The great difference in p_H shown by solutions *AI* and *DI* was rather puzzling; however, the sudden jump in p_H may have been due to the fact that the end-point of neutralization of the acidic silver salt with the base had been exceeded in solution *AI*.

Of the solutions prepared, only *DI* had a p_H which would permit of its safe use in the nasal passage. This preparation showed little change of color and only slight sedimentation after three weeks' standing.

The Preparation of Stabilized Mixtures of Silver Sulfosalicylate with Ephedrine.—With the object in view of finding a substance which would contribute to the stability of solutions containing silver sulfosalicylate and ephedrine, the following materials were added to solutions of the silver salt and ephedrine: gelatin, acacia, dextrin, glucose, sucrose and urea. The solutions were prepared so that the p_H would range from a p_H of approximately 4.5 to 7.0. Tables 10 to 18 of the thesis indicate the compositions and p_H of the various mixtures, and Table 19 the changes on standing.

The silver salts of ortho and para aminobenzoic acids were prepared similarly to the silver sulfosalicylate. Lack of time prevented stability tests on solutions of these salts.

SUMMARY AND CONCLUSIONS

1. The zones of penetration of several insoluble silver salts in finely dispersed form have been determined.

2. Emulsions of silver oleate, palmitate, stearate, oxalate and succinate with and without ephedrine have been prepared and found to display reasonably good zones of penetration. It was found that storage in amber bottles greatly delayed the time of darkening of the emulsions.

3. A combination of silver oleate with quinine was secured by refluxing the two materials in methanol; the stearate and palmitate of silver did not react in a similar manner with quinine.

4. The reaction product of silver oleate and ephedrine in methanol darkens and decomposes when attempts are made to recover it from the filtrate; the addition of antioxidants such as phenol or benzaldehyde does not prevent the decomposition.

5. Three new soluble silver salts having antiseptic properties have been prepared.

6. Sulfonation of a silver salt of an aromatic acid has been accomplished.

7. Combination of silver sulfosalicylate with ephedrine alkaloid in the form of a salt is difficult because of the reducing effect of the alkaloid on the silver ion. This effect is more marked in solutions which tend toward alkalinity.

8. The stability of mixtures containing ephedrine and silver may be increased by the addition of a third substance. Gelatin, acacia, sucrose, urea or combinations of any of those may be used. The effect seems to be retardation rather than prevention of the reduction of the silver.

9. The addition of a reducing substance (antioxidant) as a stabilizing agent is unsatisfactory because reduction of the silver takes place more rapidly; however, the addition of an oxidizing agent, *e. g.*, quinone, also seems to hasten reduction of the silver.

REFERENCES

(1) Whitmore, W. F., and Lauro, M., *Ind. Eng. Chem.*, 22 (1930), 646.

(2) Finkle, F., Draper, H. D., and Hildebrand, J. H., *J. Am. Chem. Soc.*, 45 (1923), 2780.

Book Review

Standard Methods of the N. Y. State Department of Health, by AUGUSTUS B. WADSWORTH. 2nd Edition. xxiv + 681 pages, 6 x 9. 1939. Baltimore: Williams and Wilkins. $7.50.

This volume is a compilation of the laboratory methods of the Division of Laboratories and Research of the N. Y. State Department of Health. It contains all of the general procedures found useful in a large clinical laboratory and covers general bacteriological technique, the use of test animals, p_H determinations, collection of cultures, chemical methods used in clinical work, preparation and sterilization of media and glassware, methods used for the examination of various types of specimens for pathologic abnormalities and methods used for the examination of water, milk, cream and sewage. Of particular interest to the pharmacist is the section devoted to the preparation of antitoxins, serums, etc., with notes on the care and breeding of laboratory horses, sheep and other animals. The book is believed to possess value for biological manufacturers as well as clinical laboratories.—A. G. D.

CORRECTION

In column one, page 396 of the September issue, change last sentence to read: "All readings were made at 25° C."