water purposely left in the bladder is allowed to flow away through the instrument, and the urine is then collected from each side.

It is impossible, with the limited experience which I possess, to institute a true comparison between the two instruments. I have certainly found that Luys's instrument, though easy to use in the female, is decidedly difficult to pass in the male, until repeated practice has given one the knack. When the tip of the instrument lies in the bladder the handle should be well depressed at the same time that onward pressure is maintained. In this way it will be found easiest to overcome the undoubted difficulty of introduction. Professor Hartmann, however, has told me that he considers the instrument is easier to use in the male than in the female, and, with frequent practice, this may be so.

Fig. 4.—Cathelin's instrument, showing the septum.

Cathelin's instrument presents no difficulty in the introduction, but it is not quite an easy matter at first to know by touch alone that the septum fits the bladder well. If the bladder is small and the septum be pushed fully into the bladder it will twist to one side, and the partition will be defective. It is, therefore, necessary before using the instrument to ascertain roughly the capacity of the bladder. Various sizes of septa are now made; at first only one was provided.

Dr. Luys's instrument is of no value unless the bladder be fairly normal in size and position. If the base of the bladder is infiltrated with growth, spreading from the cervix of the uterus, for example, or if the bladder be distorted by the traction or pressure of a fibroid or an ovarian cyst, the curve of Luys's instrument cannot be made accurately to fit the bladder. In such circumstances it may be difficult to use Cathelin's instrument, but it is certainly less likely to be so.

My present opinion is in favour of the use of Luys's instrument for the female and of Cathelin's for the male, but I am prepared to admit that a more extended experience may modify my opinion.

There can be no doubt that both instruments are of great practical value. I propose shortly to publish a complete series of observations, but meanwhile I may call attention to two cases reported by me in the *BRITISH MEDICAL JOURNAL* for April 30th, in which great help was afforded by the separation of the urines.

A NOTE ON DR. CATHELIN'S URINE SEPARATOR.

By J. LYNN THOMAS, C.B., F.R.C.S.ENG.,

Surgeon, Cardiff Infirmary; Consulting Surgeon, Hamadryad Hospital, Porth Hospital, Bridgend Cottage Hospital, and Cardiff Provident Dispensary.

DURING the last quarter of a century the progress of urogenital diseases from a surgical point of view has been very great, but until quite recently a method for the separation of

urine from each kidney had not been brought within the reach of the general surgeon, although one has recognized the circumstance that the surgeon who specializes in these diseases had a certain amount of success.

As far as I know, the first inspiration towards progress in determining the functioning value of a kidney was directed to tapping its efferent tube—the ureter. The inventive eye of the clinician seems to have been riveted to this field for many years. The outcome of having such a limited horizon has been the production of different types of ureteral catheters. In 1894 I procured from Leiter in Vienna a posterior cystoscope+ureter catheter. After many attempts I managed to introduce it into the ureter twice only. The Nitze's anterior cystoscope ureter catheter has one advantage over the posterior one in that the angle at which the catheter is projected from the cystoscope towards the ureteral orifice is much more favourable for its insertion into the ureter.

One objection which is often expressed against catheterizing the ureter is the danger of infecting a healthy one, but what appears to me the greatest objection to this method of diagnosis is the difficulty in carrying it out. "Something attempted but nothing done," would, I think, summarize the result of this method of diagnosis in a considerable number of cases.

Kelly's method of catheterizing the ureter is an excellent one, but unfortunately its utility is confined to one sex. Mr. Hurry Fenwick's attempt to collect urine by means of securing the mouth of the ureter in the bladder by sucking it into a properly-constructed catheter possesses the element of guesswork in finding the ureteral mouth, and on that account positive results alone can be of any value.

A great advance was made by widening the horizon so as to include simultaneously the two ureteral orifices for investigation in the construction of a suitable instrument.

The value of the cystoscope is not in the least diminished by the introduction of urine separators. Its use in quickly determining the presence or absence of the rhythmic movements of the vesical termination of the ureters, the side from which blood or pus comes, and the existence of growths or stones in the lower segment of the ureter, will ensure for the cystoscope a permanent place among our instruments for diagnosis. Some surgeons have displayed enthusiasm, as well as a certain degree of speculation, with regard to their being able to determine the working capacity of a kidney by observing the character in size, form, and colour of its corresponding ureteral orifice by cystoscopic examination, and Mr. Hurry Fenwick has recently described such an examination by the somewhat poetical expression of "ureteric meatoscopy." But however shrewd a guess can be made by this method of diagnosis, there is no doubt that the new urine separators or "segregators" will soon be a popular method in the hands of the general surgeon.

