Report on the Progress of Pharmacy

For the Year 1912

(Eighth Installment.)

Abies Pectinata: *Volatile Oil of the Seeds.*—The receipt of a small parcel of seed from *Abies pectinata* afforded Schimmel & Co. an opportunity of distilling the volatile oil from them direct, whereas ordinarily the seed is worked up together with the cones. As the cones owe their oil principally to the enclosed seeds, it was to be expected that the oil yield from the seed alone would be very high and that the distillate would agree completely in characters with the ordinary oil from the cones, and these anticipations were confirmed; but it was necessary to crush the seeds before placing them in the still, since the uncrushed seeds yielded only 2.3 per cent of oil, whereas the crushed seeds yielded from 12 to 13 per cent. As expected, the constants were those of the oil from cones, ranging within the following limits: Sp. Gr. 15°, 0.8629 to 0.8668; opt. rot., —68° 14′ to —76° 38′; refr. index 20°, 1.47636 to 1.47812; acid val. 0.5 to 1.8; ester val. 0.9 to 3.7, corresponding to 0.3 to 1.3 percent bornylacetate; soluble in 5 to 7 vols. and more of 90 percent alcohol.—Schimmel's Rep., October, 1912; 04.

Agave Fibre: *Conversion into Imitation Horse Hair.*—A patent has been taken out in France for the preparation of imitation horse hair from "esparto" or cleaned agave. It is obtained by digesting 100 kilos of this material for six hours under a pressure of three atmospheres, with a solution consisting of 23 litres of caustic soda of 36°B. and 1500 litres of water. After rinsing the fibres are steeped for fifteen minutes in a bath containing 1 liter of sulphuric acid per 100 liters of water; they are then washed, dried, and put through a carding machine. The "hair" may be bleached by means of a solution of bleaching powder (6 gm. per liter); while curly fibres are obtained by steeping the degummed fibres in a solution of caustic soda at 18°B for about an hour.—Pharm. Journ. and Pharmacist, July 27, 1912, 111; from Journ. Soc. Chem. Ind., April 30, 1912, 381.

Natal Aloes: *Homonataloin a Constituent and its Constitution.*—Klaverness having been unable to find E. Leger's homonataloin in Natal aloes, the latter has reinvestigated the subject, with results that confirm the occurrence of at least two aloins, one of them being homonataloin, the other nataloin. The crude aloins obtained by macerating the aloes (of known origin) in acetone or in 90 per cent alcohol, were separated by fractional crystalization from 60 percent alcohol, the least soluble of the two in that solvent being homonataloin. Yielding arabinose-*d* on hydrolyzation with acid, it would seem probable that homonataloin is a condensation product of this sugar with nataloemodin, but the combustion results do not support this theory. It can be positively stated, however, that the nataloins contain a methylanthraquinone or else nataloemodin and arabinose-*d*, and that the molecule is very unstable.—Journ. de Pharm. et Chim., 1912, 6, 241.

Camphor: *Cultivation and Preparation.*—In view of numerous inquiries of planters regarding the cultivation of camphor, the government of the Federated Malay States has published a treatise by B. J. Eaton, in which the author preliminarily describes the different varieties of camphor, including ordinary camphor from *Cinnamomum Camphora* (the Japanese camphor tree), Borneo camphor from *Dryobalanops aromatica*, and N'gai camphor, from *Blumea balsamifera;* then describes the geographical distribution of the camphor tree and its cultivation in foreign countries, and follows this with an account of the experiments and results obtained in the Malay States. These were first made in 1904 at Batu-Tiga, Selanor, with seed obtained from Yokohama for this purpose. The plants flourished excellently, and in 1909 the first camphor was distilled from the shoots of the five-year-old trees, yielding 1.17 to 1.22 per cent from cut leaves, 1.25 to 1.47 from mouldy leaves, and 0.06 to 0.45 percent from small

stems—the distillate consisting in each case of camphor with very little oil. Repeating the experiment upon a larger scale with parts of an entire tree, the yields were: from leaves, 1 percent; from stems under one-half inch diameter, 0.22 percent; from stems over one-half inch diameter, 0.61 percent; and from roots, 1.10 percent—the latter alone yielding an oil which possessed an odor reminding at the same time of camphor and of lemon. Finally the author gives a review of similar experiments in other countries (Ceylon, India, Germ. E. Africa, Jamaica, West Indies, Italy and America), the results, with the authority, being shown in a table accompanying his treatise.—Schimmel's Rep., Oct., 1912, 28-29; from Bull. No. 15, Dep. of Agricult., Febr., 1912.

Camphor: Distillation from Leaves in Java.—A. W. K. de Jong reports the result of distillation of camphor leaves in Java. From 3560 kilos of green (?) leaves he obtained 31.15 kilos of camphor and 14.1 liters of oil, while 376 kilos of branches (probably without leaves) only yielded a trace of oil. The distillation was conducted with steam of 3 to 5 atmospheres. This was passed through a galvanized iron case, enclosing three cylindrical cooling vessels filled with water, the floor and walls of the case being also washed by cooling water. In the floor of the case was a cock for drawing off the water of condensation. When the distillation was concluded, the cooling vessels were removed from the case and the camphor which had been distilled out was collected.—Schimmel's Rep., October, 1912, 29; from Teysmannia, 1912, No. 2, 125.

