is $\frac{1}{2}$ inch below upper border of the symphysis pubis. The rectal bag was first injected with 15 ounces of fluid; this produced no change whatever in the position of the peritoneal fold. Ten ounces of fluid were then injected into the bladder, which raised the reflection $\frac{3}{4}$ inch above the pubes.

3. A man, aged 40, of average habit of body. The reflection is $\frac{1}{4}$ inch below the upper margin of the symphysis pubis. The rectal bag was first injected with 15 ounces of fluid, but this produced no change in position of the peritoneum. On injecting 10 ounces of fluid into the bladder, the peritoneal reflection was elevated 2 inches above the symphysis. The fluid was now let out of the rectal bag, and the bladder sank downwards and backwards to the level of the pubes. On re-injecting 15 ounces into the rectal bag, the peritoneal reflection of the bladder again rose, this time to $1\frac{1}{2}$ inches above the level of the symphysis.

4. A very fat man, aged 43. The anterior reflection of the peritoneum was $1\frac{1}{2}$ inches above the level of the symphysis. The bladder was first injected with 10 ounces of fluid, which raised the reflection $1\frac{1}{2}$ inches more. On the rectal bag being injected with 15 ounces, the reflection was raised another inch, total 4 inches.

5. A very fat man, aged 39. There was a small quantity of urine in the bladder, and the reflection was ascertained to be 2 inches above the level of the pubes. Injecting the bladder with 10 ounces of fluid did not seem to raise the reflection, but distended the organ backwards. An injection of 15 ounces into the rectal bag then pushed the bladder forwards and upwards. The rectal bag was now emptied and an injection of 10 ounces more into the bladder merely pushed it further backwards. On now re-injecting 15 ounces into the rectal bag, the bladder being very full, 4 inches of its anterior surface were ascertained to be uncovered by peritoneum.

Summary.

No.	Quantity of Fluid in the Bladder.	Quantity in the Rectal Bag.	Elevation of Reflection.
1	10 ounces	15 ounces	1 inch
2	10 "	15 "	$\frac{3}{4}$ "
3	10 "	15 "	2 inches
4	10 "	15 "	4 "
5	10 "	15 "	4 "

In order to estimate accurately the effects produced, the exact position of the peritoneal reflection was first determined by means of the finger introduced through a small opening made halfway between the pubes and the umbilicus. After the distension was effected, the lower portion of the abdominal wall was divided in the middle line, and the bladder exposed. These trials left no doubt in my mind that when the bladder alone is distended the peritoneal reflection is somewhat but not sufficiently raised, the bladder being chiefly distended backwards, as Fehleisen describes. Distension of the rectum alone seemed in these five cases to produce no palpable effect on the vesical fold; and to obtain the maximum result, distension of both bladder and rectum seems necessary. The dilatation of the rectal bag is plainly seen to push the moderately distended bladder forwards and upwards against the abdominal parietes, its enlargement backwards and downwards being prevented, and the uncovered portion becomes visibly increased.

I was, unfortunately, not able to obtain any bodies of children. I am sure it is both unsafe and unnecessary to employ such considerable quantities of fluid to inject the bladder and rectum in the living subject, as in the experiments detailed have been commonly had recourse to on the dead body. In the five experiments I have quoted, the rectum seemed dangerously tense when the tampon was distended with 15 ounces. Something, too, depends on the shape of the bag; more fluid may be safely injected into a long cylindrical tampon than into the shorter pyriform one. In children, 3 to 4 ounces is a sufficient quantity to distend the rectal tampon with, and about the same quantity may be injected into the bladder. In adults, 10 to 12 ounces will, as a rule, be amply sufficient to distend the rectum, and 6 to 10 ounces may be injected into the bladder, according to the resistance experienced.

[To be continued.]

UNIVERSITY OF DURHAM AND ITS COLLEGE OF MEDICINE.—The Dean and Chapter of Durham, with the consent of the Bishop of Durham, have passed a statute, constituting the Professor of Medicine of the University of Durham an official member of the Senate of the University. At the same time, the College of Medicine, Newcastle-upon-Tyne, will retain the right of having a representative in the University Senate. The President of the College, Dr. Heath, was elected to this office at a meeting of the members of the College, held on February 23rd.

REMARKS

ON THE

DIGITAL EXPLORATION FOR TUMOURS OF THE BLADDER.¹

By SIR HENRY THOMPSON, F.R.C.S.,

Surgeon Extraordinary to H.M. the King of the Belgians; Emeritus Professor of Clinical Surgery in University College; and Consulting Surgeon to University College Hospital.

I HAVE just read with much interest the complete and elaborate *Note Communiquée au Congrès Français de Chirurgie sur le Diagnostic et le Traitement des Tumeurs de la Vessie*, par M. Le Professeur Guyon, and I must be permitted to observe at the outset how happy an illustration it affords of a truth which we may do well to remember sometimes, when brought into the region of controversy—for myself how unwillingly always I cannot express, since life is too short and too precious for controversy unless absolutely necessary—namely, that between men of large experience, whose work must be equally serious and honest, there is always less real difference than at first sight appears; and this difference is often intensified when two such *confrères* belong to different countries, express their thoughts in different languages, and have not the advantage of personal communications on the subject in question. It is then generally found, when the opportunity of explanation is afforded, that there is really much less disagreement than had been imagined, and that most of what has existed has been due to misapprehension.

