THESIS
Fistulae
in the Genito-urinary organs
of the female

William Stewart
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"Felix qui potuit rerum cognoscere causas."

This aphorism is true in a great variety of cases, but like most generalizations it has its particular exceptions. In Medicine and Surgery these exceptions occur, and another might be substituted in such cases for the one already quoted. Unhappily is the man who knows the cause and is unable to remove either cause or effect. Yet true it is, and few diseases are of more importance or interest to the Surgeon or Physician than those which are least amenable to treatment of a radical description; or which under the same circumstances can be with ease referable to a distinct cause or series of causes. It has been to a great extent through the agency of such cases,
that the profession has been raised step by step to its now high status: both as a science and an art. It is to these now that the inventive, researching and observant powers of the faculty are directed, in order that the yet formidable array may be diminished and reduced to practicable and manageable ailments; as well as to improvement in the treatment of those which have already partially succumbed. At no period in the annals of Medicine or Surgery has success crowned these efforts more markedly than in that which has elapsed of the Nineteenth Century. With the aid of the Achromatic Microscope, the extreme delicacy of the instruments now used to determine the evolution of Physiological Phenomena in animal tissues - the chemical researches, the experiments both operative and therapeutic on the lower animals, and the post mortem theatre, all guiding to the proper adaptation of a means to an end - the strides which have been taken are not to be wondered at. Notwithstanding the powerful assistance to be derived from these a great number of diseases
yet stand awaiting the approach of that magic wand knowledge to dissipate the cloud that now enshrouds them.

At no very distant period the malady which forms the subject of this thesis, held its position among this class of diseases. It was one of the opprobria of surgery fraught with no less distressing consequences to the patient, than annoyance and vexation to the Obstetrician or Surgeon. In the case of the former it held out the dreary prospect of a long and debilitating confinement, with the accompanying discomforts to an otherwise healthy woman. While to the medical attendant it presented that form of ailments to which treatment only of a palliative nature could be adopted, and for which no perfect cure was ever expected although frequently aimed at. Fortunately for the individual practitioner but few of the patients suffering from this direful consequence of a needlessly prolonged labour were aware that the cause was effected through mismanagement. And in many cases where instruments had become the agents the patient seemed to have been quite unconscious of the application of such means to forefend the
dreaded effect. Now however little of the gravity that used to attend to it exists and what was wont to have an immediate character has ultimately become the subject of little anxiety when it does appear to the surgeon or accoucheur. This cause for so little concern on the part of the operator has been brought about by the adoption of metallic instead of organic sutures and it is only within a limited number of years that the pathological investigations which have been held on the lower animals, for the purpose of deciding the amount of tolerance of metallic substances in the tissues of the living body, have overcome the difficulty or rather unsuccessful means of treating this lesion as well as for facilitating the favourable termination of others.

In the treatises presented to the student on this subject by obstetricians we can find ample scope for examining the treatment previously adopted to that now in practice; as well as the views which were held by those authors of a disease long considered as incurable.

Dr. Hamilton, late professor of midwifery, at this
University, decidedly gave his opinion that all such cases were utterly incurable. Davis and Vidal—
the latter an accomplished Continental surgeon, distinctly say that no truly authentic case of cure of vesico-vaginal fistula exists in the annals of the science of surgery. Taking our start from such authorities as these it could scarcely be difficult to
guess the prognosis which would generally follow after the detection of this unhappy accident.

Under these circumstances and with such unfavourable ideas of the subject it is not to be wondered
that attention was chiefly engaged in looking towards the amelioration and palliative treatment of this
most distressing of female diseases, but notwithstanding the stubborn character of this affection
many attempts were made to surmount the difficulties placed in the road of permanent occlusion
and for that purpose the future (organic and inorganic) Catheter—Cautery both actual and
potential—Cigarette—plug and the electroplastic or cystoplasty operations were all recommended and
applied. Each from this array of the different methods of treatment has had a certain amount
of success. And some few after repeated application
have been the means of closing the aperture. At a very early period, about 1640, we have a German surgeon recommending the closure of the preputial opening by the same means as those adopted for the cure of hernia, a subsequent modification of which was destined to supplant all other means of treatment, but no definite account is given of the adoption of this suggestion or of its success if it had ever been tried.

