

the amount of sulphur was found to vary from 13.0 to 22.467 per cent by weight and six of these were made with petrolatum base.

TABLE I.

Sample No.	Wt. of Sample.	Per Cent Sulphur Added.	Per Cent Sulphur Found.	Difference.
1	1.6076	7.673	7.666	0.007
1	1.8044	7.673	7.763	0.090
2	1.6741	8.916	8.921	0.005
2	1.7561	8.916	9.029	0.113
2	0.8499	8.916	8.918	0.002
3	0.7670	14.489	14.491	0.002
3	1.1902	14.489	15.505	0.016
3	0.7748	14.489	14.628	0.139
4	1.0785	16.348	16.446	0.098
4	1.0511	16.348	16.350	0.002
4	0.9964	16.348	16.366	0.018

## CONCLUSIONS.

1. A workable method, suitable for the gravimetric determination of sulphur ointment, has been devised.
2. The number of samples of sulphur ointment examined indicates a tendency on the part of retail pharmacists to substitute petrolatum for benzoinated lard, as 46 per cent of those examined were made with petrolatum base.
3. If the ointment requires petrolatum or wax to render it stable, their effect on the therapeutic value of the preparation should be determined, to allow for their addition if possible.
4. A study of the stability of the official ointment and ointments prepared with varying amounts of petrolatum and wax would be of interest.

## REFERENCES.

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- (2) Upton, *Ind. Eng. Chem.*, 10, 518 (1918).
- (3) Z. Castiglioni, *Anal. Chem.*, 91, 32 (1932).
- (4) Allport, *Quart. J. Pharm. Pharmacol.*, 6, 431 (1933).
- (5) Fleck and Ward, *Ibid.*, 7, 177 (1934).

## MEDICINE DROPPER TO DELIVER ONE MINIM (APOTHECARY'S MEASURE) PER DROP.\*

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In prescribing potent galenicals such as Tincture of Digitalis, the physician frequently refers to drops when directing dosage. This practice subjects the dose actually administered to wide variations which depend upon the size and shape of countless varieties of droppers on the market.

\* Section on Practical Pharmacy and Dispensing, A. Ph. A., Portland meeting, 1935.

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In designing a dropper which will deliver one minim per drop as nearly as possible, the factors which govern the formation and size of drops must be considered.

The maximum volume of a drop of a given liquid which can form is dependent upon the surface tension of the liquid and its specific gravity. Such a maximum drop can form only when a flat surface of sufficient area is available.

The surface tension of hydro-alcoholic mixtures (as used in the preparation of Tincture of Digitalis) is such that at room temperature (25° C.) the maximum drop is just less than one minim. A dropper, which will yield this maximum drop of such a hydro-alcoholic solution, has been designed. It consists of a straight glass tube 8 cm. in length and having an internal diameter of 3.8 mm. One end is attached to a rubber bulb, while the other end is formed into a flange as shown in Fig. 1.

Slight modification in the dimensions of the dropping flange will furnish a dropper suitable for minim per drop delivery of other liquids.

For Tincture of Digitalis the diameter of the dropping surface is 10.7 mm. and the delivery end of the tube is constricted leaving an orifice of 3.8 mm. to prevent leakage and increase accuracy. In order to obtain the maximum drop this dropper must be held in a vertical position and the drops expelled slowly from the full tube.

The accuracy of this dropper is shown by the following results obtained using Tincture of Digitalis at 25° C. in thirty-five samples of the droppers selected at random from stock.

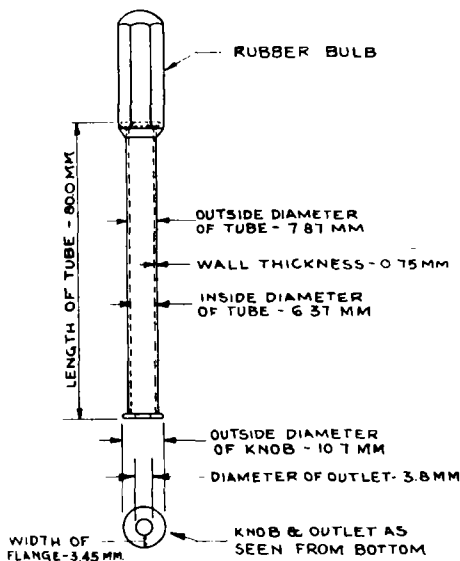


Fig. 1.

Minims per Drop.	Number of Droppers Delivering This Amount.
0.990-0.995	5
0.970-0.989	3
0.950-0.969	12
0.930-0.949	10
0.910-0.929	3
Less than 0.910	2

The largest volume delivered was 0.995 minims per drop, while the least was 0.901 minims per drop.

**Prof. Harold Urey**, discoverer of heavy water and Nobel Prize winner, has been awarded the Ernest Kempton Adams Research Fellowship in chemistry for 1935-1936, Columbia University announced October 10th. The announcement said Prof. Urey would be enabled to enter a new field of research.

A portrait of the late **Prof. Charles F. Chandler**—one of the founders of the American Chemical Society and member of the AMERICAN PHARMACEUTICAL ASSOCIATION from 1867 until his demise in 1925—was presented to Columbia University.