Digitalis Leaves: Precaution against Immature Collection.—Caesar and Loretz, referring to the fact that digitalis leaves collected too early in the season possess only half the activity of the leaves from mature plants, state that in consideration of this fact, as well as of the damage to the plants by this immature collection, the forestry authorities in the Harz district have prohibited the collection of the drug before the beginning of July and after the end of September.—Pharm. Ztg. LVII (1912), No. 84,845.

Mustard Seed: Advantageous Method of Estimating the Volatile Oil.—D. Raquet's investigations go to establish the advantage of alcoholic over aqueous maceration in determinations of the volatile oil in mustard seed. Into a 250 cc. flask he placed 5 gm. of the powdered seed with 100 cc. of water and 20 cc. of 90 per cent alcohol. The flask is closed and heated during one hour to a temperature of 30°-35°, or it is allowed to stand for 6 hours with frequent shaking. Distillation is then effected from a glycerin-bath, the distillate being collected in a 100 cc. flask, containing 10 cc. of ammonia of sp. gr. 15°, 0.925, until about 50 cc. has distilled over. The distillate is then diluted with 20 cc. of N/10 silver nitrate solution and, after shaking, the distillation is continued to the 100 cc. mark. The distillate is now heated under a reflux condenser at 80°-85° for one hour, allowed to cool, adjusted to 100 cc., and filtered through chlorine-free paper. Of this filtrate, 50 cc. is titrated as usual with N/10 ammonium sulpho-cyanide solution. If N=the number of cc. used, and 10-N=the number of cc. of N-10 silver solution, then (10-N) P. 198=the quantity of Allyl-isosulphocyanate yielded by 100 gm. of the mustard seed. By this method, English mustard seed was found to contain 1.386 percent; Greek, 1.198 percent; mustard seed from Merville, 1.08 percent; Sicilian, 0.99 percent; Bari mustard seed, 0.99 per cent, and Bombay mustard seed, 0.81 percent of allyl-isosulphocyanate.—Schimmel's Rep., Oct., 1912, Iw; from Ann. Chim. analyt., Appl. 17 (1912), 174, through Chem. Zeutralbl, 1912, 457.

In lieu of the usual methods used in the determination of allyl-isosulphocyanate in preparations of mustard, which he rejects. H. Pénau proposes either to weigh in the form of silver chloride the silver which has entered into the reaction, or to titrate it with decinormal silver solution after adding an excess of cyanide of potash.—Ibid, from Journ. de Pharm. et Chem. VII 6 (1912), 160.

Dalmatian and Montenegrian Insect Powder.—At the October session (1912) of the German Pharmaceutical Society, Juttner gave an interesting description of a journey to Dalmatia and Montenegro, undertaken with the object of studying the methods of collecting the flowers and of preparing insect powder from them. He states that the flowers are collected from wild-growing plants, *Crysanthemum cinerariifolium*, in large territories along the Dalmatian coast, and particularly on the small adjacent islands in the Adriatic, partly in small and partly in large quantities. No effort is made to cultivate the plants, except that now and then, to promote the growth of new plants, some com-

minuted flowers are spread out in localities where wild-growing plants have their habitat. The collectors dispose of the fresh flowers to the dealers, who sun-dry them on mats spread out along the shore of the ocean, and then reduce them to powder for shipment—the principal market for the Dalmatian insect powder being Spalato, and the best quality that prepared from flowers grown on the small Adriatic islands. That grown on the mainland is mostly inferior in quality, while

Montenegrian Insect Powder, which is produced in a limited extent only, has been proven to be of little value, notwithstanding the praise which has often been accorded to it Both kinds of insect powder are exceedingly liable to be adulterated, the principal adulterant being the stems of the plants, which are ground, colored with chrome-yellow, and aromatized with powdered pepper.—Pharm. Ztg. LVII (1912), No. 81,817.

Complementary to the above, Dr. P. Siedler called attention to the adulterants of insect powder and the method of their detection, as well as for the valuation of the genuine drug.—Ibid. 817.

Fresh Valerian: Therapeutic Value.—J. Chevalier observes that the disrepute into which valerian has fallen as a nervous sedative is due entirely to the use of the dried drug. This is practically inert. But the fresh juice of the rhizome is a most valuable preparation. It may be given in doses of one to three teaspoonfuls, either alone or flavored. Since it contains no free valerianic acid, the taste is not disagreeable. For this reason the strong mother tincture, or alcoholature of French pharmacy, has been both the most palatable and effective preparation of valerian, but it contains so much alcohol that its use is impossible in the majority of cases in which the sedative effects of valerian are required. A specially prepared juice, obtained from the roots of cultivated valerian, has been introduced under the name of

Energetene of Valerian. This, being prepared without heat and preserved without alcohol, is claimed to represent the natural fresh juice of the plant. Pouchet and Chevalier have found this preparation to be satisfactory. Pouchet has stated that any preparation of valerian which has a strong odor of valerianic acid should be regarded therapeutically inactive. This acid is in itself quite devoid of therapeutic action. Even its salts, such as ammonium valerinate, have no action, apart from the stimulant action of the ammonium. The other valerianates act solely in a propulsive and psychic manner, chiefly on account of their repulsive odor and the preconceived ideas held as to their action. Valerian juice, on the other hand, has a very powerful sedative and antispasmodic action, and, at the same time, is a cardiac tonic, so that it appears to be simultaneously a stimulant and sedative. For young children it is the safest and best hypnotic. As the juice of valerian is quite non-toxic, it may be safely prescribed as a general nervous sedative.—Nouv. Remèdes, 29 (1912), 169.

