ing of the epithelial cells. The upper part of the corium is œdematous, and there is a peculiarly abundant infiltration with mast cells. Unna was the first to call attention to the marked accumulation of mast cells in the corium, and his observations have been repeatedly confirmed by other observers.

Diagnosis.—The extreme rarity of the disease renders it liable to be overlooked. The presence of factitious wheals and itching suggests urticaria, and when there is added to this the presence of the peculiar brownish-yellow persistent nodules or macules, the diagnosis should readily suggest itself. There is no other disease that closely resembles it. The diagnosis from urticaria is made by the presence of the peculiar persistent lesions. The process might also suggest xanthoma, but the lesions of xanthoma are of a distinctly yellow color, while these are dirty-yellow or brown. Xanthoma does not itch, and has none of the other features suggestive of urticaria.

Prognosis.—The disease usually persists for years, at least until the time of puberty, although some cases have been known to get well after a duration of one or two years.

Treatment.—Treatment has had no effect upon the course of the disease. Relief of digestive disturbances renders the disease less severe, and careful attention to the dietary of the patients has some effect in improving their condition. Crocker reports that the empirical use of Fowler's solution had a marked effect in preventing the development of new lesions in one of his cases. The itching can be in great part controlled by the use of antipruritic applications, such as are used in ordinary urticaria, and the local treatment is along the same lines as in urticaria. *William Allen Pusey.*

USTILAGO.—(*Corn-smut, Corn-ergot,* etc.) The fungus *Ustilago Maydis* Leveille, replacing the grain of *Zea Mays* L. This well-known blight of Indian corn grows upon various parts of the plant—stem, leaf, sheaths, tassels, but especially upon the forming ears. It forms early a fleshy, irregular mass of mycelium embedded in a jelly-like substance, and attains upon the ears, which it transforms or destroys, a size equalling that of a cocoanut, more or less irregularly globular. At maturity it develops into a black, dry, crumbly, or powdery mass of spherical, tuberculated spores enclosed in a cellular pouch. It has an unpleasant musty odor and taste. This ripe mass of spores is the portion used, and it is collected in midsummer, simply freed from impurities and dried. As obtained, it is a mass of powder and shreds of membrane, nearly as black and quite as dusty as powdered charcoal.

Little is known of the constituents of ustilago, except that they are, in a general way, similar to those of ergot. Mitchell has found that in frogs it soon acted as a narcotic, destroying consciousness; it then paralyzed the sensory centres in the spinal cord, and afterward, if the dose were toxic, the motor centres and nerves.

Numerous clinical reports have been made to the effect that it acts upon the parturient uterus much like ergot. Its use was considerably urged from 1876 to 1880, and it became official in the United States Pharmacopœia of the latter year, but its use has now almost altogether ceased. It has also been given in menorrhagia, bleeding fibroids, and other troubles which may be relieved by increasing the tension of uterine tissue. Dose, in infusion or fluid extract, from 1 to 3 or 4 gm. (gr. xv. to lx.).
W. P. Bolles.

UTAH HOT SPRINGS.—Box Elder County, Utah.
Post-Office.—Utah Hot Springs. Hotel.
Access.—Viâ Southern Pacific and Union Pacific Railroads. The Utah Hot Springs Company's Steam Motor Line runs in connection with the Ogden City Street Electric Line.

These springs flow from the western base of the Wahsatch Mountains into Salt Lake valley, about nine miles north of the city of Ogden. They are located at an elevation of 4,246 feet above the sea-level. The mountains here are very rugged and picturesque, and attain an elevation of more than 5,000 feet above the location of the springs. As shown by the reports of the United States Signal Service, the climate of the Salt Lake valley is very mild in winter and free from oppressive heat during the summer months. The atmosphere is very invigorating and beneficial to almost all classes of invalids. There are three large springs in the group, and when discovered they resembled three immense wells, twenty to thirty feet in diameter, and eighty to one hundred feet deep. Each of these furnishes a large stream of clear, hot, sparkling water, their combined outflow being about 160,000 gallons in twenty-four hours. The temperature varies from 131° to 144° F. An analysis by Prof. Spencer F. Baird, Smithsonian Institution, Washington, D. C., resulted as follows:

One United States gallon contains (solids): Calcium sulphate, gr. 18.07; calcium chloride, gr. 170.49; potassium chloride, gr. 97.74; sodium chloride, gr. 1,052.47; magnesium chloride, gr. 1.07; magnesium carbonate, gr. 11.77; silica, gr. 2.69; alumina, gr. 0.25. Total, 1,354.55 grains. Carbonic acid gas, 37.18 cubic inches.

