course of the pelvic circulation, which displacement of the uterus in relation to the broad ligaments induces.

Uterine congestion may be *primary*, and for an indefinite time constitute the chief morbid condition. It rarely exists long without inducing displacement, as prolapsus of the uterus; and sooner or later, it is likely to lead to other evils, as hypertrophy and inflammation.

It may be *secondary* upon other conditions. There is one which in my experience almost infallibly induces congestion. That is the fixing of the womb; whether this be from perimetric adhesions, from compression of tumors, from pressure against the symphysis pubis by retro-uterine hæmatocele, or other cause. But the most frequent cause is retroflexion with locking of the fundus beneath the sacral promontory.

The *symptoms of congestion* are essentially the same as those which mark the combination of fluxion and hyperæmia; the diagnostic test being the persistence of the symptoms, and the accidental intermittent character of the fluxions which may or may not complicate this congestion. There is also more pain than in hyperæmia. The enlarged uterus, by its proximity to the bladder and rectum, irritates these organs, keeps up hyperæmia in the surrounding pelvic tissues. The reflex excitation, or the proximate irritation, causes frequent desire to void urine, and dysuria; the same causes may induce dyschezia, tenesmus, straining, at times diarrhœa. Expulsive efforts are caused, at first involuntary, afterwards perhaps intensified by the semi-involuntary bearing-down, excited by the sensation that there is something to be expelled. The contraction of the abdominal walls, as in the act of defecation, of sneezing, of coughing, is attended by indirect pelvic pain, more or less acute.

A frequent consequence of congestion is dysmenorrhœa. This symptom, when not accounted for by obstruction from stenosis or angulation of the uterine canal, is, I believe, most commonly due to the accumulation of blood in the uterine cavity, its coagulation there, and retention, which is favored by the quantity poured out. It has time to clot, partly because its quantity is in excess of the mucus which helps to keep it fluid, and partly because it is allowed to rest by the uterus, whose power of contraction is enfeebled by the congestion. Retention means irritation, and irritation means uterine colic, that is, dysmenorrhœa. This symptom is the more certain to follow in proportion to the degree of displacement of the uterus.

The difficulty which congestion occasions to the uterus in the performance of its functions becomes a source of aggravation of the congestion. It not uncommonly happens that the menstrual function is disordered in its periodicity, as well as in its other characters. The patient often becomes irregular, sometimes she even loses the reckoning so as no longer to know when her periods are due. The menstrual flow is merged in hemorrhage. It may last for a week or a fortnight, leaving a fortnight or three weeks interval only; or a flow of blood, which it becomes difficult to distinguish as menstrual, appears at irregular intervals. Not seldom, however, the menstrual discharge becomes scanty, or ceases to be noted otherwise than doubtfully in the shape of irregular discharges of blood.

Leucorrhœa is an almost constant effect of congestion; the gorged

vessels of the uterus seek relief by secretion of mucus; and Rokitansky has shown that the glands, under hyperæmia and congestion, undergo enormous development.

The *local signs* are the increased bulk and weight of the organ, involving diminished mobility, and more or less displacement expressed by prolapsus and retroversion or flexion, or anteversion. By the speculum the vaginal-portion is seen swollen, deep red. The vaginal-portion and cervical cavity easily bleed on examination by touch, speculum, or sound.

Congestion is often more or less limited to the vaginal-portion when there is stenosis of the os uteri externum. This condition is discussed under the head of "Dysmenorrhœa." Congestion of the vaginal-portion also occurs in prolapse with hypertrophy of the vaginal portion. In this condition the vaginal-portion is liable to get constricted by the circular compression of the vagina, and between the bowel and bladder. This constriction retards the circulation in the lowest part of the vaginal-portion, makes it tumid, and increases the disposition to hypertrophy. This is exemplified in a figure from a preparation in King's College Museum. (See Prolapsus: hypertrophy.)

Congestion may affect the whole uterus; or it may affect the body or the cervix only. The congestion bears most obviously on the mucous membrane.

