.)—The samples prepared in the ordinary way are subjected in steam-tight vessels to a temperature of 140° C. to 180° C. for twenty-four hours. This process shortens the time of setting and hardening of the cement considerably, so that the tests for strength, &c., can be applied immediately after taking the samples out of the apparatus and cooling them.

Th. Richters, Breslau, and L. Hagen, Magdeburg: *Purification of ammoniacal waste waters,* (Germ. P. 14210, Oct. 31, 1880.)—

The sewage, &c., is placed together with lime in closed vessels into which air is forced through a perforated pipe. The air, charged with ammonia, is passed through a Gay Lussac tower, where the ammonia is absorbed by sulphuric acid. The insoluble matters are allowed to subside in basins, passed through a filter-press, and then used for fertilizing.

L. MAUDIN and J. SCHNEIDER, Paris : *Method of removing bad smell and taste from alcohol,* (Germ. P. 13944, Nov. 9, 1880.)—Treatment with nascent hydrogen.

E. VAN HAECHT and J. SCHREINER, Drohobycz : *Method of obtaining paraffine from crude paraffine without the use of presses,* (Germ. P. 14507, Dec. 5, 1880.)—The oils are distilled off in a still by means of superheated steam until solid substances only pass over.

H. PRECHT, New Stassfurt : *Improvements in the method of separating sodium and magnesium chloride from potassium-magnesium sulphate obtained from Kainite,* (Germ. P. 13521, May 25, 1880. Addition to Germ. P. 10,637. See this Journal, Vol. II., p. 439.) A description of mechanical arrangements for separating the substances mentioned in the title as fast as they are formed, or shortly after the completion of the reaction.

L. WUESTENHAGEN, Hecklingen : *Method of and apparatus for evaporating the mother lyes in the manufacture of potash,* (Germ. P. 14015, May 1, 1881.)—The lyes, previously warmed, are run into a steam boiler for concentration, and finally evaporated in a vacuum pan to the point of crystallization. The steam from the boiler is superheated, and is used for heating the vacuum pan. The vapors from the latter are withdrawm by a pump and serve to warm the lyes.

SOCIETE ANONYME DES PRODUITS CHIMIQUES DU SUD-OUEST, Paris: *Improvements in apparatus for the manufacture of ammonia-soda,* Germ. P. 14186, Aug. 31, 1880.)—Description of apparatus for absorbing the ammonium carbonate and ammonia evolved in the treatment of the ammonium chloride solution with limestone, dolomite and, finally, milk of lime.

C. DE MONTBLANC and L. GOULARD, Paris : *Improvements in apparatus for the manufacture of ammonia-soda,* (Germ. P. 14193, Oct. 2d, 1880; addition to Germ P. 8498. See this Journal, vol. II., p. 106.)—Consist in providing the precipitating vessels with cooling jackets.

F. M. LYTE, London : *Method of obtaining lead and silver from mixed ores,* (Germ. P. 13792, Sept. 9, 1880.)—Relates to the treatment of mixed ores which cannot be easily separated on account of their nearly equal specific gravity, as galena and argentiferous lead sulphides, galena and calamine or zinc silicates, copper or iron pyrites and zinc blende or galena, all or part of them mixed with barytes.

The general treatment consists in roasting the mixed ores to remove the greater part of the sulphur, (blendes, argentiferous lead glance and copper pyrites,) finely pulverizing and treating with hot hydrochloric acid, of 15—17%. Nearly all of the zinc and copper are thereby dissolved, whilst the greater part of the silver and lead remain undissolved in the gangue. The chlorides of silver and lead contained in the solution of zinc chloride precipitate upon cooling. By adding a fresh quantity of hydrochloric acid to the undissolved residue, nearly the whole of the lead and silver is dissolved. This solution is run into a second vessel containing a fresh quantity of the calcined ore where, by taking up zinc and copper, it becomes partially neutralized and the silver and lead chlorides are precipitated. By repeating this process the gangue, freed from zinc and copper, gradually becomes enriched in silver and lead chlorides. The latter are then extracted from the mixture by means of a hot concentrated solution of sodium chloride, from which the lead chloride separates upon cooling. The lead and silver in solution are precipitated with zinc and finally subjected to cupellation.

