I have seen cases of bloody urine that passed for hæmaturia until a cancerous fistula was discovered. The urine escaped into the vagina, where it became mixed with blood from the cancerous ulceration.

Pus, again, may denote disease of the kidney or bladder; but it may find its way into the bladder from the most singular and unsuspected sources. Thus I have under care with Dr. Crisp a case, in which, for many years, large quantities of pus are occasionally passed in the urine. The source of the pus is not the bladder. It finds its way into the bladder from a dermoid cyst, which has made for itself another opening near the umbilicus. Pus frequently comes from this external opening. A probe passed into it finds its way into a cavity downwards for a distance of four or five inches, whilst another sound passed into the bladder runs up an equal distance, so far, indeed, that the points of the two instruments cross each other. Although they do not touch, there can be no doubt that both run into the same cavity. It is remarkable how in this case the bladder retains its healthy state, notwithstanding the irritation it is subjected to. The day after passing a large quantity of pus, clear urine is voided, and irritation subsides.

Hair, *fat*, *teeth*, may find their way into the bladder and urine. They afford conclusive evidence that a dermoid cyst has contracted adhesions with the bladder and established a fistulous communication. *Bones of fœtal character* may arise from an extra-uterine gestation-cyst. In these cases, signs of dysuria, of incontinence, of irritability of the bladder, perhaps the appearance of blood or pus, will have preceded the discharge of the hair, fat, teeth, or bones. And in most cases the tumor whence these matters proceeded may be made out by a careful vaginal, rectal, and abdominal palpation, aided by the sound.

The most unequivocal indications of disease of the kidneys or bladder are the alterations in the chemical qualities of the urine. Thus, *excess of phosphates or lithates*, or the presence of *albumen*, of *sugar*, of *oxalic acid*, point to disorder of the nutritive functions. It must not, however, be forgotten that these conditions are sometimes secondary upon conditions of the ovaries and uterus. For example, metritis, acute or chronic, frequently induces such a disturbance in nutrition that phosphates and lithates appear in superabundance in the urine. So mucus and pus may follow an acute or chronic cystitis ensuing upon retention of urine from any of the causes we have discussed. And albuminuria may sometimes be traced back to pregnancy, even in cases where eclampsia was not manifested. The excretion of sugar also may have begun under the influence of pregnancy. It is true that albumen and sugar usually disappear from the urine soon after pregnancy has been brought to a term, but occasionally the morbid process, once started, persists after the cessation of the original cause. Bearing in mind this association of albuminuria, sugar, and pregnancy, we should not omit, when these abnormal ingredients are found in the urine, to institute a careful examination to determine the presence or absence of pregnancy.

Primary malignant disease of the bladder is very rare in women. Dr. West relates one observation so complete that I am induced to quote it in lieu of giving an abstract description of the affection. A woman, aged sixty-two, had suffered for a year previously from pain in the region

of the bladder, aggravated after passing water, the calls to which became more frequent than natural, while at the same time her urine grew turbid, and deposited a thick sediment. Blood now frequently appeared in her urine; sometimes in small quantities, sometimes in clots, and once in very large quantity. She had of late suffered from pain in the back. A surgeon introduced a catheter, which was followed by considerable hemorrhage, which lasted for several days, and was apparently stopped by gallic acid. On admission the pulse was 80, soft. No tumor was perceptible in the abdomen, but firm pressure immediately over the pubes caused some pain. The uterus was high up, small, healthy. In front of the uterus, pushing it into the posterior half of the pelvis, was a firm, somewhat irregular growth, reaching from the anterior half of the pelvis in the situation of the bladder. This growth was perfectly immovable. It seemed to be connected with the pelvic walls; was somewhat tender on pressure. It occupied the whole anterior half of the pelvic brim, though not dipping much into the cavity. The urine was pale, alkaline, depositing ropy mucus, and showing crystals of triple phosphate and cells of nucleated epithelium. Shortly afterwards the woman met with an accident, and died of erysipelas. The uterus and vagina were found perfectly healthy; but the whole posterior half of the bladder was occupied by a medullary growth, with an irregular surface, which projected into the cavity of the organ, its substance being in part firm, in part almost semi-fluid. The anterior half of the bladder was quite healthy, as was also the substance of both kidneys, except that the right ureter, being involved in the diseased mass, was dilated to three or four times its natural size, and the infundibulum of the right kidney was enormously enlarged.