The Hot Springs Hotel is a frame structure, about three hundred feet long, the north end of which is used for baths. The resort is very well supplied with bathing facilities, containing, besides many private rooms, a large plunge bath for women and another for men, and an immense swimming pool. The water is quite strongly muriated saline. It contains, in addition to the mineral ingredients, a large amount of organic matter in the form of vegetable growths or algæ. These form rapidly in reservoirs containing the water, and, it is said, they impart a soft, unctuous, or oleaginous effect to the water, which is very pleasing to the skin, and believed to be soothing to the nervous system. The baths are much resorted to by persons suffering from rheumatism, gout, syphilis, chronic bronchial catarrh, obstructive jaundice, disorders of menstruation, etc.
James K. Crook.

UTAH WARM SPRINGS.—Salt Lake County, Utah.
Post-Office.—Salt Lake City.

These springs are situated at the base of the heights of Ensign Peak, in West Second Street, Salt Lake City. The location is about 4,060 feet above the sea-level, or 20 feet above the general level of the Salt Lake valley and 40 feet above the lake itself. The springs are the property of the city, and are leased by the present managers for a period of ten years. An excellent bathhouse, easily accessible from all parts of the city by electric cars, is maintained at the springs. The water has a temperature of 112° F. as follows. It was analyzed by Dr. Charles T. Jackson, of Boston, with the following results: One United States gallon contains (solids): Calcium and magnesium carbonate, gr. 10.22; iron peroxide, gr. 1.70; calcium, gr. 23.21; chlorine, gr. 147.14; sodium, gr. 125.66; magnesium, gr. 15.86; sulphuric acid, gr. 29.94. Total, 353.73 grains. *James K. Crook.*

UTERUS. See *Sexual Organs, Female,* and *Gestation.*

UTERUS, DISEASES OF: AFFECTIONS OF THE CERVIX.—In considering diseases of the cervix uteri, it must be remembered that the cervix is an integral part of the uterus, and that disease of one part is generally coincident with disease of the whole. The fact remains, however, that disease of the cervix does occur without invasion of the corpus uteri and *vice versa.*

Atrophies.

1. Physiological Atrophies.—*Senile Atrophy.*—Generally with the commencement of the menopause a change in the size and consistence of the cervix takes place in conjunction with changes of a like character which occur at this time throughout the whole genital tract. Instead of at the usual time these changes may appear much earlier in life, and their premature onset, without previous sickness or known cause, is simply an early physiological ending of the active sexual life.

The cervix becomes reduced in size and assumes a conical shape, the mucous membrane loses its pink color and is pale and anæmic; while the folds of the arbor vitæ atrophy and in some cases almost disappear. The epithelial lining of the cavity undergoes retrograde changes, so that the secretion almost or wholly ceases and the canal may be hardly patent. Oftentimes the cervix nearly disappears, and owing to the atrophy of the vaginal fornices remains only as a dimple in the apex of the cone-shaped vagina.

With the cessation of menstruation we have the well-known general symptoms, be it early or late, but the process in the genitals being a physiological one requires no special treatment.

Under physiological atrophy may also be included the change which takes place after castration; the process and symptoms which follow being analogous to those of senile atrophy.

Atrophy of Lactation.—It has long been a well-recognized fact that the uterus of a woman nursing her child contracts more quickly and firmly, due to a reflex action upon the uterus. This may go so far that the uterus is smaller than normal.

While this process is perfectly physiological, according to those who have made careful observations on this subject, yet it may go so far as to become pathological in women upon whom the strain of nursing is too severe, or who are suffering from debility. Horn, who has investigated this subject very thoroughly, says that with the return of menstruation the uterus regains its former size. He also found that the atrophy was of two distinct kinds. In one class the uterus became pale, anæmic, and small, with the cavity diminished in size. In the other the walls became thin and flabby and the cavity diminished. The cervix was affected in some cases, while in others it took no part in either form of atrophy. When the atrophy is not of the severe type the cervix is little altered, but with the involvement of the whole genital tract it is markedly affected and becomes small and short.

Prognosis in the lactation atrophy, when the process has not been allowed to proceed too far, is good, even when there is some local or bodily ailment.

Treatment is not usually required, as with the return of menstruation and sexual intercourse the uterus regains its former size. In instances in which there seems to be danger of the atrophy proceeding too far, the child should be taken from the breast and the patient given rest and tonics. If more is needed, treatment should be directed to increasing the blood supply of the uterus by passing sounds, by the use of hot douches, by massage after Brandt's method, or by painting the cervix with Churchill's tincture of iodine. Hot sitz and foot baths, as well as scarification, may also be tried.