The "note," which has for its subject the title above quoted, is, in fact, an endeavour to show that "digital exploration of the bladder" by way of the perineum, as proposed and practised by myself, is a proceeding rarely, if ever, applicable to the diagnosis and treatment of tumours of the bladder.

Now, having read it carefully, I find to my surprise, and, I will certainly add, to my gratification, that Professor Guyon and I have been occupied with two wholly different subjects. That which I have advised in respect of "digital exploration" has no reference whatever to the tumours of which he treats, and that which he has said concerning that little operation does not bear, or but very slightly so, on those cases for which I have applied it.

This I will now proceed to explain. At the close of his article, Professor Guyon states that he has operated on fifteen patients with tumour of the bladder, of whom no fewer than thirteen were the subjects of cancer or of epithelioma (p. 668). But, for cases manifestly cancerous, I have always refused to operate, or if I have done so, have merely opened the bladder to relieve pain, and provide easier exit for the urine, and have not reckoned it an operation; limiting that term to denote an operation which has for its object the removal of the tumour itself. I have emphatically stated, in my work on Tumours, p. 73, partially—only partially—translated into French, my objection to operating for cancer, repeating it on several occasions, notably at the Clinical Society in London only a month ago.

By choice and by intention, I operate only for "papilloma," the formerly so-called "villous" tumour—a light floating, often single, pedunculated but exceedingly vascular growth, much more common with us, as the cause of dangerous hæmorrhage, than cancer and epithelioma.

I now perceive why Professor Guyon lays so much stress on the value of the "toucher rectal." Naturally so; because, in the case of carcinoma, it furnishes indication which almost suffice to determine the nature of the disease. When by this means I have found induration and thickening of the coats of the bladder, showing that the morbid deposit has its seat in the walls themselves, I have never consented to operate, except with the very rare proviso above alluded to, for temporary relief. Of course, there is no occasion to make any digital exploration of the bladder, when one can ascertain by the "toucher rectal" that its coats are involved in a hardened or nodular deposit.

I have now operated on thirty-four patients for the removal of tumour, not including those for whom I have merely made an opening to give temporary relief. In every one of the thirty-four cases, the tumour has been examined by one or other of the most experienced pathologists in London, and every one forms a preparation in two or

¹ This article appears in French also in the *Annales des Maladies des Organes Génito-Urinaires*.

three of the chief museums here—to wit, the Hunterian, the University College, and St. Thomas's. The particulars of the first twenty are given in my book on Tumours. The nature of these thirty-four is set forth in the following table :

Simple papilloma, 25 cases (one of the above proved to be associated with cancer, and two or three with myoma); myoma, 4 cases; epithelioma, 2 cases; carcinoma, 1 case; sarcoma, 2 cases—total, 34 cases.

But in all these cases papilloma was the chief and the distinctive element. In two instances it was found associated with myoma; in two or three with "lymphoid cells;" in one with cancerous deposit; and in one with commencing cartilage, suggesting an exceedingly rare condition known here as "chondrifying sarcoma."

Now papilloma, unless very largely developed, yields no sign of its presence to the "*toucher rectal*," and none to the exploring sound. Its presence can only be demonstrated by *débris* under the microscope, and then the characteristic structure is sometimes beautifully distinct. The first act of micturition, or, if not, the first washing of the bladder, may produce an atom of translucent material, which shows under a quarter-inch object-glass a papilloma with its central blood-vessel, and the long prismatic epithelium ranged round the extremity of the papilla, assuring the surgeon of the presence of a growth which makes exploration wholly unnecessary. If this fails, a flat-bladed lithotrite may remove a fragment, and so produce the irreproachable witness. But if by none of these means can you produce the needful evidence, and the history is manifestly that of vesical growth, the kidney being acquitted of all participation in the evil, then I have no hesitation in advising that a little *boutonnière* should be made, and a finger be introduced into the bladder, and the question settled beyond dispute. And this can be easily done in nine cases out of ten.

And here, again, the original source of misapprehension shows itself. Professor Guyon doubts the possibility of examining the bladder thus, and adduces the small effect of finger-manipulation in the bladder when operating by the "*taille*," and further states that the age at which tumours of the bladder appear is the age "*des perinees epais et des prostates volumineuses*."

Quite so; that is true as regards the cases of cancer, but is less applicable to cases of papilloma; and as I operate only for papillomata, an enlarged prostate is not often encountered; papilloma occurring at all ages, but commencing at 25 years of age and upwards.

Now let me here repeat a statement I have often made, and with great deliberation, that in at least nine cases out of ten it is quite easy to examine the whole surface of the bladder if the tip of the index reaches the cavity. This can be done by making firm pressure above the pubes, provided only that the anæsthetic is given to a sufficient extent to overcome all opposition from the abdominal muscles—a proceeding about which we have no difficulty or hesitation whatever in London, with our skilled specialists in the administration of anæsthetics. In that condition, the whole surface of the bladder is easily brought down to the end of the finger so placed, which can readily detect even a very small papillomatous growth. I have demonstrated that fact so often to my *confrères*, both native and foreign, that it is beyond a doubt; and I am ready to repeat it without stint for any serious inquirer.

