If the standard is found to be the darker it is diluted with distilled water until the two specimens match in color. The volume of the diluted urine is then carefully measured to find out how many cubic centimeters of water were added to the one hundred cubic centimeters of the standard. This number is then multiplied by twelve and the product is added to 1200 which will give the probable volume in cubic centimeters for the total twenty-four-hour specimen.

The figure 1200 cc. is taken as the average normal volume. The figure twelve (1200 divided by 100 cc.) is used to determine the volume of water that it would be necessary to add to the 1200 cc. of the standard to make it of the same volume as the urine being tested.

Example.—Diluted matched 100 cc. of the standard measured 122 cc.; then 22 cc. of water was required for the diluting and 22 × 12 gives 264 cc. for the total 24-hour standard. 1200 cc. plus 264 cc. gives 1464 cc. as the probably total volume for the specimen under examination.

When conditions are not average, or differ for the section of the country in which the examination is made, the normal volume and the fractional part factor will differ from 1200 cc. and for twelve and can be readily substituted for these.

This is especially serviceable for urine from diabetic patients. In these the total twenty-four-hour pigments are normal, the pale color of the urine is due to the excessive volume dilution.

Should the tested specimen be found to be darker than the standard, it is diluted in the same way until it matches the standard in color. The number of cubic centimeters of water required is determined in the same manner as above but the method of then determining the twenty-four-hour figure is not quite as simple as when the specimen under examination is more dilute than the standard. If 22 cc. of water were required to dilute the 100 cc. of the specimen under examination then the figuring is 100 plus 22 cc. or 122 cc., or the 100 cc. of urine tested is equivalent to 122 cc. of standard. Then the formula is $100/y{:}100 :: x{:}1200$ y = 100 plus cc. water added, or $100/122{:}100 :: x : 1200$ or x equals 983.6 cc. which is the twenty-four-hour total volume for this specimen.

Any standard type of a colorimeter can be used for matching the colors if one is available and the analyst is familiar with the technic for the given instrument.

A TIME-SAVING METHOD FOR USING THE DOREMUS UREA-NITROGEN DETERMINATION APPARATUS.*

BY LEAH G. GOECKEL.[1]

In a busy laboratory service where many specimens of urine are subjected to complete clinical urine analysis the newer side arm ureameter (Nitrometer) is not entirely satisfactory if the side arm burette is used for measuring the urine to be run into the hypobromite solution within the ureameter column proper. The preparation of the apparatus is too wasteful in time. For this reason we have preferred to employ the old style apparatus by which the one cubic centimeter of urine is run into the hypobromite by means of a curved tipped pipette.

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* Scientific Section, A. PH. A., Portland meeting, 1928.

[1] Cranford, New Jersey.

This method also has its disadvantages in that care must be taken in tilting the apparatus while running in the urine, or either loss of gas will take place or air will pass into the nitrogen column, thereby spoiling the determination.

Most supply houses are discontinuing to stock the old style apparatus. Our reserve supply of this type having recently become depleted and being obliged to use the newer style apparatus we have employed this in a manner superior to the usual technique advocated for either type.

Instead of pouring the urine to be analysed into the side burette up to the one or to the zero mark and measuring it by aid of the graduations thereon we use the 1-cc. pipette furnished with the old style apparatus and place exactly 1 cc. of urine into the burette arm and then by careful opening and closing the glass stopcock run the urine into the hypobromite solution. A few drops of distilled water are then run into the burette to wash down residual urine which is also run into the hypobromite column. The apparatus is then ready to receive the next lot to be analysed without the necessity of removing the hypobromite and residual urine to wash out the burette. In this way the same hypobromite reagent can be employed until spent, thereby saving material as well as much time.

Any 1-cc. pipette can be employed for this purpose. Placing an aspirating nipple at the further end makes it unnecessary to resort to mouth aspiration and is much more convenient and rapid. Employing the Doremus Ureameter in this manner will enable the supply houses to furnish the apparatus without the side-arm burette graduation, thereby reducing the production costs for the apparatus.

STUDIES ON THE DETERMINATION OF CAMPHOR IN CAMPHOR LINIMENT.

I. U. S. P. X METHOD.*

BY CHARLES F. POE, GOLDNER LIPSEY AND CLARENCE L. VAUGHN.

INTRODUCTION.

In comparing results obtained from the determination of camphor in camphor liniment by means of the method given in the present Pharmacopœia with the method previously used, it was found that the U. S. P. method gives much lower results. For instance, on samples containing 20.00 per cent camphor the differences were: —0.44%; —0.26%; —0.27%; —0.91% and —1.05%.

In searching the literature very little could be found concerning the evaporation method for the determination of camphor in camphor liniment. Kebler and collaborators,[1] in 1917, reported that the results by the evaporation method may be high, due to the liniment containing volatile materials other than camphor. In eleven out of fourteen analyses reported, the amounts of camphor obtained by this method were higher than the results obtained by using the polariscope. The differences were from +0.04% to +0.80%.

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* Presented before the Scientific Section, A. PH. A., Philadelphia meeting, 1926. Recently submitted.

[1] Kebler and collaborators, "Camphor Liniment," JOUR. A. PH. A., 6 (1917), 617.