2. Pathological Atrophies.—*Atrophy Following Systemic Diseases.*—This has been reported following tuberculosis, diabetes mellitus and insipidus, myxœdema, nephritis, Addison's and Basedow's diseases. Cases have also been seen after scarlet fever and typhus fever, articular rheumatism, after paralysis of the lower limbs, from the morphine habit, and from psychical derangement.

Atrophy Following Infection of Uterine Adnexa.—The process here is decidedly different from that of the physiological atrophies. Instead of the simple reduction of the individual muscle fibres as regards size, necrosis and degeneration take place, and large pieces of the uterus may be thrown off, with contraction as an ultimate result. Thrombosis of the veins has been shown to take place with loss of muscular structure and mucosa. The connective-tissue formation and its subsequent contraction cause the reduction in size in the last named.

Infection of the ovaries and the destruction of their function lead to the same results as are seen after castration.

Prognosis in puerperal infections, as regards the ultimate recovery of the uterus from its atrophic state, is especially poor, as the tissue changes are far-reaching and usually beyond the hope of regeneration. The outlook is especially grave when there is great atrophy of both cervix and corpus, or when the inflammatory process has extended to the ovaries.

The acute infectious diseases cause as a rule a temporary atrophy, which soon disappears with the restoration of bodily health.

The prognosis of the uterine changes in the chronic systemic disorders is practically that of the associated disease, for in such instances it is only the local manifestation of a general process.

Treatment of all these cases is usually unsatisfactory, as the pathological changes place the tissues beyond a chance of repair.

Hypertrophies.

Hypertrophy of the Cervix.—Chronic metritis is the cause of this rather rare condition, which, as in chronic inflammatory processes elsewhere in the body, brings about a large increase in connective tissue. The muscular structure undergoes fatty degeneration, and bundles of fatty fibres are found enclosed by large bands of connective tissue. Sometimes the blood-vessels are varicose, and sometimes, cut off by these strong connective-tissue bands, their lumen is diminished and the circulation of the part impeded, bringing as a result chronic passive congestion. The entire uterus may be affected and show on section white shining bundles of tough connective tissue with the degenerated muscle fibres between, and small hemorrhages from the walls of the varicose vessels. Occasionally these changes are limited to either the cervix or the body of the uterus; but even when so limited, the remaining part is seldom or never entirely intact. In some instances the hypertrophy of the cervix makes the body appear like a small appendage, and the relations of the body and cervix are as in the child, in whom the cervix forms about two-thirds the entire uterus.

When there is a pre-existing injury of the cervix the lips often spread far apart, become greatly enlarged, and form a knob on the end of the much elongated cervical neck.

Enlargement of the cervix, due to obstruction and retention of the contents of the cervical glands, as the result of endocervicitis, is exceedingly common. It is most often seen after the lacerations and infections of childbirth. The mucous membrane is of a bluish appearance, or at times may appear quite bloodless. The small cysts may give no hint of their presence to the eye, but to the touch they are apparent in all sizes, studding the cervix like small shot or peas under the mucous membrane. They may attain the size of a small marble. At times they stand out like sago grains under the mucous membrane, which is usually hyperæmic, while the so-called erosions are apt to be present, stimulated by the irritating discharges from the cervix. On puncture a clear, cloudy, or even sometimes blood-tinged mucoid substance exudes and the mucous membrane of the gland is seen as the bright, glossy covering of the cyst wall.

As a rule this form of enlargement does not reach the extent of the true hypertrophy, and the cervix usually remains soft and bleeds easily; still it may lead to such contraction and cirrhosis that operations upon such a cervix are practically bloodless. Occasionally, through the increased size of the uterus and cervix, and the relaxed condition of the tissues of the pelvis which generally accompanies the increase in size, the cervix may appear at the vulva. The acid discharges from the cervical canal are irritating to the vagina and external genitals, and are probably the cause of sterility in such cases.

Hypertrophic Elongation of the Infravaginal Cervix.—This is generally a congenital affair, but the form which is considered here is the result of metritis, and so belongs properly to the hypertrophies. The process is the same as previously described. It is accompanied by the general symptoms common to most uterine displacements, and may be the means of furthering a procidentia, as the increased weight of the uterus drags it downward with the long cervix to guide it through the vagina.