The treatment of congestion and engorgement must be determined greatly, in most instances primarily, by the indications for the removal of the complicating conditions. Thus, attending prolapsus, version, or flexion, demands special care. The displacement corrected, the associated congestion will almost certainly be relieved, if not removed. The management of the complications is described where they are treated of as primary or essential disorders.

It is necessary to remember that congestion or engorgement of the uterus is curable, whilst old-standing hypertrophy is not.

Again, many women who have passed the climacteric, scarcely need to be treated for congestion. This condition, when existing, is no longer so liable to exacerbation by fluxions; it becomes more passive; the pain subsides; and tolerance is acquired. But, on the other hand, youth is favorable to cure; the activity of the circulation and of all the functions facilitates the absorption of effused matters; and the very functions of the uterus, as menstruation and pregnancy, by virtue of the retrograde involution which seizes upon the uterus when these functions are completed, may involve the morbid hyperplastic structures, and thus dissolve them. A remarkable example of this process is seen in the occasional diminution or even disappearance of fibroid tumors after labor.

The question of local depletion when there is congestion is important. Its action is powerful, and resort to it requires discretion both as to the selection of the cases and the method to be employed. If the congestion is liable to periodical aggravation, especially if attended by hemorrhages, from menstrual fluxion, the principle of derivation and revulsion already discussed, should be invoked. Where the congestion is accompanied by intense pain and sense of weight, the bulk of the uterus being sensibly increased, benefit will sometimes be derived from local depletion. This may be practised either by leeching or scarification. *Leeching* has been

extensively employed in the treatment of uterine disease; and if one may be permitted to judge from the observation of cases where it has failed to do good, or has done harm, under the advice of other practitioners, I should say that it is employed much too often. The effect of the suction of leeches on the lower segment of the uterus is often to attract blood to the pelvic organs. The free anastomoses of the branches of the internal iliac, the numerous plexiform structures, the numerous valveless veins constitute a peculiar formation unfavorable to local bleeding by exhaustion. The vascular system of the pelvis has been likened, not inaptly, to a sponge. Draw blood from any one part, and it is immediately replaced by a new supply; the vessels can hardly be emptied; you may attract any quantity of blood through this channel, producing marked systemic effect, but the local engorgement may be little diminished. That this is often the effect of leeching the os uteri and upper part of the vagina I am very confident; and therefore, I now resort to this practice with very great circumspection.

The method of *scarification* is not open to the same objection, at least not to nearly the same extent. Superficial scratches or incisions made on the vaginal portion will give vent to the blood gorging the part operated upon, without entailing a fresh fluxion to the organ. The most marked benefit from incisions in the vaginal-portion, is often seen when the os externum is divided on account of stenosis and dysmenorrhœa. In this condition the mucous membrane is often intensely gorged; and when cut, it is left pale and less swollen by the very moderate loss of blood which attends the operation.

The *mode of applying leeches to the cervix uteri* is to introduce a Fergusson's or other tubular speculum, bringing the cervix well into the field; to wipe off any secretion with a bit of cotton wool or sponge; then to put the leeches, three or four in number, into the speculum, and push them down upon the cervix by a pledget of cotton-wool. The operation is often troublesome, and this is another objection to it. The leeches at times refuse to bite, and worm their way out most assiduously between the wool plug and the speculum, and easily escape altogether unless carefully watched. Leeches have even got into the uterine cavity, and have thus caused acute metritis and hemorrhage. For this opium is the best treatment. In the event of excessive bleeding from the bites, it is generally enough to expose the bite and to apply a small compress soaked in perchloride of iron. If bleeding break out afterwards, the same course is still the best. Get at the wound and apply the styptic to it direct. As a temporizing measure we may sometimes apply one plug soaked in a strong solution of alum, and then pack the vagina with a succession of other plugs lubricated with vaseline or carbolic acid oil. One leech at a time may be more conveniently applied by means of a long glass tube open at the uterine end, and provided with a piston to push the leech onwards. In London there are several nurses who take charge of this little operation for a moderate fee.