We have other records of the varied sources of advantage to be gained from the different media already cited, but so few and isolated were the cases which under the application of these proved to have a termination in radical cure, that these exceptions were considered the highly improbable while the vast mapping thus left were calculated as the impossible. In these exceptional cases of resolution we have every reason to believe that the happy result of occlusion was chiefly owing to the means employed for modifying the more immediate and troublesome effects of the discomfort caused by the irritating influence of the urethral urine which constantly dribbled about the person of the patient. We have therefore contrary to the opinions of Dr. Hamilton Davis and Vidal
instances in which the fistula have been closed by means which if they had been neglected would have led to the permanent patency of the lesion.

Fistulae in the female organs, Genito-urinary and others may be met with as occurring from two very different sources each being independent of the other. We may have 1st. those classes or varieties of the disease which are dependent on congenital imperfections of the structure forming the common parts of the organs or part implicated, and 2nd. such as result from the effects of injuries and disease — of the latter it is well worth noticing a few of the cases in which this occurred. We will therefore consider the various forms of

Con genital Fistula

Intercommunications of a congenital form are of rare occurrence between the vagina and bladder in truth the only records of this class of cases are widely scattered over this subject, which occupies an inconsiderable space in most works on the diseases of women. Some remarkable instances of this malformation have been reported and for these we are almost exclusively indebted to the records of continental practitioners.
The most common variety of this malformation is that which occurs between the rectum and vagina, but of all the particular sorts there is diversity of arrangement. "The Annals of Medicine" Murac observes, makes mention of many women naturally without a vulva in whom therefore as in the common poultry the vagina has been known to open into the rectum.

Lions reports a case of this kind in a thesis which was afterwards prosecuted by the authorities of the Sorbonne as contrary to good manners. We also meet with examples of this communication of the vagina with the rectum in the Memoirs of the Royal Academy of Prussia for 1794; in the Journal de Séances for 1794; in the first volume of Robaut's Cours de Accouchements in Riset's Bibliothèque Chirurgicale; and in the Annals of Medicine of Montpellier for 1804. Many instances of this peculiar and extraordinary malformation have occurred in which it has operated as no impediment to conception. One example of this kind occurred at Paris in the case of a young woman who had not a single vestige of an aperture in
the intermediate space between the orifice of the urethra and that of the anus. This young woman having permitted herself to be seduced by her lover became pregnant and arrived at her full period of gestation. Her mother who knew that she had always menstruated per annum maintained that she was not pregnant, but of course could no longer doubt when the time of her delivery arrived, and which took place in the presence of Pugos and Gregoria. It was affected by a rupture which reached as far as the orifice of the urethra. Another case of a similar kind occurred at Paris and pregnancy also arrived at the full period. Denis and Lormont were engaged to attend the patient in her confinement. The delivery took place by the anus but an incision was previously made at its anterior part in order that the progress of labour might be facilitated. Portal in his Proccis de Chirurgie narrates also the circumstance of a young woman who enjoyed the most perfect health, but whose vulva only contained a small aperture for the discharge of the contents of the bladder. She also menstruated per annum.
On becoming pregnant she was naturally much disturbed at the prospect of what she had to undergo during labour. But before the full period of gestation had occurred an actually existing aperture in the vulva made its appearance, which becoming gradually more and more developed during parturition finally under the attendance of M. Péan was happily delivered.

In those cases just narrated we have the vagina opening into the rectum but in instances where imperforate anus occurs with fistulous intercommunication the rectum opens into the vagina. In this case the superior portion of the vagina has its normal relation to the rectum and urethra but the inferior portion is somewhat drawn from the latter.