Hypertrophic Elongation of the Supravaginal Cervix.—Elongation of the upper segment of the cervix is fairly common and is a mechanical process. The body of the uterus remains fixed in the pelvis either by adhesions or by the strength of its utero-sacral ligaments, the corpus being often retroverted. As this form seems to occur in women who are physically reduced and whose tissues are relaxed, or in cases of subinvolution of the tissues of the pelvis after pregnancy, it seems due to a loss of the normal resiliency of the tissues. The uterine neck is dragged upon by the vaginal wall and so stretched that the cervix may reach the vulva. The bladder wall is always said to descend first and then the posterior wall of the vagina. Coupled with this stretching there is always a certain amount of hypertrophy; but more frequently the neck of the uterus can be felt as a long thin cord stretching up to the body. It is evident that tensile elongation is present; for if the woman lies upon the back, the uterus returns to nearly its normal size, and will undergo still further reduction in size if the patient remains in bed for a few days. For this reason it is always best to examine patients complaining of this trouble in a standing position. There is always apt to be great swelling of the vaginal portion of the cervix with ectropon of the mucous membrane.

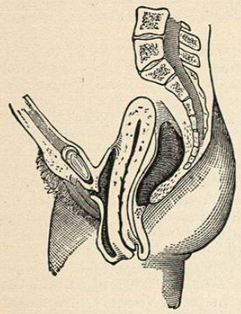

FIG. 4870. — Hypertrophy of Supravaginal Portion of Cervix, showing obliteration of vaginal fornices and descent of vaginal walls. (Schroeder.)

Occasionally cases are seen in which the uterine body feels like a small protuberance on the front of the elongated cervix as it lies in the cavity of the pelvis. This condition may also occur at the time of the climacteric.

Treatment of hypertrophy of the infravaginal cervix is usually rather unsatisfactory, as it is seen as a rule in the later stages when the harm has been done and its effacement is impossible. If the disease comes under observation early in its course considerable can be done, by first removing all the diseased mucous membrane with the sharp curette, and then using tampons of glycerite of tannin, or of ichthyol, or hot douches, with now and then an application of strong tincture of iodine to the cervix. Astringents may be used in the douches as well. By these means the venous congestion is relieved and absorption stimulated. At times puncture of the cervix seems to aid in the reduction in size, after the principle of the old-time leech, which now in the days of asepsis has almost disappeared. As the sufferers from these affections are generally in poor health, tonics suited to the general requirements of the case are indicated. Most important of all is proper hygiene, both as regards the body and as regards the sexual relations; the patient should be enabled to secure proper and sufficient food coupled with rest, freedom from care, and plenty of fresh air.

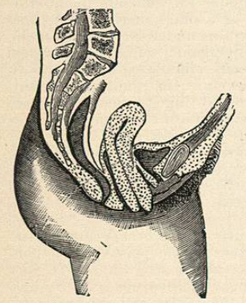

FIG. 4871.—Hypertrophy of Infravaginal Portion of Cervix, showing vaginal fornices in normal position and no descent of vaginal walls. (Schoeder.)

The bowels should be freely moved daily, and the use of calomel in small doses, extending over a period of some months, is said to have a very beneficial action in some cases. Ergotin has also been given in doses of from three to ten grains daily, but the patient must be watched for symptoms of ergotism where the remedy is continued for some time. Puncture with the galvano-cautery and the application of electricity have both been recommended; but the cautery only aids the process which is being combated, while the application of electricity is fraught with more or less danger, and the writers consider it of very doubtful efficacy. In some hypertrophies of moderate size a retroversion pessary may give relief when the conditions are favorable. By this means the feeling of weight is relieved and the tendency to procidentia prevented.

FIG. 4872.—Fowler's Pessary.

Whenever the more simple methods fail, the only aid lies in reducing the size of the cervix by some surgical operation. A wedge-shaped piece may be excised from each side, and the new anterior and posterior lips so formed should then be brought together as in bilateral lacerations of the cervix; or one of the various means of amputation may be tried. If a laceration of any extent already exists, the excision can be made during the repair of the cervix. This treatment always seems to have a very favorable effect upon the metritis which usually exists in the body, and of which the enlargement of the cervix is but a part.

The treatment of the hypertrophy of the cervix due to excessive glandular formation and retention cysts of the Nabothian follicles, must be primarily based upon the cure of the coexisting endocervicitis and endometritis. In the mild cases the small cysts may be punctured and the lining membrane destroyed with strong iodine, or carbolic acid, or nitrate of silver fused on the end of a probe. An elliptical piece may be snipped from the wall of the larger cysts, to prevent closure, and the inside curetted, or they may be treated in the same manner as the smaller cysts.

In the severer types of the disease many small cysts will be felt deeply embedded in the tissues. As a part of the treatment depletion and the hot astringent douches will be found useful.

