Date	A % $Ca(OH)_2$	B % $Ca(OH)_2$	C % $Ca(OH)_2$	D % $Ca(OH)_2$	E % CaO	F % $Ca(OH)_2$
November 19, 1910	88.51		88.25			
November 21, 1910	87.5	84.09	86.6	83.		
November 24, 1910	86.8	78.	86.5	78.	78.88	77.5
December 3, 1910	86.5	76.5	86.5	70.25	65.98	76.9
December 10, 1910	86.45	75.4	86.5	70.15	65.95	76.8
December 17, 1910	86.43	74.29	86.44	69.8	65.95	75.4
January 1, 1911	83.4	28.75	86.44	37.44	52.61	38.37
February 11, 1911	83.35	28.47	86.44	35.30	46.76	37.42
March 4, 1911	83.29	27.95	86.43	33.10	45.65	37.25
May 4, 1911	83.22	20.96	86.43	32.53	45.58	37.08
July 11, 1911	83.12		86.43	30.89	41.20	36.41

The results under "A" and "C" are of the greatest interest to the pharmacist, showing that with no other precaution than to cork the bottle the changes in nearly eight months were from 88.51% to 83.12% in "A" and from 88.25% to 86.43% in "B," or a difference of 6.3% in the former and 2.5% in the latter.

The above results also disclose the fact that even slaked lime could be used, provided an increased amount has been taken and which could be shown to contain hydroxide by a drop of phenolphthalein solution.

A purified calcium hydroxide could be made by the average retail druggist, but the chemical and pharmaceutical houses are better equipped for such work and it could be marketed at a very reasonable figure.

DISCUSSION.

CHARLES H. LAWALL: "I have frequently observed that milk of lime does not deteriorate as rapidly as commonly supposed if kept under common sense conditions. I am glad that Dr. Asher has made the tests that he did."

F. R. ELDRED: "There have been many elaborate schemes proposed for the keeping of lime water, such as siphons and similar arrangements. Some time ago I made secral experiments as to the rate of deterioration of calcium hydroxide in solution. One was the keeping of a gallon of lime water with an excess of calcium hydroxide, the bottle being stoppered with an ordinary cork. Once a week the bottle was uncorked and two ounces poured out, without shaking, until only about two ounces of solution remained above the lime. The liquid remained saturated all the time.

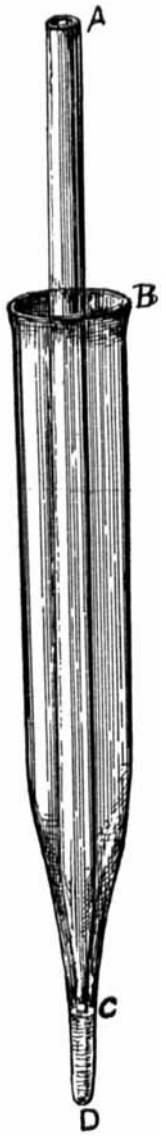
"Another gallon bottle of the solution was kept with simply a paper cover to exclude dust, and every week a portion was removed by means of a pipette and titrated. While the liquid did not remain absolutely saturated it was above the pharmacopœial requirement at all times."

IMPROVEMENT IN THE TECHNIQUE OF SAMPLING URINE FOR MICROSCOPIC EXAMINATION.

G. H. MEEKER, PHAR. D., LL. D.

Let it be assumed, for the purpose of illustration, that an adult male will void about 250 cc. of urine each time he empties his bladder; that the total volume of his urine in twenty-four (24) hours is about 1500 cc., and that the clinician will

take as the sample for examination either the volume voided at a certain time or the total volume voided in a day. In both cases only a *single drop* is placed upon the microscope slide. This drop will measure about 1/20 cc. Under the foregoing circumstances, the microscope slide contains only (1/250. x 20 or 1/1500 x 20 = 1/5000 or 1/30,000) one five-thousandth or one thirty-thousandth of the whole urine sample. These figures will, of course, vary according to circumstances, but they serve to compel the conclusion that if the drop examined microscopically is to contain representatives of all solid particles in the main sample, then said drop must be obtained by a definite, intelligent procedure. The chance for error is reduced as we multiply the number of drops examined by the microscope; but the mere multiplication of examinations is both laborious and unintelligent. If we allow the urine to stand at rest until the particles subside, and then examine the subsided particles, we still further reduce the chance for error; but such a long time is required for complete subsidence of large samples of urine that the delays and fermentative changes encountered in this procedure become objectionable. Mere sedimentation by gravity has therefore given way largely to sedimentation by the centrifuge. The centrifuge gives results quickly and without the objectionable fermentation. We find some clinicians, however, who insist that the centrifuge does not effect sedimentation as perfectly as does gravity; and who refuse for this reason to abandon the gravity method.