Distilled Water: Advantageous Use in Perfumery.—The "Seifenfabrikant" calls attention to the persistent use by some perfumers of ordinary tap or well water in the manufacture of perfumery, and discusses some of the advantages accruing from the use of distilled water. Thus, for example, the addition of ordinary water to alcoholic solutions of volatile oils may, and often does, produce turbidity which is difficult to remove by filtration, while the same quantity of distilled water would at once produce clear solution, or, at most, easily removable turbidity. Moreover, the impurities in ordinary water unfavorably affect the delicate odor of many perfumes, which distilled water does not. Other products, such as cosmetics, transparent soaps, etc., are similarly affected by impurities in water, and can be avoided by the use of distilled water, which is modernly so easily obtainable that there is no reason why it should not be used in the preparation of perfumery of every description in which water is required.—Pharm. Ztg. LVII (1912), No. 86, 861.

Australian Eucalypts: Yield and Character of New Oils.—R. T. Baker and H. G. Smith have described a number of new eucalyptus oils, distilled by them from the leaves of different Australian Eucalypts:

Eucalyptus acaciaeformis, Deane et Maiden, known as "red" or "narrow leaved peppermint," yielded 0.197 percent of a brown oil, having a turpentine-like odor, and consisting principally of *d*-pinene?

Eucalyptus Andrewsi, J. H. Maiden, yielded 1.27 percent of a lemon yellow oil, consisting principally of *l*-phellandrene, and containing scarcely a trace of cineol.

Eucalyptus Campanulata, Baker et Smith, yielded 0.8519 percent of a pale yellow oil, containing phellandrene as principal constitu-

ent, with some cineol, piperitone, and eudesmol.

Eucalyptus Bridgesiana, yielded 0.73 to 0.745 percent of oil, containing from 73 to 78 percent of cineol.

Eucalyptus Laevopinea, yielded an oil which did not contain above 5 percent of cineol.

Eucalyptus dextropinea, yielded 1.02 per cent of crude oil, which on rectification became nearly colorless. The crude oil contains 3.7 percent of geranyl acetate.

Eucalyptus nova-anglica, yielded an oil containing a sesquiterpene in considerable proportions, with a very small cineol content, and occasionally small quantities of phellandrene.

Parts IV and V of the second volume of the work "A Critical Revision of the Genus Ecalyptus," edited by J. H. Maiden, has also appeared, and a number of species are mentioned by title in the abstract, from which the preceding is quoted in Schimmel's Rep., October, 1912, 63-64; from Journ. and Proc. Royal Soc. of N. S. W., 45,267.

Australian Melaleuca Oils: Cajuput Oil Not a Typical Representative.—In continuation of their investigations of the Australian Melaleuca-species, R. T. Baker and H. G. Smith have discovered that cajuput oil (from *Melaleuca Leucadendron, L.*) is not a typical representation of the Melaleuca oils, as is shown in the following oils, which deviate considerably from cajuput oil in their constitution:

Oil of Melaleuca genistifolia, Sm., obtained from leaves and terminal branchlets in a yield of 0.526 percent, was pale yellow and had a well-defined odor of turpentine; sp. gr. 15°, 0.8807; opt. rot., 32° 7′; refr. index, 22°, 1.4702; sap. val., 6.8; insoluble in 10 vols. 80 percent alcohol. Contains from 80 to 90 percent of pinene, and only 2 percent of cineol.

Oil of Melaleuca gibbosa, Labill, obtained from leaves and terminal branchlets in a yield of 0.158 percent, was deep yellow and had an odor of cineol and pinene; sp. gr. 15°, 0.9138; opt. rot., 4° 5′; refr. index, 20°, 1.4703; sap. val., 9.9; insol. in 10 vol. of 70 percent alcohol, but soluble in its own vol. of 80 percent alcohol. Contains 61.5 percent of cineol, some *a-pinene,* a sesquiterpene and perhaps also terpinyl acetate.

Oil of Melaleuca pauciflora, Turez., obtained from leaves and terminal branchlets in a yield of 0.3 percent, was of a dark amber color and had a somewhat viscous consistence; sp. gr., 15°, 0.9302; opt. rot., 3° 3′; refr. index, 24°, 1.4921; sap. val., 8.25; barely soluble in 10 vols. of 80 percent alcohol. Contains only 8.7 percent of cineol, the principal constituent being a sesquiterpene, which appears to occur in the high boiling fractions of many melaleuca oils. The oil may contain limonene or dipentene, possibly also terpinyl acetate as well as about 5 percent of free terpineol.—Journ. and Proc. Royal Soc. of N. S. W. 45 (1911), 365.

