

## Report on the Progress of Pharmacy

For the Year 1912

(Ninth Installment.)

*"Siloxide": A New Kind of Glass.*—*"Siloxide"* is a name which has been given to glass obtained by fusing pure anhydrous silica with oxides of elements of the silicon-carbon group, as titanium dioxide or zirconium oxide. The new glass, which is now being manufactured at Frankfurt, a/M, Germany, is said to be formed by the solution of these refractory oxides of an acid character in silicic acid, and it is said to be more easily worked than pure quartz glass—in fact, it can be worked by the ordinary methods employed in glass manufacture. The two kinds are distinguished as *"Z-siloxide,"* or Zirconium glass, and *"T-siloxide,"* or titanium glass. While these are said to lack the silky lustre of quartz glass, it is stated by Thomas that they possess distinct advantages over the latter in respect to strength, resistance to devitrification, and resistance to the action of alkalis. The best Z-siloxide with respect to strength is said to contain 1% of zirconia, while that containing 0.5% has the most satisfactory thermal properties. It is said that zirconium glass has a softening point not much different from that of quartz glass, but that it resists deformation better at high temperatures because of its greater viscosity. The T-siloxide is said to be even superior to Z-siloxide with respect to thermal properties—to be more satisfactory when temperatures up to 1500° C. are to be used—while otherwise its properties are the same as those of Z-siloxide.—*Chem. News*, July 26, 1912, 46.

*"Siloxyd" Glass: Advantages and Superiority Over Quartz Glass for Chemical Apparatus.*—A recent U. S. Consular Report from Zürich, Switzerland, gives some interesting particulars respecting the discovery and utility of *"Siloxyd" Glass*. The raw material from which the glass is produced is washed quartz-sand, containing 95% of silicic acid, which is melted in an electric furnace in which the temperature rises to 2000° F. All the agencies known to the glass-working industry, in-

cluding air, steam, gases, etc., can be applied, and it is now possible to melt and mould into almost any desired form as much as fifty pounds of quartz. A remarkable quality of the quartz produced by the thermoelectric process is its resistance to acids. Even boiling acid, with the possible exception of hydrofluoric or phosphoric, will not corrode it. Moreover, it has the advantage of a coefficient of expansion about one-seventeenth that of the best glass suitable for chemical utensils and apparatus. The chief objection to pure quartz glass as a material for apparatus used in the chemical industry is that it becomes brittle at high temperatures, passing from the amorphous to the crystalline state with a diminution of strength. By the new process discovered by Dr. Wolf-Burkhard, which consists in combining with the raw quartz certain metallic oxides difficult to fuse, the resulting mixture gives on fusion a transparent glassy mass which fuses at a temperature of 1750°. The advantages claimed for this material over ordinary quartz glass are that its strength is 30 to 50 percent greater than *"quartz gut,"* tested by bending, and 10 to 30 percent more tested by pressure, and that it is less brittle, the devitrification being only about half that of quartz glass. The superior advantages claimed for *"siloxyd" glass* give to this new material a wide range of usefulness, and especially for apparatus used in the acid industry, most of which have heretofore been made from platinum.—*Chem. News*, Aug. 23, 1912, 91; from *Chem. Eng.*, XV, No. 5.

*"Siloxide" Glass: External Properties, Color, Finish, etc.*—In a paper describing experiments undertaken with a view to determining how the most important properties of the *"siloxide" glasses* can be compared with those of quartz glass, Dr. Felix Thomas describes the external properties, color, finish, etc., of zirconium and titanium *"Siloxide."*

*Zircon Oxide-Silicic Acid (Z-Siloxide);*

*Zircon Glass*). The superficial appearance of zircon glass tubes is not as alluring as that of the English "vitresoil" (Quartz Glass) tubes, with their silky surface, but this is the only point in which zircon glass falls short of "vitresoil." They have a dull finish and, if rich in zircon, a pale yellow color, and appear to be denser and firmer than the ordinary quartz glass product.

