## ADDRESS OF THE PRESIDENT

# THE HISTORY OF VESICOVAGINAL FISTULA

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According as we remember others so those yet to come will remember us. If we live only for the present and for our own age and reject the past because of imperfections, so in turn will we ourselves as surely be forgotten and despised as the centuries roll over our dust.

I do not believe there is any justification in fact for the common notion that in any important sense in an ultimate analysis the present is greatly superior to the past ages. Such a naïve sentiment of superiority has prevailed in every age; were it founded on fact the cumulative inheritances of the age in which we live would constitute such an endowment of superlative virtues that we might well emulate the angels and wing our beatific way into heaven. The student of history finds the past so inextricably interwoven with the present that the two finally become to his discriminating inspection woof and web of the same cloth, and to tear one from the other is to ruin the fabric.

Impressed with these reflections, I have selected for our brief consideration the history of vesicovaginal fistula, that interesting plastic operation which did for the

gynecology of the vagina and the lower pelvis what ovariotomy did in the field of abdominal surgery. On these two legs our biped specialty walks erect—a living, active growing organism—each planted on a grand progenitor, a McDowell and a Sims.

Let me invite your philosophical minds to consider the efforts made to cure vesicovaginal fistula before Sims' time, the work of Sims and his contemporaries, and finally, what has been done since his day to perfect this operation.

In an effort to keep clear the pathway of prior claims, I will follow a chronological order. Permit me to say that I do not know that this work has been done since Sims' death twenty-nine years ago, but the literature is large, and it may well be that I am but duplicating the work of another. However, the attempt will be none the less interesting, and the inspiration which ever comes from a pious reverence for the labors of the illustrious dead no less, even though others have trodden the path bearing their laurel wreaths before us.

I am happy to confess my indebtedness to the following writers who have preceded me in a historical study of our subject, drawing attention above all others to the elaborate and admirable work of Deroubaix, of Brussels, mentioned third in the subjoined list:

Mémoire sur des Moyens Nouveaux de Traitement des Fistules Vésicovaginales, J. Leroy d'Etiolles, Paris, 1842.

Études Historiques sur l'Operation de la Fistule Vésicovaginale, Hergott, Paris, 1864.

Traité des Fistules Urogenitales de la Femme, L. Deroubaix, Bruxelles, 1870.

Einige geschichtliche und technische Bemerkungen zur Lappenperineorrhapie, Centralbl. f. Gynäk., 1888, No. 47.

Einige geschichtliche Bemerkungen zur Lappenspaltungs Methode bei den Blasen-Scheidenfisteln, Centralbl. f. Gynäk., 1897, No. 26, A. Karczweski.

Handbuch der Chirurgie, Blasius, 1841, vol. iii, p. 407.

In addition to these, Sims' first paper begins a brief historical sketch. Emmet, in his *Principles and Practice of Gynecology*, also refers to the subject, and T. G. Thomas, in his practical treatise on *Diseases of Women*, adds some historical notes, among others, referring to Paret as treating fistulas by "retinacula," a reference I cannot verify.

The following references will also be found useful to the student of medical history desirous of tracing the historical evolution of our present methods of treatment:

Plater, 1597, in Spach's Gynecorium. De mulierum partibus generationi dictis, etc.

Van Roonhuyse, 1663. Heelkonstige Aanmerckingen, Amsterdam, p. 181.

Velthem, 1724. De Incontinentia ex Partu Difficili, Fatio, 1752. Helvetisch vernünftige Wehemutter, Basel, p. 282, et fol.

Hirschfeld, 1759. De Incontinentia Urinæ post Partum Difficilem.

Petit, 1790. Traité des maladies chirurgicales.

Desault, 1799. Traité des maladies des voies urinares. An. vii, t. iii, p. 287.

Lewinski, 1802. Thèse de la Faculté de Paris.

Naegele, 1812. Erfahrungen und Abhandlungen uber Krankheiten des weiblichen Geschlechts, Mannheim, p. 389.

Schreger, 1817. Annalen des chirurg. Klinikums auf die Universität zu Erlangen.

L'Allemand, 1825. Archives générales de Médecine, t. vii; 1825, Froge, Dissertation sur la fistule vesicovaginale, Thése de Paris.

Dupuytren, 1829. Journal hebdomadaire, t. v, p. 255.

Dupuytren, 1829. Journal hebdomadaire, t. ii, pp. 65 to 83 (3).

Malagodie, 1829. Raccoglito medico, 6 Juillet, p. 38.

Duges, 1831. Gazette médicale de Paris, Nos. 44 et 367.

Gosset, 1834. Lancet, vol. i, p. 346.

Jobert de Lamballe, 1834. v. Traité des fistules, etc., Paris, 1852.

Jeanselme. L'Expérience, 1837-1838, t. l, p. 257.

Hayward, 1839. Amer. Jour. Med. Sci., August, 1839, and Surgical Reports and Miscellaneous Papers on Medical Subjects, Boston, 1855, p. 196.

Vidal de Cassis, 1841. Traité de Path. Ext., vol. v, p. 572.

Leroy d'Etiolles, 1842. Mémoire sur des Moyens Nouveaux de Traitement des Fistules Vésicovaginales.

Wützer, 1832 and 1843. Heilung der Blasenschiedenfisteln Organon f. v. gesammte Heilkunde, vii.

Diffenbach, 1845. Die operative Chirurgie, vii, p. 573.

Maisonneuve, 1848. Clinique chirurgicale, vii, p. 660, et suiv.

Sims, 1852. Amer. Jour. Med. Sci.,

Simon, 1854 and 1862. Heilung der Blasenscheidenfisteln. Giessen (1854), p. 2. Operation der Blasenscheidenfisteln durch die blutige Naht. Rostock (1862).