Cedarwood Oil: Chemistry.—In continuation of his researches on cedarwood, F. W. Semmler, in conjunction with E. W. Mayer, has discovered a new primary sesquiterpene alcohol ($C_{15}H_{24}O$), which he has named *cedrenol.* This alcohol stands in the same relation towards cedren ($C_{15}H_{24}$) as do the two primary alcohols of the santalol series towards the santalenes ($C_{15}H_{24}$), and as myrtenol and the ginger grass alcohol stand towards pinene and limonene. When purified from primarily produced acetate, cedrenol has the following properties: Boiling point (9.5 mm.), 166° to 169°; sp. gr., 20°, 1.0083; opt. rot., 20° 0′; refr. index, 20°, 1.5212. The primary CH_2OH group in the cedrenol molecule occupies the same position which is occupied by the CH_3— group in cedrene and in solid *cedrol* ($C_{15}H_{26}O$). In addition to cedrenol, the authors have observed in cedar oil a saturated alcohol, *pseudo*-cedrol ($C_{15}H_{26}O$), which, while chemically identical with cedrol, differs from it physically. *Pseudo*-cedrol boils between 147° and 152° and constitutes a viscous oil with the following constants: Sp. gr., 20°, 0.9964; opt. rot., 20°, 21° 5′; refr. index, 20°, 1.5131.—Berl. Berichte 45 (1912), 786 and 1384.

Geraniol: Direct Estimation in Citronella Oil.—In the "Perfumery and Essential Oil Record," May, 1912, a method for the direct estimation of geraniol in citronella oil is suggested as follows: Ten gm. of hydroxylamine hydrochloride is dissolved in 25 cc. of water; 10 gm. of potassium carbonate separately dissolved in 25 cc. of water is added and the mixture filtered. With this solution 10 gm. of the oil is thoroughly shaken for two hours at 15°-18°C. The oil is then separated, dried by means of anyhdrous sodium sulphate, and acetylated with twice its volume of acetic anhydride in the usual way for one and one-half hours on a sand-bath under a

reflux condenser. The oil is washed, dried, and neutralized, and a weighed quantity (about 2 gm.) is saponified with alcoholic potash. The calculation is made by the usual formula.—Pharm. Jour. and Pharmacist, June 1, 1912, 732.

Jasmine: *Cultivation and Yield of Oil.*—A condensed account of the history and cultivation of jasmine is given in the "Perfumery and Essential Oil Record," May, 1912. Under the most favorable conditions 1,000 kilos of bloom yield 4 kilos of concrete essence, or 2 kilos of liquid essence. Frost is one of the great enemies of the delicate crop, and the caterpillar also requires constant attention. Artificial jasmine essence has actually improved the sale of the genuine product, partly because the synthetic article needs a certain amount of the natural oil to give it character—partly also, it is hinted, because it helps the grower to tide over a period of scarcity.—Pharm. Journ. and Pharmacist, June 1, 1912, 732.

"Lavandin": *An Undesirable Lavender-Hybrid.*—L. Lamothe calls attention to the increasing cultivation and utilization of a lavender-hybrid:

Lavandula fragrans latifolia, Chartenier —the result of a crossing of lavender and spike, which is known in Southern France by the name of "Lavandin," and also by several others, such as "Lavande Batarde," "Grosse Lavande," "Badasse," etc. It occurs principally in the region of the "holm-oak," even spreading over the boundaries of the latter, traversing in a broad belt the departments of Drome, Vaucluse, Basses-Alpes, etc., where it covers the southern slopes of several mountains up to the top. Like all hybrids, "lavandin" is an extraordinarily hardy plant, and in its prolific development constitutes an actual danger to the true lavender, which it robs of air and nourishment. On account of its acrid odor and bitter taste, pasturing sheep and goats shun it, while they find in the true lavender an occasionally welcome substitute for grass; but in spite of this, very considerable quantities of this hybrid are cut for distilling, and Lamothe estimates that the "Lavandin Oil" brought to market every year amounts to about 12,000 kilos, or to about 20 percent of the total output of lavender oil. It is interesting to note also that the same time and trouble that is required to collect 55 kilos of true lavender flowers, suffices to collect 400 kilos of "lavandin flowers," which, moreover, yield 1 kilo of oil from 77 to 80 kilos of flowers, whereas 145 kilos of true lavender flowers are required for 1 kilo of oil. As regards the quality, this can be judged from the fact that the average ester content of "Lavandin Oil" is 24 percent, whereas a linalyl acetate content of 30 percent is considered low for true lavender oil.—Schimmel's Rep., April, 1912, 86-88; from Perfumerie Moderne, 5 (1912), 9.

Spike Lavender Oils: *Solubility in 60 per-cent. Alcohol.*—According to private information to Schimmel & Co. it has been observed that the degree of solubility of spike oil varies with the origin of the material. Oils from the Alps and from Provence are said to be soluble in 60% alcohol, while the distillates from the Department of the Bouches-du-Rhone, Vaucluse, Gard, Hérault, and Aude, are said to be only rarely soluble in 60% alcohol. The differences are said to be due to variations in the conditions of the soil and the climate, and also to the method of distilling, distillation being often carried out without water and cooling. The matter is further complicated by the circumstance that, in order to increase the weight, the herb-cutters often mix other plants with the spike, such as *Saturja montana,* L., *Calamintha officinalis,* Moench, *Sideratis romana,* L., *Teucrium Polium,* L., etc., which, when the admixture is moderate, it is very difficult to pick out. With the object of checking the accuracy of these statements, Schimmel & Co. therefore secured through a business friend a collection of spike oils from various departments for examination, the results of which are shown in a table, including five distillates from different localities in the Basses-Alpes, and one each from Vaucluse, Bouches-du-Rhone, and Drôme. The results do not confirm the assertion that the degree of solubility depends upon the origin of the oil; on the contrary, generally speaking, all the oils are soluble in the same degree, and deviations occur independently of the locality of the production. Three of the oils from the Alps, dissolved in 6 vols. and more of 60% alcohol, one in 7 vols., and the fifth in 20 vols. The other oils in the order mentioned, dissolved in 7, 7.5 and 14 vols. and more of 60% alcohol. The inference is plain that any solubility differences in spike oil must be attributed to methods of distillation and greater or less care in collection of material.—Schimmel's Rep., April, 1912, 118.