*Titanium Oxide-Silicic Acid (T-Siloxide; Titan Glass)*. The products have a bluish color, varying from light blue to dark according to the quantity of titanium added. In the case of a small percentage of titanium the glass, if in thinnish flakes, compares quite favorably with quartz glass in point of transparency; in case of a greater percentage of titanium the glass is of course far less transparent, a circumstance which, however, is of no consequence for most purposes.—Chem. News, Sept. 6 and 27, 1913, 119 and 156; from Chem. Ztg., 1912, No. 4.

*Thallium: Marked Depilatory Property*.—R. Sabouraud calls attention to some singular properties of Thallium which, in a certain case, five days after a dose of 0.02 gm. of the acetate, produced total baldness, and growth of hair was retarded for about six months. This property of thallium was first made use of by the author to destroy the hair *en masse* in the treatment of ringworm, using an ointment containing thallium, but the general toxic effects which developed showed that the medicament was a dangerous one. On the other hand, the author was able to dispel successfully the troublesome down which gave annoyance to young women. In such cases, the surface to be treated was always small, so that there was little fear of accident. The formula he recommends is as follows:

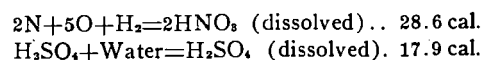
Thallium Acetate.....	0.30 gm.
Zinc Oxide.....	2.50 gm.
Soft Paraffin.....	20.00 gm.
Lanolin .....	5.00 gm.
Rose Water.....	5.00 gm.

A small piece of this ointment, no larger than the bulk of one or two grains of wheat, is applied to the lip every night. This suffices to bring about the destruction of the hair or down. In those cases where the hair is brown, and about one centimeter long, its disappearance is rapid. It is naturally replaced, however, by fresh growth, but the regular use of the ointment ensures its remaining short and almost invisible.—Pharm.

Journ. and Pharmacist, June 22, 1912, 807; from La Chirurgue, Feb. 16, 1912.

*Iodic Acid: Preparation for Carbonic Monoxide Determinations*.—M. Niclou recommends the following modification of Stas's process for the preparation of iodic acid, suitable for the determination of carbon monoxide, the latter depending upon its oxidation with iodic acid, an equivalent amount of iodine being set free: 15 gm. of powdered resublimed iodine are added gradually to 70 cc. of fuming nitric acid (sp. gr. 1.515 to 1.52) contained in a 150 cc. flask, and heated on the water-bath to 70°-73°; the temperature is raised gradually to 80°-85°, and the heating continued thirty to forty-five minutes. The color disappears and a heavy white precipitate of iodic acid is formed, which is purified by repeated crystallization from water, the yield by this modification being 84.2%. The inferior yield (18%) by the original method of Stas is due to the use of weaker nitric acid.—Compt. rend., 154 (1912), 1166.

*Nitrocellulose (Fulmicotton): New Method of Preparation*.—A. Dufay describes a new method of preparing nitrocellulose which depends on the use of a mixture of nitric anhydride and monohydrated nitric acid, or a mixture of 16.5N<sub>2</sub>O<sub>5</sub> and sufficient HNO<sub>3</sub> to immerse the mass of cotton in it. The object of this method of preparation is to avoid the use of monohydrated sulphuric acid in the manufacture of nitrocellulose, and to replace it by a known quantity of nitric anhydride, corresponding to the formula of the "fulmicotton" which is to be obtained. The reason for this substitution is explained by the following equations:



Since the reaction takes place in a nitric medium there is no fear of secondary reactions; and as the weight of cotton in the dry state and the exact degree of acidity of the bath are known the reaction can be followed. The dry cotton is weighed before and after nitration; the acid bath is titrated before and after the immersion, the second titration being referred to the final volume or weight; and the final washing is performed in a known quantity of distilled water, so that the total amount of acid can be determined. The nitric anhydride is prepared by the method of Weber, perfected by Berthelot, by

distilling a mixture of fuming nitric acid and phosphoric anhydride, the author finding that the process can be carried out on a commercial scale in a retort of enamelled iron which he describes, and the freezing machine required, as well as a sufficiently large apparatus to make the phosphoric anhydride, may be made of the same material. It is an advantage also that in this process the same acid bath may be used by replenishing it after each soaking with sufficient  $N_2O_5$ , calculated from that consumed, and of  $HNO_3$  to completely cover the cotton.—Chem. News, Nov. 1, 1912, 211.