C. Winkler, Freiberg: *Utilization of solutions containing metallic hyposulphates* ($R^1S\ H\ O_2$) *or thiosulphates* ($R_2\ S_2\ O_2$) *formed by the sulphurous acid contained in acid gases and vapors*, (Germ. P. 14425, Oct. 14, 1880). Obtains ferric oxide, chloride and sulphate, sulphur and sulphurous acid.

N. von Lavroff, St. Petersburg: *Manufacture of Phosphor-lead-bronze*, (Germ. P. 14422, Jan. 23, 1881).

H. Ernst and A. Fricke, Goerlitz: *Apparatus for the preparation of nitrogen from air by means of substances which absorb oxygen and with the aid of a pressure of several atmospheres*, (Germ. P. 13913, Mar. 2, 1880).

I. F. Espenschied, Friedrichsfeld. *Method of preparing violet, blue and green coloring matters by means of trichlormethylesulphochloride and use of the latter for the oxidation of leuco-compounds*, (Germ. P. 14621, Dec. 28, 1880). One part of methyldiphenylamine, and one to two parts trichlormethylsulphochloride are mixed with five parts sodium chloride and gradually heated to 110° C. A copper colored melt is obtained which is successively treated with water, alkali and concentrated hydrochloric acid to remove substances which remained unacted upon. The insoluble color-base is converted by means of sulphuric acid into a product soluble in water and treated further in the usual manner. This coloring matter dyes wool and silk greenish blue. Green and violet dyes are obtained by replacing the methyldiphenylamine by ethyl or amyldiphenylamine, or by benzyldiphenylamine, dibenzylphenylamine, diphenylamine or dimethylaniline.

For the oxidation of leucobases by trichlormethylsulphochloride one part of the former is mixed with one part of tetramethyldiamidotriphenylmethane and five parts sodium chloride and heated to 110° C. The melt is boiled with water and treated with alkali.

C. Ziegel, Neuwedel. *Method of tanning hides*, (Germ. P. 13920, Aug. 24, 1880.)

I. & C. Ballatshano and H. Treuk, Berlin. *Method of preserving and waterproofing hides*,(Germ. P. 13420, May 8, 1880).

I. C. Fellner, Frankfort of M. *Apparatus for driving gases out of liquids arranged for continuous working*, (Germ. P. 14204, Oct. 21, 1880).

L. Perrier, Paris: *Vapor guage for analyzing liquids and for ascertaining pressure*, (Germ. P. 13221, Aug. 21, 1880.)—This apparatus indicates the amount of alcohol contained in the vapors of stills. It consists of a pressure tube, the lower end of which is drawn out to a point which dips into the mercury contained in a small vessel soldered to the end of the tube. Above the mercury a liquid of known vapor tension is placed. From the height to which the vapor of this liquid forces the mercury in the tube the amount of alcohol in the distilling vapor may be judged.

C. R. Engel, Paris: *Method of preparing potassium carbonate*, (Germ. P. 15128, Jan. 29, 1881.)—Decomposes by heat potassium-magnesium carbonate, obtained by agitating magnesium carbonate with an aqueous solution of a potassium salt in presence of carbonic acid under pressure.

F. Benker, Weinfelden: *Manufacture of sulphuric acid*, (Eng. P. 3540, Sept. 1, 1880.)—Injects the sulphurous acid into the lower part of the lead chambers in order to prevent waste of nitrate,&c.

H. Boeckel, Stassfurt: *Method of working up Kainite and other double sulphates of potassium and magnesium with the aid of calcium chloride*, (Germ. P. 14938, Feby. 5, 1881).

C. Scheibler, Berlin: *Preparation of magnesia from magnesian limestone, dolomite or calcareous magnesite*, (Germ. P. 14936, Jan. 1, 1881.)—The above mentioned substances are calcined to drive off carbonic acid, finely broken up and then treated with a 10 to 15 per cent. solution of sugar or syrup to dissolve out the lime. The solution of saccharate of lime is separated from the undissolved magnesia, &c., in a suitable manner and decomposed with carbonic acid to recover the sugar.

