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American Druggist

A JOURNAL OF PRACTICAL PHARMACY.

BOSTON MEDICAL LIBRARY ASSN
MAR 21 1892
NEW YORK, JULY, 1892.

VOL. XXII. No. 1.

WHOLE No. 234.

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A JOURNAL OF PRACTICAL PHARMACY.

TWENTY-SECOND YEAR.

AMERICAN DRUGGIST PUBLISHING COMPANY,

A. R. ELLIOTT, President and General Manager,

143 CHAMBERS STREET, NEW YORK, N. Y.

SUBSCRIPTION PRICE, per year,	\$1.00
TO FOREIGN COUNTRIES, per year,	1.50
SINGLE COPIES,10

Address all communications relating to the AMERICAN DRUGGIST to AMERICAN DRUGGIST PUBLISHING Co., No. 143 Chambers Street, New York City, to whose order all postal money orders and checks should be made payable.

The AMERICAN DRUGGIST is issued on the 15th of each month. Changes of advertisements should be received before the 5th. New advertisements can occasionally be inserted up to the 10th.

A STATEMENT.

As announced in the June issue, there has been a change in the ownership of the AMERICAN DRUGGIST. It was purchased on June 1st from Messrs. Wm. Wood & Co. and transferred to a stock company organized under the laws of the State of New York, to be known as the American Druggist Publishing Co., with A. R. Elliott, President and General Manager; E. N. Root, Secretary and Treasurer; and Caswell A. Mayo, Editor-in-chief, assisted by a competent staff. The publication office will be at 143 Chambers street, New York City.

With this issue the AMERICAN DRUGGIST enters upon its twenty-second year. Thus it is the oldest independent pharmaceutical journal in this country, with a single exception. That the AMERICAN DRUGGIST has always stood high in the estimation of the American druggists is evidenced by its very large, paid, bona-fide subscription list, which is second to that of no other journal in its line.

In the past this journal has been recognized as the leading exponent of purely scientific pharmaceutical knowledge, and as keeping its readers accurately informed as to the very latest advances in pharmacy and the sciences allied thereto. This feature will be maintained under the new management, but in addition cognizance will also be taken of purely trade matters which, while having no scientific bearing, are nevertheless of vital importance to the welfare of its constituents. More attention will also be paid to the practical details connected with pharmacy

as an art. The news columns of the journal will be enlarged, so that its pages will present a complete but condensed history of the doings of the American drug trade each month. In short, the aim of the new management will be to make it a progressive JOURNAL OF PRACTICAL PHARMACY in the best and fullest sense of these words, and to attain this end everything will be done that can be accomplished by an earnest endeavor to advance the best interests of pharmacy, combined with an intelligent and sympathetic comprehension of the needs of pharmacists, and supported by ample capital.

Experience having demonstrated that the drug trade prefers a monthly to a semi-monthly issue, a return will be made to the monthly basis, and the subscription price placed at one dollar per annum if paid *strictly in advance*.

In the business department of the paper the policy will be one of liberality based on sound business principles. To both subscribers and advertisers the AMERICAN DRUGGIST will give full value and will expect its bills to be paid. But reasonable accommodation will be cheerfully granted, as no hard-and-fast rules can be made which apply with equal justice to all cases.

The new management expect to receive the support of American druggists, and will conduct the journal so as to deserve it.

"THE PRESCRIBING DRUGGIST."

THE precise limitations of the legitimate functions of the pharmacist are difficult to outline in theory, and even more difficult to adhere to in practice. To simply say to the pharmacist, "Do not prescribe," shows a total disregard for the conditions which surround him.

That much harm may come of "counter-prescribing" is admitted by all fair-minded druggists; while physicians whose views of life are sufficiently broad to embrace the humanitarian aspects of their calling cannot fail to see that for pharmacists to universally and peremptorily refuse to give advice in the trifling ailments of the poorer classes would be, in many cases, a great hardship, and, instead of driving the patient to the physician, would turn him into a customer for the first patent medicine whose cleverly written advertisement chanced to meet his eye.