*Soluble Starch: A New Form Obtained by the Action of Acetone.*—A. Fernbach has studied the effects of various dehydrating agents on starch as a means of converting it into soluble form, and finds that this can be done by means of pure acetone. A one or two percent suspension of commercial potato starch is poured into a large excess of pure acetone and shaken vigorously; a flocculent precipitate is thus obtained, which, when collected on a Buchner funnel, transferred to a mortar, triturated with acetone, and dried *in vacuo*, is a perfectly white mass, pulverulent and very light, and soluble not only in hot water but in cold water; 1 gm. dissolved easily in 100 cc. of cold water leaving only an infinitesimally small insoluble residue. This soluble starch has almost no reducing power. It is easily saccharified by malt extract. Its solution filters readily through paper, and is colored an intense blue by iodine. If in making the soluble starch more than 2 percent of the original starch is used, a product is obtained which is only partially soluble in the cold, but the insoluble portion can be separated by filtration through paper.—Compt. rend., Sept. 30, 1912, 617.

*Saccharose: Determination in Foods.*—S. Rothenfusser has devised a method for the determination of saccharose in natural and artificial food products which depends upon the preliminary treatment of their suitably prepared solution with strong alkaline solutions and, simultaneously, with weak solution of hydrogen peroxide and heat. By this treatment the associated sugars and other reducing organic substances are completely destroyed, whereas saccharose remains unchanged, and may be determined quantitatively with diphenylglacial acetic acid, and finally polarimetrically. The author gives explicit directions for its estimation in fer-

mentative products, in milk, honey, flours, etc.—Ztschr. f. Unters. d. Nahr. u. Genussm., 24 (1912), No. 9.

*Ether and Chloroform: Development of Heat on Mixing.*—During the estimation of total alkaloids in ipecacuanha by the French Pharmacopœia method, Mme. Marcelot and H. Marcelet observed the development of heat, quite perceptible to the hands, on mixing ether and chloroform. Following up this observation for the purpose of discovering the effects on mixing the two liquids in varying proportions, using the pure liquids—the chloroform carefully freed from alcohol—kept at the same temperature, the authors found that in a mixture of 5 cc. of ether and 45 cc. of chloroform the temperature rose from the initial figure of  $16.55^\circ$  to a maximum of  $21.5^\circ$ ; a mixture of 10 cc. and 40 cc. respectively rose from  $16.6^\circ$  to a maximum of  $25.5^\circ$ ; 15 cc. and 35 cc., from  $16.6^\circ$  to  $27.6^\circ$ ; 20 cc. and 30 cc., from  $16.6^\circ$  to  $29.65^\circ$ ; and 25 cc. of ether and 25 cc. of chloroform, from  $16.6^\circ$  to  $30.3^\circ$ . With higher proportions of ether the rise diminished from  $29.4^\circ$  almost by the same gradation until  $21.6^\circ$  was reached with 45 cc. of ether and 5 cc. of chloroform. That is to say, the elevation and decrease corresponded exactly.—Bull. Sci. Pharmacol, Nov., 1912, 676.

*Siam Benzoin: Source and Method of Collection.*—The source of Siam benzoin is shown by Dr. Kerr in the Kew Bulletin (No. 9, 1912), to be a new species.

