

CHEMICALS AT THE CENTENNIAL.

THE FRENCH EXHIBIT.

The number of exhibitors is about the same as in the German department, but the exhibits taken together are less interesting, we think, than those of Germany. The want of a good French catalogue of their chemicals is severely felt. Beginning with the aniline colors, those of A. Poirrier, Paris, are particularly noticeable, both for quantity and color. One huge mass of *violet de Paris* (dimethylaniline violet) is over 2 feet long and 18 inches wide. Several of the aniline dyes are exhibited in glass fruit dishes, the foot of each dish being wrapped with silk dyed therewith, and exhibiting a striking manner the difference of color which these dyes have when dry or in solution, as most of the reds and violets form green crystals. This seems due to the fact, equally difficult of explanation, that they reflect one color and transmit another, wherefore solution and films are red, thick masses and crystals green or bronze. In addition to several aniline colors, so called, this firm exhibits the new and costly eosine in larger quantity than almost any one else. Also specimens of benzyl chloride and benzoic acid made from the latter, as well as benzyl anilin. This exhibit is unequalled except in the German department, where Bayer & Co. and the Berlin Joint Stock Company compete for the first place. Some large blocks of corallin, anilin red, etc., are exhibited by Guinon's Sons & Co., Lyons, as also orzulin, cochineal, picric acid, and bisulphite of soda. Clauseau exhibits madder root, whole, in powder, and flour, alizarine and purpurine from madder, alcohol from madder, and madder extracts. A. Beslier exhibits the whole plant of *thapsia garganica*. Several parties exhibit dye woods and extracts used in dyeing. Charles Dubois exhibits a number of cyanides and other poisonous salts for use in the navy, probably as wood preservers, including cyanides of lead and copper, sulphocyanides of mercury, copper, and arsenic, chromate and arsenite of mercury, etc.

Solvay & Co. exhibit both here and in the Belgian section a set of substances to illustrate their new ammonia soda process, namely, salt water, crude ammonia liquor, carbonate and bicarbonate of soda. The analyses show the extraordinary purity of the soda obtained in this process. The carbonate of soda contains 99.438 per cent of the pure salt, (Na₂CO₃), 0.21 of common salt (NaCl), 0.0015 of sesquioxide of iron. The bicarbonate is, of course, less pure, containing bicarbonate of ammonia to the amount of 0.43 per cent, which is expelled along with the extra equivalent of carbonic acid, on heating to form the monocarbonate. Photographs of the exterior of the works are shown.

The most interesting pharmaceutical exhibit is that of C. Torchon, Paris, containing a huge block of chloral hydrate, ditto in crystals, a whole guinea pig preserved by the injection of chloral, specimens of hydrosulphide of chloral, metachloral, and alcoholate of chloral. In the same case is a bottle of petroleum said to have been produced synthetically, by the action of carbonic acid and steam on sulphide of iron.

There are, indeed, many soap and candle exhibits, a few carbolic acid exhibits, sulphur in several forms, capsules and pills, insect powder, glue, gelatin, and bone black; but little of real interest to the chemist. Of ultramarine we noticed but two exhibits, those of F. Richter, of Lille, and Guimet, of Lyons. Faure and Kessler's pan apparatus for concentrating sulphuric acid is also to be seen in this section.

THE BELGIAN EXHIBIT.

One of the most interesting objects in the Belgian section is a working drawing (elevation) about 6 feet long, illustrating A. De Hemptinne's new method of making and concentrating sulphuric acid. We think this process has not been tried on a manufacturing scale, but it is attracting more attention at this moment, among practical men, than any other novelty in this important industry. Solvay & Co., Couillet, near Charleroi, have a better exhibit of the ammonia soda process here than in the French section above referred to. The other exhibits are unimportant, excepting the coal tar colors of Max Singer.

THE SWISS EXHIBIT.

Bindschedler & Busch, of Basle, deserve notice for their coal tar products, which include some remarkably large needles of crystallized anhydrous phthalic acid, diphenylamine, artificial alizarine, crystals of anthraquinone, resorcin, toluidine, eosine, and ether of tetrabrom-fluorescene, which latter is the correct scientific designation of the beautiful eosine already mentioned. A manufacturer of coffee substitutes, fig coffee, vanilla coffee, etc., makes quite a display here, as does Hurlimann, who shows artificial Swiss honey. We also noticed several specimens of phosphorus bronze, which are interesting, although not strictly chemical.

HOLLAND.

The Netherlands are poorly represented in this department; even coal tar colors are absent, and soaps, oils, glass, inks, and paints, with one large pyramid of crude sulphate of ammonia, exhaust the list. One case contains a fair show of minerals, including a large mass of malachite, and smaller pieces of amethyst, *lapis lazuli*, and labradorite (locality not given). Von Ketten exhibits a powerful horse-shoe magnet, composed of seven leaves; it is 2½ feet long, weighs 83 lbs., and will lift, he says, 500 lbs. A series of models illustrating in detail the effects of the cattle plague were of particular interest, as showing the care with which this subject has been studied abroad.