Oil of Lemon: Novel Method of Valuation.—Lemon oil consists principally of terpenes and sesquiterpenes, which are of slight importance so far as the odor of the oil is concerned, and are practically insoluble in 80 percent. alcohol, whereas, the valuable odoriferous constituents are readily soluble in the same alcohol. This forms an excellent criterion for the valuation of the lemon oil, which G. Patané applies in two different manipulations. The first consists in shaking up at exactly 20° in a test tube of 10 cc. capacity, graduated to 0.1 cc., equal quantities (volumes?) of oil and of alcohol of a given strength. When the mixture has completely separated, the degree of increase of the alcohol layer is read off. The second method consists in mixing equal quantities of oil and of the alcohol in the test tube and warming them until complete solution is effected. The mixture is then allowed to cool, constantly stirring with a thermometer, graduated to 1/10th degrees, until clouding ensues, and noting the point. Differences of 1/10th degree are sufficient to cause clouding. All oils which have the same clouding-temperature show the same conditions of solubility in the first test, so that it becomes possible to draw up a comparative scale of clouding-temperature and solubility. The addition of 10 percent. of terpenes increases the clouding temperature one degree, 20 percent. two degrees, and so on. Great care must be taken with the alcohol used for the test, because so slight a difference as 1/10th of a degree suffices to alter the clouding-temperature of the alcohol.—Schimmel's Rep., October, 1912, 61.

Burmese Lemongrass Oil: Soluble and Insoluble Variety.—It has been reported that a sample of lemongrass oil distilled from cultivated grass at Moulmein, in British Burmah, although containing a very high percentage of citral (over 82 percent.), was of the insoluble variety. Further experiments have been made in connection with the cultivation of the red-stem and the white-stem grass, *Cymbopogon flexuosus* and *C. citrus,* respectively, the latter yielding the oil referred to. A sample of oil distilled from this variety occurred in lower percentage, but was readily soluble in three volumes of 70 percent alcohol. The difference is not easily accounted for, but it seems that it is not possible to differentiate between the two varieties of *Cymbopogon,* and to lay down on hard-and-fast lines that the one yields a soluble and the other an insoluble oil.—Pharm. Jour. and Pharmacist, June 1, 1912, 732; from Perf. and Ess. Oil Rec., May, 1912.

Linaloe Oil: Linalool Monoxide a Constituent from Mexican and Cayenne Linaloe Distillates.—In the course of examination of the oils distilled from Mexican and also from Cayenne linaloe wood, in 1908, Schimmel & Co. isolated a body having the formula $C_{10}H_{18}O_2$, which they set down as an oxide of linalool. In 1810, N. Prileshaeff, engaged in the investigation of the oxidation products of unsaturated compounds, mentioned among others a linalool monoxide, which Schimmel & Co. were able to show was identical with the oxide $C_{10}H_{18}O_2$ previously isolated by them. To confirm their previously expressed opinion, they have now prepared the monoxide by Prileshaeff's method, and find the two bodies to be identical. The body is somewhat viscous and is clearly differentiated from linalool by its mouldy odor, which they account for as the result of a gentle oxidation possibly favored by the moist climate of the tropics in its effect upon the wood.—Schimmel's Rep., October, 1912, 78-80.

Nigella Oil: Synthesis of its Alkaloidal Constituents—Damascenine.—The beautiful blue florescence of the oil of *Nigella damascene,* L., is due to the presence of an alkaloid, damascenine, which A. J. Ewins has recently shown can be prepared synthetically (see damascenine under "Organic Bases"). Since then the author has described the results of his investigation in greater detail, the synthetic process consisting in the conversion of *m*-hydroxybenzoic acid, into methoxybenzoic acid, this into a nitro-derivative, reducing this to aminomethoxybenzoic acid, and converting this into the hydriodide and finally into the hydrochloride of methylamino methoxybenzoic acid, which is identical with the hydrochloride of damasceninic acid. From this the conversion into damascenine results by treatment in a well-known manner. The further result of the investigation has shown that the formula $C_9H_{11}NO_3$, assigned to damascenine by Pommerehne (1900) is incorrect, while the formula $C_{10}H_{13}NO_3$, assumed by Schneider (1890), almost corresponds with the actuality. Furthermore, that the so-called "methyldamascenine" which has been isolated from the seed of *Nigella aristata* by Pommerehne and Keller (1908) is

identical with damascenine.—Journ. Chem. Soc., 101 (1912), 544.