This has been observed in the lower animals and it would appear that in some of the examples of this departure from the ordinary laws of formation, that the evil has shown somewhat of a disposition to modify as much as possible the amount of suffering to which the individual is liable. Defussieu has given a case of this description in l'histoire de l'Academie des Sciences for 1719 in which the
Subject was a child of between 7 and 8 years. In this instance the focus were voided by the vulva.

Dr. Hartman also describes a congenital communication between the rectum and vagina of a female calf. In this particular case the communicating aperture was surrounded by a structure similar in appearance and office to the sphincter of the anus. This was published in the Ephemerides Germanicae. Davis was also in possession of the notes of a case in which an old lady was the sufferer and for whom a similar provision had evidently been left. In this instance the party was the victim of the malformation during her whole life and by the use of detersives in the form of injections was enabled to keep herself to a considerable degree in a condition of comfort and cleanliness.

Mr. Champion communicated to Mr. Mural a case of peculiar interest showing no less a departure from the ordinary conformation of the genitals in the female than Perineo-uterine fistula. Davis reports it thus: "Its subject was a woman of 3 or 4 years, the mother of three children whose births had
been attended by no serious consequences. The opening into the vagina presented itself anteriorly to but immediately on the verge of the anus. The aperture was in a transverse direction. The space usually occupied by the great sinus of the vulva was entirely made up by an unfissured prolongation of the cellular integumental structure which ordinarily cushions the pubes. Considerable apprehensions were entertained lest during the first labour the perineum might suffer laceration. The anticipations in question were however happily not confirmed by the event. The birth was actually an easy one.” It is highly probable that this case is solitary in the records of pathology. Mr. Sedgwick in the XII Vol. of the Pathological Transactions reports a case in which the subject was an infant aged three weeks in all other respects well developed and whose death was unconnected with the malformation. The abnormal opening of the rectum was situated at the lower part of the vagina near its outlet. During life the bowels had always acted regularly.
without medicine and their contents did not constantly escape but only at periodic intervals as in a normal state of the parts. So little inconvenience had indeed resulted from the malformation that it altogether escaped notice until twelve days after birth had elapsed. The skin over the anal region had the usual dark and puckered appearance and on close examination a small central indentation was observed indicating the position of the anus but no perceptible bulging of the integument occurred when the child coughed. After death it was ascertained that there was no further internal malformation and that the rectum was undiminished in calibre as far as the outlet.

Mechanical causes are for the most common in bringing about this disorder as may be seen from the varieties mentioned further along in this paper but certain diseased states of the organs also operate as agents in causing this lesion. Malignant ulceration and pelvic abscess occur in this class where the ulceration is present from cancerous deposit
it is plain that no treatment save the
palliative can be of any service and then
only to relieve the suffering of the patient. When
the cancer is confined to the os uteri and has
not yet attacked the walls of the vagina. It
has been proposed to take away the affected
portion. This has proved successful in many
instances but it too often happens that the
disease makes its appearance in some other
organ or if not thoroughly eradicated from
its position runs on a more rapid course and
speedily ends in death.

Causes.
Cutting instruments may be the agents in producing
the wound which may perforate either wall
of the vagina. Occasionally this has been the
result of the application of instruments for
the purpose of criminally procuring abortion.
But it occurs also as the result of care-
lessness or incompetence of the operator in
using the obstetric scissors or perforator and
instances have been recorded where in
attempting craniotomy the perforator has
slipped off the child's head and passed into the cavity of the bladder or the rectum. The maladroit use of the forceps leads often to this lesion but it is highly probable that this is not at all a frequent method of direct perforation as even in the cases which have been attributed to this cause the urine does not commence to escape till several days after the operation of delivery by forceps, and then not till the stumps have separated. It is more than likely that the misfortune has had its origin in the period of delay previous to the application of the artificial means of delivery.