Well, supposing by means of such an exploration, I discover a single polypoid growth of papilloma; I find the question of operation is at once before me. Supposing, after full examination, I feel that it is not difficult to put in the forceps and remove it at once; why not? *Voilà tout*. If it is large or not easily placed, I give up the preceding idea, and do the suprapubic operation, as happened to a case about two months ago, in which, after exploring by the perineum, I encountered a large tumour springing from the top of the bladder. I did the high operation at once (the senior surgeon of the Royal Infirmary at Glasgow being present) removed the growth, and that patient accompanied me to the Clinical Society a month afterwards; he was then perfectly sound, and was seen there by the members at the meeting already referred to.

Then it is, perhaps, worthy of remark that almost all my best and enduring recoveries have been those of cases in which the simple perineal opening alone was performed. My first by that method (performed November 6th, 1880) is at this moment well, and living in London, and has had no return. It was a single pedunculated papilloma.

I am ready to avow that I do not necessarily advise all beginners to follow that method of operating. On discovering a tumour, whether by digital exploration or otherwise, one who is not highly practised in the extraction of foreign bodies from the bladder will act more safely, I doubt not, by performing the suprapubic operation. It requires great facility and experience with instruments in a bladder to

nip off safely, with one or two bites of the forceps, a polypoid growth by the perineal route. When intending to do this, I always spend some three or four minutes in examining with my finger the exact position and relations of the growth; and, having thoroughly ascertained these, I rarely fail, on introducing a light handy forceps, in going at once to the spot, and in bringing it away complete, or nearly so. If I am not content, or find a more difficult task than expected, I can still proceed to the high operation.

But I am tempted now to ask where are the papilloma cases in Paris? There are only two among Guyon's fifteen cases. Are they less frequent with you than with us, or have you still to find them? Some of them have been regarded here in former times, I have no doubt, as cases of renal hæmorrhage, and have been only identified as vesical tumours in the latest stage. It is quite evident you have not yet begun to deal with them surgically. Nevertheless, they are the most desirable to find and to treat. Little can be done by operative interference for the cancers. There is more chance in dealing with epithelioma, not of accomplishing a cure, but of offering a reprieve, of lengthening a life inevitably doomed; yet the papillomata will far better repay the skill and enterprise of the surgeon.

But it is time to close. There are many other things I should be glad to add, but am compelled to be brief. One of my chief objects in making this communication is to show that there never was any ground for supposing that there could be any difference between Professor Guyon and myself as to the inutility of making an exploring operation for a tumour, the presence of which can be verified by the "*toucher rectal*"; and that, if an attempt is to be made to remove such tumours, the high operation, and not a perineal one, is the only desirable route. On the other hand, I record my profound belief that they are better let alone.

I have never performed an exploring operation except in the absence of all signs of physical change in the rectum; and when I thus discover a tumour of any kind in the bladder, I decide, after carefully examining it, by what means I can most safely and efficiently remove the growth. In my opinion, each surgeon must judge for himself in what way he can best attain the desired object. No uniform and absolute rule can be prescribed to him by authority however high. Personal predilections and personal qualifications must always count for much in determining a decision in all pursuits which partake of the nature of a practical art; and, assuredly, among the highest and finest art must be ranked all the achievements of modern surgery.

AN ADDRESS ON THE HÆMATOZOA OF MALARIA.¹

By WILLIAM OSLER, M.D., F.R.C.P.,
Professor of Clinical Medicine in the University of Pennsylvania.

OUR knowledge of the animal parasites infesting the blood has been of late enriched by observations which show that certain of these hæmatozoa, as they are called, are more widely distributed and more important than we had hitherto supposed. Parasites belonging to the spirozoa, and to the nematode and trematode worms, have long been known to occur in the blood of various animals. Recent investigations prove that the flagellate protozoa are also not uncommon blood parasites, and it is possible that they may be the pathogenic organisms of certain diseases. I propose in this communication to give an account of the hæmatozoa which have been found in persons suffering with the various forms of malaria.

Historical.—Our knowledge of the blood-changes I am about to describe, dates from the researches of Laveran, in Algiers, which were communicated to the Paris Academy of Medicine in 1881 and 1882, and which were finally embodied in a large work on the malarial fevers, published in 1884.² He found, as characteristic elements in the blood of persons attacked with malaria, (1) crescentic pigmented bodies; (2) pigmented bodies in the interior of the red corpuscles, which underwent changes in form, described as amœboid; and (3) a pigmented flagellate organism. These forms were looked upon as phases in the development of an infusorial organism which he regarded as the germ of the disease. Richard³ confirmed these observations. A

¹ An address delivered before the Pathological Society of Philadelphia.

² *Traité des Fièvres Palustres*, Paris, 1884.

³ *Comptes Rendus*, 1882.