The average medical editor always feels that when no other subject presents itself he can safely fall back upon "the prescribing druggist" as a theme of which he can write glibly and with absolute certainty of touching a responsive chord in the breasts of his constituency. Current medical literature is seldom entirely free from some disparaging reference to the much-hated "prescribing drug-

acid (Kolb); (x.) sulphuric acid (Lunge and Isler); (xi.) specific gravity and actual contents of ammonia solutions, (xii.) for potassa solutions, (xiii.) for soda solutions; (xiv.) specific gravity of mixtures in varying proportions of alcohol and water, with the corresponding volumetric contents of absolute alcohol; (xv.) table for the preparation of dilute alcohol by weight (Masino); (xvi.) specific gravity of glycerin and water, according to Lunge and Strohmer; (xviii.) fineness of powdered substances; (xix. A), reagents, seventy-five in number; (xix. B) volumetric solutions; (xix. C) estimation of acidity, saponification, and ester numbers; (xix. D) estimation of the iodine numbers; (xx.) list of necessary apparatus; (xxi.) table of maximal doses for grown persons; (xxii.) list of articles designated in the text with a star and which must be kept in every pharmacy; (xxiii.) list of the articles to be preserved under lock and key.

Following these tables is a list of medicines for household use in places where no pharmacy is convenient. This list contains altogether 55 articles. The quantity of each of the medicines to be kept is definitely stated, and certain ones are specified as poisonous and to be kept in a separate division of the medicine closet. Then follows a list of 85 articles which can be sold only in certain definite quantities and under certain restrictions of the poison law; next a list of 126 articles which can be sold without restriction; and then, and lastly, three indexes, the first of which gives the Latin names.—After the *Pharmaceutische Post*.

Sterilized Milk.

DR. ALBERT R. LEEDS and PROF. H. W. CONN last year submitted an important report on "The Preservation of Milk" to the Dairy Commission of the State of New Jersey. From this we take the following important facts relating to sterilized milk:

It is becoming somewhat doubtful whether the hygienic effects of sterilized milk are all that could be desired or have been claimed. It must not be supposed that the use of sterilized milk has been so widely recommended by physicians without some adequate reason. At first there seemed to be not a little evidence pointing in the direction of a superior hygienic value of sterilized milk. From the beginning it was recognized that the sterilization of milk by high heat changed its chemical nature to a certain extent, but the change was thought to be slight and rather in the direction of improving its food value than otherwise. Munk, for instance (*Deutsch. med. Woch.*, 1891), found that rennet would act differently upon sterilized milk from what it would on raw milk. In the latter it precipitates the casein in masses, while in the sterilized milk the casein is precipitated in fine flakes, and this method of casein-curdling was said to be much more like that of the action of rennet on human milk. Munk, therefore, thought that sterilizing actually rendered cow's milk more like human milk, and hence its increased value. These conclusions were deduced from experiments in artificial digestion, and also from digestion of such milk by dogs. Similar results were obtained by others, some experimenters actually claiming that sterilized milk was more easily digested and more readily absorbed by the body. . . .

In our cities to-day one of the first directions given to nurses of infants suffering from intestinal complaints is to sterilize their milk, and the general consensus of opinion seems to be that these troubles yield most readily to the new diet. In Europe there is probably even more of a tendency in this direction than in this country. There seems to be a very general opinion among those interested in the matter in Germany that sterilized milk has a very decided value in hygiene. In some places this opinion is so firmly fixed that plants have been established for the sterilization of milk on a large scale for supplying a city. . . .

It is, in short, so general a belief that sterilization is a desirable process that it requires considerable courage to venture to suggest that perhaps we may be on the wrong track in trying to solve the milk problem in this way. Nevertheless, it is becoming very evident that the matter requires more study. For infant feeding, as we have seen, it is especially desirable that the bacteria in milk should be destroyed, since the child's digestive organs are more sensitive to such disturbing influences than are the digestive organs of adults. For this reason sterilization is very widely recommended for infants, though not regarded as so necessary for adults. But it is plain that for the very same reason the milk given to infants should be as nearly like the natural condition as possible. For the same reason that we do not want bacteria in the milk of infants, we do not want the chemical nature of that milk very much different from that of natural milk. Now, we are beginning to learn that the chemical changes which occur in milk as the result of sterilization are much more profound than was at first supposed. Sterilization by heat, under pressure, of a temperature above 100° C. certainly so changes the character of the milk that it can no longer be regarded as the same product which was furnished by Nature. The chief changes which are now known to occur may be comprised under the following heads:

Destruction of the Germicidal Power.—It has been discovered recently that fresh milk has some considerable power as a germicide. This is certainly a remarkable discovery, but it appears to be unquestionable. Careful experiments have shown that several species of the pathogenic bacteria are actually destroyed by the effect of fresh milk. If a known number of cholera germs be put in fresh milk there will be found to be a smaller number present after three hours than at first. We do not yet know what this germicidal power in milk means, and it is almost too early to speculate upon its value. It would seem that it may be one of the safeguards supplied by Nature against disease. If we can look upon it as such, we must regard anything which destroys this power as injurious to the milk. Now, heating the milk rapidly destroys its germicidal power. To be sure, that germicidal power disappears of itself after a few hours, and it is not safe, therefore, to insist too strongly upon any injury in this direction which may result from sterilization. But the sterilization of fresh milk certainly will destroy this property, and this, so far as it goes, must be regarded as undesirable.