In aged females it sometimes occurs that a degree of inflammation of the vaginal tunics is set up by too long retention of a pessary in the canal. This inflammation passes on to ulceration which after gradually eating through the different coats of the vagina, soon attacks either rectum or bladder and causing ultimate perforation of these organs leaves a fistulous aperture for which nothing but palliative measures can be adopted seeing that little can be done by way of cure.
Prolonged labours are by far the most frequent cause of fistulae through the head of the child on the soft parts. These labours are of two kinds: the sedulous and the powerless. The former relates to prolongation in the first stage caused by inefficient action of the uterine muscles, most commonly occurring in delicate females confined for the first time in dilatable os uteri and several other circumstances; the latter to delay in the second stage. Sedulous labours do not directly affect the formation of a fistulous aperture as they occur in that stage of a labour in which there is little danger either to mother or child from protraction. But as this delay may influence the progress of the second stage through the effect it may have on the patient, and rendering her less tolerant of its effects, this undue length of time in the primary stage should be watched and treated. The powerless labour of the second stage if extended beyond certain limits of time is always of serious import. It is generally governed by the particular constitution of the patient as well as by other causes. It is characterized by degeneration both of
the voluntary and involuntary acts of expulsion, followed by disorder of the digestive organs and febrile symptoms, as well as some inflammatory action about the passages extending from the os uteri to extra. Why these alarming and fatal symptoms should occur in the second stage is inexplicable. It may be occasioned by some peculiar condition of the uterine, from inefficiency or powerlessness, from mental emotion, obstructions in the soft parts, from tumours or disease of the walls of the canal through which the fetus has to pass, or through deformity of the pelvis. It is in this stage chiefly where we have not only the greatest danger to both the mother constitutionally, but also to the child; but the grave question of fistula may present itself should the mother survive the effects which such prolongation is calculated to imply. Here we have the head of the child long retained in the pelvis and exercising by means of its pressure the suspension of vital action in the parts thus submitted to continued compression, which action is well known to cause sloughing of any part to which it is sufficiently long
applied. Mortal enlargement of the head of the foetus may produce the same effect in an otherwise normal state of the passages.

Retention of urine sometimes occurs through fullness of the bladder involving more or less pressure of the viscera. If this pressure occurs within certain limits, the result may be sub-
sequent perforation through inflammation having been induced in the parts; but in cases where the distension occurs in excess, and the viscus protrudes into the pelvis, and while in position it be thrust down before the head of the child: most probably under these circumstances you will have rupture of the bladder taking place into the vagina with formation of a fistula-
apture.

Rupture of the uterine taking place may cause laceration of the walls of the bladder at the same time. This form of fistula is generally independ-
ent of the vagina.

As before mentioned where the uterine becomes the seat of cancer or surrounding tissue for generally have as a sequel an intercommunication with one or other of the adjacent organs.
Pelvic cellulitis advancing to pelvic abscess was first pointed out as a cause of this lesion by Sir J Y Simpson. In the monthly medical journal for Dec 1852, as well as in the Professor's Obstetric Works, may be found an account of three interesting cases. Pelvic abscess may open into one or more of the cavities in the female pelvis and cause fistula. For an explanation of this occurrence we have in the pelvis along the lines of the pelvic walls and in the organic attachments between the intestinal, genital and urinary canals as well as within the layers of the broad ligaments considerable deposits of cellular tissue. In this substance as a consequence of parturition you often have inflammation set up known as pelvic cellulitis. This affection after going through the various stages of inflammation, causes swelling, induration, effusion of coagulable lymph, etc. and resolves itself into perfect health. It may run on to suppuration and cause what is termed pelvic Abscess. In this case the matter contained in the abscess tends to point and obtain expres
various outlets. This may take place in the skin or find its way to the mucous canals in which it is in the immediate vicinity. In some cases it opens into the cavity of the peritoneum. Sometimes however you may have the escape of the contained matter by two mucous outlets and where these become chronic you have various perforations which become deep pelvic fistulae.