Bozeman, 1856. A new mode of suture with seven successful operatiods. Louisville. Surgeon-General's Catalogue. (Quoted as date by Bozeman in Amer. Jour. Med. Sci., 1870, n. s., vol. lx, p. 108.

Colles, 1857 and 1861. Dublin Quarterly Journal of Medical Sciences (1857), t. xxiii, p. 123. Dublin Quarterly Journal of Medical Sciences (1861), vol. xxiii and xxxi, pp. 119 and 302.

Schuppert, 1856. A Treatise on Vesicovaginal Fistula and New Orleans News and Hospital Gazette.

Baker-Brown, 1858. On Vesicovaginal Fistula and its Successful Treatment, London.

Thorp, 1859. Dublin Quarterly Journal of Medical Sciences, 1861, p. 302; second edition, 1859, p. 91.

Agnew, 1867. A Treatise on Vesicovaginal Fistula.

Emmet, 1868. Vesicovaginal Fistula.

Dudley, 1886. Chicago Medical Journal and Examiner, May.

Follet, of Lille, 1886. Bull. de la Soc. de Chir., May 26, p. 445.

Woelfler, 1887. Centralbl. f. Chir., XVI Kongress, p. 95.

Duncan, 1887. British Med. Jour., vol. ii, p. 936.

Rydygier, 1887. Berl. klin. Wochenschr., p. 568.

Saenger, 1888. Centralbl. f. Gyn., p. 377.

Champneys, 1888. British Med. Jour., vol. ii, p. 818.

Fritsch, 1888 and 1897. Centralbl. f. Gyn., 1888, No. 49. Die Krankheiten der Weiblichen Blase, 1897, p. 124.

Neugebauer, 1889. St. Petersburger med. Wochenschrift, p. 209.

Walcher, 1889. Centralbl. f. Gynäk., p. 1.

Johnson, 1889. Boston Med. and Surg. Jour., Band cxx, p. 309.

Cullingworth, 1889. British Med. Jour., vol. ii, p. 1099.

McGill, 1890. An Operation for Vesicovaginal Fistula through a Suprapubic Opening in the Bladder.

Trendelenburg, 1890. Volkm. Sam. klin. Vort., No. 355.

Strauch, 1891. Korrespondenzbl. d. allg. Mecklenburg. Aertztevereins, p. 137.

Bardenhauer, 1891. Deutsche med. Wochenschr., Band xvii, p. 1348; Arch. f. klin. Chir., Band xi, u. ii, p. 362.

Schauta, 1893. Vesicovaginal-fistel. Centrl. f. Gyn., Band viii, p. 1023.

Von Dittel, 1893. Abdom. Blasenscheidenfistel-Operation. Wiener klin. Woch., Band vi, p. 449.

Leopold, 1893. Amer. Jour. Obstet., Mar., vol. xxvii, p. 321.

Frank, 1894. Centralbl. f. Gyn., vol. xviii, p. 493.

Ferguson, 1895. Amer. Jour. Obstet., vol. xxxi, p. 476.

Wertheim, 1895. Ein Fall von Vesicovaginal Fistel, Centralbl. f. Gyn., Band xix, p. 578.

Von Rosthorn, 1895. Zur Heil d. Blasenscheidfist. nach Freund, Präg. med. Woch., Band xx, p. 221.

Freund, 1895 and 1899. Eine neue Operation 2 Schlies gewisse Harnfisteln bein Weibe, Volk. Sam. klin. Vort., N. F., 1895, No. 118. Monat. f. Geburt. u. Gyn., 1899, Band ix, pp. 681 and x, p. 511.

Kelly, 1896. Johns Hopkins Hospital Bulletin.

Samter, 1897. Volkmann's Samml. klin. Vort. Neue Folge, No. 175.

Mackenrodt, 1897. Monatsschr. f. Geburt. u. Gyn., Band v, p. 446.

Latouche, 1897. Gaz. des Hôp., Tome lxx, p. 968.

Stankiewicz, 1898. Ueber Behand. d. Blasenscheidenfisteln mittelst direkter Blasennaht. Gazette Lek., p. 195.

Braquehaye, 1899. Traitement de la fistule vésicovaginale par un procedé nouveau, Rev. de Chir., Tome xx, p. 604.

Crossen. Amer. Jour. Obstet., vol. xxxix, pp. 178 and 213.

McCann, 1902. British Med. Jour., May, 1902.

Ward, 1910. Surg., Gyn., and Obstet., vol. xi.

Michaux, 1911. Traité de Gynecologie, p. 161, Faure et Siredy, Paris.

I find in looking through my Oribasius (Bussemaker and Daremberg, Paris, 1862, p. 466, vol. iv), under the title "Urinary Fistula, from Heliodorus," the following brief obscure statement:

"A urinary fistula takes place when a thin part of the bladder has been divided or when the neck of that organ has been cut ('periairethentos'), or some similar accident has taken place." This takes place from several causes. The affection is incurable ("esti de to pathos atherapeuton"). It is not clear that Oribasius is speaking of women under this caption, for the preceding subject is hypospadias, and phimosis follows.

To take a long jump down the centuries, Felix Plater, in 1597, in Spach's great work *Gynecorium*, etc., makes the following illuminating statement under title: Uteri et Vesicæ Cervicis cum Adhaerente Recto Intestino in Partu Dilaceratis. "In partu violento fœtu exstincto cuidam

mulieri uteri et vesicæ cervix adeo læsa sunt, ut excrementa confusa stercoris et urinæ invicem redderentur." Again, under title Vesicæ Cervicis alia Ruptura in Partu: "Ex partu difficili et primo cuidam juvenculæ rusticæ orificium vesicæ adeo scissum est, ut longa illic et hiante rima vesicæ aperta cerneretur: sicuti ipse bis intuitus sum stylo abhibito sic se habere deprehendi; ob quam læsionem urina continuo illi involuntariæ profluit et vicinas partes erodit atque inflammat."