Bulgarian Rose Oil: Present-day Primitive Method of Production.—Dr. P. Siedler, in an address delivered at the October session (1912) of the German Pharmaceutical Society, after giving an interesting account of his journey through the Bulgarian "roseland" and description of the cultivation and gardening of the red and white roses used exclusively for the production of the Bulgarian Oil of Rose, describes the method of distillation which, with a few more modern exceptions, is mostly carried out in the old, somewhat primitive manner. According to this method, 60 kgm. of hot water and 12 kgm. of rose petals are introduced into the still, and 12 liters of distillate are collected, and from this 2 liters are then distilled and set aside, when upon standing the rose oil separates and is removed from the surface. The yield is very variable and depends on a variety of conditions; in general about 1 kgm. of rose oil is obtained from 1000 kgm. of rose petals—the best oil and most abundant yield being obtained from the red roses; but the white roses will flourish in localities that are unsuitable for red roses, and the rose oil produced in Bulgaria is therefore mostly a mixture of the two varieties of oils. As has been noted by others, the author mentions that the adulteration of the oil during its production is frequently practiced, the principal adulteration being palmarosa oil, geranium oil, spermaceti, paraffin, alcohol, etc.—Pharm. Ztg., LVII (1912), No. 81, 818.

Chinese Wood Oil: Standardization by Means of the Heat Test.—The Berlin Produce Exchange Committee on Fats and Oils proposes the following temporary standards for Chinese wood oil:

Wood Oil from Hankow and Shanghai shall be regarded as of good merchantable quality if, after being heated to from 282° to 293° C., it sets hard in six to six and a half minutes, can be cut dry, and is firm in consistence without being sticky or altered in color.

Wood Oil from Canton or Hong Kong should become hard in four and a half to five and a half minutes. The question of purity is left out of consideration; but if so-called pure oil takes longer than the periods mentioned to become hard, the purity must be ascertained by other tests.—Oil and Col. Trades Journ., July, 1912, 136.

Chinese Wood Oil: Value and Method of Carrying Out the Heat Test.—Frank Browne, Government Analyst, Hong Kong, observes that the quality of Chinese Wood Oil is determined to a large extent by its well-known characteristic property of forming a jelly when heated to and maintained at a temperature of 250° C. for a few minutes, but that different observers usually employ different temperatures, so that results are not easily comparable. In view of the large and increasing export of this oil, it seems very desirable to arrange a heat test which can be repeated by both buyer and seller in any part of the world, and with this object he has devised a method which insures that the heating is carried out in an identical manner, describing the aparatus necessary as well as the process itself in detail. Employing a temperature which is maintained as close as possible at 282° C. (540° F.) he obtained concordant results when operating on seven samples of pure oils in conformity with the details described by him, these showing that the times of setting varied from eleven to thirteen minutes. For a wood oil containing 10% of adulterant, the time varied from thirteen to fifteen minutes, and with 20% of adulterant from sixteen and a half to nineteen minutes. The results, which are given in detail in several tables, show that a heat test carefully applied is of considerable help in ascertaining quality. If the time required does not exceed twelve and a half minutes the oil is in all probability genuine; if more time is required further examination is desirable.—Chem. News, July 12, '12, 14-15.

"Hardened" Oils: Production and Characters.—Dr. Aufrecht gives some interesting information concerning the physical and chemical properties of "hardened" oils, about which little has appeared in the literature. These products, which promise to become of importance in the soap and food industry, and have also attracted some attention in the manufacture of pharmaceuticals and cosmetics, are obtained under patented processes, depending on the action of hydrogen upon different oils, such as rape, sesame, arachis, cotton, ricinus, and train oils, in the presence of a catlyzer, such as nickel, colloidal palladium, or palladium chloride, or in the absence of catalyzers, by passing a continuous current of hydrogen and oil through a perforated centrifuging drum. Under these treatments, aided in some cases by heat (150°-

180°), in others conducted at the ordinary temperature, the unsaturated acids of the oils (animal or vegetable), are converted into saturated fatty acids, in accordance with the equation $C_{18}H_{34}O_2+2H=C_{18}H_{36}O_2$, and present in general the following characters:

They possess great hardness, have a granular structure, and, according to the particular method, are either yellowish or pure white. They have no marked odor, but when heated to melting manifest a peculiar pyrogenous odor. The taste is unpleasant, reminding of rancid tallow. They are readily soluble at the ordinary temperature in ether, chloroform, carbon tetrachloride, benzin, petroleum, and carbon disulphide, but only sparingly soluble in alcohol and methylalcohol. The specific gravity ranges from 0.9252-0.9268 at 15° C., and the melting point from 44.5° to 46.5° C.; in fact there is a close agreement in the constants of the "hardened' 'oils (also known as "Duotol") obtained from different sources as shown in a table giving the results obtained by the author with yellow and white "duotol" and with "hardened train oil."—Pharm. Ztg., LVII (1912), No. 87, 876-877.

Emulsin: Synthetizing and Hydrolyzing Action.—Continuing their investigation of the synthetizing action of emulsin, E. Bourquelot and M. Bridel find that the ferment is capable of bringing about the direct combination of ethyl alcohol and glucose. When emulsin was constantly agitated in alcohol (85 percent) in presence of glucose for twenty days in a mechanical agitator so that fresh particles of the ferment were constantly brought into contact with the solution, as much as 77.8 percent of the glucose was converted into *B-ethyl-glucoside*. Further experiments show that this can be converted into the stereoisomer *A-ethyl-glucoside*, by action of hydrochloric acid. A similar combination takes place with other alcohols and glucosides in presence of emulsin. Glucosides of methyl, propyl, isopropylbutyl, and insobutyl alcohols, have been obtained, and these compounds are again hydrolized by emulsin in aqueous solution.—Journ. de Pharm. et Chem., 1912, 6, 13.