A second effect of sterilization is the coagulation of the albumen of the milk. This albumen, called lactalbumen, is a very close ally of serum albumin of the blood. By heat it is in part coagulated, and the milk is thereby rendered more viscous. In this way a soluble albumen is rendered insoluble and seemingly more difficult of digestion. It would appear probable, also, that it is the coagulation of the albumen which is the cause of the taste appearing in boiled milk.

A third effect of the heat is the destruction of the starch-fermenting power possessed by raw milk. The saliva of the adult possesses a ferment which converts starch into sugar, but this active element is absent from the saliva of the infant. It is a striking fact to find, therefore, that fresh milk possesses a somewhat similar ferment. It has been called galactozymose, and is of a proteid nature, easily affected by heat. There can be little doubt that the presence of this starch-liquefying ferment is an important factor in the value of milk as a food for the infant, whatever may be said of its value to the adult. Now, it has been found by one of the authors of this paper (*Amer. Jour. Med. Sci.*, 1891) that a heat of 75° C. (165° F.) destroys this ferment entirely. Sterilized milk, therefore, will be, with certainty, deprived of this natural starch-liquefying ferment.

Upon the milk sugar the high heat has also a profound effect. Long-continued heating completely destroys the sugar. Even in the ordinary sterilization under pressure it seems that the sugar is much changed. The milk turns brown, and this has been attributed to a caramelization of the milk sugar. The same browning of the milk will not infrequently occur in sterilizing milk by a simple steaming without pressure. Duclaux has stated that this browning is due to an effect on the albumen rather

than on the milk sugar. But at all events it is certain that a high heat will destroy the sugar.

Upon the fat of milk the sterilization has also a marked effect. Fat exists in the milk in a state of finely divided particles, forming an emulsion. The fat is sometimes found to collect in drops on the surface of the sterilized milk, and when this occurs, of course, the emulsion is destroyed. Now, the fat of the food must be in a state of emulsion before it can be absorbed from the intestines. In raw milk the emulsion is already formed, and thus the digestive organs are relieved from their share of their duty. It can hardly be questioned that the destruction of this emulsion will render the digestion of the milk more difficult or its absorption less complete.

Lastly, the sterilization has some effect upon the casein. We are unable at present to determine what this effect is, but as a result we find that it is less easily and less completely precipitated by rennet. According to Baginsky it requires a larger amount of rennet and a higher temperature to precipitate the casein of sterilized milk. According to Soxhlet the casein can only be precipitated from boiled milk after the addition of calcium salts. According to the authors the casein of such milk is less readily precipitated both at a low and a high temperature, and the precipitation is less complete. Moreover, we find, by experiments in artificial digestion, that the casein of sterilized milk is less readily acted upon by pepsin and pancreatin and therefore probably less easily digested.

The chemical changes above mentioned occur in milk which is sterilized under pressure, and hence at a heat above boiling, but almost exactly the same occurs when milk is sterilized at a boiling temperature. Under ordinary steaming in the common forms of apparatus there is not so much of a change in the milk sugar, unless continued for a long time, and possibly the effect on the casein is slightly less. But all the other effects of high heat are equally well marked at a temperature of 100° C., and we can therefore not regard the sterilization of milk by steam as in any marked respect superior to its sterilization under pressure.

It is certain that these chemical changes are very great and much more important than was believed when sterilized milk was first recommended and first used. Such milk is certainly not a natural product any longer. It is not the food which Nature has supplied, but an artificial product of human invention. It is no longer dangerous from its bacterial contents, but it is not *milk*. Is such a product desirable as a food? Upon the answer to this question must depend the future of the process of milk sterilization.

SOME COMMERCIAL VANILLAS.*

BY GEORGE M. BERINGER, PH.G.