SWEDEN.

The land of Berzelius is largely given up to "match-making," if we may judge from the catalogue, where no less than 16 out of the 37 exhibitors deal wholly in safety matches. Norway sends over but five match makers. The well known safety match of the Jönköping's Company occupies a beautiful case, where we find matches, pocket match safes, igniting surfaces, and a new double safety match, which it is said ignites only on the box, and becomes entirely dead instantly the flame is extinguished. In the neighborhood of this famous case are columns covered with matches, with candles, and with aseptic, for the preservation of provisions and animal material. Bengtson exhibits some soda and Glauber salts, and Werner some bone oil, in little flasks tastefully suspended to circular rings in tree form. Kimtze & Co. exhibit several water filters, and Almén a variety of medicated gelatin. The celebrated Swedish filter paper, the only paper used in quantitative chemical analysis, is exhibited by the Gryscksbo Factory at Falun. The same firm exhibit writing, drawing, and printing paper, with a copy of Berzelius' commendatory notice of their filter paper. We saw no filter paper elsewhere in the exhibition, but we believe that Germany is now in close competition with Sweden in that line.

AUSTRIA.

We were disappointed to find that Austria had not thought it worth her while to send over anything but soap and candles. Ozokerite, or mineral wax, seems to be the staple production of certain parts of Austria, Galicia more especially, and all the changes are rung on this one substance to the exclusion of more interesting products. F. A. Sarg, Son, & Co., Liesing, near Vienna, have a large white tablet, nearly 20 feet long and perhaps 12 feet high, made of blocks of stearine with a yellow border of wax, and their name and place of business in large letters upon it. This firm exhibits oleomargarin, milly candles, and candles of paraffin and ozokerite, an interesting collection of fatty acids both solid and liquid, glycerin, wax, etc. Another handsome display is that of H. Ujhely & Co., Stockerau, fancy mineral wax and petroleum; and Paul Dobel, Boryslaw, Galicia, exhibits the crude ozokerite in its natural state as well as the melted and refined article.

More of a truly chemical nature is the exhibit of anthracene, alizarine, sulphanthraquinone, and its sodium salt, by Prziabram & Co., Vienna.

The royal-imperial director of the Idrian mines sends a set of minerals and products such as cinnabar, uranate of sodium, potassium, and ammonia, oxide of uranium, and the like.

Chemical glassware of the latest and best forms is sent by Lenoir & Forster. Small sets of chemical and physical apparatus for national schools comes from A. Kreidl, Prague. The entire collection consists of 76 different articles and reagents, and costs, including packing, 53 Austrian florins (about \$26) in Prague. This complete set, as the circular calls it, seemed to us quite incomplete, and, like most little sets of this kind, almost useless either for the instructor or learner. The general display of Bohemian glass ware, of course, is extremely elegant; but a description of it would out of place here.

In an out-of-the-way corner is a small horizontal case, occupying scarcely two square feet of space, and seldom noticed by the visitors, containing a new kind of confectionery, exhibited by Josef Gobetzky, Essegg. It differs from most articles of this nature in that it contains a tasteless salt of quinine, said to be the tannate. It is probably the same as those made by Rozsnay, in Arad, and described and endorsed by Dr. H. Hager in his *Pharmaceutisches Centralhalle*. The latter analyzed them and found that each lozenge contained 0.97 grain of hydrate of quinine in the form of tannate. The chocolate pastilles contain about 0.93 grain of hydrate of quinine. If they are really all that is claimed for them, tasteless and yet therapeutic, we hope to see them introduced here.

ENGLAND.

Like those of the Austrian section, the English chemicals deserve but brief notice. Soda ash is the staple, and all the possible changes are rung on it, nor are we surprised at this, for this is England's leading industry. Some firms send over chloride of calcium, sulphur, and starch; one firm sends a bust of Lincolin made of ozokerite. The Price Candle Company exhibit a large number of photographs of the fatty acids, showing the effect of admixture with varying quantities of other acids or of paraffin. Dr. Siemens exhibits a model of his regenerative gas furnace. Some beautiful iridescent crystals of chlorate of potash are shown by the Greenbank Alkali Company. The finest display of rarer chemicals is that of T. & H. Smith, which, like many others, are not down in the official catalogue. They exhibit a large cake of caffeine, and smaller quantities of codeia, cryptopia, apomorpha, muriate of thebaia, citrate of caffeine, other rare alkaloids, and thebolactic acid, an acid discovered by Messrs. Smith and obtained by them from the mother liquors of morphine. It is possible that it is really nothing but ordinary lactic acid.

Importance of Well Seasoned Timber for Carriage Building.

