were washed with low-boiling petroleum ether, the washings afterwards being used in the extraction, and carefully crushed in a mortar. They were extracted in a Soxhlet extractor with petroleum ether (b. p. 25°–40°) for 8 hrs., then ground to a fine powder and again extracted for 8 hrs. About half of the solvent was evaporated on the water bath and the evaporation completed in a current of carbon dioxide. The final traces of solvent were removed in a vacuum desiccator. Treated in this way the seeds yielded 25.6 per cent of oil.

The oil has the appearance of olive oil, perhaps slightly yellower, is odorless, and has only a slight taste, which reminds one of castor oil. After standing for a week a small amount of solid fat separated. At 0° C. the oil formed a pasty mass and solidified below that point. It responded to the elaidin test, forming a white solid and a brown liquid. A film of the oil dried in 14 days, although it had not even become tacky in 7 days. The absorption of oxygen, as measured by the increase in weight, was as follows:

First 70 hrs.....	0.99 per cent
Second 70 hrs.....	3.34 per cent

The oil gave the following analytical constants:

Saponification number.....	193
Iodine number, Hanus.....	90
Acid value.....	0
Unsaponifiable matter, per cent.....	1.67
Specific gravity, 15.5°.....	0.9239
Index of refraction, 15°.....	1.4761
Liquid fatty acids, Gusserow, per cent.....	84.0
Solid fatty acids, per cent.....	1.60
Iodine value of liquid acids.....	103.2
Iodine value of solid acids.....	53.4
Iodine value of mixed acids.....	96
Neutralization value of mixed acids.....	203
Mean molecular weight of mixed acids.....	275
Acetyl value of mixed acids.....	42.85
Neutralization value of liquid acids.....	170
Mean molecular weight of liquid acids.....	330

Making use of the scheme for the study of the mixed fatty acids given by Lewkowitsch,¹ it appears that the following solid acids are present: stearic, palmitic, lauric or myristic, and probably dihydroxystearic and isooleic, while the liquid acids are oleic, ricinoleic, and linolic.

These properties of the oil which have been enumerated place it in the castor oil group of fatty oils, as will be seen by the following table:

	CASTOR	GRAPE	CROTON	AMPELOPSIS
Specific gravity.....	0.96	0.935	0.95	0.924
Refractive index.....	1.4799	1.4713		1.4762
Saponification number.....	183–186	178	210–215	186–194
Iodine number.....	83–86	96	102–104	86–90
Mixed fatty acids:				
Neutralization value.....	192	187	201	203
Iodine number.....	87–93	99	111	96
Molecular weight.....	293	299	279	275
Acids present:				
Tiglic.....	+		+	
Dihydroxystearic.....	+			+
Stearic.....	+	+	+	+
Palmitic.....		+	+	+
Myristic.....			+	+
Lauric.....			+	+
Ricinoleic.....	+	+	+	+
Linolic.....	+	+	+	+
Oleic.....	+	+	+	+

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THE U. S. P. ASSAY OF MERCURIAL OINTMENT

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The method as given in the U. S. P. IX for the assay of mercurial ointment has proven unsatisfactory in that results by this method are variable and low. In the official assay the fats are extracted by the solvent action of purified petroleum benzine. The mercury is incorporated in the fats in a finely divided state and is separated by repeated washings with benzine. The mercury is so finely divided that it does not settle quickly in the benzine and the numerous decantations make it almost impossible to prevent the loss of part of the mercury. The manipulation required is also a factor to be considered.

With the view of replacing the official assay by a more accurate and expeditious method, comparative experimental determinations were made using three methods: (1) The U. S. P. assay; (2) the determination of mercury as mercury sulfide; (3) the proposed continuous extraction method.

In carrying out the sulfide method, the sample of ointment was treated with dilute nitric acid (1 : 2), digested, filtered, washed, and evaporated to dryness. After redissolving in hydrochloric acid (1 : 8), the general procedure of the U. S. P. sulfide method for the assay of mercuric chloride was followed.

The proposed method as given below is accurate and calls for the minimum amount of manipulation.

THE EXTRACTION METHOD

Extract several 11 cm. hardened filter papers (similar to Whatman's No. 50) with ether to remove fats, dry, and fold. Weigh a 5 to 10 g. sample of the ointment on one of these filter papers which has been previously tared. Place in a Soxhlet apparatus so that the top of the paper extends just above the arm of the out-flow tube. This is easily adjusted by placing glass wool or absorbent cotton in the lower part of the Soxhlet apparatus. Extract with petroleum ether from 2 to 4 hrs. Dry and weigh.

Two samples of mercury ointment (U. S. P.) containing 30 per cent and 50 per cent of mercury were assayed by the three methods and the comparative results obtained are given in Table I.

SAMPLE Per cent Hg	TABLE I		
	U. S. P. Assay Per cent	Sulfide Method Per cent	Extraction Method Per cent
30.....	27.2	29.6	29.6
	29.2	30.0	30.3
	28.7	30.2	30.1
	26.5		30.5
	48.9	49.6	49.8
50.....	48.4	49.8	49.5
	48.0		49.6

It will be seen that the U. S. P. method gives results which are variably low, while the sulfide method and the extraction method both give results which are fairly accurate. Because of the ease of manipulation, the extraction method is preferable and it is recommended that this method be seriously considered for the next revision of the U. S. P.

It should be noted that the mercury left on the filter paper in the extraction method is readily collected into a globule and is easily examined for the presence of any appreciable amount of foreign material.

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¹ "Technology of Oils, Fats and Waxes," Ed. 5, Vol. 1.