Also further, under the caption De Uteri Fistulis, p. 24, he says: "Verum, quia ærumnosam calamitosamque vitam et multis periculis obnoxiam hujusmodi affectiones accersunt; siquidem ad intestina et ad vesicam adeo profunde aliaquando permeant, ut urina et alvi excrementa per fistulam facile instillent; ob id quidem, etc."

We have here the clearest possible picture of the injury, its diagnosis, and its associated serious complications, but no light at all on its treatment.

Pinaeus (+1619) son-in-law of Colat, also a lithotomist, in his "de Virginitatis notis graviditate et partu" Lugd. Bataz., 1650, says: "Among the accidents not rare in difficult labor are a loss of substance of the posterior part of the bladder extending almost to the implantation of the ureters. An ulcer is formed which is rendered callous by the urine running straightway through the laceration into the sinus pudoris (upper vagina) and then escaping outside. This you can recognize by inserting a silver probe through the collum vesicæ (urethra) into the bladder and the index finger or another probe into the vagina, when the two probes are made to touch."

Several other writers, following Pinaeus, mention these fistules without adding to our information.

H. Van Roonhuyse, of Amsterdam, friend of Zulp and Ruysch, first threw a great light upon the subject by discovering a well-defined plan of treatment. His merits are of

such a high order that I quote somewhat fully (*Heel-konftige Aenmerckingen van Hendrick van Roonhuyse*, Amsterdam, 1672, p. 181). He writes:

"The operation is performed as follows: The patient is put on the table opposite a convenient light, as in cutting for stone. When this is done one must dilate the vagina with a speculum as much as needs be. Then freshen and cause the edges of the vagina to bleed at the place where it is ulcerated through, and in contact with the opening into the bladder, touching the bladder, however, as little as possible. The denudation is made by means of little forceps, scissors or a bistoury or what ever instrument suits the operator best. I find, however, nothing better suited than a little pair of cutting forceps which are made as sharp as possible so as not to crush the tissues, in this way the edges of the rupture are denuded by taking off a little tissue, making them bloody and raw, after which they are immediately coapted. This is not done with silver or golden needles as is the custom in cleft palate, but with pins prepared from strong swan's quills cut down fine and sharp. I prefer these not only because they yield but because they bruise the surrounding parts less, when they are properly wrapped with red waxed silk, for when one has bent these needles, they straighten themselves again. One must then coat the parts with a healing salve. Finally, a dressing is applied to the wound, consisting of two or three large flat wicks moistened with a warm balsam oil; one must also fill the parts with suitable sponges moistened with a little oil of sweet almonds; these on swelling exercise some pressure. When the bandages and the compresses are removed, then the patient can urinate carefully; she must lie still in bed on her back with the lower part of the body somewhat elevated keeping this posture until the cure is complete. When the bladder is too seriously and too deeply torn, so that it is impossible to get at it to cure it, the patients

are compelled to care for themselves, using nice compresses made of linen.

"I have also used different instruments of copper or silver to be worn bandaged to the body, to catch the urine on walking or standing; but the women could not sit down with them."

It seems evident from such a positive clear description, and from the deliberateness of the surgeon who selects one or other instrument and describes its special advantages, that Van Roonhuyse without doubt actually operated upon some cases. His method contained the following essentials to success:

The patient put in the position appropriate for lithotomy.

The satisfactory exposure of the fistula by a retracting speculum.

The thorough denudation of the margins of the fistula without including the bladder wall.

The approximation of the denuded edges of the fistula by means of quills thrust through the edges of the wound and held in place by silk threads wrapped around the ends.

The dressing of the wound with balsam and absorbent vaginal dressings.

The patient kept quiet in bed until the parts had healed.

It is with these words, Van Roonhuyse closes a letter to his nephew and completes his valuable work.

Considerable discussion has been aroused about Van Roonhuyse's claims, Killian considering the conception utterly impracticable. Nägele believed it was only applicable to injuries of the urethra. Herrgott (*Études historiques sur l'operation de la fistule vésicovaginale*, Strassbourg, 1864) believes as I do that the writer actually put his methods into successful practice.

H. A. Velthem, writing in the year 1724 (*De Incontinentia Urinæ ex Partu Difficili*), begins with the following interesting introductory: "Admiranda est summi conditoris

nostri sapientia, quâ omnium animalium, maxime vero hominis, ita fabricavit corpora, ut non solum necessitatibus singulis rectissime satisfaciant, verum etiam ad elegantiam hoc plenissime excutere, sed Lectori tantum in memoriam revocare, quantum sit illud beneficium, quod ea, quae necessario excerni debent, ab assumtis quotidianis tanquam feces residua, voluntatis nostræ arbitrio ex parte subiecta sint, nec invitis nobis exitum, quod sani sumus, inveniant."

The great difficulty and the occasion of many ills in the matter we are discussing was the fact that men were not admitted to obstetric practice at that time, as he states on page 16.

"Quoniam vero ita ferunt corrupti hominum mores, ut Medicum vix admittant ad ea, quæ in locis, quos pudor abscondere suadet, occurrunt, nisi prius convicti sint, privatos anicularum ausus in vacuum exiisse, et interea mala pleraque ad immedicabilem statum progrediantur."

He appears to know nothing of Van Roonhuyse's work, for he declares that when the fistula is of recent date it can be cured by the use of cicatrizing agents, and a catheter passed through the urethra and retained some days.