In this case the distinctive character of malignancy was the hemorrhage. The tumor felt in front of the uterus might be due to a blood-mass in the cellular tissue connecting the uterus and bladder, or in the vesico-uterine peritoneal pouch. The profuse bleeding also distinguishes the disease from the other causes of *hæmaturia*. These are: 1. *A calculus*. In this case the blood is seldom more than a few drops, and the catheter will detect the stone. 2. *Foreign bodies*. The most inconceivable things have found their way into the bladder; hair-pins, for example. These give rise to cystitis; phosphatic deposits collect around the foreign body. The sound will detect these as well. 3. The hemorrhage may be *vicarious of menstruation*. Here the quantity is not so great as in malignant disease; it occurs in comparatively early life, and the menstrual irregularity is marked by other symptoms.

Secondary malignant disease of the bladder is unfortunately too common. It arises mostly as an extension from cancerous disease of the cervix uteri. The invasion of the bladder is then marked by cystitis, but this symptom, although adding much to the patient's distress, is now but of subsidiary importance. Often the bladder is perforated from without by the advancing necrotic or ulcerative process, so that the urine escapes involuntarily. But this symptom, Kiwisch rightly observes, when occurring in the course of cancer of the uterus, is not to be regarded as certain evidence of perforation of the bladder, for this symptom is frequently only the consequence of carcinomatous infiltration of the neck of the bladder, and especially of that part corresponding to the sphincter,

by which it is hindered in the performance of its functions, and thus permits the urine to run off.

Opium in some form or other is indispensable in the treatment. It may be given by the mouth, by vaginal pessary, by rectal suppository, or by subcutaneous injection.

SIGNIFICANCE OF SYMPTOMS CONNECTED WITH RECTUM AND OTHER BOWEL-DISORDERS IN RELATION TO UTERINE AND PERI-UTERINE AFFECTIONS.

Although the uterus is not in such intimate relation to the rectum as it is to the bladder, it is still so close to it in position that disorder or distress referred to the rectum is an extremely frequent complication of uterine disease or displacement. The unity of the pelvic vascular system is such that engorgement or inflammation of the uterus cannot fail to cause increased afflux of blood and hæmostasis in the other pelvic organs. To this increased flow of blood, determined by inflammation or congestion of the uterus, there is necessarily added the mechanical effect of increased weight and bulk. Thus two conditions already combine to cause accumulation of blood in the hemorrhoidal vessels. A third condition is rarely wanting long. This is displacement of the uterus. The prolapsus consequent upon increased weight of the uterus, and the relaxation of its supporting structures bring a further aggravation of pressure to bear upon the rectum just above the anus, increasing the difficulty under which the hemorrhoidal vessels labor in unloading themselves.

To these mechanical influences in producing local vascular stagnation other remote and secondary causes bring a contingent of trouble. The gradual impairment of digestion and other nutritive functions, the enforced inactivity, consequent on uterine disease, entail constipation and loss of sphincteric tone. Hence the disposition of the hemorrhoidal vessels to dilate, to become varicose, and to favor the formation of piles and thrombi, is enforced in a variety of concurrent ways.

The foundation of rectal and anal distress is often laid in pregnancy. The active developmental nisus, bringing to the pelvic vessels a large quantity of blood, leads to distension, to venectasis, which does not always subside after labor. The dilatation of the vascular plexuses around the lower part of the vagina and vulva arising during pregnancy is also found around the anus. During labor the extreme compression to which this part is subjected may retard the circulation in the vessels for several hours, and then, during the final act of expulsion, the tissues in which the vessels are embedded, being inordinately stretched, perhaps even lacerated, the vessels themselves undergo serious injury, from which they may never recover. At this stage there is often absolute eversion of the lower part of the bowel; the mucous membrane is exposed, swollen, and livid from intense congestion; and sphincteric power is more or less impaired. I believe that in some cases fibres of the sphincter are ruptured without rupture of the mucous or cutaneous investments; there is, in fact, subcutaneous or submucous division of the muscle. It is only in this way that we can explain the lax and half-open state of the anus so often observed in women who have borne children.