*Styrax benzoides, Craib.*—Dr. Kerr points out that the styrax tree which grows on Doi Sootep is not *Styrax Benzoin*, but a new species closely allied to *S. suberifolius*, and since described as *S. benzoides*. This tree grows rapidly, and attains a height of 12.15 M. and a girth of 9 Dm., but most of the trees are smaller, though in other parts larger trees are reported. The matter has been confirmed by the receipt at Kew of a small sample of the gum collected from the Doi Sootep trees, which in smell, taste, and fumes is identical with commercial Siamese gum benzoin. It is a homogeneous, transparent, pale-amber piece, with the characteristic odor of the balsam. The principal method of collecting it consists in making V-shaped incisions through the bark; the gum runs slowly into bamboo joints placed at the bottom of the incision, requiring several weeks for completion. The collection is usually done during

the hot season.—Pharm Journ. and Trans., Dec. 21, 1912, 777.

*Digitalis: Simple Chemical Assay Method.*—In an elaborate research undertaken with the object of a comparison between physiological and chemical results with an approximate simple chemical assay method of digitalis, W. Harrison Martindale briefly reviews the knowledge of the digitalis glucosides and the various methods that have from time to time been suggested and employed for the valuation of the leaves and the various preparations made from them. It occurred to him that there would be considerable utility and value in a simple chemical mode of assay, if such could be devised—a process, in fact, which would, if possible, render the pharmacist in future independent of the physiologist. It is well known that great diversity of strength exists in digitalis leaves collected at different seasons in the same locality; also that the soil, the prevailing climatic conditions, etc., may cause marked variations. Hence the author resolved upon a systematic study, covering: (1) Examination of Infusion. (2) Examination of Tinctures. (3) Physiological Assay. (4) Devising an approximate simple chemical assay and the comparison with physiological results. Preparations of leaves in the form of infusion and tincture from various parts of Great Britain, also from several European countries were examined. Glycerin extracts and a tincture of the seeds were also included. The numerous experiments involved in this comprehensive study must be consulted in the original, and it must suffice here to mention the following from the author's summary:

(1) Digitalis preparations can be assayed by a simple colorimetric chemical method (indicating the content of combined "active-water-soluble" glucosides).

(2) The process devised by the author, though not claimed to be absolutely accurate on comparison with physiological methods, will, at any rate, show whether a tincture is above or below standard, and it will certainly show an excessively strong or weak preparation. The method requires only a small amount of tincture; the apparatus and reagents are perfectly simple, and such as a pharmacist would have on hand; and the process takes only about three hours to carry out.

(3) There are strong indications that digitalis is not entirely insoluble in water.

(4) The routine use of animals in assays is not justifiable if a chemical method can be devised to produce equivalent results. The pharmacist should, if possible, be able to assay all the drugs he dispenses.

(5) Considering the danger in the variation of a tincture, and the fact that with digitalis the initial doses are invariably large, it is evident that standardization of its preparations is of great importance.

(6) There is much to be learned as to the ideal conditions for growth of digitalis. The most potent leaves examined were second year's leaves from plants grown in England in a sunny exposed situation.

(7) An active glycerol-alcohol extract can be produced of strength 1 : 1; in fact, exactly equal in strength to eight times that of a B. P. Tincture.—Pharm. Journ. and Pharmacist, Dec. 14 and 21, 1912, 745-748 and 778-780.

*Senna: Pre-existence of Calcium Oxalate in the Leaves and Formation of Calcium Tartrate in the Infusion.*—In an interesting paper including both microscopical and microchemical observations, elaborately illustrated and described, T. E. Wallis has demonstrated that while senna leaves contain calcium oxalate crystals, they do not contain any crystals that can be identified under the microscope as calcium tartrate, but that the deposit which is invariably formed from fresh hot infusions of senna leaves on standing a few days consists of calcium tartrate; moreover, calcium tartrate crystals are also formed by macerating senna leaves in cold water on standing a few days, thus making it evident that the deposit can not result from difference in solubility of calcium tartrate in hot and in cold water. His experiments show that the calcium tartrate does not exist as such in the leaves, but seems to be produced by some action in the infusion after it has been made, between bodies extracted by the water from the leaf. Those leaves which give no deposit of calcium tartrate show a deficiency of soluble tartrate, although containing an abundance of soluble calcium salts. It is further shown that neither excess nor deficiency of oxygen has any effect upon the quantity deposited or rate of deposition in those infusions which do deposit crystals of calcium tartrate. Senna pods show a deficiency in soluble tartrate and an abundance of soluble calcium salts, and yield infusions which do not deposit calcium tar-

trate. The best micro-chemical reagent to distinguish calcium tartrate from calcium oxalate is a solution of sodium hydroxide, which rapidly dissolves the tartrate, but has no immediate action upon calcium oxalate.—Pharm. Journ. and Pharmacist, Nov. 23, 1912, 644-647.