Lumber for bodies and gearings, including ash and poplar for the former, and hickory for the latter, to be properly seasoned should be nicely piled in the shade, and protected from exposure to wet weather. The cross slats between the boards should not exceed four feet in distance apart, so as to prevent the boards from warping out of their original shape.

Boards, as a general thing, check in at the ends, very often several inches, and sometimes a foot or more. and, of course, the lumber at that part is thereby rendered unfit for use. But to prevent this being a serious difficulty, it is simply necessary to place the end slats as close to the edge of the end as possible. Now, it is very obvious that moisture will be retained at the slats more than on the naked parts of boards; the result is that the boards do not shrink so rapidly at the slats as they do away from them; and consequently the boards remain whole and do not become wavy.

It is said by those who profess to know something about wood that, if you set timber upon one end, it will season quicker than it will if laid down. That is very likely so, and if so it may be caused by the fact that the sap or matter ejected ascends through the pores of wood set upon one end, without any hindrance, while it could not so readily if laid down. It is seen that fibers of the wood are longitudinal connections, and all the substance to be ejected collects between these connections in the pores, running from one end of the wood to the other, and flows out in the same direction. That is why the transverse expansion or swelling of wood is great, while its increase in length is hardly perceptible, when the pores absorb water.

Bodies, to be durable, should have the stuff in them highly seasoned, but not have it cooked too much by suspending it over a stove, so as to deprive it of the requisite substance and render it brittle. Cooking panels, as just described, brings them in such a condition that it is impossible almost to get them solidly glued on the frame without checking them at the ends, and at the same time they are liable to be split in two.

All that panels require after they are thoroughly seasoned, after fastening them to the frame, is to take out the dampness by warming them; and the frame does not need anything more. But proper seasoning is a requisite.

No matter how well developed constructiveness may be in a body maker, or the other faculties that aid him, or how experienced a mechanic he may be, even if he can make bodies without any person being able to discover the trace of a joint, if the stuff is not seasoned before it is put together, the body will not, cannot, stand.—J. W. Daron, in the *Hub*.

THE AMERICAN SOCIAL SCIENCE ASSOCIATION.

A largely attended meeting of this body took place at Saratoga, N. Y., during the week ending September 9, and many papers of value and importance were read. Among the most prominent was one by Mr. Edward Atkinson, of Boston, Mass., on

THE RELATION OF CAPITAL TO ANNUAL PRODUCTION AND SUBSISTENCE.

He commented on the outcry for cheaper transportation by stating that 500 lbs. of meat and grain constitute the full subsistence of an adult man for one year, and it cost to-day but \$1.25 to move a quarter of a ton or 500 lbs. from Chicago to Boston, less than one day's wages of a good mechanic. In this low cost it would be difficult to find evidence of the rapacity of the railway monopolists. So far as the people of Massachusetts eat bakers' bread, it costs them more to move the bread from the bakers' oven to the mouth of the consumer than it does to move the flour from the wheat field to the oven. There are, doubtless, grave defects in our railway system, but the fact must not be ignored that those special corporations, against which the most urgent charges of monopoly have been made, are the ones that do the most service in distributing the largest quantity of product at the least relative cost to the community.

The remainder of Mr. Atkinson's paper, which was too long for publication *in extenso*, was chiefly devoted to the capital and labor question; and it closed with a vigorous attack on the greenback form of money.

Mr. H. R. Hayden read a paper on

LIFE INSURANCE AS A SOCIAL FORCE,

in which he pointed out that a sound system of insurance effects a distribution of the loss which afflicts relatives when premature death occurs, and which averages human life as far as the well-being of the survivors is concerned. He complained of the laws affecting insurance in many of the States, stating that they gave advantages to the dishonest and so destroyed public confidence.

Mr. Nordhoff read a paper on

THE INDUSTRIAL AND SOCIAL CONDITION OF THE SOUTH, a question which can hardly just now be kept clear of politics; and Mr. Nordhoff's essay dealt chiefly with the subject as it shows the difference between republican and democratic misgovernment.

Professor Dwight read a paper on

LEGAL EDUCATION IN THE UNITED STATES,

in which he contrasted the position of the lawyer in this country with his *status* in England. In the latter country, the lawyer confines himself to one branch of the profession, and obtains an accurate though limited knowledge; but here the lawyer prepares himself in each department of professional labor, and obtains breadth and comprehensiveness at the cost of precision and accuracy. He furthermore advocated reforms in the system of college examinations, and an increase in the opportunities for students to acquire sound learning and a high sense of professional honor.

CLEANING BRASS INLAID WORK.—Mix tripoli and linseed oil, and dip felt into the preparation. With this polish. If the wood be rosewood or ebony, polish it with finely powdered elder ashes, or make a polishing paste of rotten stone, a pinch of starch, sweet oil, and oxalic acid, mixed with water.