For the milder grades of endocervicitis and endometritis applications of tincture of iodine and carbolic acid, or of forty-per-cent. formalin, may be tried; but it is the opinion of the writers that the danger is much less in the more severe cases if a curetting with aseptic technique is carried out. When the mucous membrane is extensively diseased, as is often the case in considerable lacerations, and if the lips are filled with cysts, the simplest and best method is to dissect away the diseased membrane as far as may be necessary, after the operation of Schroeder. If a bilateral tear exists it often is possible to remove the diseased tissue in the process of repairing the cervix. Should it seem best, a light packing of iodoform gauze may be placed against the cervix after Schroeder's operation, to prevent effusion between the raw surfaces.

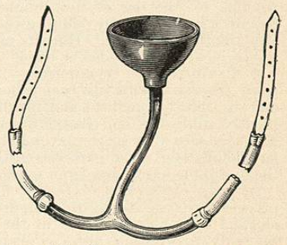

FIG. 4873.—Cup Pessary, with Inflexible Stem and Bands for Attachment to Waist Belt.

Hypertrophic elongation of the cervix when moderate

in degree requires treatment only by mechanical means. The indication here is to change the position of the cervix so that its axis does not correspond to that of the vagina. This can be done by means of a retroversion pessary having a bar across to hold the cervix in front, or by the well-known Fowler's pessary, which receives the cervix in a cup at its upper end (Fig. 4872). Of course this treatment is suitable only in cases in which the inflammation has subsided and the perineum is capable of supporting a pessary. The cup pessary can be tried when the vaginal method fails; but it has the great disadvantage that even with skilful and careful use it is apt to cause excoriation, and when the parts are not carefully watched, the pessary may give rise to the development of both recto-vaginal and vesico-vaginal fistulæ. This instrument is made like the cup of the old game of cup and ball. The cervix rests in the cup, while through the lower end of the stem pass the rubber tubes, which form the perineal bands and are attached to a waist band. This is at the best a clumsy appliance, and worthy of use only in cases in which for some reason the operative treatment is refused or contraindicated.

Amputation of the cervix constitutes the surest method of affording relief. This takes away the weight which drags down the uterus and at the same time removes the guide, which, if there is a tendency to procidentia, steers it through the vaginal canal. This may be all that is required; but if there is a ruptured or relaxed perineum it should be repaired at the same time. In case this does not suffice, ventral suspension to maintain the uterus in its proper axis still remains, or total extirpation.

FIG. 4874. — Hegar's Amputation of the Cervix Uteri.

Amputation of the cervix has been performed with the écraseur and also with the cautery; but the knife has taken the place of these methods which are prone to cause stenosis. To Hegar is due the credit of having invented the first really practical operation for amputation of the cervix —one which with slight variations is applicable to most cases. The cervix is split on both sides as far as to the vaginal junction, and a cone-shaped piece is then removed from each lip, according to the need of the individual case. The sutures are passed under the whole denuded surface from the cervical mucous membrane to that of the vagina. This may be continued all around, or, after suture of the central portions above and below, the sides may be brought together as in repair of the bilateral tears of the cervix. (See the section on Wounds of the Cervix, farther on.)

Schroeder's Method.—After lateral splitting of the cervix, as in Hegar's operation, the lips are held apart and the diseased tissue is removed, as shown in Figs. 4875 and 4876. The wound is closed by turning the flaps of vaginal membrane on to the denuded areas and stitching them in place. This brings the sutures into the entrance of the canal. The commissures on both sides are then brought together by sutures passing under the whole denuded area. There are some more complicated operations, but these two, with the modifications of which they are capable, will suffice in all cases.

The results of hypertrophic elongation of the supravaginal cervix are hard to combat by non-operative procedures. The relaxed condition of the vagina and its outlet, and the frequent presence of laceration of the perineum and of a retroverted adherent uterus, render the mechanical treatment of this condition exceedingly difficult.

In young women rest, astringent douches and tampons, and building up of the general health will usually bring

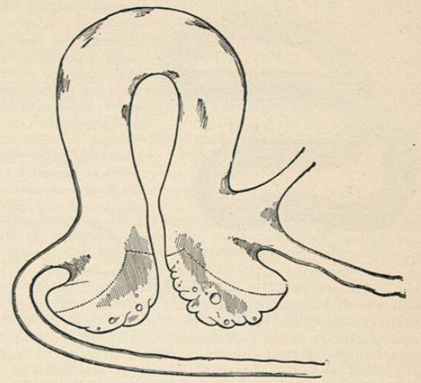

FIG. 4875.—Schroeder's Operation. Dotted lines show the extent to which the cervix should be denuded.

about a cure. As the uterus in these cases, which occur after childbirth, is generally retroverted, its support, after replacement, by some form of retroversion pessary is indicated.