I will now describe a procedure for the sampling of urine for microscopic examination, which is rational and which through long and satisfactory use in my laboratory has been approved by experience.

THE PROCEDURE.

Shake the sample so as to make it homogeneous. Take two conical centrifuge tubes, each having a capacity of about 20 cc. Label the tubes "a" and "b." Into each tube put about 15 cc. urine. With the contents of "b" mix one drop of a one per cent solution of ammonia alum, followed by a drop or two of ammonia water, if necessary, to produce a faint alkalinity. Now rotate both tubes until sedimentation appears to be complete. Remove the tubes from the centrifuge and pour off the clear liquid. Next introduce a small, pointed pipette into the sediment, as shown in the illustration, and blow gently through the sediment. Using the pipette, transfer a drop of the turbid material to a slide. Again mix the sediment by blowing through the pipette and again prepare a slide. We now have four slides—two from "a" and two from "b." To "a" now add one drop of any staining fluid desired, and to "b" add a drop or two of an acidified staining liquid, or enough to dissolve the earthy phosphates and aluminum hydroxide present. Having allowed sufficient time for the staining action, prepare four more slides as described above. A cursory examination of the eight slides with the ⅔″ objective and a more detailed

examination of one or two of the slides under the 1/8" objective completes the study.

A few explanations follow: The two 15 cc. samples taken from the well-shaken urine are each fully large enough to include, in correct proportion, all of the kinds of suspended solids in the main specimen. The use of the alum in alkaline solution insures the formation of a coagulum which entangles and precipitates all morphologic elements of the urine and checks the findings in test tube "a." The sediment must be mixed before taking the drop upon the slide because the solids do not settle uniformly. The illustration, Fig. 4, shows one of the centrifuge tubes ready for taking away the drop for microscopic examination—AD is the pipette; BD is the centrifuge tube; and CD is the sediment with accompanying liquid.

THE DETERMINATION OF THE CHEMICAL REACTION OF URINE.

G. H. MEEKER, PHAR. D., LL. D.

One having but little experience with the use of litmus paper in determining the chemical reaction of urine would think that no test upon the urine could be more simple in performance or more certain in its results. As a matter of fact, however, there are many fallacies in this apparently simple test. The fallacies arise mainly from the use of dry litmus paper and from the ofttimes faintness in the change of tint. The eye needs a control color-guide in order to render the results certain. I have for several years been employing, with much satisfaction, the following procedure, in which I believe the chances for erroneous results have been eliminated:

HOW TO CONDUCT THE TEST.

Half fill a small beaker with urine. Lay a clean white tile (or any other clean glazed surface) upon the table near the beaker. Take up two slips of red litmus paper—which for clearness in description we will call R 1 and R 2. Wet both slips of red litmus paper with neutral water. Lay R 1 upon the tile and hang R 2 against the side of the beaker so that the paper adheres to the beaker and is about two-thirds immersed in the urine. Take up two slips of blue litmus paper—B 1 and B 2, and proceed as with R 1 and R 2. After R 2 and B 2 have remained in the urine three minutes, remove them and lay them beside R 1 and B 1 on the tile. The order upon the tile should be R 1, R 2, B 2, B 1, as shown diagrammatically below. The tints will now lie side by side and the eye can readily detect any color change that may have occurred.

There are three possible alterations in tint: I.—Of R 2 to bluish, which means that the urine is alkaline. II.—Of B 2 to reddish, which means that the urine is acid; and III, of R 2 to bluish and B 2 to reddish, which means that the urine is amphoteric.

If an alkaline reaction be observed, it is important to determine whether or not the alkalinity is due to ammonium carbonate. To gain this information, heat the tile gently until the four slips of litmus paper upon it are thoroughly dried. If