Rennet: Action on Milk.—In the manufacture of Cheddar cheese, retardation of the time of coagulation has often been remarked, notwithstanding the activity had been of the required degree before the addition of the rennet to the milk. The investigations of M. Nierenstein and J. Stubbs show that the activity of the milk is not due entirely to lactic acid, but partly to some product originating from caseinogen, and that though this is stimulated by the addition of lactic acid, pure lactic acid is of no use as a starter. Furthermore, the authors find the retardation of the time of coagulation with rennet is not entirely dependent on the calcium salts.—Journ. Soc. Chem. Ind., July 15, 1912, 657.

Thyroid Glands: Iodine Content.—N. H. Martin reports the results of a long series of determinations of the iodine content of thyroid gland which has been carried out during the past year by his principal chemist, Mr. Binks. These results are exhibited in a table giving the dates, numbers, weight of fresh lobes (average and total), weight of dried thyroid, average yield, iodine in the dry and the fresh thyroid and the average iodine per lobe—over 6500 lobes having been used in the course of these determinations, and the figures in each estimation being based on the bulked product of some hundreds. This is regarded a very important point, as the iodine content of thyroidum siccum from single glands varies more than the milk obtained from individual cows, and it is obviously as inadvisable to talk of fixing a standard from assays of a few glands as to fix a milk standard from analysis of milk obtained from a few animals instead of from herds. The B. P. does not include limitation figures for size of glands, but "hypertrophied or otherwise abnormal" glands are directed to be rejected. It is difficult to see how the average pharmacist can be expected to discriminate. Sheep's thyroids vary in size, but anything between 1 in. and 2 in. in length may be said to be usual. Frequently glands are met with which greatly exceed these proportions, though apparently of healthy enough tissue. Such lobes were always discarded, but the following figures are of interest:

Wt. of Lobe Grams	Wt. of Dry Thyroid Obtained Grams	Iodine in Dry Thyroid %	Iodine per Lobe Gram
12.0	2.8	0.22	0.00616
14.0	3.3	0.20	0.00660
32.5	7.5	0.08	0.00600

It is noteworthy that while large lobes contain much more iodine than usual, it is not proportionate to their increased weight, and the percentage of iodine in the dried substance is reduced. The author states that the iodine in

Liquor Thyroides, B. P., varies from 0.01 to 0.03 gm. per 100 cc., but that apparently only half the iodine in the glands is extracted.—Trans. Brit. Pharm. Conf., 1912, through Chem. and Drug., August 3, 1912, 200.

"Rice-Polishings": A Remedy for Beri-Beri.—In a paper on the prevention and cure of beri-beri, reference is made to the fact that rice is rendered harmful by the milling and polishing process to which it is subjected, resulting in the removal from the grain of some substance of high physiological importance, the absence of which results in the production of polyneuritis in fowls and of beri-beri in man when a dish is consumed of which polished rice is the staple. Drs. H. Frazer and A. T. Stanton observe that an attempt has been made to prepare a remedial agent from these polishings, since good results have been seen in cases treated by extracts prepared from the polishings. It has been found that the active substance is soluble in water and in 91 percent. alcohol, the latter solution retaining its activity for months. Accordingly an

Extract of "Rice Polishings" (more properly designated a fluid or liquid extract! Rep.), was prepared as follows: Sifted polishings were freed from fat by percolation with petroleum ether, and dried in the air; then 1 part of the fat-free material was macerated for a week in 4 parts of 94 percent alcohol acidulated with 0.3 percent of hydrochloric acid, filtered, the filtrate nearly neutralized with sodium carbonate, again filtered, and the filtrate concentrated to a small volume under reduced pressure, at 60° C. A little water was added, and residual fat removed with petroleum ether; whereupon the new fat-free product was concentrated to near dryness (below 60° C.), and the residue dissolved in water and alcohol in such proportion that the final product contained 50 percent of alcohol and 1 cc. represented 10 grammes of the fat-free polishings. With this extract the curative and prophylactic properties of the "rice-polishings" was proved.—Pharm. Journ. and Pharmacist, October 26, 1912, 519; from Lancet, October 12, 1912, 1005.

Yeast: Presence of an Alkaline Curative Substance which Prevents Polyneuritis.—It has previously been shown by C. Funk that "rice-polishings" contain a substance which prevents polyneuritis, and this substance has been isolated in a more or less pure crystalline state, the provisional formula $C_{11}H_{20}N_2O_7$ being attributed to it. The author has since examined yeast, which is known to possess similar curative action, and has isolated from it the same substance, to which he has given the name

Vitamine.—It is, however, accompanied by pyrimidine bases and other substances, to eliminate which hydrolysis and fractional precipitation are necessary; consequently the yield of pure vitamine is very minute. Nevertheless, vitamine is undoubtedly the sole curative agent in yeast, and in "rice-polishings," and a large number of cures of pigeons affected with polyneuritis have followed the administration of 2 to 4 centigrammes. Vitamine probably belongs to the pyrimitine group; the aqueous solution of the base is neutral and does not react with acids. When recrystallized from diluted alcohol it melts at 233° C.—Brit. Med. Journ., 1912, 2, 787.

