

SOME NEW FORMS OF APPARATUS FOR ESTIMATING NITROGEN IN URINE.

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THE apparatus now chiefly employed for estimation of nitrogen in urine analysis is that known as "Dupré's." It consists of an outer glass cylinder, to be filled with water; inside this cylinder is placed a glass tube graduated to show per cents. of urea. Nitrogen is evolved from the urine by an alkaline hypobromite, usually soda, and conveyed by a suitable arrangement to the inner graduated tube, water being displaced; on cooling the gas the inner tube is raised till the water it contains is level with the water in the outer vessel; pressure being thus balanced, the reading may be taken. The above instrument is undoubtedly as accurate as it is possible to make it, but has often impressed me as wanting in simplicity, and, moreover, on account of the delicate construction of some of its parts, is very liable

FIG. 1.

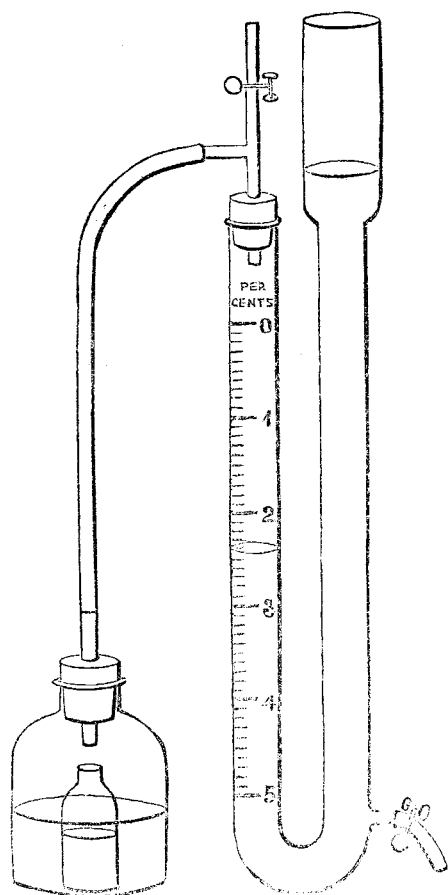
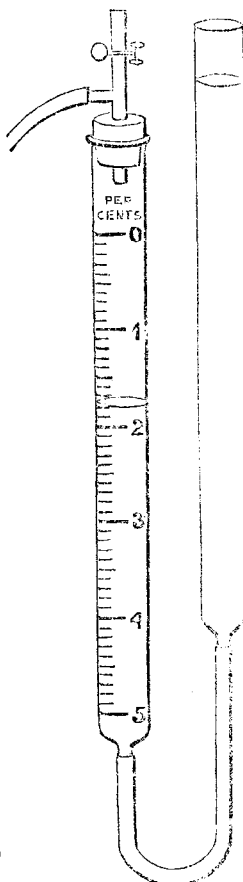


FIG. 2.



to fracture. Again, I have often seen an operator troubled to know when the zero was in its proper place, or levels correctly adjusted, and having to look through two columns of glass the graduations become obscure and the reading is made difficult. The instruments I have devised, and which will be best understood from the illustrations, are the result of a few experiments at simplification, and throughout I have aimed at keeping the highest degree of accuracy. Fig. 1 is a U-tube expanded at the top of one of its arms into a bulb, the bulb being designed to receive water displaced from the graduated arm. At the lower end of the bulb arm is a tubulus fitted with pinchcock for drawing off water. The graduated arm of the tube is marked in per cents. of urea, and fitted with a rubber cork and T-piece, connected with a wide-mouthed rubber corked bottle, to receive the hypobromite of soda. The small bottle inside the larger one is to receive the urine under examination. To work the apparatus the U-tube is filled with water to the zero line, the corks well fitted, and pinchcocks closed. The urine, 5 c.c. in inner bottle, is now upset into the hypobromite, the evolved nitrogen displacing the water in the graduated tube,

causing the water to rise in the bulb. The bottle is now placed in cold water to cool the gas; then the pinchcock of the bulb arm is opened, and the water drawn off until it is exactly level in each tube; pressure being thus equalised, the percentage may be read. Fig. 2 is a simpler development of the first, consisting of two tubes communicating at their bases by rubber tubing. The tubes are kept fixed in spring clamps, so that they may be raised and lowered at will. The gas is generated exactly as in the other apparatus, pressing the water from the graduated into the plain tube, after the usual cooling has been effected by raising one tube or lowering the other, the level of the water is attained and pressure corrected. The percentage is now taken. The adoption of the flexible tube does away with the tubulus, and therefore the necessity for drawing off water, besides much cheapening the instrument. Both tubes are firmly fixed on stands, enabling them to be used with safety and facility, an analysis being completed in less than five minutes.

Both instruments are graduated with an allowance for all the usual corrections, so that the operator has simply to read his percentages of urea; in the drawings 5 per cent. only is indicated, but at the suggestion of Mr. Victor Horsley the instruments have been constructed to show 6 per cent. urea.

A Mirror OF

HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

SEAMEN'S HOSPITAL, GREENWICH.

A FATAL CASE OF STRANGULATED HERNIA; SAC OPENED; PORTION OF OMENTUM EXCISED; KNUCKLE OF INTESTINE REDUCED; AN UNDESCENDED TESTICLE AND SAC REMOVED; PERSISTENT FÆCAL VOMITING; DEATH; OBSTRUCTION OF KNUCKLE OF INTESTINE BY PEDICLE OF OMENTUM; REMARKS.

(Under the care of Mr. E. S. WEBBER, M.B. Cantab.)

W. P—, aged twenty-one, was admitted about one o'clock on the afternoon of September 4th. He said that he was at work in the morning, and about 10.30 A.M. was lifting a heavy weight when he felt something give way in his abdomen and come down into his scrotum. He could not get it back, and it caused him great pain. He said he had a rupture, but it had not been down for some years.

On examination it was found that a tumour occupied the left half of his scrotum and inguinal canal. It was not very tense, but could not be returned into the abdominal cavity, and the attempt caused him great pain. He was put to bed with an ice-bag over the scrotum, and had twenty minims of laudanum, which, however, he vomited almost immediately, and was sick again two or three times at intervals of about half an hour; the vomit was not stercoraceous. About 9 P.M. he was put under ether, and another attempt at reduction having failed, the sac was cut down and opened. It was full of omentum, and when this was lifted up a knuckle of congested intestine was seen; the omentum had a very thick pedicle, and that, together with the presence of an undescended testicle, seemed to be the sole cause of strangulation. The omentum was ligatured in four pieces and removed, and then the stump was returned into the abdomen. The intestine was easily returned and a finger could be passed up the canal into the abdominal cavity, where everything appeared perfectly free. The neck of the sac and the spermatic cord were next ligatured, and the sac and the testicle removed. Unfortunately the spermatic cord retracted from the ligature, so the wound had to be enlarged upwards, in order to find the cord again. When this was accomplished the edges of the wound were brought together. The operation was done with antiseptic precautions.

Sept. 5th.—The patient was a long time recovering from ether, and was sick several times; pulse good; has no pain and has also lost the anxious expression he had on admission;