Johannes Fatio was another great light (see his *Helvetisch Verniintige Wehemutter*, Basel, 1752, p. 282). He speaks of the crushing rupture of the neck of the bladder in difficult labors, by which it comes to pass that women cannot hold their urine and must endure this wretched condition throughout life. He says the chief cause is imbibing fluids, by which the bladder becomes greatly distended, then when a severe labor follows this, or when the head sticks in the pelvis, there is a rupture or an inflammation of the neck of the bladder, producing ulceration and fistula. An inexperienced, pitiless midwife can cause this injury, especially when she urges the birth before the bladder is emptied or relieved by the catheter.

Another cause of accident is a stone at the neck of the

bladder during labor. This misfortune is serious when the opening lies in the base of the bladder or when the sphincter of the bladder is destroyed, then it is incurable. When the opening is small, help may be hoped for.

Fatio goes on to say that all kinds of medication have been proposed, such as pulverizing of a living toad inside a new pot, the powdered toad being carried in a little bag over the pit of the stomach. "I readily grant such cures their fame and credit the statements of such distinguished men. I must, however, beg pardon when I declare that for myself I prefer to resort to surgical procedures, in a recent fistula at the neck of the bladder, as I did in 1675 in the presence of Professor Johannes Casper Bauhin, in a case of a daughter of a shoemaker in Basel, Switzerland, who was fifteen years old and who in consequence of complete retention had punctured the neck of the bladder. Also in 1684, I operated on a peasant woman, twenty-eight years old, who suffered at the hands of an unskilled midwife in her first confinement. I operated successfully, almost wholly by the method of the skilled physician Roonhuyse."

Fatio placed his patients in a lithotomy position, and exposed the fistula with a suitable speculum, and denuded the margins with delicate, sharp scissors, also instead of a needle, using a sharpened quill, and bringing the edges together by means of a twisted suture. The parts were then dressed with balsam, protected with a pledget, and the vagina filled with an absorbent dressing. The dressings were renewed whenever the patient urinated. Both cases healed within fourteen days. Thus did the brilliant suggestions of the Holland surgeon bear fruit within thirteen years. These precious observations were, however, lost sight of for more than a century and a half.

Deroubaix, the historian *par excellence* of vesicovaginal fistula, expresses his doubts as to Fatio's success. I do not,

myself, hesitate to accept such a convincing circumstantial account.

From now on until the time of Sims and his contemporaries, persistent efforts were made to cure these fistules by cauterization, by the application of dressings, or by leaving a catheter in the bladder. Bizarre instruments were devised, and occasionally well-directed efforts were made to denude the opening and suture it, with here and there a rare success, harbinger of a better day.

The causes of vesicovaginal fistula as well as the various causes of incontinence of the urine were clearly distinguished by most of the earlier writers, but they learned little or nothing useful for its relief. J. P. Hirschfeld (*De Incontinentia Urinæ post partum Difficilem. Argentorati*, 1759) says:

"Vel Atoniam sphincteris vesicæ, vel ejusdem ac vaginae, plenariam rupturam, vi partus contigentem tamquam causam proximan hujus mali accusavimus."

"Pergit iter sensim parciori progressu, usque tandem firmiter pelvi infixum hæreat, hujusque adeo cavitatem exacte repleat, quin acum multo minus digitum inter caput fœtus atque vaginam in toto ejusdem ambitu intromittere possibile sit. Id quod tunc sub capitis incuneati nomine, Gallis, Tête enclavée, obstetricibus nostratibus *der kopff ist eingenagelt, steckt in der geburt*, venit."

Lévret (*L'Art des Accouchments*, Paris, 1766) traces these fistules to delayed labor causing a slough, and recommends lotions and injections as soon as the slough has separated to secure an abundance of flesh granulations to facilitate "obturation" of the opening. If seen later, after the formation of the fistula, first scarify the edges of the ulcer with a curved bistoury, using a "speculum uteri." To do this, put the patient on knees and elbows supported by a big pillow under the stomach and operate from the rear.

J. L. Petit (*Traité des maladies chirurgicales*, Paris, 1790), the great surgeon of the early part of the eighteenth century

has no suggestions regarding the cure of this malady other than cleanliness, introduction of the catheter, and the use of the urinal, to which he gives the name *trou d'enfer*.

Lewinski (*Thèse de Paris*, 1802) took a step toward the modern method of instrumental treatment by devising a cannula carrying a concealed needle; the cannula was introduced through the urethra and brought into relation with the margin of the fistula, when the needle was thrust through and threaded. On withdrawing the needle the thread was thus placed, and by conducting the needle through the opposite side in the same way and disengaging the thread a suture was passed.

This method, which was not put into practice, serves but to show the extremities to which surgeons were reduced in their efforts to handle this hopeless malady in accordance with the methods of surgical practice in general.

Nägele (*Erfahrungen und Adhandlungen über Krankheiten des weiblichen Geschlechts*, Mannheim, 1812, p. 389), beginning in the year 1809, entered upon this subject with characteristic German thoroughness. Realizing the hopelessness of the situation under the palliative methods commonly used, he began by operating upon cadavers; he then devised the plan of freshening the edges of the opening with scissors or with bistoury without using any speculum, doing the entire work under the guidance of the sense of touch, a method much employed by Lawson Tait. Nägele also tried curved silver or gilt-covered needles and a twisted suture. He worked so earnestly that it is a pity there are no successes to record.

Schreger in 1817 (*Annalen des chir. Klinikums auf die Universität zu Erlangen*) also operated by denuding and suturing the margins of the wound with interrupted silk sutures, and appears to have secured success.

Lallemand, writing from 1825 to 1835, used nitrate of silver to produce a slough and then after the separation of

the slough, tried to draw the lips of the opening together by an instrument called a hook-sound. This useless and dangerous method attained an undue celebrity.