Pregnancy and labor form the frequent starting-point of hemorrhoids

in women. But menstruation, a mimic parturition, if difficult or complicated by constipation and other troubles of nutrition and circulation, not seldom entails the like condition. The same act of distension, whilst the parts are turgid with blood, sometimes causes small lacerations of the edge of the anus, which, not healing, become fissures or ulcers. In some cases, again, the sphincter is found to have lost something of its contractile power. This loss is complete, or nearly so, when the sphincter has been torn through, as in many cases of laceration of the perineum. In these cases, the want of power to retain the feces—incontinence—observed after labor, is usually enough to suggest the true nature of the case, and examination being made, the injury is revealed. In whatever way these lesions may have arisen, they are apt to be kept up by uterine disease, the two conditions exerting a mutual vicious influence. On the other hand, hemorrhoids, fissures, and ulcers of the rectum and anus may be primary, or at least exist independently of uterine disease or displacement. The symptoms they give rise to may be taken by the patient, and in the first instance by the medical attendant, as evidence of uterine disease. And disease of the rectum, if involving much congestion and pain and difficulty in the performance of its function by the consequent accumulations and straining, may induce congestion and prolapse of the uterus. Here, as in the converse case, the morbid condition of each organ exerts a vicious influence upon the other.

The displacements of the uterus almost always induce some rectal complication. In prolapsus simple, or with the usual attendant retroversion, the uterus falls into the lower part of the sacral hollow, and, therefore, projects more or less into the anterior wall of the rectum. It induces some degree of obstruction, to overcome which increased bearing-down efforts are excited. This increases the evil. The progressive prolapsus causing inversion of the vagina, the recto-uterine peritoneal pouch is dragged down, and then the anterior wall of the rectum is drawn into a pouch, constituting vaginal rectocele. It is a matter of observation that the reduction of the displacement is frequently followed by the return of healthy peristaltic action.

In anteversion, the vaginal portion of the uterus is tilted up and back, so as to form a conical projection into the rectal cavity, easily felt by rectal digital touch. If, as often happens, the vaginal portion is congested or inflamed, exquisite pain is experienced when a stool has been passed. In some cases this pain on defecation is felt only, or at least is felt with especial severity, at the menstrual epochs.

In retroversion and retroflexion the body of the uterus, most probably enlarged and painful, presses into the anterior wall of the rectum, encroaching upon its calibre, acting as a ball-valve, causing a degree of obstruction, paralysis, dyschezia, and retrograde or ascending disorder of the intestinal canal. Sometimes, in retroversion of the gravid womb, the strain upon the rectum is so great that actual tenesmus is induced. But often where there is no uterine disease, the forcing due to disease of the rectum or anus will simulate uterine displacement or disease; and what is important to remember, may ultimately induce it.

The diagnosis of rectal from uterine or vaginal disease can be made by direct examination. Symptoms such as pain on defecation, pain when

the sphincter acts, discharges of mucus or blood from the anus, will, of course, point to the seat of the disease. But direct inspection is necessary to determine not only what is the exact morbid condition, but also what is to be done. Rectal exploration as a means of making a correct diagnosis of uterine disease is often indispensable. Thus in the course of examining for uterine disease we often discover rectal complications. But apart from this incidental exploration, when symptoms referred to the anus are complained of, special examination of this part should be made. I have several times in this way detected a fistula which had not been suspected by the patient. The rectum and anus may be examined, first, by the touch. The finger, oiled, is passed into the rectum and made to explore the cavity as far as it will fairly reach. In this way a polypus may be felt, or any tumor or constriction in the cavity; and we may judge how far the intrusion of the displaced uterus may be a cause of distress. Secondly, we may bring the lower edge of the rectum inside the sphincter into view by the following manœuvre; pass the forefinger, having well pared down its nail, into the vagina above the perineum, so as to get its tip as fairly over the seat of the anus as possible; then by depressing this strongly the lower part of the rectum is everted, and made to protrude through the anus. In this way hemorrhoids, fissures, or ulcers, and the state of the mucous membrane, can be seen. Or, thirdly, the anal speculum may be used. By this aid we obtain inspection of the mucous membrane higher up, and can see a polypus or other morbid condition that may exist.

It is almost superfluous to say that constant irritation of the bowels, and especially the loss of power to retain the motions, is motive enough for suspecting the existence of laceration of the sphincter and perineum. It may, indeed, indicate general paralysis. In this case, however, other signs of nervous disease will probably be detected. But incontinence of urine and feces may be the earliest manifestation. Thus I have had a patient brought to me principally on this account, the grave disease of the nervous centres being not yet suspected by the patient or her friends.