The Hodge pessary may fulfil all the requirements if the lower end is made of such a width that it cannot escape from the grasp of the muscles of the outlet. If this is impossible on account of relaxed outlet, torn perineum, or adherent uterus, which resists well-applied packing in the knee-chest position, operation for repair of the pelvic floor and suspension of the uterus offer the best chance of permanent relief. Pregnancy with the involution which follows it has been known to effect a cure.

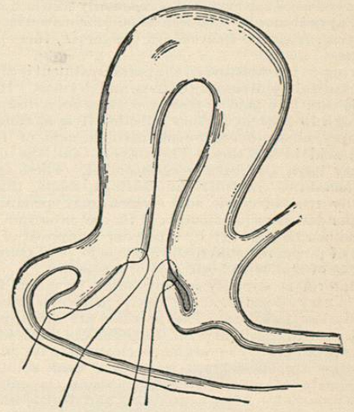

FIG. 4876.—Schroeder's Operation. Diagram shows the manner in which the sutures are to be applied.

At the time of the menopause or subsequently, the chance of effecting a cure except by some operative procedure is slight; but at the same time certain cases may be made comfortable for years. In the case of an ad-

herent uterus it may be possible to hold up the prolapsing vaginal wall by the inflated rubber rings; but this, of course, is open to the objection that the walls are slowly stretched by their action, and that they are hard to keep clean. Gehrung's pessary (Fig. 4877) has been successfully used by some practitioners in retaining the vaginal wall in place; but a good pelvic floor is necessary for its retention. Generally speaking, the retroversion pessaries of all forms are not successful at this time of life, as the infravaginal cervix is atrophied and the vagina cone-shaped, while the perineum itself is too relaxed to retain them. As a last resort the cup pessary may be tried, but the many disadvantages, the care necessary to prevent excoriation and possibly worse consequences, may well make the gynecologist loath to use them in the majority of cases.

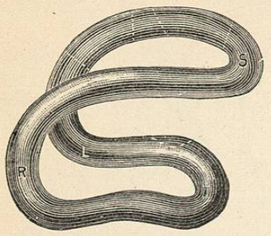

FIG. 4877.—Gehrung Pessary.

Should the discomfort and general condition of the patient warrant operation, the same principles will apply as when the disease occurs in early years. Furthermore, at the age when the sexual life is past, hysterectomy and a complete closure of the vagina by denuding its walls and uniting them with catgut thoughrout their length may be used as a last resort in obstinate cases. As we cannot expect the same involution of the tissues in older as in younger patients, operative interference is earlier indicated.

Ulceration of the Cervix.

True ulceration of the cervix occurs as the result of trauma or of systemic or local disease, and is very infrequent.

Chancroid of the cervix is occasionally seen and has the usual appearance of such lesions on mucous surfaces, except that, from the structure of the cervix, there is little œdema.

Owing to the moisture of the parts treatment is difficult. The cardinal points are cleanliness and dryness. If attention is carefully paid to these the lesion soon disappears, although to prevent further infection it is at times best to apply ninety-five-per-cent. carbolic acid or fuming nitric acid to the sore. The thermo- and the electrocautery have also been recommended. These applications should be carefully and sparingly made; this is especially true of nitric acid, which may produce bad sloughs and possible stenosis of the os externum. The vagina can be kept dry by a powder composed of equal parts of powdered starch and boric acid, or of compound stearate of zinc with boric acid or acetanilid.

Iodoform is strongly recommended by many, but its odor is very offensive, and it has no particular value over the odorless powders. The powders are best applied in the knee-chest position with the perineum retracted by a Sims speculum. The vagina is cleansed with pledgets of cotton dipped in borax water or a weak solution of bicarbonate of soda, by which means the mucus is easily removed. After cauterizing and drying the ulcer and vaginal walls, one or two teaspoonfuls of the powder are thrown on to and about the cervix, and the vagina is lightly packed with strips of gauze covered with the drying powder. These should be removed every twenty-four hours and fresh powder applied after wiping out any of the previous application which has become moist. The vagina is then to be packed as before. Indolent ulcerations may be touched with nitrate of silver, twenty to forty grains to the ounce of water.

Chancre of the cervix is comparatively rare, but more common than chancroidal ulcer. Rassenone found 117 cases among 1,375 cases of venereal sores of the genitals. Chancres occur more often on the anterior lip and may be multiple; occasionally they extend into the canal. They may be recognized by their well-defined border surrounding a depressed area covered by a grayish membrane. Beginning as mere erosions, they soon become deep ulcers, and instances have been reported of perforation into the rectum or into the bladder. They have been mistaken for cancer, and have been known to undergo cancerous degeneration after healing. Mucous patches are also seen among the secondary symptoms.