Malagodie, of Bologne (*Raccoglito medico*, 6 juillet, 1829), cured a patient by hooking the fistula down on the finger and then denuding the margins, using first the index of the right hand and then that of the left; he united the edges by braided sutures passed in small needles. Three sutures introduced in this way were tied separately, and cut close to the knot, and the bladder was drained by the urethra. The opening, almost completely closed, was healed later by caustic.

Dugès, of Montpellier (*Gazette médicale de Paris*, 1831), treated a case where Lallemand had failed, as follows:

The fistula was at the neck of the bladder. He introduced a gutter-shaped speculum into the vagina to expose, and a male sound into the bladder to bring the part to be operated on down and into prominence. Then seizing the margin of the upper lip of the fistula with a museaux forceps or a hook, he freshened the edges with scissors strongly curved on the flat. The posterior lip was denuded by catching it with a double hook and transfixing the margins with a bistoury. He then passed a double waxed thread through both fistulous margins in a direction from vesical to vaginal surface and tied them. A sound was inserted and the bladder drained. On the third day he had to remove the threads on account of hemorrhage, so the operation failed.

Jeanselme, with Schuppert, the most caustic critic who has yet arisen, in *L'Experience*, 1837 to 1838, vol. l, p. 257, declares that none of the methods up to that time devised, accomplished anything where a fistula existed due to the loss of substance from the base of the bladder.

Velpeau's declaration in 1839 says:

"To abrade the borders of an opening when we do not know where to grasp them; to shut it up by means of needle

and thread when we have no point, apparently, to which to secure them; to act upon a movable partition placed between two cavities hidden from our sight, and upon which we can scarcely find any purchase, seems to be calculated to yield no other result than to cause unnecessary pain to the patient." See *A System of Gynecology*, edited by T. C. Allbutt and Playfair, 1896, p. 17.

George Hayward, of Boston, a surgeon to the Massachusetts General Hospital, is one of the greatest pioneers in this field of vesical surgery (see *American Journal of the Medical Sciences*, August, 1839, and *Surgical Reports and Miscellaneous Papers on Medical Subjects*, Boston, 1855, p. 196). He treated his first case May 10, 1839, as follows: He put the patient in the lithotomy position, introduced a large bougie into the bladder through the urethra, and forced the fistula down where it could be readily seen and handled. He began the operation by removing a narrow margin (one line in diameter) from the edge of the fistula, and then "as soon as the bleeding which was slight, had ceased he dissected up the membrane of the vagina from the bladder all around the opening to the extent of about three lines. This was done partly with the view of increasing the chance of union by presenting a larger surface, and partly to prevent the necessity of carrying the needles through the bladder. A short silver catheter was left in the bladder."

In a *résumé* of the subject after the presentation of 9 cases, he says (p. 222): "It is not difficult, therefore, to dissect up the outer covering from the coat of the bladder to the distance of two or three lines. The needles are then to be passed through the outer covering only and as many stitches must be introduced as may be found necessary to bring the edges of the fistula in close contact." The result was a perfect cure.

It is important to note that Hayward detached the bladder

from the vagina. In commenting, in 1855 (see *Surgical Reports*, etc., p. 222), upon a series of 9 cases, after having tried both splitting the margins and simple denudation, he remarks, "It is difficult therefore to dissect off the outer covering from the mucous coat of the bladder."

In a case treated in 1847, Hayward put a woman under the influence of ether and freshened the edges so as to secure bleeding surfaces obliquely from without inward and then passed two silk sutures without including the vesical mucosa. This patient was cured after a second operation. (See *Boston Medical and Surgical Journal*, 1851).

Blasius, in 1841, in the second edition of his *Handbuch der Chirurgie*, 1841, vol. iii, p. 407, gives an excellent outline history of the various methods of treatment. He laments that the successful cases of closure are so few compared with the unsuccessful, and that no well-defined rules of operative procedure can be laid down. He finds it necessary, therefore, simply to give an account of the various methods in use, beginning with an elaborate consideration of six different methods of denudation of the margins of the fistula and union by suture, including a dove-tailing suture somewhat like that recommended by Joseph Pancoast, of Philadelphia.

The whole account is a model of clearness in stating a difficult problem.

Vidal de Cassis sizes up the situation in 1841 when he declares that the treatment by catheter is perhaps good in small recent fistulæ, but the tampon is no real use. "Point de guérison," he says, "par le tampon!"

In his *Traité de Path. Ext.*, published in 1841, vol. v, p. 572, in speaking of the operations of vesicovaginal fistula, he says, "These operations are numerous, which proves their difficulty in succeeding." He divides the plans of treatment into two, direct and indirect, and says that the direct method tries to obliterate the opening by compres-

sion or cauterization or suture, while the indirect method operates on surrounding parts abandoning the opening. He can conceive of a cure by the direct method only in the case of a very small fistula recently formed and without loss of substance. In speaking of the cauterization of the wound he describes a long curved speculum, with a retracting handle, by means of which he is able to expose the whole anterior vaginal wall by retracting the posterior wall strongly. The indirect method is that of the partial obliteration of the vagina, which he performed in the year 1813. This success was the result of the accidental cauterization of the posterior wall of the vagina with a stick of nitrate of silver, which caused an enormous swelling of the vagina and the attachment of the posterior wall to the anterior in such a way as to obliterate the opening. The stoppage lasted fifteen days, when the operator unfortunately inserted his index finger and broke some of the adhesions, spoiling the effect.

