remarks to simple purulent infiltration (if one may use such an expression) of the walls of the stomach, of which my case appears to be an instance, and have purposely omitted more than a casual reference to circumscribed abscess of that organ. As the two are, however, so intimately connected, I may, perhaps, conclude with Raynaud's summary at the end of his article referred to above.

1. The term gastritis should be restricted to the sense which custom has assigned to it, that is to say, inflammation of the mucous membrane, without any tendency to extension to the cellular tissue.

2. There are three distinct varieties of abscess of the walls of the stomach—intramucous abscess, circumscribed abscess of the submucous tissue, purulent infiltration more or less general.

3. The circumscribed abscess appears, in the majority of cases, as a chronic condition, and, perhaps, one of the pathogenic forms of gastric ulcer.

4. The purulent infiltration is an anatomical condition, liable to arise in many general diseases, characterised by a disposition of different organs to the production of pus.

NOTE ON ESBACH'S METHOD FOR ESTIMATING THE QUANTITY OF ALBUMEN IN URINE.

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ALTHOUGH much has recently been written in this country regarding the use of picric acid, it is rather surprising that no attention has hitherto been given to M. Esbach's method of employing it for the quantitative as well as for the qualitative determination of albumen in the urine.

This method, which dates from 1874, consists in measuring, in a graduated tube, the height of the deposit given by a measured quantity of albuminous urine, when treated with a solution containing picric acid and citric acid in the proportions respectively of 1 and 2 per cent.

The Test-Tube.—This is somewhat stouter than an ordinary test-tube. It is six inches long, and about nine-sixteenths of an inch in diameter. On its outer surface, it bears a scale of seven degrees, diminishing in size from below upwards, whereby the quantity of albumen represented by the deposit is intended to be read off in grammes per litre, *i.e.*, in parts per 1,000. Somewhat above this scale is a dotted line marked U. (urine), and at a certain distance above it another line marked R. (reagent).

The Test-Solution.—This is made by dissolving one part of picric acid and two parts of pure air-dried citric acid by the aid of heat, in about 80 or 90 parts of distilled water, adding subsequently enough water to make exactly 100 parts. If only the apothecaries' weights and measures be available, a solution of similar strength may be made by dissolving 35 grains of picric acid and 70 grains of citric acid in 8 fluid-ounces of distilled water.

Mode of Proceeding.—1. The urine should be filtered.

2. If not distinctly acid, it should be rendered so by the cautious addition of acetic acid, drop by drop, until it changes litmus-paper to a brick-red.

3. If the specific gravity exceed 1.010, the urine should be diluted by one or more volumes of water, so as to bring it below that figure.

4. If, after the first trial, the urine be found to contain more than 4 per 1,000 of albumen, it should be diluted so as to bring the deposit below the line 5 of the tube; and in either of these two cases, the indication given by the deposit must be doubled or trebled according to the degree of dilution.

5. With the urine thus prepared, fill the tube up to the line U. Add the reagent up to the line R. Close the tube with an India-rubber plug, and gently turn it up and down a dozen times, so as thoroughly to mix without frothing the contents.

6. Let the tube remain at rest in the upright position for twenty-four hours, and, at the end of that time, read on the scale the amount of the deposit.

Example.—A patient passes in 24 hours 1,000 cubic centimetres of urine, = 35½ fluid ounces—of specific gravity 1024. A filtered portion of this is diluted with twice its bulk of water, and the deposit, after 24 hours, reaches to the line 3 of the tube. Then, this number multiplied by 3, on account of the dilution, indicates 9 grammes per litre (*i.e.*, 9 parts per 1,000), as the quantity of dry albumen contained in the specimen.

Of course, the same number divided by 10 will give the parts per

100, and, if this be multiplied by the factor 4.4 (strictly, 4.375), it will give, very nearly, the number of grains per fluid-ounce; thus, $9 \times 4.4 = 3.96$.

