does not assay much above U. S. P. strength, thereby defeating one of the principal objects of official standards for preparations, namely uniformity.

A preparation made in two portions, the first representing one-half the volume of the finished tincture and containing all of the bitter orange peel and serpentaria, the other representing the red cinchona adjusted to proper strength (double that of the compound tincture), and these mixed in equal volumes, would produce a product that would be more nearly uniform in all its ingredients than one made by the present process, regardless of any adjustment necessary for obtaining proper alkaloidal strength.

The official formula, if changed as above described, would read as follows:

Red Cinchona, No. 40 powder	200 Gm.
Bitter Orange Peel, No. 40 powder	160 Gm.
Serpentaria, No. 60 powder	40 Gm.

Prepare 950 mils of Tincture by Type Process "P" as modified for assayed tinctures (see U. S. P. IX, page 444), from the red cinchona, and prepare 1000 mils of Tincture by Type Process "P" from the bitter orange peel and serpentaria, using as the first menstruum for each, a mixture of 75 mils of glycerin, 675 mils alcohol and 250 mils of water, completing the percolation in each case with a menstruum of two volumes of alcohol and one volume of water. Adjust the Tincture prepared from cinchona so that each 100 mils will contain 0.9 Gm. of cinchona alkaloids, using a mixture of glycerin, alcohol and water in the proportions of the first menstruum for this purpose. When finished, mix equal volumes of the two tinctures so prepared.

If thought more desirable, the two steps may each be given as separate preparations, and the compound tincture directed to be made by the mixing of equal volumes.

SPIRIT OF PEPPERMINT, U. S. P.*

BY E. F. KELLY.

The collection of samples of this galenical throughout the State of Maryland by the Board of Health for examination and the resulting prosecution of several pharmacists under the State Food & Drugs Act on account of variations in its strength, have called attention to some facts about this preparation that may be of interest here.

In the first place, it was not generally known, it seems, that the U. S. P. now recognizes Essence of Peppermint as an official synonym for the Spirit, and some dealers were marketing an off-strength preparation as Essence of Peppermint under the assumption that they were not amenable. Secondly, there is no official standard set up by the U. S. P., even as far as directing in the official formula, that a certain finished quantity be made, and this is also true of Spirit of Spearmint.

The official directions are to macerate 10 Gm. of peppermint in 500 mils of water for 1 hour, and express strongly. Mix 800 mils of alcohol with 100 mils

* Read before Section on Practical Pharmacy and Dispensing, A. Ph. A., Chicago meeting, 1918.

of oil of peppermint, add the macerated leaves and enough alcohol to make 1000 mils, macerate for 6 hours and filter.

The failure to direct the addition of sufficient alcohol through the filter to give 1000 mils was doubtless an oversight as this procedure is directed in the formulas for making all of the official spirits, with the exceptions of peppermint and spearmint and aromatic ammonia, and was directed in the U. S. P. VIII for those of peppermint and spearmint. The peppermint displaces a certain volume and this displacement, with the evaporation of alcohol in filtration, causes a loss of approximately six percent in volume, as found by several experiments. No doubt many who prepare this spirit will, through habit, make up the volume after filtration with alcohol, causing a corresponding deficiency in strength in the finished preparation.

Careful examination of Spirit of Peppermint U. S. P. shows that it contains approximately 10.6 percent of oil of peppermint and not 10 percent, as commonly understood. This higher percentage of oil is the result of the loss in volume before referred to, and checks, as will be noted, with the 6 percent loss in volume.

The question as to the correct legal standard, that may be raised under such conditions, demonstrates the importance of having all official formulas direct, whenever possible, a finished quantity either by weight or volume, or a definite number, particularly, when no other requirement is made.

STERILIZED DISTILLED WATER.*

BY E. FULLERTON COOK AND LOUIS GERSHENFELD.

The U. S. Pharmacopoeia IX introduced a process for preparing sterilized distilled water and it is assumed that any trained pharmacist is now prepared and able to furnish that official product on demand.

The directions of the U. S. P. seem simple and without complications, and without experience the druggist may feel that it is an easy task to prepare sterile water and dispense it on order.

Those, however, who have had experience in the making of sterile products, especially when apparatus must be adapted for the purpose and the work conducted under drug store conditions, know the difficulty met with, and the likelihood of failure. If an autoclave is available, its use would always be preferred to the official method, as it insures sterility, but since this is frequently not at hand, especially in a pharmacy, this paper was undertaken to prove the efficacy of the official process of the Pharmacopoeia, that is, boiling in a flask, and also to show the necessity for the most extreme caution, if success is to be attained by this method.

The Water Required.—The Pharmacopoeia directs the use of "freshly distilled water" for sterilizing. This preliminary requirement must not be ignored, since distilled water, even though but a few days old, will be teeming with bacterial life and if sterilized, would contain the dead organisms, and thus produce a "bacterin." It would also contain the toxins produced in the water during the life of the bacteria and such a water, if used as the solvent for a substance to be used as an intravenous or subcutaneous injection, would produce systemic effect and might cause serious consequences from the introduction of foreign proteid.

* Read before Section on Practical Pharmacy and Dispensing, A. Ph. A., Chicago meeting, 1918.