The situation may vary in different cases. You most frequently have it implicating the vagina and that portion of the bladder which rests on it. This may be either high up in the canal and verging on the os uteri or lower down and lying near the urethra. Occasionally the rupture opens into the urethra. In this case you do not have incontinence of urine but the irritating effects of that fluid passing into the vagina during the act of micturition. A very unusual site is that in which the opening takes place between the uterine and bladder—very few cases of which are on record. One being among those causes (pelvic abscess) and to be seen in "Sir J. Simpson's Obstetric Works.
It may lastly occur between the vagina and intestinal canal. One instance is mentioned of a fistulous apertum having been found between the uterus and sigmoid flexure of the colon. This was caused by an abscess which found its way into both of these cavities. The retention power over the urine in vesico-vaginal fistula depends on the situation and extent of the orifice. If it be high up you have retention for a longer period than when it is situated lower and on the base of bladder.

The extent of a fistula is very varied. Sometimes the orifice is so small as not to permit even the passage of a fine probe and in such cases you have the urine dropping away in small quantity. In other instances you may have them of very large size including occasionally the whole of the base of the bladder and a corresponding portion of the anterior wall of the vagina; or in another class you may have two or three openings, but this is not very common. The extent of the lesion has but little influence in affecting the condition or comfort of the patient as they
all exert the same influence in causing incontinence. The smallest opening is equally capable of allowing the urine to pass through this new channel into the vagina, provided it be low enough, with one of a larger size. If this small opening occur higher up in the vesicos of course the urine can be collected in larger quantity, but this refers also to larger ones in the same situation. It is not at all uncommon to find among patients suffering from this affection that they are able to contain their urine for some time when placed in the recumbent posture.

The shape is sometimes very irregular but frequently of an oval or rounded form. This oval form is often a modification of the more irregular which at first appears. This is brought about by a certain degree of contraction taking place in the tissues which form the septum between the canthies. It may also be brought about by the mechanical indentation of the mucous surface of the bladder through the opening. The shape of those in the septum between the rectum and vagina are generally
linear or irregular but contracts in virtue of the muscular tissue which exists in the ruptured walls. In a few cases it is said that the muscular fibres form themselves into a band-like splinter or vascular apparatus whereby the passage of faeces through the vulva is arrested or very much diminished.

Symptoms

The symptoms which show themselves in fistula vary according to the cause or to the particular situation in which the lesion occurs. Where cutting instruments have been the means you have urine immediately passed if the abnormal communication or perforation of the bladder has taken place. If on the other hand the passage is in the rectum sooner or later faeces may be observed passing through the vulva. In the former event the immediate appearance of the urine may depend on the quantity of fluid present in the bladder or on the situation of the wound. If the bladder be comparatively empty and the wound high up you may not have escape of urine for some time...
It is seldom however that this immediate flow of urine follows the use of forceps, several days usually occurring between their application and the lesion. This period is characterized by symptoms which are indicative of a fistulous opening. During the first two or three days after delivery you generally have the patient complaining of difficulty in passing urine which may occur to such an extent that artificial means require to be resorted to for emptying the bladder. And for that purpose a catheter has frequently to be passed. Following this period of retention you have incontinence of urine coming on and shortly this is succeeded by the passage of a membranous substance, which on examination after immersion in water proves to be nothing else than a portion of the bladder and vagina altered in consequence of gangrenous changes. The foregoing are the primary symptoms but are followed by the secondary which are dependent on the escape of the contents of the wounded organ. If this be not early prevented the results will be irreparable distress to the patient.
The passage of the urine through the vagina causes great irritation of the mucous membrane of that canal as well as of the external parts on which its irritating influence may be exerted. If the fistula has been of long standing you generally by means of an inflammatory process set up in the vaginal canal, have contractions and drawing together of the walls and sometimes a complete closure of the os uteri in that case giving rise to amenorrhea. On the external portions and along the interior of the thighs the urine gives rise to extreme tenderness and irritation followed in some instances by excretions especially where there is not a due attention paid to cleanliness.