*Opium: Effect of Age on its Morphine Content.*—Debourdeaux finds that in powdered opium the amount of morphine compounds insoluble in water increases with age of the sample. There seems to be no definite connection, however, between the amount of change in different samples; it is greater in certain samples than in others, kept under similar conditions, and is doubtless due to a chemical modification of the composition of the mass. In the same manner the amount of total morphine lessens with the age of the sample, and this deterioration, again, is more marked in some cases than in others. It is probably due to the action of oxydase ferments, and is favored by the presence of air.—Journ. de Pharm. et Chim., 1912, 6, 491.

*Kefir-fungus: Conservation.*—Dr. W. Schurmener describes a method for the conservation of the living kefir-fungus in a dormant condition, which consists simply in placing them into a concentrated sugar solution, whereby all growth or other change of the fungus may be prevented indefinitely. When required for use, the fungus so preserved is removed from the sugar syrup, washed with cold water, and immersed several days in boiled milk at 17° to 20° C., whereupon the fungi will be fully restored to their original activity. The author, furthermore, gives a description of a method for the preparation of kefir-milk in the household, pointing out the conditions that must be observed to obtain a satisfactory product.—Pharm. Ztg., LVII (1912), No. 97,277.

*Milk: Cause of Turning Sour During Thunderstorms.*—A. Trillat finds that minute traces of the various gases given off during putrefaction of organic matter, when they come in contact with milk under slightly reduced atmospheric pressure, greatly increase the formation of lactic acid and accelerate the process of lactic fermentation. The same milk, exposed to a reduced atmospheric pressure in pure air, does not become sour, or clot, in the same time. Also controls exposed under normal atmospheric pressure in presence of traces of putrefaction gases do not exhibit the same degree of acidity in a

given time, as the milk under reduced pressure. The author points out that in "thunder weather" the temperature is usually high, and the atmosphere charged with moisture, both conditions most favorable to the evolution of gases. It is, therefore, to the simultaneous occurrence of these conditions, rather than to the electrical disturbances which accompany them, that the "turning sour" of milk may be attributed.—Compt rend., 154 (1912), 613.

*Medicated Honey: Identification and Examination.*—Dr. R. Frey communicates some valuable data for the identification and examination of medicated honeys, which are frequently purchased from the wholesale dealer and for which in the absence of reliable data, the examination is usually perfunctory, consisting of the determination of the specific gravity and observation of their appearance, odor and taste. The author's experiments lead him to recommend the polariscopic examination of these honeys for the identification of the quantity and quality of the honey used for their preparation. In the case of the dark honeys, such as honey of rose, of eucalyptus, or oxymel of squill, a process of decolorization must precede the examination under the polariscope, which is carried out as follows: 10.0 of the honey are dissolved in a 100 cc. flask in 75.0 water, 10.0 solution of lead sub-acetate are added, and this is followed after some time with the addition of 3.0 anhydrous sodium sulphate with vigorous shaking. After standing half an hour, the contents of the flask are adjusted with water at 15° to 100.0, then well shaken and at once filtered. The filtrate, which is at most faintly yellow, is then examined polarimetrically, both before and after inversion, in the usual manner, the data obtained being calculated according to Windisch's table. The identification of the particular honey under examination is effected by extracting 5.0 to 10.0 of the honey with 10.0 ether, filtering through a dry filter, evaporating the ether by dipping the beaker into warm water, and observing the odor of the residue: Pure honey leaves its characteristic aroma; rose honey and borax honey, the odor of rose oil; eucalyptus honey, that of eucalyptol, and oxymel of squill that of acetic acid ester. The addition of 1 percent resorcin-hydrochloric acid to the residues produces a red color with pure honey and oxymel of squill (not cherry-red, as with

invert sugar), and faint red colorations with the other honeys mentioned.—Pharm. Ztg., LVII (1912), No. 71,719.