There are two other methods at our disposal for determining the existence of and the working capacity of the other kidney; but these are operative means, and therefore are of no use in our consulting rooms. Professor Kocher, whilst operating upon a diseased kidney from the loin, extends forward the incision so as to open the abdominal cavity in order to be able to palpate the other kidney. After this manoeuvre is accomplished the peritoneal cavity is closed and the operation upon the kidney proceeded with. The other operative method is that of Dr. Steinthal. It consists of collecting urine from the bladder whilst a temporary ligature is placed upon the ureter near the diseased kidney.

It is almost impossible for surgeons to be able to form a correct estimate of the working capacity of a kidney which is distended from the presence of a calculus, or a kink of the ureter or other causes, and it is common experience to find urine pouring out of the loin in cases of drainage of diseased kidneys which showed but a mere membrane of secreting tissue lining their capsule. One of my colleagues last winter related to our Cardiff Medical Society such a case of extensive destruction of kidney from the presence of numerous calculi, and he considered it wise to remove an organ which apparently was practically useless. Subsequently the patient gradually developed uraemic symptoms and died. It was discovered *post mortem* that the other kidney was small and disorganized—that it possessed no working capacity. Surgical calamities of this character have occurred on many occasions, and the addition of a simple method of diagnosis by means of which similar tragedies can be avoided will be an invaluable boon.

Last February I procured Dr. Cathelin's instrument from Collin; its mechanism appeared to me to be better than that

of Dr. Luys, and the practical fact that Cathelin's urine separator can be used with the patient lying down has a distinct advantage over that of Dr. Luys. Since Dr. Bickersteth's interesting paper appeared¹ Luys's instrument is becoming well known in this country.

Cathelin's urine separator is shaped like an English lithotrite, and has a small catheter on each side of its stem and beak. Before the instrument is introduced into the bladder, the partitioning diaphragm is withdrawn into the stem, until the mark "o" on the carrying rod indicates that it is completely shielded; the other figures, graduated from 10 to 300, indicate that a globe that would hold one of the specified quantities in grams would be bisected through its middle by the diaphragm projected to that index. For example, when one leaves 40 grams of water in the bladder, the rod is pushed into the stem until the figure 40 is about to disappear, then the diaphragm fills and bisects the bladder into lateral halves.

In my practice I have had some very striking illustrations of the efficacy of the instrument in keeping unmixed the two urines in the bladder. In our consulting rooms I consider the use of the urine separator is less objectionable to females than that of the cystoscope. Ten to twenty minutes is long enough to collect sufficient urine for diagnosis. In one of Dr. Herbert Vachell's cases I left the instrument in a male patient's bladder for one hour and twenty-five minutes, with very little discomfort. This patient had pains—back-ache on the left side—and the left kidney secreted but one-fifth the quantity of the right kidney. I performed decortication of the left kidney with satisfactory results.

In this paper I do not propose to give reports of cases, but would venture to refer to one that is a most striking example of perfect partitioning of the bladder. In another patient of Dr. Herbert Vachell's at the Cardiff Infirmary, who had haematuria with a large palpable tumour of the right kidney, Cathelin's instrument drew highly-coloured bloody urine from the right side, and clear urine containing albumen from the left. The coloured right urine was alkaline in reaction, whilst the left clear urine was acid. I was inclined to think the albumen on the left side might be due to a trace of the right urine escaping by the diaphragm. Five weeks ago I removed the kidney with the tumour (carcinoma); since then the urine has remained clear, but still contains albumen, as it did before removal of the diseased kidney.

For demonstration purposes urines can be fixed in test tubes by means of gelatine and formalin, and I have been much struck with the difference in colour of normal urine from the two kidneys; in some cases one kidney seems to possess greater affinity for extracting colouring material than the other.