I. P. Closson, Paris: *Improvements in the method of obtaining magnesia from calcined dolomite*, (Germ. P. 15342, Feby. 25, 1881, addition to Germ. P. 11456. See this Journal, vol. 3, p. 75.)—The decomposition of the solution of magnesium chloride by calcined dolomite is greatly facilitated by the addition of small quantities of sugar or syrup.

B. E. R. NEWLANDS, London: *Manufacture of aluminium sulphate,* (Engl. P. 5287, Dec. 17, 1880).—Strongly presses the magma of impure aluminium sulphate to remove greater part of free sulphuric acid and soluble ferric salts.

C. HESSEL, Kilburn: *Preparation of hydrogen,* (Engl. P. 3584, Sept. 3, 1880).—A mixture of steam and hydrocarbons is injected into superheaters or retorts heated to redness. The carbonic acid formed is removed from the hydrogen by absorption.

F. X. BORSCHE, JR., Prague: *Improvements in the method of obtaining ammonia from the nitrogen contained in elution lyes, osmose waters, etc.,* (Germ. P. 14433, July 9, 1880).—The evaporated liquids are subjected to dry distillation over potash lime. The latter is obtained by moistening the carbonaceous residue of a previous operation, mixing it with slaked lime and heating.

F. J. BOLTON and J. A. WANKLYN, London: *Fertilizer,* (Engl. P. 5173, Dec. 10, 1880).—Acid calcium phosphate, extracted from commercial superphosphate, is mixed with ammonia water and the whole evaporated to dryness.

J. F. PARKER, Birmingham: *Manufacture of illuminating and heating gas,* (Engl. P. 3695, Sept. 10, 1880).—Hydrocarbons, tar oil or bitumen are mixed with 10–12 per cent. of lime, and heated in retorts. The gas is said to need no purification.

P. GREIFF, Frankfort: *Preparation of coloring matters of the rosaniline group by the action of nitrobenzyl chloride upon the salts of primary aromatic amines in the presence of oxidizing agents,* (Germ. P. 15120, Jan. 26, 1881).—A red, soluble in water, is obtained by heating to 170°–200° C. one molecule of nitrobenzyl chloride, two molecules of sulphate of aniline or toluidine and one molecule ferric chloride or other oxidizing agent.

FARBWERKE, successors to MEISTER LUCIUS & BRUENING, Hoechst: *Method of preparing coloring matters from the nitro-derivatives of naphthalene,* (Germ. P. 14954, Dec. 17, 1880).—Monobrom-(Monochlor-) naphthalene is converted by energetic nitration into the tetra-nitrocompound

$$[C_{10}H_3 (N\,O_2)_4\,Br.]$$

The halogen atom in the latter product can with facility be replaced by various molecular residues (hydroxyl, amidogen, etc.). From these various metallic salts of tetra-nitronaphthal are obtained which can be employed as coloring matters.

FR. GRASSLER, Cannstadt: *Diazotizing method and its continuation to the formation of coloring matters,* (Germ. P. 14950, Nov. 28, 1880.)—This process differs from the one hitherto employed, in so far as no free acid is used for the decomposition of the nitrite. The latter is employed in the form of ammonium salt or in combination with ammonium salts. The decomposition of the mixture is produced by warming the cloth to which it has been applied.

Compagnie industrielle des procedes Raoul Pictet, Paris: Rectifying alcohol. (Engl. P. 5245, Dec. 14, 1880.)—This method is based upon the fact that the difference in volatility between the empyreumatic substances, &c., and alcohol increases with the diminution of pressure. This method is said to yield alcohol of 99%.

E. THORN, Hamburg: *Extracting apparatus for analytical purposes,* (Germ. P. 14523, Oct. 17, 1880.)

J. STORER, Glasgow: *Apparatus for treating liquids with gases or vapors.* (Germ. P. 14900, Dec. 21, 1880.)—Within a vertical cylindrical vessel for holding the liquid a second cylinder, open at both ends, is placed axially and reaching to the surface of the liquid. A shaft studded with screw blades revolves at a rapid rate within the inner cy inder. By this means the liquid passes rapidly through it, air or other gases are aspirated into it, and the latter intimately mixed with the liquid.