*Extract of Indian Hemp: Uselessness of Acetylation for its Standardization.*—Since the pharmacological activity of Indian Hemp is largely due to cannabinal, C. R. Marshall and J. K. Wood considered that the determination of the acetyl value of hemp preparation might give an indication of their strength. They find, however, that such is not the case, since there appears to be no definite relation between the pharmacological activity and the acetyl value. New charas, old charas, and extract of Indian Hemp, B. P., having the relative activity expressed by 20, 1, and 16, respectively, showed acetyl value of 134, 123, and 295. A sample of cannabinal distilled from old charas had the relative activity 6, and the acetyl value 190; another sample, distilled from new charas, showed 18 and 218 respectively. The authors conclude that no simple chemical method is at present available as a substitute for pharmacological experiment in the standardization of Indian Hemp preparations.—Brit. Med. Journ., 1912, 1, 1234.

*Fluidextract of Ergot: Advantageous Use of the "Syphon Percolator."*—Dr. Kunze calls attention to the advantageous use of the "Syphon percolator" for extracting ergot according to the process of the G. P. for the fluidextract. He finds that owing to the formation of smeary masses in the percolator, percolation is impeded and often comes to a full stop when the operation is conducted in percolators of the ordinary form. By the use of the "syphon percolator," the liquid accumulates at the bottom and is drawn upward by the syphon, the flow becoming continuous when sufficient percolate has accumulated and the syphon has been set into action. The author's description of the "syphon percolator" agrees with that, usually given in American text books, of Squibb's "well-tube" percolator.—Pharm. Ztg., LVII (1912), No. 98,988.

*Concentrated Infusions: Comparison with Freshly Prepared Infusions.*—A. Heidschka and Joseph Schmid report the results of comparative biological and chemical experiments made with concentrated infusions of digitalis and of ipecacuanha representing the respective drugs weight by weight, which are recommended for the extemporaneous prepara-

tion of the infusions, and of infusions prepared by the official process direct from the drug. The chemical method consisted in the determination of the extract, the specific gravity, and the ash content, supplemented in the case of digitalis by the estimation of the digitoxin content of the infusion, by the method of Keller (modified), and in the case of ipecacuanha by the alkaloid determination prescribed by the G. P. V.; while the frog method of Focke was applied to the digitalis infusions for a comparison of their physiological activity. The results, which are exhibited in form of a table, prove conclusively that infusions made from these so-called concentrated infusions are pronouncedly inferior to infusions made directly from the drug, and lead to the conclusion that both infusions and decoctions should invariably be made freshly in accordance with the official requirement.—Zentralbl. f. Pharm., 1912, No. 41.

## The Pharmacist and the Law

### ABSTRACT OF LEGAL DECISIONS.

ORAL CONTRACT FOR SALE OF SODA FOUNTAIN—STATUTE OF FRAUDS. An oral contract was made for the sale of a soda fountain, of which the parts were to be assembled by the seller. The purchaser refused to accept the fountain, and in an action for the contract price it was urged as a defense that there could be no recovery because there was no sufficient written agreement between the parties, as required by the statute of frauds, providing that every contract for a sale of "goods, chattels or things in action" for the price of \$50 or more shall be void unless a note or memorandum thereof be made in writing and subscribed by the parties to be charged therewith.

The fountain which the plaintiff agreed to deliver was of particular dimensions and finished after a special design furnished by a third party. It was not an article manufactured by the plaintiff in the ordinary and usual course of business. The woodwork was to be furnished by one party, the marble work by another, and the working parts by a