Constitutional treatment in a doubtful case will soon settle the diagnosis. As to local measures, douches of corrosive sublimate, 1 in 3,000 to 1 in 5,000, or treatment after the manner of the chancroidal ulcers with a powder of calomel and starch, will be found useful. Cauterizing is useless and may do much harm.

Tuberculous ulceration is very rarely seen, and is usually associated with the disease elsewhere, but may be primary. It may take the form of a simple ulceration or of lupus hypertrophicus, and is easily mistaken for cancer—a point which the microscope alone can decide in many cases.

The best treatment is probably the removal of the uterus and appendages, as they are generally infected. If this seems unnecessary, the cautery or amputation of the cervix may be tried. When the disease is too far advanced for operation the parts must be kept clean with douches of potassium permanganate or chlorinated soda in strengths suited to the comfort of the particular patient.

Atresia of the Cervical Canal (Acquired).

This is generally the result of lacerations due to delivery or to the action of caustics. It may result from contraction after amputation of the cervix, or after an operation for repair. Occasionally it results from the contraction of an old ulcer, from new growths within the uterus, or from old age. After the menopause this has no detrimental effect, unless, as occasionally happens, some infection takes place and pus is retained in the old uterine cavity. Previous to the menopause hæmatometra may be expected. Under such circumstances, if the atresia is at the internal os, the shape of the cervix is well preserved; but if it is at the external os, the cervix is carried up to a higher level and the entrance appears as a dimple in the vaginal vault.

Stenosis of the Cervical Canal (Acquired).

The causes are the same as for the preceding, and it occurs more often at the external than at the internal os. The cavity of the cervix may be contracted throughout its length, or, when the restriction at the external os keeps back the secretion, the cavity may be rather fusiform in shape.

Diagnosis of the condition may be made by inspection or by passing a sound or probe. As the tip of a small probe is often caught in the folds of the arbor vitæ, care must be exercised in introducing the instrument. Dragging down the cervix with the double hooks or tenaculum will sometimes obviate this difficulty by straightening the canal. Usually there is a slight spasm of the internal os, which gives way after a few moments of steady pressure. This must not be mistaken for stenosis.

Dysmenorrhœa is usually present and there is also sterility, but the first does not follow in every case, as women with a tight internal os often complain of no pain with the menses.

Pain is probably due to the fact that more blood is poured out from the uterine mucous membrane than can be taken care of by the narrowed canal of the cervix, while the distention of the uterus causes painful contractions of a paroxysmal nature. These are often relieved by the passage of a clot or a quantity of mucus. The pains may be so severe that vomiting, fainting, and various nervous manifestations take place.

The sterility is said to be due to the failure of the cervix to expel the mucus from its canal during the orgasm. It is probably also due to the endocervicitis which is present in these cases, and to an altered cervical secretion.

Treatment of stenosis is surgical, and what is said concerning this applies to atresia coming on before the menopause.

Electricity has been tried in the past, and while it may relieve for the time, the ultimate effect, as in the case of the caustics of the earlier days, is to leave the cervix in a worse state than that for which the treatment was undertaken. To-day four methods are in common vogue: gradual dilatation, discission, divulsion, and plastic operations,—all of which are necessarily contraindicated in any acute inflammatory disturbance of the uterus or adnexa.

Gradual dilatation is performed with Hanks' dilators, with the patient on the back or in Sims' position. The vagina is cleansed with soap and water, and wiped out with a solution of corrosive sublimate, lysol, or carbolic acid. The anterior lip is seized with the tenaculum and pulled gently downward. After the direction of the canal has been ascertained by means of a sound, the dilators are inserted in increasing sizes, each one being allowed to remain a few moments in the canal. For a lubricant lubrichondrin or glycerin may be used. The dilatation should not be carried so far as to cause fissures of the os, and one treatment a week is sufficient. Finally the canal is swabbed out with ninety-five-per-cent. carbolic acid or with tincture of iodine, and a tampon of ichthyol and glycerin is inserted. The latter should be removed the next day. Patients had best remain quiet for a time after the operation, as uterine cramps sometimes come on. No permanent results can be expected of this treatment, and it is advocated as a measure to be adopted only when pregnancy is desired. Probably the favorable results which follow are often quite as much due to the cure of the uterine catarrh as to the increase in the calibre of the canal.

Discission of the cervix with the various metrotomes, once practised so widely, has disappeared owing to the hemorrhage, sepsis, and contraction which followed too often in its wake.