The presence of the urine about the person of the patient gives rise to a marked and irrepressible odor which excludes her from society and obliges her to confine herself to her own room. Thus she lives the life of an unwilling recluse and becomes an object of pity if not disgust to her friends and attendants.
Diagnosis where the aperture is large is very easy, but in some cases where it is small it requires other than mere tactile means for determining the exact position. In all cases a very careful examination should be made first by passing a catheter into the bladder and the finger into the vagina. The catheter should now be moved cautiously over the whole posterior surface of the bladder while the finger in connection with the catheter should be exploring the anterior surface or wall of the vagina. If the opening be large it will be detected at once or if small it may occasion a considerable amount of search. After it has been ascertained the point of the catheter may be passed into the vagina from the bladder and thus a more accurate estimate of its size and shape as well as situation may be obtained. By the speculum in most cases you may obtain a view of the fistula and thus be better able to judge of its character than by mere touch. By this means also we are able to detect minute openings which are impossible
of discovery if touch. In such small fistulae you can generally by injecting the bladder with water see where the liquid makes its escape, or if this should fail you may inject any coloured or white fluid such as milk. But this means you cannot fail to detect the exact point whether in vagina or flowing from os uteri. In this latter you require to dilate the os by means of tent, in order to be able to ascertain the point from which the fluid is coming. When the vagina has not become the seat of cicatrizes the former means may with facility be employed for the detection of the lesion; but where cicatrizes and deformity are present the application of these methods will require not only care but patience.

**Treatment**

For a disease which had so long baffled the ingenuity and skill of the profession we can scarcely wonder that many modes of treatment should be proposed; few of which from the care and attention paid to them have not in some particular case proved
of not a radical cure at least an agent in ameliorating the distress and suffering of the patient. Relief in those instances depending on the character and situation of the fistula. When the lesion was of considerable extent and situated far back relief was seldom obtained but when near the neck a cure occasionally occurred.

Messault’s method consisted in maintaining a catheter constantly in the urethra so as to give a free outlet to the urine, and at the same time plugging the vagina to prevent its escape by that canal. Cases of cure have taken place where the fistula was in the neck of the bladder but this method has failed where it was situated farther back. The objection to this method is that many patients cannot retain the catheter in the urethra for any great length of time and this consequently forms a great obstacle to the chance of cure.

Cauterization was first recommended and tried by Dupuytren. Nitrate of silver was the caustic used. Scare seldom if ever has occurred from this means but decided relief has at times
been experienced. It is only where there has been little loss of substance that it can prove of any use and even then it has often failed. A slight application of the caustic will suffice as a contraction and a slough is what is required.

The Actual Caustic has proved a cure where there has been slight loss of substance and the wound small. Dupuytren proposed this also and cured several. In the hands of many other surgeons and surgeons it has proved equally successful but only when the opening was small. In applying the caustic it should not be kept too long in contact with the tissues as it would then produce a slough and the patient would not be benefited. What is required is a slight touching of the margins of the fistula so as to cause a contraction or shrinking of the edges and this means bringing about contraction of the fistula. A complete closure is rare.

The Plug was proposed as early as 1814 by Mr. Rowland. Mr. Barnes on the suggestion made trial of this means which proved successful in a case reported in the Sixth Vol. Med. Chirurg. Trans.