Leroy d'Étiolle (*Mémoire sur des Moyens Nouveaux de Traitement des Fistules Vésicovaginales*, Paris, 1842), without adding anything of importance, wrote one of the most interesting memoirs extant describing the various methods of treatment recommended in his time, including numerous figures of instruments designed to pinch or hook, or to hold together by suture, the edges of the fistula. Anyone who desires to appreciate the extremities to which the surgeons were reduced in the days just preceding the epoch introduced by Jobert, Sims, and Simon, cannot do better than consult this little monograph and its twenty-nine figures. He closes with the sad comment: "J'espère qu'ils comprendront mes apprehensions, car le passé n'est pas fait pour me rassurer complètement sur l'avenir."

Wützer, of Bonn, 1843 (*Ueber die Heilung der Blasenscheidenfistel, in Organon für die gesammte Heilkunde*, t. 11), who, as Herrgott states, was after Diffenbach for

a long time the only one who operated upon these fistulæ, succeeded in curing one woman after the thirty-third operation. Her name has been perpetuated by Kilian as a heroine and a martyr to the cause of science (*Die heldenmüthige Lucie Stich*).

Up to 1852 Wützer had obtained the signal success of curing 11 out of 35 cases, an enormous gain compared with the work of his predecessors and a prophecy of the new era shortly to dawn. Were he to appear today among us he would justly claim more credit than has ever been accorded him. The growth of his experience and of his technical skill is shown by the fact that between 1838 and 1842 he cured 4 out of 18 cases and between 1842 and 1852 he cured 7 out of 17 cases. He adopted the following method of procedure: The patient was placed upon her stomach and the perineum was forcibly retracted by a crotchet. The vulva was then held open by lateral retractors, then grasping the borders of the fistula with a tenaculum by means of a bistoury he made a denudation from $\frac{1}{4}$ to $\frac{1}{3}$ of an inch in width, taking care to avoid injuring the mucous membrane of the bladder. For sutures, he used insect pins inserted three or four lines apart, held in place by twisted sutures. The threads were removed on the third or fourth day. In order to put the bladder at rest during the healing process, he made a suprapubic puncture and inserted a catheter. The woman was kept in a prone position by straps during the healing.

The name of the great German surgeon Diffenbach (*Operative Chirurgie*, Leipzig, 1845) is associated with the history of vesicovaginal fistula on account of the imperishable classical description he wrote in his despair, picturing the wretched condition of these abandoned sufferers. He tried out all the various methods of treatment: Potential cautery, actual cautery, freshening flaps, transplantation, purse-string sutures. He made a classical denudation and

united the margins of the wound with silk sutures, six to the inch. The bladder was drained by means of a catheter, left in until the eighth day.

In spite of his best efforts, Diffenbach was never able to cure a large fistula. He says: "I operated on one woman eighteen times without curing her," and closes with the following lament: "I have filled entire wards with these wretched women gathered from all countries; I have exhausted every measure, and I have been able to cure but few of them."

Metzler, of Prague, in 1846 described an instrument like the Sims speculum, to be used in retracting the posterior vaginal wall so as to expose the anterior wall. He put his patient in the knee-elbow position and lifted up the posterior wall with the speculum, exposing the freshened edges of the fistula with curbed scissors, removing a line for one-half of the vaginal tissue, and half a line of the margins of the opening. The lips were then brought together with gilded needles. These were held in place by hooks, little staples retained in their turn by perforated shot.

John Peter Mettauer, of Virginia (1787-1875), published (*American Journal of the Medical Sciences*, 1847, vol. xiv) a series of 6 cases of vesicovaginal fistules treated by denuding about the margins of the fistulous surface, freshening them. In his first case in 1830 he united them by means of eight twisted lead sutures; the fistula, of six months' duration, was the size of a Spanish milled dollar. The sutures were removed on the tenth day and the patient was cured. She passed through two later confinements without injury.

Mettauer concludes his brief paper with the statement: "I am decidedly of the opinion that every case of vesicovaginal fistula can be cured, and my success justifies the statement."

Gosset, of London, operated in 1834 (*Lancet*, November,

1834), putting his patient in the knee-elbow posture, and freshening the margins of the fistula, he used fine needles and fine gilded sutures. The bladder was drained by means of a rubber catheter, and the patient kept lying on her stomach.

As we have pursued these interesting references to the literature of our subject from the early centuries down to the middle of the last century, we have gradually passed from the mists of obscurity, vagueness, and uncertainty, until we have emerged into the clear light of the recognition of the exact nature and the site of the fistula, as well as of its causes.

But alas, to recognize it was not to heal it, for we have seen all sorts of bizarre attempts made upon poor suffering women in the vain hope of affording relief to their distressing condition. Here and there a little taper shed a few rays of clear light, as some unusual surgeon, a Van Roonhuyse, a Fatio, a Wützer, a Hayward, or a Mettauer, pursued the right path in his effort to establish the proper methods of treatment; we even seemed now and then to stand in trembling expectation on the very threshold of the solution of the vexed question. But, as seen, no one was able to reply with certainty and assurance to the question, "What is the best way to treat a fistula, one which with some degree of certainty will effect a cure?" How this great question was solved will next occupy our attention.

We now enter upon the second era, namely, that of the treatment of vesicovaginal fistula inaugurated by Marion Sims and T. A. Emmet. We have followed the history of our subject up to the 50's of the last century, until we saw the gray dawn of uncertain and tentative efforts gradually lightening with the promise of success. We have seen Van Roonhuyse and Fatio standing like finger-posts in the latter half of the 1600's pointing toward the one way to

succeed—namely, by denudation and suture. We have seen, following in the train of the Hollander and the Swiss physician, Nägele, Wützer, and Dieffenbach in Germany; Malagodie and Jobert de Lamballe in France; Gosset in London; and Mettauer, of Virginia, and Hayward, of Boston, each struggling with this great question and moving on the same lines in different countries.