Scarification is to be preferred to leeching for the reasons assigned, and also because it is more convenient to carry out. The operation is performed through a speculum. The most convenient is my "crescent speculum." It brings the os uteri nearer to the outlet, exposes it more freely and under greater tension, than the tubular speculum. Almost any bistoury long enough may be used, but it is most convenient to employ a scarificator designed on the model of Sime's knife. It is carried by a forceps and kept fast by two pins which go through the forceps. It gives stabs into the vaginal-portion rather less than half an inch deep. The number and depth of the stabs will be determined by the nature of the case, and the flow which follows the first one or two punctures.

Inflammation.—What is called *endometritis* or *uterine catarrh*, meaning, more or less precisely, inflammation of the mucous membrane of the uterus, is the form of metritis the most frequently met with, and that presumedly as a distinct disease. It might on this ground be considered desirable to describe it separately. But regarding the frequency of its complication with inflammation of the parenchyma, either in its origin or in its course, it appears to me on the whole more useful to study metritis and endometritis together. In discussing the treatment, it will be difficult to point out the modifications which the predominance of one or the other form may especially indicate.

Metritis may be analyzed as follows: 1. There is the *puerperal metritis* springing from convection of foul matter in the venous and lymphatic channels, from the cavity of the uterus. This usually runs a rapid course, and when fatal, it is rather by general infection of the circulation and peritonitis, than from the simple metritis.

This puerperal metritis may be: *a*, general, or *b*, limited more or less to that portion of the uterine wall which corresponds with the attachment of the placenta.

Both forms are likely to be attended by peritonitis. Both may become chronic. In either case, the due involution will be retarded, and the uterus will remain larger than normal.

2. Very *similar conditions* may follow in the non-pregnant state, from the slow necrotic inflammation to which polypi and fibrous tumors are prone; from necrotic or inflammatory changes in cancerous growths; from peculiar fungoid or other morbid conditions of the uterine mucous membrane.

3. We are, perhaps, most familiar with *acute metritis*, apart from the puerperal state, as the result *of injury or irritation produced by surgical treatmeat*. Thus, operations upon the uterus, as incision of the cervix; scraping, or cutting, or tearing away of fibroid tumors; the application of caustics to the interior of the uterus, especially in the form of injections; the use of tents, laminaria or sponge; and above all the wearing intra-uterine pessaries, may induce metritis. In all these cases there may be absorption of foul matter by the vessels which permeate the walls of the uterus.

In all these cases, the inflammation mostly invades all the tissues of the uterus, mucous, muscular, vascular, and peritoneal, and almost invariably spreads to the cellular tissue on either side of the neck, involving the broad ligaments. Generally, the extra-uterine inflammation predominates over the metritis proper.

Metritis may be simple or complicated. The inflammatory complications are: inflammation of the ovary, of the tubes, of the perimetric cellular tissue, of the pelvic peritoneum, perimetric phlegmons or ab-

scesses, lymphangitis, phlebitis, phlegmasia dolens. All these complications, or some of them, may arise not only as consequences of labor, but also from suppressed menstruation, cold, local injury, conditions arising out of uterine tumors, or of tubercular or cancerous disease.

Dr. West has described as "metritis hemorrhagica" the intense acute inflammation which occurs when a piece of nitrate of silver falls into the cavity of the uterus. In such a case, free hemorrhage is very apt to arise.

The difference of structure and of function of the cervical portion of the uterus confers upon it pathological liabilities distinct from those of the body of the organ. It may be true that by continuity of tissue, and by receiving its blood supply in great part from the same vascular system, inflammation of the cervix is apt to spread to the body, and *vice versâ;* but practically, we often have to deal with cases in which one or the other part is so much more profoundly affected than the other that it demands special attention.

This consideration, and the advantage of avoiding much repetition, have led me to curtail in this place the description of inflammation of the cervical portion. The complement of this subject will be found in the section devoted to the changes consequent on labor, and in that on prolapsus and hypertrophy.

INFLAMMATION OF THE SUBSTANCE OF THE UTERUS: METRITIS.