The treatment runs as follows: A fine elastic gum little, capable of containing about two ounces of water
was placed in the vagina. The bottle had a thin piece of sponge about the size of a dollar attached to the outside, so as to correspond with the situation of the fistula. The sponge was anointed with Cerati and the bottle dipped in oil. It is now folded longitudinally and passed into the vagina with the sponge in front. From its elasticity it immediately expanded and by the application of the finger was placed in its proper situation. A double string was passed through the bottom internally and left hanging through the neck. A flat silver catheter was left in the bladder a few days prior to the application of the apparatus but after the bottle was introduced the catheter was removed. No urine escaped for two hours when the catheter was applied and the bladder emptied. At this interval the catheter was regularly applied and was deemed preferable to its continued presence in the bladder. Fresh bottles were introduced when the ones in use became soft and thus an equalifiable pressure was maintained.

At the end of 9 months the patient having been thoroughly cured was enabled to resume her natural habits in every respect. In the other cases reported by Mr. Barnes in the same paper this means failed.
Many other modifications of the same method have been tried with equally fluctuating success but in such cases as it was applicable if it did not remove the disease it tended to diminish at least some of the consequent distress.

Elythroplastic or Coryoplastics was first suggested by Belpaume and subsequently practised by Jobert. Of his four operations one was cured & the first operation the second operation succeeded in another. one died and with one it failed. The female who had been cured after the second operation was presented by Dr. Jobert to the Royal Academy of Medicine. The fistula was about one inch in diameter and the consequence of a prolonged labour. The edges of the opening was refreshed, a flap was dissected from the external labium and united by suture to the cicatized edges of the sore. The first attempt failed but the second one with the most complete success. This case was reported in the French language.

The future is said to have been invented by Kroebbeuysen but it has been long known and practised by the profession with varied results. Several cases have been reported as cured by this means but a great number have entirely failed.
Having recently however the improvements in the
mode of operating and the materials used have
given good hopes of success to a greater extent
than had been hoped for. The first great improve-
ment was the use of silver suture for the suture recommended
by Dr. M. Sims. Prior to this however, Sir J. F. Simpson
found that a Mr. Gosselle of London had been in the
habit of treating this lesion with gold wire. This
discovery in favour of Mr. Gosselle we think does not
detract from the amount of praise due to Dr. Sims
for his proposition which has fortunately formed the
basis of the present excellent treatment. Dr. M.
Sims at first used clamps to retain the wire but
latterly he has discarded them and simply
twists the ends of each suture together. Many
sorts of wire for this purpose have been recommended
but the annealed iron wire has this advantage
over every other that it is not only stronger
but cheaper with as little inclination to
rust from the time applied as any other.
Mr. Meister cuts out the suture to suppuration
Dr. Boyer of Alabama next invented
the button shield with which to keep the two
edges of the sutured wound in immovable contact.
Sir J. G. Simpson afterwards introduced many improvements into the operation for this malady which will appear in the description of the means now employed for its cure.

The position of the patient formerly recommended was that for lithotomy. After this, the patient was placed on her elbows and knees, but a posture taken on the left side with the knees drawn up is one that will suit equally well and not interfere with the facility for administering chloroform. The operation is divisible into five stages.

1. The edges have to be pared.
2. Stitches have to be introduced.
3. The surfaces have to be brought into apposition.
4. The threads have to be fixed and the lips of the wound kept firmly together.
5. A proper catheter should be chosen and adjusted and an appropriate and careful after treatment has to be pursued.

The patient having been laid in the proper position so that the lights, which should be good, passes along the speculum and falls on the part.
you next proceed to pare the edges of the fistula.

Having caught hold of the middle point of the lower lip of the fistula with a tenaculum or sharp hook you proceed to pare the edges with a sharp knife. Transfixion with the point of the edge of the fistula is preferable to any other means of paring. The blade is then carried round the orifice leaving it of a bevelled description, that is with the apex of the cone towards the meaons membrane of the bladder a greater amount of the tissue of the walls of the vagina having been removed from the mucous surface of that canal. The incision having been carried right and left no part of the edge ought to be left uncut as the presence of the smallest part of mucous membrane will place a barrier to the anticipated cure.