The new era about to dawn was ushered in by that brave and patient pioneer Jobert de Lamballe, of Paris, whose work was taken up and perfected by his pupil, Gustave Simon, of Darmstadt, laboring at about the same time and on similar lines with Sims, Emmet, and Bozeman in America. Jobert de Lamballe began in the 30's (1834) with an attempt to make up large vaginal defects by transplanting flaps from the vulva, detached, twisted, and later sutured in place as a stop-gap. These early attempts attracted much attention and a few imitators, but realized few successes. His next publication, eleven years later (1845), embodied a most important principle called "autoplastie par glissement." In this operation he detached the upper border of the fistula from the cervix of the uterus, so as to do away with all tension in bringing together the margins of the fistula. Up to 1849 he had had 13 cures and 2 deaths. His method of operating was as follows: Lithotomy position, cervix caught with museau forceps and pulled down, a catheter inserted into the bladder by which the fistula was forced down, the whole circumference of the fistula cut away, sutures passed from ½ to 1 cm. from the margin of the wound with well-curved needles, and penetrating if needs be the vesical mucosa. Tension relieved by incisions in the vaginal walls. Recovery with a catheter in the bladder.

Jobert's failures were partly due to the highly infected state of the wards of the Paris hospitals.

Maisonneuve, in 1848, following the precepts of Jobert, cured a case in which the whole anterior vaginal wall had

disappeared, using the relaxation incision of Jobert at the vaginal vault, and another, which he called the urethro-pubic incision, by which the urethra is loosened up from the under surface at the pubis by means of a semicircular incision convex above. In 1880, Maisonneuve made use of the Schuchardt (paravaginal) incision to reach an inaccessible fistule. Failing to cure his case he then did an episioclisis, and established an opening between the rectum and the vagina. When this closed, the bold operator punctured the perineum, hoping to establish a fistulous opening there, but the long-suffering patient died of phlebitis.

Gustav Simon, who visited Paris as a pupil of Jobert, fully appreciated the merits of his master's operation. Simon's own contribution to surgery rests largely in doing away with the lateral incisions, substituting instead the "Doppel-Nähte," or approximation and tension sutures.

Simon's merit lay in the fact that he digested the whole matter, discovered with clear insight wherein lay the essential elements of success, adopted them with important modifications, and became the leader of the great German nation in this branch of surgery. He converted this previously most unsuccessful operation into a success and took away the reproach left by the labors of Dieffenbach and Nägele. His success must also be largely attributed to his skill born of a great experience.

Simon's method as described in *Ueber die Heilung der Blasenscheidenfisteln*, Giessen, 1854, is this: He places his patients in an exaggerated lithotomy posture, with hips raised high and legs strongly flexed on the body called "Steissrückenlage." The uterus is then drawn down and held by sutures passed through the cervix, so as to draw the anterior vaginal wall out between the labia. He uses a retracting speculum with long handles, known by his name, with lateral retractors. Simon makes a high precipitous funnel-shaped denudation and not a broad, flat one like Sims.

He rejects metal and uses fine silk sutures, using lateral incisions in occasional cases. One row unites the edges of the wound accurately (Vereinigungs-nähte), and there is no tension. He uses only these and pays no attention to question whether suture passes through vesical mucosa or not. Simon had 35 cures in 40 cases.

Often a second series of sutures is passed, entering and emerging at greater distances from the edges of the wound than the approximation sutures designed to take off all tension. (Entspannungsnähte.)

In his *Ueber die Operation der Blasenscheidenfisteln durch die blutige Näht*, Rostock, 1862, he critically examines the subject and contributes a number of excellent histories and numerous illustrations, with 13 lithographic plates describing the operation. It is easy to see why Simon is still justly regarded as the master mind in this field throughout Germany. The novel elements in Simon's work, namely, the use of relaxation sutures and a more vertical incision, while not unimportant, do not today look as large as they did fifty years ago: just as ever, that which appears a mountain to one generation is apt to dwindle to a mole hill in the mind of the next.

The work of Jobert and Simon, is evidently passing out of the hazardous uncertainties of their predecessors. We have at last left behind the distressing cauterizations of the generation preceding and pass into the clearer atmosphere of well-directed surgical effort, acting positively upon the margins of the fistula by suitable postural and specular exposure, by tractions to deliver the operative field as nearly as possible on the exterior in order to facilitate more accurate work we find too a careful categorical distinction of the various kinds of fistulæ and their varying appropriate treatments.

Marion Sims. Sims' first paper was published in 1852 in the *American Journal of the Medical Sciences*, with 22

clear wood cuts. His method here was to denude the margins of the fistula, suitably exposed by a speculum, like the Sims speculum of today, and to approximate the edges of the fistula by interrupted sutures, while the edges were drawn together by means of clamps on either side through which sutures were passed and shotted. Sims' paper, which was twenty-four pages long, is a model of clearness from beginning to end. As to the causes of fistulæ he states, touching the use of forceps:

"I am well satisfied that for one case thus produced, their judicious application has prevented it fifty times."

The difficulties through which he passed may be imagined from his statement on the second page:

"I had three cases on which I operated forty times, but failed in each instance to effect a perfect cure, though succeeding so far as to encourage me to persevere. Now, I think I may say that almost every case of this hitherto intractable affection is rendered curable."

Sims' operation for vesicovaginal fistula was not new in the sense that it was a revelation of any single surgical principle or set of principles by which success hitherto rarely attainable was henceforth guaranteed.

Every individual step had been used before with more or less success by a number of surgeons.

Postural exposure and the gutter speculum were already known and practised by Schreger in 1817, and by Wützer in 1838, who placed the patient on her belly. Dieffenbach pulled the vaginal wall down until the fistula appeared at the vulva. Hayward (1839) put a sound in the bladder through the urethra and so depressed the fistula. Metzler (1846) had used the identical gutter speculum, and actually figured it. The principle of careful denudation of the margins had been enunciated by Van Roonhuyse (1663) and certainly practised successfully by Fatio (1685).

