

and heat the mixture to boiling. Stand it aside for 12 hours or over night and observe the character of the precipitated residue at the end of that time. A genuine extract of vanilla will show a flocculent, brownish precipitate which shows no tendency to adhere to the bottom of the test tube. Any caramel present will be indicated by a blackish brown sediment adherent to the bottom of the test tube. In applying this test the best results are obtained when specimens of known composition (of both genuine and caramel colored goods) are simultaneously tested.

Coumarin, the odorous principle of the tonka bean, is frequently present in cheap or imitation vanilla extracts, either through tonka beans having been used or by the addition of coumarin itself. The odor of coumarin is so distinctive, even when present in small proportions in combination with vanillin, that it is not always necessary to test for it. Where its presence is suspected it may readily be detected by redissolving the previously estimated vanillin in ether, transferring to a separatory funnel and shaking out with three or four portions of 2 percent ammonia water. This shaking out removes the vanillin completely and upon again evaporating the ethereal solution in a glass capsule any coumarin present will be left as a residue and may be weighed and identified by its color and its melting point of 67° C. (vanillin has a melting point of 80° C.).

Acetanilide, which has sometimes been found as an adulterant of vanillin, would also be left as a residue from this second ethereal solution with the coumarin, and it may easily be detected by treating the coumarin residue with petroleum benzine, which entirely dissolves coumarin but leaves behind any acetanilide, which in its turn may be identified by its characteristic chemical tests and its melting point of 112° C.

While there is little that is new or original in the foregoing communication apart from the procedure directed for the examination of the sample where only a limited amount is available, it is offered as being of interest to many pharmacists who have neither the time nor opportunity to familiarize themselves with the analytical procedures described in works on food analysis but who would eagerly avail themselves of points offered in an article of this kind.

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### OREGON BALSAM.

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O. A. BEATH AND L. E. SAYRE.

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Since the time that Dowzard expressed his opinion that Oregon Balsam was a mixture of colophony and oil of turpentine, the question of its origin has been frequently asked.

Mr. Rabak, a pupil of Professor Kremer's, of the University of Wisconsin, undertook to determine the actual source of this oleoresin. His investigation proved quite conclusively that Oregon Balsam was collected from a species of fir or possibly several species. Samples of twigs and cones yielding this product were identified officially as *Pseudotsuga mucronata* (Sudworth) and, as to synonym, *Pseudotsuga Douglasii* (Carrière). For details concerning the examination of the resin, the author's paper must be consulted (*Pharm. Rev.*, Aug., 1904, 293-299).

Further investigation was made by Mr. Beath in 1912 under the supervision of Professor Kremers. A sample was secured, accompanied with twigs and cones and was identified as belonging to the specie, *Pseudotsuga taxifolia*.

The oleoresin was obtained by wounding the body of the tree. It was milky white and had the same general appearance as a sample observed at the U. S. Forest Products Laboratory. This latter came from the Douglas Fir (*Pseudotsuga taxifolia*).

The following report is a summary of the analysis made by Mr. Rabak and Mr. Beath:

OLEORESIN.			
	Oregon Balsam (commercial) (Rabak)	Abies amabilis (Rabak)	Pseudotsuga taxifolia, (Beath)
Sp. Gr. ....	0.985	0.969	.....
(a) <sub>D</sub> .....	+2° 30'	0	+1.48°
Acid No. ....	103	44	100
Color .....	Pale yellow	Pale yellow	Milky appearance*
VOLATILE OIL.			
Yield .....	25%	40%	15% ?
Sp. Gr. ....	0.882	0.852	0.8705
(a) <sub>D</sub> .....	-34° .37'	-12° .17'	-46° .47'
RESIN.			
(a) <sub>D</sub> .....	.....	0	+19° 6'
Acid No. ....	.....	70	129

During the past year, the investigation has been carried on by Mr. Beath, who, with the aid of the Department of Pharmacy in matters of correspondence, etc., has led to a further penetration of the subject and has added somewhat to the material formerly contributed. Through the firm of Faxon & Gallagher, of Kansas City, communication was affected with persons and firms whose correspondence is appended to this article.

The object was to collect as many samples of Oregon Balsam as possible, accompanied with as much information as could be secured.

The following firms were written to relative to information as to the purchasing of Oregon Balsam at first hand:

Oregon Wood Distilling Co., Linnton, Oregon; D. M. Dunn Co., Portland Oregon; Heitshu, Grant & Co., Portland, Oregon; Fisher, Thorsen & Co., Portland, Oregon; W. P. Fuller Co., Portland, Oregon; Rasmussen & Co., Portland, Oregon; Blumauer-Frank Co., Portland, Oregon; Stewart & Holmes Drug Co., Seattle, Washington; Lehn & Fink Drug Co., New York City; National Aniline Co., New York City; McKesson & Robbins, New York City.