Discission as practised to-day consists of splitting the cervix on each side as high as the junction of the vaginal wall and nicking the internal os on each side. The hemorrhage may be quite free, but is easily controlled by packing gauze between the lips. This operation is resorted to principally for the relief of stenosis and atresia of the internal os.

Divulsion or rapid dilatation under ether or chloroform narcosis and with aseptic precautions is almost devoid of danger, and is perhaps the most generally applicable method when the canal is patent. This is performed with any of the well-known cervical dilators, of which Goodell's modification of Ellinger's dilator is perhaps the best (Fig. 4878). The external genitals and vagina having been rendered surgically clean, the cervix is seized with the vulsellum forceps; and if the canal does not admit the tip of the special form of dilator used, it may be expanded with the Hanks dilators to the necessary extent. The blades of the dilator are then inserted under steady, gentle traction upon the cervix with the vulsellum forceps, and spread in all directions until the canal is dilated to from one-half to three-quarters of an inch. This may be followed by curettage, if necessary, and the uterus and cervix packed with iodoform gauze for from twenty-four to forty-eight hours. Curettage is necessary in most instances, as the stenosis may be due to the existing inflammatory condition of the mucous membrane, which is so common in these cases. Some operators prefer to insert a glass plug after operation in place of the packing, but with this there is increased danger of sepsis. Another advantage of the gauze is that it usually brings with it on removal any small pieces of the mucous membrane which have been skipped by the curette. It is also well to wipe out the uterine cavity before putting in the final packing.

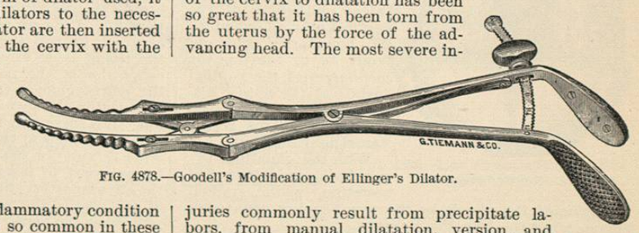

FIG. 4878.—Goodell's Modification of Ellinger's Dilator.

The patient should remain in bed for ten days, and after the first two or three days the use of an antiseptic douche of creolin or lysol, 1 in 100, adds much to her comfort and cleanliness.

Plastic operations are used to relieve contraction or atresia of the external os when the cervical canal is dilated above. The principle of the many operations devised, which accomplish their purpose in the end results, is that involved in amputation of the cervix; and each case must be treated upon these principles, according to its needs.

Traumatic Affections of the Cervix Uteri.

The position of the cervix deep in the pelvis affords little chance of injury except as the result of parturition, ill-fitting and neglected pessaries, inflammatory disease or the contraction caused by the indiscriminate use of caustics in the early days.

Abrasions.—Women wearing a pessary for the first time are liable to slight abrasions of the mucous membrane, even with the best of care. These are of no especial importance if taken in time; but, as often happens, the patient, feeling relieved, fails to appear for months, and the pessary becoming encrusted with salts causes not only excoriations, but ulcerations which may extend into the rectum or into the bladder. The external and internal combined pessaries are prone to cause these ill results, as they are generally bought of some instrument maker, often without any measurements being made, and are adjusted by the patient.

Also the support of the pessary from the outside by the elastic bands does not allow it to move freely with the excursions of the pelvic diaphragm without increasing the pressure. With the cup pessary, unless in the proper axis, the lips press against the cervix and cause sloughs.

The removal of the pessary and simple cleanliness suffice for the cure of the small abrasions. When the surface involved includes the vaginal wall as well, it is best after cleansing the vagina to apply some antiseptic powder and lay gauze between the abraded surfaces to prevent their adhering. Indolent or granulating ulcers may need stimulating or astringent applications.

Wounds of the Cervix.—Practically all lacerations of the cervix arise as the direct or indirect result of parturition, and are equally unavoidable. Broadly speaking, at least one-third of all labor cases have lacerations worthy of repair. Tears may occur from miscarriages in the early months, while delivery at full term may leave not the slightest trace of rupture. Portions of the anterior lip may slough from pressure, and large defects are sometimes caused in this way. Pregnancy occurring late in life for the first time, or after inflammatory disease, is apt, on account of the more resistant cervix, to leave its marks. Cases have been reported in which the resistance of the cervix to dilatation has been so great that it has been torn from the uterus by the force of the advancing head. The most severe injuries commonly result from precipitate labors, from manual dilatation, version, and forceps operations. These happen to the skilful as well as to the unskilful, so that it is not just to lay them at the door of the accoucheur, although of the neglect to repair them when necessary, he must bear the blame.