Diarrhœa is frequent at the menstrual epochs, due, no doubt, to the increased irritation of the mucous membrane and the hypemæmia induced.

If we follow in a similar order to that observed in the case of the bladder, we shall first study the significance of *retention of feces*. This will lead to the investigation of the causes of *obstruction*. Now, the need of defecation is far less imperious than that of micturition. If the bladder is not relieved within twenty-four hours such urgent distress ensues as to compel attention. But accumulation may go on in the bowel for many days. There is a further difference. If we except the case of strangulated hernia, it is comparatively rare for complete obstruction of the bowel to come on suddenly, as does obstruction of the urethra. These two conditions render the approach and existence of bowel-obstruction more insidious and more difficult to realize. In the majority of cases bowel-obstruction from pelvic disease comes on very gradually. As the obstruction increases, defecation is more and more difficult and scanty. Retrograde dilatation of the intestine above the obstruction takes place, which, by giving more room for the lodgment of feces, affords some compensation for the want of outlet; the absorption of the watery constituent of the feces, and the more scanty food taken, further tend to postpone the climax and to prolong the delusion that we have to deal simply with obstinate constipation. The climax is at length determined by the distension of the belly—partly by flatus, partly by feces; by the abdominal pain; by the sense of distress that never fails to attend the non-fulfilment of a necessary function; perhaps vomiting; surely loss of appetite; earthy, dirty, yellow tinge of skin, due to empoisonment from absorption of fecal elements and bile—a condition analogous to urinæmia, and for which I have proposed the name "copræmia;" and by the failure of purgatives and enemata to bring away fecal matter. When things have come to this pass, a strict examination is imperative. If exploration of the abdomen discover no sufficient cause, we must explore the pelvis. This is done by the vagina and rectum. The instrument needed are the finger, the sound or a whalebone probang, the aspirator-trocar, and the enema-syringe.

I once saw retention of urine in an old woman caused by a compacted mass of feces in the rectum; it filled the hollow of the sacrum and pushed the uterus forwards against the symphysis pubis, turning the vagina forwards in much the same manner as retro-uterine hæmatocele. The mass yielded like putty before the finger; the indentations made remained; there was no elasticity in it; and the finger in the rectum became embedded in the mass. Copious enemata washed away the tumor and relieved the bladder.

Retention may be incomplete or complete. The retention caused by retroversion of the gravid womb is rarely complete; and the distress arising being of quite minor importance to the attendant retention of urine, the subject need not detain us. But there are cases of incomplete fecal retention caused by retroflexion of the enlarged uterus in which there may be no serious retention of urine. In these cases the enlarged body of the uterus, rolled back into the sacral hollow, compresses the anterior wall of the rectum against the posterior wall, acting like a ball-valve. To some degree this difficulty and its retrograde consequences attend most cases of retroversion or retroflexion of the uterus. It is sometimes more pronounced when there is impaction of the uterus enlarged by fibroid tumors. Examination by vagina and rectum will reveal the true nature of the obstruction; the uterine sound will lift the mass out of its false position, and then a suitable pessary will keep it from falling back. Thus complete relief to the bowel is often attained. Obstruction from pelvic cellulitis or peritonitis is diagnosed by the signs described under this head. But something more is required. The patient under chloroform, the finger is passed as high as possible into the rectum, and, following its course, we come to the constriction caused by the fibrinous deposit nearly encircling the bowel, and nearly closing it by concentric contraction. I saw a case in which things had gone to such extremes that death seemed imminent. The stricture admitted barely a bougie. The pelvic brim was occupied by a dense mass matting all the organs together. It was difficult to decide whether this was due to malignant disease or to simple inflammatory effusion. I suggested as the only apparent prospect of relief the resort to colotomy. Whilst this was being debated, suddenly

an immense gush of pus took place, the bowel was liberated, and recovery ensued. Such a lesson could not be forgotten. In several cases which have since come under my care I have penetrated the mass by the aspirator-trocar, and have thus drawn off pus with manifest relief. The marks of irritative fever will aid in raising the suspicion of imprisoned pus. But this kind of evidence is not wanted to justify the puncture. The operation, as far as I may judge from a considerable number of observations, is quite harmless, and its value in diagnosis and treatment is so great that I think it should be resorted to in every instance where local or systemic distress is manifest. I have even seen reason to believe that punctures thus made for diagnostic purposes have had a curative action by stimulating absorption of the effused material.

