solutions of the quaternary chloride had a strong tendency to pass through the filter, and their color varied with the slightest change in the conditions of preparation. The platinum salt examined under the microscope consisted of a mixture of crystals and amorphous masses.

Quaternary Nitrate, $C_{24}H_{28}N_3O.NO_3$.—The salt is prepared by dissolving the quaternary chloride in hot water and adding a strong solution of potassium nitrate in water. It is recrystallized from boiling water and dried *in vacuo* over sulfuric acid. Snow-white, rectangular prisms, difficultly soluble in cold water, quite soluble in methyl alcohol and hot water. It turns yellowish at 190°, and melts at 192–94° to a reddish liquid.

Calculated for $C_{24}H_{28}N_3O.NO_3$:	C, 66.02; H, 6.47.
Analysis gave:	C, 65.60; H, 6.22.

Quaternary Picrate, $C_{24}H_{28}N_3O.C_6H_2N_3O_7$.—The picrate is prepared by dissolving 2 grams of quaternary chloride in 500 cc. hot water and adding an excess of a hot solution of sodium picrate containing some free sodium carbonate. It is recrystallized from hot water containing some sodium carbonate and dried *in vacuo*. Soft, orange-yellow, oblong plates, difficultly soluble in all solvents tried. It turns reddish at 145° and melts at 155°. The salt contained 13.96 per cent. N. Calculated for above formula, 13.96.

Quaternary Picrolonate, $C_{24}H_{28}N_3O.C_{10}H_7N_4O_5$.—This salt is prepared as follows: Sodium carbonate and picrolonic acid, 1 gram each, are dissolved in 800 cc. warm water, and the solution set aside over night in a cool place. The liquid is filtered, and to the filtrate, heated nearly to boiling, is added a solution of 1 gram of quaternary chloride in 200 cc. hot water. On cooling, most of the picrolonate crystallizes out. It is recrystallized from boiling water, of which it requires about 2000 cc. Bright, orange colored microscopic needles, very difficultly soluble in the usual solvents. Air-dried, it melts at 164–66° to a thick liquid. For the estimation of N it was dried *in vacuo* over sulfuric acid. The salt contained 15.86 per cent. N. Calculated for above formula, 15.38.

The investigation is to be continued.

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NOTE.

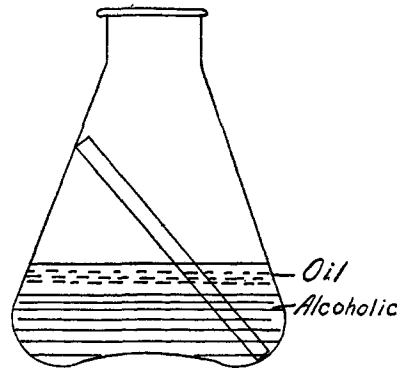
Prevention of Bumping.—It is sometimes necessary to boil alcohol out of an aqueous solution which is covered by a layer of specifically lighter oil, as in soap and oil analyses. This is quite difficult to accomplish without loss and is always very tedious on account of the great liability to explosive ebullition.

By introducing a piece of glass tubing open at both ends, the difficulty

is completely overcome and boiling may be conducted quite rapidly without any loss. The accompanying sketch shows about the proportionate length of tube that is desirable.

If the work is done in a beaker the vessel should be covered by a beaker cover because when boiling is fairly rapid short columns of the alcoholic liquor may be projected up the open tube and lost.

H. SPURRIER.



NEW BOOKS.

The Relations between Chemical Constitution and Some Physical Properties. By SAMUEL SMILES, D.Sc., Fellow of University College, and Assistant Professor of Organic Chemistry at University College, London University. (One of the series of "Text-books of Physical Chemistry" edited by SIR WILLIAM RAMSAY, K.C.B., F.R.S.) London, New York, Bombay and Calcutta: Longmans, Green & Co. 1910. Crown 8vo., pp. xiv + 583. 14s.

This volume is the portliest member of the Ramsay series, so far, at least, as they have yet appeared. Why it has been longer in preparation than have some of the others will readily be understood by any one who considers the extent and variety of the matter that is dealt with. Even so, certain physical properties have been wittingly omitted from consideration; crystallin form would require a separate volume; optical rotatory power, electric conductivity and heat of combustion have been dealt with in other volumes of this series; while solubility, dielectric constant, magnetic susceptibility and other properties have been omitted from discussion as not yet exhibiting sufficiently well defined relationships with chemical constitution to merit special treatment.

The subjects treated are grouped under the heads of capillarity, viscosity, volume relations, specific heat, fusibility, boiling point, refractive and dispersive power, absorption of light, fluorescence, magnetic rotatory power, and anomalous electric absorption. Each of these topics is introduced to the reader by reminding him of the fundamental definitions and groundwork of the subject and of the methods of measurement. The relationships proposed are supported by very many tables, which, as the author points out, are indispensable although detracting from the easy readability of the text. Finally, a clear statement is given in each case of the application that can be made of measurement of each physical property, and thus of its utilitarian value to the research chemist. There are three indexes—of authors, of subjects and of substances.