Alcoholic Extract of Yeast: Curative Effect in the Treatment of Beri-Beri and Polyneuritis.—It is stated by E. S. Edie, W. H. Evans, and others, discussing the curative treatment of beri-beri and polyneuritis, that an alcoholic extract of ordinary yeast, after the removal of the alcohol at a low temperature, is extremely active in curing the convulsions and lameness of birds suffering from polyneuritis. An organic base, to which the name

Toruline has been given, has been isolated from this extract. Its nitrate, which apparently has the composition $C_7H_{10}O_2N$, occurs in feathery crystals, and is not precipitated by basic lead acetate, although thrown down by phosphotungstic acid. The extract loses its activity on warming, and the active substance is apparently easily decomposed by heat.—Biochem. Journ., VI, part 3, through Nature, October, 1912, 140.

Yoghurt-Glycobacterium: A New Milk Ferment from the Intestines of the Dog.—Dr. Piorkowski describes under the name of yoghurt-glycobacterium, a new milk ferment, discovered by Metschnikoff in the intestinal flora of the dog, which he believes to be destined to find favor for the preparation of a new sour milk possessing certain advantages over ordinary yoghurt-sour milk. The new bacterium possesses saccharifying properties and is therefore, according to Metschnikoff calculated to prevent or retard the formation of indol and scatol, the two powerfully poisonous bodies which are found in small

amounts in the large intestine and are held responsible for the senile degeneration of man. In ordinary yoghurt there are three kinds of bacteria, namely, *Bacillus bulgaricus,* which is the most important, since it has the function of destroying the putrefaction bacteria existing in the intestines, replacing them and forming lactic acid, and two others, consisting of *B-diplo-coccus* and *B-strepto-coccus,* which exercise the subordinate function of decomposing the sugar in the intestines. These several bacteria exert a more intense activity if in the presence of an abundance of sugar, and it is therefore recommended (and the practice) to administer the yoghurt in connection with saccharine food, such as dates or bananas. The sugar so provided is, however, almost entirely consumed before it can pass from the small into the large intestine and there exerts its saccharifying action producing the sugar necessary for the *Bacillus bulgaricus* to exert its function to retard or prevent the formation of indol and scatol in it. Dr. Piorkowski's investigations demonstrate that this new "Microbion" consists of immobile, ovid, gram-negative bacilli, developing at as low a temperature as 22°-35° C. a rose-red to pale red metabolic product, which imparts a fine color to wafers, bread, rice, potatoes and flour, but is destroyed at higher temperatures. Milk is coagulated by it at 37° C., and at lower temperatures acquires a light rose-yellow color. The taste of the milk so produced is sweetish. In combination with yoghurt an agreeably-tasteing sour milk is produced which symbiotically combines the glycobacterium with the bacteria ordinarily present in the yoghurt.—Pharm. Ztg., LVII (1912), No. 87, 876.

The Pharmacist and the Law

ABSTRACT OF LEGAL DECISIONS.

MALT LIQUORS—SALES—STATE REGULATIONS.—Action was brought in the Mississippi State courts by a corporation engaged in the manufacture of a beverage called "Poinsetta" for a sum claimed under an agreement with the defendant for the purchase by him of the article on stated terms for five years for sale in exclusive territory in Mississippi. For this exclusive right he was to pay $500 within five days after making the contract, and it was to recover this sum that the action was brought, the defendant having repudiated the agreement at the outset, upon the ground that, on coming to Mississippi, he found it to be illegal to sell "Poinsetta" in that state. The trial court sustained the defense, and its judgment was affirmed by the Mississippi Supreme Court. The plaintiff took the case to the United States Supreme Court for review. The parties made an agreed statement of facts in which it was agreed that "Poinsetta" was not an intoxicant, and that "the United States government does not treat 'Poinsetta' as within the class of intoxicating liquors, and does not require anything to be done with reference to its sale." The state court construed the state statute as prohibiting the sale of all malt liquors, whether in fact intoxicating or not, and the United States Supreme Court held that this construction of the state statute was binding upon it. As the parties' contract contained no suggestion that the contemplated resales were to be made in the original imported packages, but was broad enough to include other sales, and hence encountered the local statute as applied to transactions outside the protection accorded by the Federal Constitution to interstate commerce, it was held that the state court's decision did not involve the denial of any right incident to interstate commerce.

By the terms of the contract the agreed prices were per cask containing 10 dozen bottles and per case containing 6 dozen bottles. It was held that each separate bottle shipped into the state under this contract could not be considered an original package, so as to save the local sales from the interdiction of the Mississippi statute prohibiting the sale of malt liquors.

Local sales of malt liquors, whether intoxicants or not, might, it was held, be forbidden by the state in the exercise of its police power, as is done by the Mississippi statute, without infringing the Federal Constitution, 14th Amendment, against taking liberty or property without due process of law.

Purity Extract & Tonic Co. v. Lynch, 33 *Sup. Ct. Rep.* 44.

DAMAGE TO FOUNTAIN IN TRANSIT.—Action was brought by the consignee of a soda fountain against the final carrier for damages