It is necessary to be provided with special trocars. The ordinary ones supplied are not available for intra-pelvic use. Messrs. Weiss have made for me trocars eight or nine inches long, supported on a firm stem, which answer well. They can be adapted, like the ordinary needles, to the same mount of the aspirator-tube.

Another disease which may proceed in a similar manner, and lead up to the same result, is cancer. Whenever this dire disease invades the mucous outlets or canals, it tends to close them by gradual concentric contraction. We see this in the œsophagus, in the anus, the vagina, and the urethra. So when it extends from the uterus, invading the neighboring structures, it not seldom seizes the rectum about the sigmoid flexure, surrounds it, and, gradually closing in, the tube is reduced to the smallest bore, so small as to be quite inadequate to the function of defecation. In this way cancer occasionally proves fatal. All the symptoms of copræmia and starvation precede. In such a case the only hope of reprieve lies in colotomy. We may puncture by the aspirator-trocar, but nothing beyond diagnostic satisfaction will be gained.

Ovarian tumors have caused death by obstructing the bowel. Dr. Parker[1] relates a case. Rokitansky describes fatal constriction caused by the rotation of an ovarian tumor. When symptoms of dangerous bowel-obstruction supervene in connection with ovarian tumor, the expediency of immediately proceeding to extirpation must be earnestly discussed. The same rule will apply to closure from a locked fibroid tumor. A muscular tube depends for its healthy work on the freedom of its muscular action. This action is liable to be arrested or paralyzed if the tube be encroached upon by inflammatory or other deposit in such a manner as to interfere with its mobility, or to lessen its calibre. Nay, the mere proximity to an inflamed or enlarged organ seems often to be enough. Whenever a function can only be exercised at the cost of pain, the system instinctively tries to avoid pain by suppressing the function. And there may be other causes of nervous diversion leading to this induced local paralysis.

Dyschezia (from δυσ- and χέζω).—Difficult or painful defecation may be due to hemorrhoids, fissure, or excessively vascular condition of the anus. If blood follow the stool rather copiously, whether of arterial or venous character, we may suspect hemorrhoids. If the pain is more

[1] Edinburgh Medical Journal, 1863.

acute, and the quantity of blood small, the probability is in favor of fissure. But these conditions can neither be verified nor successfully treated without examination.

As in the case of the bladder, so in that of the bowel, we have to consider the significance of *abnormal matters in the excretion*. In both cases these may or may not be indications of disease of the organ from which they flow. Thus, *blood*, *mucus*, *pus*, may be the manifestations of dysentery and ulceration of the intestine or of hemorrhoids. But they may spring from quite different causes. For instance, blood in considerable quantity is sometimes discharged under the exalted vascular tension of pregnancy, or of menstruation; or it may be due to a polypus in the rectum. Whenever blood comes from the bowel apart from the obvious conditions of fever, dysentery, or liver disease, the possibility of pregnancy should be considered, and the pelvic portion of the bowel, with its relations, should be carefully examined.

Blood may come from a pelvic hæmatocele. It may issue from a dermoid or cystoid tumor. So may *pus*, *hair*, or *bones*, or *teeth*. Indeed, the rectum is the often elected channel for the voidance of the contents of most of the pelvic tumors. Abscesses resulting from pelvic inflammations most frequently empty themselves by this road; and this is also the favorite channel for the elimination of the *fœtal elements* of extra-uterine gestation cysts. Intra-pelvic examination is essential for the recognition or the exclusion of these conditions. And this examination must be thorough. In urgent cases it may even be necessary to pass the whole hand into the rectum—of course whilst the patient is in a state of anæsthesia.

One lesson will be drawn from the clinical deductions made in these studies of the relations of bladder and bowel distress to disease of the neighboring structures. It will be seen how impossible it is to pretermit close examination of the surrounding organs without serious risk of overlooking conditions that may be fatal if neglected, and which may be remedied if discovered. Whilst we are looking at the kidneys or the intestine, because they are disturbed in their functions, it may be the uterus or the ovaries that are in fault. We thus see how dangerous it is to practise in the spirit of pure specialism; how absurd it is to map out the body, and assign particular territories to particular classes of practitioners. It will be seen how intimately, how indissolubly that part of medicine which takes for its basis the particular study of the generative system in woman, is linked with the disorders of the alimentary, vascular, and nervous systems; that is, a pure specialty cannot exist. A more monstrous thing cannot be conceived.