WITH the view of ascertaining the character and quantity of vanilla consumed in the United States, a circular letter was addressed to all the known importers and the larger wholesale dealers, requesting samples and such information as they were willing to impart. Replies were received from a number, and I am indebted to Thurston & Braidich for a sample of prime Mexican vanilla, and to Dodge & Olcott and Leo Bernard & Co., of New York, and Mr. Charles E. Hires, of Philadelphia, each for specimens of a number of varieties. I am also particularly indebted to Mr. Hires for obtaining for me the official statistics of importations in the United States.

While the home of the vanilla is Mexico and South America, its cultivation, originally greatly encouraged by the French Government, has been extended by individual enterprise, until now the plant is cultivated in numerous and widely distributed countries, as, for instance, the West Indies and some of the islands of the Indian and Pacific Oceans, the essentials being a mean temperature of 75° to 80° and sufficient moisture, at least during certain seasons of growth. In a circular, issued in 1890, Mr. Hires described the vanilla plant as a *parasite*, stating that "it takes its life and sustenance from the

Mexican red cedar, which abounds in that country." This error is being repeated, and, singularly, such an authority as the "Encyclopædia Britannica" states "the plant has a long, fleshy stem, and attaches itself by its aerial rootlets to trees, and appears to be little dependent upon the soil for its nourishment." While epiphyte in its character, clinging to forest trees for support, it is not parasitic, obtaining its support principally through its aerial roots, which drop to the ground, and in many of the cultivations in the islands of the Indian Ocean the plants are supported for a considerable length upon rude trellises.

The products of the Java vanilla cultivations are exported to Holland, and do not reach this country; the varieties entering our markets being the Mexican, Bourbon, Seychelles, Mauritius, Tahiti, South American, and Vanillons, with occasionally a few pounds of unknown origin, brought in by trading vessels. The products of Mauritius and Seychelles are usually shipped to London, while those from the French possessions, Réunion, Tahiti, Mayotte, etc., go to France.

United States Consul Horace G. Knowles, of Bordeaux, reports (see "United States Consular Reports," September, 1891, 127) as follows: Paris, London, and New York are the markets of the world for vanilla. The greater portion imported into France comes from her colonies—Guadaloupe, Madagascar (Sainte-Marie), Mayotte, Réunion, and Tahiti. Just what the products have been may be judged from the following table:

	Réunion.	Gundaloupe.	Mayotte.	Sainte-Marie.	Tahiti.
	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
1880.....	164,289
1885.....	155,548	9,532	2,640	8,800	18,350
1886.....	361,557	12,100	4,774	18,260	5,500
1887.....	417,290	6,820	2,596	16,610	6,600
1888.....	462,660	9,044	19,195	19,195	6,490
1889.....	506,463	7,018

Mexican Vanilla.—The finest vanilla is still produced in Mexico, where it has been cultivated for nearly a century. Mr. C. E. Hires (loc. cit.) states that the pods are collected in the fall, November or early December, when nearly mature; the processes of cutting, sorting, and packing requiring from four to five months, the crop of this year reaches the market in the spring and summer of the next. The erroneous statement is still made in the United States Dispensatory that the fruit is collected in the spring. This is the time of flowering, but according to all authorities it will require nearly six months for the fruit to be perfected. Since the extensive cultivation of vanilla in Réunion and other French provinces, the exportation of the Mexican to France has rapidly declined. At the present time the United States affords the principal market for this product. The crop of 1890-1891 was the largest ever grown. The receipts for recent years were as follows:

	Cases.	Lbs.
1885.....	306	100,750
1886.....	605	75,625
1887.....	1,028	127,875
1888.....	829	103,625
1889.....	852	106,500
1890.....	947	118,875
1891.....	1,087	135,875

Prime Mexican vanilla is from 8 to 10 inches long, flattened, and about $\frac{1}{4}$ inch in diameter at the broadest part. Its upper end, or end of attachment, tapers gradually for about one-quarter of the length of the pod, and is usually curved and slightly twisted toward the point. The lower end is but very slightly attenuated. The color is a dark-brown, and the odor is pleasant, aromatic, and characteristic. The surface is ridged longitudinally, the ridges being interspersed with finer striations and warty excrescences. The pod feels firmly plump, and while fresh the surface is somewhat viscid, but nevertheless there is a roughness to the touch, which becomes more pronounced as it gets older and drier. Acicular crystals commence

* Read before the Philadelphia College of Pharmacy, and reproduced through the courtesy of the American Journal of Pharmacy.