PAUL CASAMAJOR and CH. H. SENFF, New York: *Improvements in filtering apparatus,* (Germ. P. 14937, Feb'y 1, 1881.) See under "American Patents," this Journal, vol. 3, p. 65.

H. BORNTRÆGER, Wurzburg: *Method of manufacturing sulphuric acid, free from arsenic and selenium, from the soda residues of Leblanc's process, with the aid of exhausted pyrites,* (Germ. P. 15757, Mar. 8, 1881.)—Sulphide of iron is reformed by digesting the finely powdered exhausted pyrites with the sulphur lyes, obtained by extracting soda waste with water under pressure,

TH. RICHTERS, Breslau: *Method of obtaining ammonia from the purifying mass of gas works.* (Germ. P. 15206, July 31, 1880). The oxide of iron mixture as it comes out of the purifiers containsl about o.8% NH_3, this amount is lost by volatilization during the process of regeneration of the mass as ordinarily conducted, *i.e.* exposure to the air &c. The inventor combines the recovery of this ammonia with the regeneration of the mass, by putting the latter into tanks provided with diaphragms and passing air through it. The heat resulting from the reaction drives off the ammonia which is then obtained from the exhaust air by treating the latter with acid.

A. & L. BRIN, Paris: *Oxygen from atmospheric air.* (Germ. P. 15298, Feb. 2, 1881). Baryta is heated in retorts, in the usua. manner, first at a low temperature while passing air over it, then at a higher temperature to decompose the barium peroxide. The regulation of the temperature is accomplished automatically by means of pyrometers, connected with dampers which control the supply of air admitted to the furnace. The oxygen is exhausted from the retorts by a barometer pump, consisting of two cylinders alternately filled with water which also work automatically.

A. Baeyer, Munich: *Method of preparing paranitrobenzaldehyde* (Germ. P. 15743, Feby. 20, 1881). This substance is obtained by the limited oxidation of paranitro-cinnamic acid, or of the ethers of this acid. For this purpose the following oxidizing agents are employed: potassium permanganate in alkaline and acid solution, lead peroxide, manganic oxide and sulphuric acid, chromic acid, potassium chromate and sulphuric acid, nitric acid, or a mixture of potassium nitrate or nitric acid, and concentrated sulphuric acid.

Lembach & Schleicher, Biebrich am R: *Method of preparing coloring matters by the action of nitrobenzylchloride or bromide upon secondary and tertiary amines or phenols* (Germ. P. 14945, Aug. 21, 1880). From these reactions which must take place in the presence of oxidizing metallic salts, blue, green, violet and red coloring matters result.

M. Prud'homme, Mulhausen : *Method of preparing coloring matters for cotton, wool and silk* (Germ. P. 15616, Jan. 28, 1881.)—From anthraquinone, alizarin, anthrapurpurin, flavopurpurin, and Cœrulein nitro substitution compounds are prepared which by heating with sulphuric acid exchange the NO_2 group for the SO_3H group. These sulphonic acids, their salts and finally the hydroxyl substitution products which result from the fusion of the sulphonic acids with alkaline hydroxides are the coloring matters patented.

E. A. Schott, Kreiensen: *Manufacture of carbonized peat coal for removing coloring matters and impurities from liquids and for disinfecting atmospheric air in enclosed spaces*, (Germ P. 14923, Dec. 14, 1880).

B. J. Mills, London *Explosive compounds* (Engl. P. 800 and 801, Feb. 24, 1881) 92-95 parts nitroglycerine, 5-7 parts moderately nitrated cellulose and 0.5—2 pts. alcohol. Another compound is composed of 0.5 to 3 parts moderately nitrated cellulose, 23 to 30 parts sodium nitrate, 8 to 18 parts wood cellulose and 3 to 4 parts sulphur.

H. Proudhomme, Putte Capellen : *Explosive compound* (Engl. P. 4200, Apr. 14, 1881).

C. Heinzerling, Frankfort of M *Rapid tanning process by the use of chromates or chromium salts in combination with other mineral substances and dissolved fats and with hydrocarbons*, (Germ. P 14,769 Nov. 9, 1880). Relates to the manner of applying the solutions to the hides, the modifications which can be made in the composition of the solution to suit the uses to which the leather is to be applied, and the manner of fixing the absorbed matters, &c.