The following are excerpts from the various answers received:

" \* \* \* Regret that it is impossible for us to give you the exact knowledge you require, as we have been endeavoring to secure this information for some time, especially on account of the present price in this market for Oregon Balsam which is \$2.00 per gallon.

"McKesson & Robbins."

" \* \* \* In reply would state that we are very large handlers of this article and have a shipment now on the way from the Pacific Coast. At the present time, however, this market

\* Sample of Douglas fir (*Pseudotsuga taxifolia*) observed at the Forest Products Laboratory had the same appearance as that of the sample examined.

is pretty bare of this article, and the only holder of same is asking about \$2.00 per gallon. Our price to arrive is \$1.25 per gallon, in barrels, and \$1.35 per gallon, in cans.

"We have made inquiries of a number of Oregon jobbers, but none of them are in a position to offer us any, and it was only by accident that we ran across a holder of the article. \* \* \*

NATIONAL ANILINE & CHEMICAL Co."

" \* \* \* wish to advise you that any of the wholesale druggists in the states of Washington and Oregon will be able to furnish the information required by you. LEHN & FINK."

" \* \* \* if you will kindly refer your inquiry to—

"Oregon Wood Distilling Co., Linnton, Oregon;

"D M Dunn Company, Portland, Oregon;

"Heitshu Grant Co., Portland, Oregon;

"Fisher Thorsen Co., Portland, Oregon;

"W. P. Fuller Co., Portland, Oregon;

"Rasmussen & Co., Portland, Oregon,

"no doubt you will gather information and prices from some of these sources.

"BLUMAUER-FRANK DRUG COMPANY."

" \* \* \* Oregon Fir Balsam applies to the Northwest, as this section in early years was known as Oregon. We buy all of our Fir Balsam locally and could supply you with any quantity you require. We assume from the tenor of your letter, however, that you would only desire a small quantity, which would amount to very little, as it is cheap.

"STEWART & HOLMES DRUG Co."

" \* \* \* as we do not carry this material, have referred your letter to the Oregon Wood Distilling Co., of this city, who will no doubt be able to fill your requirements.

"RASMUSSEN & Co."

" \* \* \* We have today sent you by mail ¼ lb. of Fir Balsam in compliance with yours of the 24th. Please accept with our compliments. STEWART & HOLMES DRUG Co."

" \* \* \* have to advise that we do not handle the Oregon Balsam Fir mentioned, and have taken the liberty of referring the inquiry to the Oregon Wood Distilling Co., who have a plant near this city, and we believe are in position to supply goods of this character.

"W. P. FULLER & Co."

" \* \* \* we are mailing you under separate cover, a sample of Oregon Balsam Fir. Please examine this sample and let us know in what quantity you can use same. On receipt of your reply, we will quote prices.

FISHER, THORSEN & Co."

" \* \* \* In respect to Oregon Balsam Fir will state that the inclemency of the weather has made it impossible for the gatherers to get any of this article for the last two months and there has been positively a veritable famine on this product, the demand far exceeding the supply, and for that reason the price is now \$30.00 a barrel, f. o. b. shipping point. It will be impossible for us to guarantee delivery but expect to have some Balsam in the course of the next week or so, at which time we will advise you definitely. HEITSHU GRANT & Co."

It will be noted that several of the letters received have indicated that the Oregon Wood Distilling Company should be able to furnish a satisfactory explanation as to where Oregon Balsam could be secured first hand. This company did not make any reply to our inquiry and as a consequence, our report lacks the testimony of a firm purported to produce Oregon Balsam commercially.

The attempt to settle the origin of Oregon Balsam has involved considerable time and patience, as is the case of all subjects of this class. There seems to be a trade secret connected with it that is not easy to penetrate. For over twenty years, the subject has been one of considerable interest. It would appear that practically all that could be said about its origin has been written. To advance the investigation the thing remaining to be done was to fathom the source of supply by coming into direct contact with the producers of the article. While the author has not been able to do this, he has endeavored to keep the subject alive, hoping by this means to multiply the inquiries into the problem, believing that if a persistent effort is kept up in the direction indicated, the final solution as to the actual source of Oregon Balsam will finally be reached. The present inquiry, however, has only given results relating to Oregon Balsam as furnished in the Kansas market of today and the results of correspondence. The aim being to secure, if possible, information leading up to the original source of the article in question.