Since lately the introduction of the stitches was found the most difficult part of the operation but the invention of a tubular needle, by our Professor of Midwifery at this University, has thoroughly overcome this part of the operation. The end of the wire after it is passed through the needle is seized by a pair of long dressing forceps, the
needle is withdrawn and thus the wire is left in its place to be afterwards adjusted. The stitches ought to be entered at some distance from the edges so as to give them a steady and strong hold. The stitches ought not to pierce the inner surface of the bladder but to come close to it. This ought to be done carefully and well.

The coaptation of the edges of the wound ought to be done carefully and perhaps is better accomplished by the fingers of the operator than by any other means. This is done by drawing together each suture separately then the whole together. As the ends of the separate wires are apt to become entangled you had better be provided with a small steel rod bent at the points at right angles in order to facilitate the separation of the sutures in each particular stitch.

The decaking of the threads is the most portion of the operation and several methods have been proposed both for this and the consolidation of the parts.

Dr. Sims first used the simple twisted suture and then two loose one along each side the fistula to which the threads were attached. The presence of them caused ulceration and have been consequently
abandoned. After this Dr. Boyeman introduced the button suture. In many of the cases in which it has been tried it has proved to be successful, but again in the hands of other eminent operators it has entirely failed to give that support to the parts which it was considered to exert. A great objection to this method is its complexity and difficulty of application. The iron wire splint introduced by Sir J. Simpson is much simpler and lighter than the lead button of Boyeman and has the advantage of affording more direct support to the surrounding parts in preventing the muscular movements which tend to displace the edges of the fracture. It is also much easier of application where it is required. Now however the simple twisted suture is again resorted to and the great secret of success lies in the number of stitches which ought to be placed in the wound and also in the degree of tension to which they approach each other. The twisting is performed by a queer little instrument the invention of Dr. Coghill assistant at the time to Professor Simpson.
the after-treatment is very important, and requires care and attention. Before the patient has been removed to bed, the water accumulated in the bladder ought to be drawn off. A catheter is retained in the urethra from which it must be carefully watched that the water is draining. No ought moreover to be taken and cleaned twice a day, while the corpora ought to be gently washed with tepid water as often or even thrice. About the tenth day the wires ought to be carefully removed by cutting through in the loop and then gently withdrawing the sutures so as not to rupture the newly closed fistula.

The patient must still wear the catheter for a day or two and then be habituated to retain the urine first for an hour and then, gradually increasing the time. It is remarkable to see how the bladder regains its normal size.

From two to eight grains or more of opium may be given daily with good effect fulfilling a threefold office in softening the movements of the bladder, locking up the bowels, and enabling the patient to maintain the supine position for a longer period. Without this position becoming

inconvenien
The other forms of fistula to be met with are treated much in the same way as that already described for the vesico-vaginal form. Urethro-rectal fistula is less easy of treatment than any from the obstruction to the appliances being more numerous both from its depth in the pelvis and also from the difficulty of reaching the seat of lesion. Recto-vaginal fistula is much easier of access than either and is treated in ordinary cases like the vesico-vaginal.

Occasionally a spontaneous cure takes place. This occurred in a case in which pelvic abscess was the cause of lesion. This sort of occlusion is very rare the aperture being more frequently closed partially by aid either of an adventitious sphincter or of a vascular apparatus whereby the faces or urine is retained somewhat to the comfort of the patient almost exclusively in each separate vesicle. This is probably the case in many of the so-called self-healing fistula and in some instances where an opportunity of investigating this point has been afforded in a post-mortem examination it has actually been found to be the case.
Works Consulted for this thesis
Blandells Obstetrics . Sir J Y Simpcons Obstet.Works
Davis' Obstetric medicine . Coopers Surgical Dictionary.
§ 29. Diagram for improving glass.
What we need.

§ 31. Examine and to have been written
by Pomeroy.

§ 32. Are we safe before time, whether
met with one - gilded.

§ 36. Fine style - were signed.