The inflammation of the submucous stratum which occurs in *acute endometritis* spreads sometimes to the whole uterine substance, and rises to such a height that the uterus swells to the size of a goose's egg, becomes softened, reddened, unusually succulent and infiltrated with small extravasations. This acute metritis next invades the peritoneal covering of the uterus and of the neighboring organs. In some rare cases the issue has been in suppuration, and the formation of abscesses in the walls of the uterus, which, like the puerperal abscesses, lead to various secondary destructive actions.

Chronic metritis proceeds from the acute form, or is developed out of persistent hyperæmia. It not uncommonly arises slowly, even insidiously, out of irritation produced by other morbid conditions, as tumors or cancer; and that without being preceded by any condition that can rightly be called acute inflammation. It leads to hypertrophy of the uterus, with preponderance of the connective tissue, which affects the whole organ or prevails in the body, cervix, or vaginal-portion. Its most frequent foundation is undoubtedly laid in retarded involution after labor. Much, therefore, of what might, in strict order, be discussed in this place, has been anticipated in the chapter on the consequences of labor; and which should, therefore, be read in connection with the description of metritis.

Chronic metritis thus takes its rise in hyperæmia. Whatever produces retardation and accumulation in the uterus or in the utero-ovarian system of vessels, leads to chronic metritis. Scanzoni[1] says the influence of heart disease in producing chronic metritis is under-estimated. Stenosis and

[1] Die Chronische Metritis, 1863.

insufficiency of the mitral valves, by inducing retrograde venous stagnation, causes hyperæmia of the uterus. He also insists that chlorosis and other forms of anæmia, by favoring pelvic hyperæmia, frequently lead to chronic metritis.

Scanzoni has distinguished two stages of metritis: namely, 1, a stage of *infiltration* or *softening*, in which is observed more or less extensive hyperæmia, a sero-sanguinolent infiltration of the uterine tissue, which in consequence becomes soft, relaxed, thickened; and 2, a stage of *thickening or induration*, in which general or partial anæmia of the organ, dryness, firmness, and hardness of tissue are the principal lesions.

In the first stage, that of softening and hyperæmia, there may be excess or alteration in the secretions of the mucous follicles; especially, new formations may arise, or there may be general hypertrophy of the organ. In this stage the softened uterus is flaccid, so that it can be bent backwards or forwards, and pressure of the finger leaves a depression. The surface of the organ often exhibits stringy peritoneal adhesions to the neighboring structures. When a section is made with a scalpel, there is absence of that creaking sound which is heard when the healthy dense tissue is cut through. It is like cutting through an ordinary muscle. Fluid blood flows from the cut vessels, and serum from the tissue. The cut vessels are seen of larger calibre, gaping in places, but not universally. In intervening spaces the vessels may, to the naked eye, show no alteration. The parenchyma itself has lost something of its resistance; it is more succulent and friable. The increase in thickness of the wall at this stage, Scanzoni says, is not demonstrably due to increase of muscular fibre, but mainly to the serous infiltration. It is more swelling than new growth. He has also observed advanced fatty metamorphosis of the muscular-bundles, and in the interposed connective tissue a great number of free fat-globules. This more especially applies to the upper part of the organ. The mucous membrane is almost invariably the seat of chronic catarrh.

In the second stage, that of thickening or induration, there is a general or partial anæmia of the organ. The tissue is dry, tough, and hard. This hardness strikes the observer as the next feature after the increase of volume. The hardness resembles that of dense fibroid tumors. These characters are very clearly seen when the hypertrophied vaginal-portion is amputated. This tissue-change, Scanzoni says, is more evident in the posterior than in the anterior wall, and he attributes this to the fact that the hinder wall is the more frequent seat of the placenta. The indurated places look pale, yellow, or yellowish-red, and this appearance is made more striking in those cases where these places are surrounded by others still in the stage of infiltration, and which will be soft and red. But cases are frequently observed in which the whole organ is thickened and indurated. In the hardened parts the vessels are contracted. The chief contribution to the increase of volume of the tissue is made by excessive growth of the connective tissue, although the muscular element may to some extent contribute. As far as I can trust my own observations made upon the hypertrophied vaginal-portion after amputation, I must concur in this statement. The same operation also gives evidence of the contraction of the vessels. Incision made with the knife divides no large