If it be desired to use the test-solution merely to detect the presence of albumen, the following method will be found advantageous. Pour a little of the solution into a test-tube, add the urine, previously filtered, drop by drop, and if, at the point of contact of the two fluids, a haziness show itself immediately, the urine is certainly albuminous; but if the haziness be very slight, and not instantaneous, it may be due to a precipitation of uric acid. In this case, repeat the experiment, and warm the solution before adding the urine.

When I first became acquainted with M. Esbach's method in 1880, it seemed to me so handy and useful for clinical purposes, that I did not hesitate to introduce it into the clinical medical wards at Netley; but it was not until last autumn that I found leisure to compare it with the common method of precipitating the albumen of urine by heat and nitric acid, and to determine the value of the results in each case by comparing them with those given by the ponderal method. For the common method, I used a test-tube, having an internal diameter of 15 millimetres, = $\frac{1}{4}$ of an inch, with a cubic centimetre scale marked on its surface from below upwards. The quantity of urine used was always the same, *viz.*, 12 cubic centimetres. The boiling and acidulation were conducted in the usual manner, and the coagulum was allowed to settle for twenty-four hours. Of course, the urine was filtered before it was tested.

The following table gives the results of the last ten consecutive analyses then made.

No.	Specific Gravity of the Urine.	Quantity of Albumen in parts per 1,000.		Height of the Deposit given by Heat and Nitric Acid.
		By Esbach's Method.	By the Ponderal Method.	
1	1023	.. 3.0 ..	.. 3.8 ..	3.00 c. c.
2	1022	.. 4.2 ..	.. 3.9 ..	3.25 "
3	1022	.. 3.8 ..	.. 4.0 ..	3.75 "
4	1022	.. 3.9 ..	.. 4.0 ..	3.25 "
5	1025	.. 5.4 ..	.. 5.4 ..	6.25 "
6	1026	.. 4.8 ..	.. 4.8 ..	2.751 "
7	1025	.. 3.9 ..	.. 4.0 ..	3.75 "
8	1022	.. 4.2 ..	.. 4.1 ..	3.50 "
9	1020	.. 3.9 ..	.. 3.6 ..	3.75 "
10	1020	.. 3.5 ..	.. 3.0 ..	3.50 "
Means		4.06	4.06	3.675 c. c.

¹ Coagulum not all settled to the bottom.

From this it appears that Esbach's method affords results, which, if not always absolutely correct, are nevertheless accurate enough for all clinical purposes; and as such it is, I think, deserving of the attention of the medical profession in this country. It has the additional advantage of being so simple that it might be performed as a daily duty by any intelligent nurse, or even by the patient himself if in a state to make observations. It is certainly better adapted for cases in which the loss of albumen is large, as in nephritis and certain cardiac diseases, than for those in which the albuminuria is slight and transitory; but, in the latter, a daily quantitative estimation of the albumen discharged with the urine would very seldom be considered requisite.

It is also seen that, even with an ordinary test-tube, graduated in cubic centimetres, and with heat and nitric acid, the deposit from twelve cubic centimetres of urine enables one to form a fair approximation, directly, to the quantity of albumen contained in 100 parts, and thence, by an easy calculation, to the number of grains per fluid-ounce. In this case, the urine requires no preliminary acidulation, although, when its specific gravity exceeds 1020, dilution with one volume of water will generally give a better deposit, and therefore more accurate results. Moreover, the tests are those with which every one is familiar, and on which many medical practitioners continue to place the greatest amount of reliance.

I have only to add that albuminometers of the kind which I have described can be obtained at a very cheap rate from Messrs. Townson and Mercer, of 89, Bishopsgate Street Within, E.C.

POISONOUS PAPERS.—It would appear that the coloured papers commonly used in kindergartens are not all of them free from poison, for an investigation by Dr. Henry Leffmann shows that, in some cases at least, the blue papers contain ultramarine; the yellow, lead-chromate; but the red a large amount of arsenic. When we remember that children, even children whose parents believe in the kindergarten system, are fond of sucking everything they come across, it would seem that there is a real danger in the use of these papers.