I have once been saved from removing a tumour of the only functional kidney. An old lady had a large right renal tumour; I took her into the infirmary for operation. As I had just received Cathelin's instrument I used it, but to my surprise I could only get urine from the diseased side. I thought that this might possibly be due to the diaphragm not being placed in the middle of the bladder, and that it pressed on the left ureteral orifice. I made a second examination with the same result. A third examination under an anaesthetic gave exactly the same result, and I also found by cystoscopic examination that the left ureteral orifice was a thin U-shaped slit with no peristaltic movements. I injected water coloured with potassium permanganate through the left catheter, and it returned the same colour without affecting the urine from the right side. The mere fact of anaesthetizing this old lady gave rise to serious uraemic symptoms for a fortnight. In cases of renal calculus with albuminuria I have found non-albuminous urine on the sound side. From the above observations it seems clear we have at present reliable urine separators, and it is scarcely possible to bring forward a better illustration than the one briefly referred to, where the urine was alkaline on one side and acid upon the other, to show that we possess an instrument of very great value for diagnostic purposes.

REFERENCE.
Lancet, March, 1904.

THE LIGHT TREATMENT IN FLORENCE.—A committee, of which Professor Pellizzari is the chairman, has been formed to promote the establishment of a light institute for the treatment of lupus and other forms of cutaneous tuberculosis at Florence. The King of Italy has intimated his approval of the scheme, towards the execution of which he has contributed £120.

THE LEISHMAN-DONOVAN BODY IN ULCERATED SURFACES;

A POSSIBLE ROUTE OF ITS ESCAPE FROM THE HUMAN BODY.

BY

SIR PATRICK MANSON, and GEORGE C. LOW,
K.C.M.G., F.R.S., M.B.,
London School of Tropical Medicine.

IN the *BRITISH MEDICAL JOURNAL* of May 28th we described the presence of Leishman-Donovan bodies in the lymphatic glands of the mesentery. In later work it has been found that the distribution of the parasites in the glands is not uniform, some containing none, some a few, others enormous numbers.

A careful examination of the intestine of the case before mentioned revealed a small ulcer about 12 in. above the ileo-caecal valve, three small punched-out ulcers at the splenic flexure, and two areas of atrophied mucous membrane, one 15 in. or thereabouts above the caecum, the other in the upper part of the ileum.

The mesentery presented numerous small nodules, somewhat resembling minute tubercles; similar nodules were present on the peritoneal surface of the small intestine, and also at the base of the small intestinal ulcer.

Microscopically the intestine exhibited areas of small-celled infiltration between the mucous glands, and in the sub-mucous coat, the atrophied areas showing similar though more advanced changes, most of the mucous membrane having disappeared.

In the infiltrated areas of the small intestinal ulcer, and in one of the ulcers from the large intestine, Leishman-Donovan bodies, few in number, it is true, but unmistakable, were found; they were enclosed in cells. In the other areas no parasites were detected, but as the bodies were so few in the ulcers it is possible that they may yet be found here also.

In sections of liver, spleen, and lymphatic glands the position of those bodies is undoubtedly, in the majority of instances, intracellular. In many cases the protoplasm of the cell is swollen, the nucleus staining faintly or having disappeared.

We have never seen the parasites in the red blood corpuscles in sections or otherwise. Wright and James have found the Leishman-Donovan, or a similar organism, in ulcers of the integuments (Oriental sore), Christophers in intestinal ulcers. The foregoing note again records their occurrence in ulcers of the intestinal mucosa, and this is interesting in view of the fact that dysenteric ulceration is a very usual termination for kala-azar.

Failing the discovery of any other means of exit from the body, may it not be that the normal route of escape for the parasite is by an ulcerated surface? With this idea in view we lately produced by croton oil and liquor epispasticus slight ulcerating dermatitis in a patient with Leishman-Donovan bodies in his viscera, but failed to find the parasites in the discharges. This experiment cannot, however, be considered conclusive, as we were afraid, in the interests of the patient, to produce anything like deep ulceration.

The above observations confirm, then, the work of Christophers recently published in India, and are of interest in showing that these parasites may escape by the intestinal canal.

PRELIMINARY NOTE ON THE CULTIVATION OF ANAEROBES.

By D. J. HAMILTON, M.B.,

Professor of Pathology, University of Aberdeen.

Most of the instruments devised for the cultivation of anaerobes are faulty in design, in so far as they do not allow of the organism being examined from time to time, and while it is growing, without disturbing the whole anaerobic arrangements; another drawback to their use is the uncertainty of obtaining typical surface cultures. As in the excellent instrument planned by my assistant, Mr. A. R. Laing, M.B., Ch.B. (*Lancet*, February 20th, 1904, p. 515) their construction is generally based on the principle of substituting an atmosphere of hydrogen for air.

The method I am about to describe aims at the exclusion of any atmosphere whatever, and has proved remarkably efficient in the large experience I have now had of its employment. By means of it, cultures of anaerobes, such as the