Jobert de Lamballe had realized the necessity of doing

away with all tension on the wound edges during the healing process and had made use of his liberating incisions.

A metallic suture, if that is to be regarded, as Sims deemed it, the chief keystone of his success, had been used by Mettauer (1830) and Gosset (1834). The drainage of the bladder, to put is at rest, after operation, was universally conceded for over the preceding century to be a necessary step.

Note then that while Sims did not invent any single step or procedure, he did devise his successful operation, and put it on a plane never before realized or even anticipated, by utilizing various steps, each one of which had been before employed.

I do not mean to say that Sims' work was not in the highest degree original, but that the various steps did not originate with him. Sims brought success out of failure in a way which did more to demonstrate his genius than if he had made some entirely new discovery. He took the common materials which lay ready at hand and available for all men, and where others had failed he brought good fortune out of the womb of failure. His success was due first of all to his clear recognition of those principles which have since become the basis of all successful plastic surgery —accessibility of the field, a good wide denudation in sound vascular tissues, accurate approximation without strangulation, and the wound placed at rest and kept clean while healing.

My impression of the Sims-Emmet-Bozeman operations is that their marvellous successes depended upon a technique well defined in all its steps, that they worked with great accuracy and most painstaking zeal, slighting no step from the preparation and preliminary treatments through the operation, down to, and including, the after-treatment.

Sims and Emmet developed an insight and an accuracy born of the experience of many failures finally converted into successes.

I am convinced that these older operators succeeded with a regularity and in a class of cases which no operator of today can hope to imitate if limited to the same means.

It is astonishing to note that operations lasting two and three hours and even longer were often done without an anesthetic, with the patient in the knee-elbow posture, taxing the strength and determination of the often feeble patient, as well as the skill, patience, and ingenuity of the operator, who must often have been not a little harassed by the necessity of calming and giving moral support to the weary patient, while executing some difficult maneuver. Sims was too shining a mark to escape Schuppert's criticism. He says:

"Dr. Sims has since made some alterations in his method. He has given up his clamps, using only the interrupted silver wire suture; he also places the patient on the left side when operated upon. These alterations have been made known by Sims in a very curious pamphlet.[1]" In language never heard of since the days of Bombastus Paracelsus, Sims says: "In 1845 I conceived the idea of curing vesicovaginal fistula, and entered upon the field of experiment with all the ardor and enthusiasm of a devotee. After nearly four years of fruitless labor, silver wire was fortunately substituted for silk as a suture, and lo! a new era dawned upon surgery; and I declare it as my honest and heartfelt conviction, that silver as a suture is the great surgical achievement of the nineteenth century."

Bozeman's button, which was so variously modified by Baker, Brown, Simpson, and Agnew, he criticises in the following words:

"What alterations next? The button successfully reverted, cut in pieces and broken through, being now stripped

[1] Silver Sutures in Surgery: an Anniversary Discourse Delivered before the New York Academy of Sciences, by F. Marion Sims, M.D., surgeon to the Women's Hospital in New York, 1858.

of its most essential character, will eventually be so modified as that nothing will be left but the holes. Such is the irresistible power of progress. Just as Sims had to relinquish his clamp, so will Bozeman seal his button to the tomb of the Capulets, and that, too, with no abatement of his former success in operating."

Sims' claims are so universally known and conceded that I do little more here than to record them in their proper place and to draw attention to the inestimable services rendered by Dr. T. A. Emmet, who worked with Sims and with a devotion no whit less, and often I believe in the unusual cases acting with even greater skill than his master. Emmet's little book on vesicovaginal fistula is probably his greatest work. Sims has left us no similar record of his own work.

About this time the great operator and caustic critic, Schuppert, of New Orleans, appeared, whose *Treatise on Vesicovaginal Fistula* (New Orleans, 1866) is worth reading, both because of its surgical acumen as well as for its spicy criticisms of his contemporaries.

It was he who did the first successful episiorrhaphy. He says in discussing a moot question that he perforates the vesical mucosa with the sutures, declaring that "fear of wounding mucous membrane of the bladder is a spectre not founded on reality." He criticises Sir J. Y. Simpson's use of iron wire as not so good as Sims' silver, is very careful to relieve edges of wound of tension in drawing the sutures together, and makes incisions to relieve tension. He moves the bowels early, and avoids opium, the latter contrary to Simpson's recommendations.

He even tried letting the patient out of bed, and doing without the catheter in one case. He says that the operation can be done without an anesthetic, but uses it to spare the feelings of the patient.

Schuppert's pamphlet, with an account of 17 cases, is

enjoyable throughout on account of his quaint quizzical sarcasm. He says of a patient he cured: "The patient did not long enjoy her happiness. About three months later she died of yellow fever, a disease in which silver sutures are unavailing." He also speaks of a case which closed down to a minute opening which he tried to close by silver nitrate, but the patient went to her home in the country. He remarks: "Has the opening closed? I doubt the affirmative, from the experience I have had with the use of nitrate of silver, which seems to favor only French surgeons."

In August, 1859, he followed in a large adherent fistula, the plan of uniting first the middle portion, and then closing the small openings left at the ends at two subsequent operations. As a foil to Diffenbach's classical description of the loathsome character of the disease, Schuppert notes the expressions of satisfaction sometimes heard after a cure: "The joy of the poor woman, after four years of suffering, being besides previously told by several physicians that her case was a hopeless one, is beyond description in seeing herself freed from a loathsome disease."

At a later date I propose to complete my paper by a digest of the more recent work.