manner as in the male, but there would be the greateſt pro­bability of wounding the vagina. In a few caſes the opera­tion has been performed from the vagina itſelf ; but it is by no means adviſable, as ſtones would not only be extracted with greater difficulty, but, on account of the thinneſs of the parts, the urine would moſt probably form a fiſtulous opening, and a communication be maintained between the bladder and vagina ; or cicatrices here might be attended with great inconvenience in child-labour.

In the method commonly practiſed, the patient being pla­ced and ſecured in the same manner as in the operation upon the male, the operator introduces a ſhort grooved ſtaff, ſlightly curved (fig. 88.), into the bladder; then by means of the common gorget already mentioned, with its point passed along the groove of the ſtaff, he lays open the whole of the urethra and the neck of the bladder. The ſtaff is now to be removed, the finger introduced upon the gorget, and to feel for the ſtone, which is to be removed as already directed for the operation on the male ſubject. Where incontinence of urine occurs after the wound is heal­ed, a peſſary is to be uſed within the vagina, or a ſponge ap­plied, or a tin machine to receive the urine.

Sect. II. *Of Stones in the Kidneys.*

The ſymptoms of ſtone in the kidneys are, pain in the re­gion of the kidneys, ſickneſs, and vomiting, the urine ſome­times mixed with blood, at other times with mucus or even purulent matter ; but the ſame ſymptoms are often induced by other cauſes, eſpecially from inflammation and ſuppuration of the kidney. Nephritic complaints have frequently ſubſiſted for a long time, where ſtones have been blamed as being the cauſe of them ; and yet upon diſſection purulent matter alone has been detected. From this circumſtance, as well as from the great depth of the parts and the large ſize of the blood veſſels of the kidney, the operation of nephrotomy could not be performed, but with the greateſt uncertainty and moſt imminent danger, and is therefore never attempted. A few caſes indeed have appeared where inflammation induced by a ſtone in the kidney terminated in abſceſs, and the ſtones were taken out ; but it was not till they had worked their way out of the kidneys into the cellular ſubſtance, ſo that it only remained to open the ab­ſceſs and extract them ; but otherwiſe the operation is never to be thought of.

Sect. III. *Of Stones in the Urethra.*

Those who are troubled with calculous complaints fre­quently paſs ſmall ſtones along with their urine ; and when theſe are angular or of conſiderable ſize, they ſometimes stick, and give much uneaſineſs. The ſymptoms are at firſt pain, then inflammation and ſwelling, attended with a partial, or total ſuppreſſion of urine, which, if long neglected, is apt to terminate in a rupture oſ the urethra, when the urine will be diſcharged into the neighbouring parts. The greateſt attention is therefore neceſſary to get the ſtone ex­tracted as ſoon as poſſible.

When a ſtone is in the urethra, unleſs it be of a large ſize, or has been long impacted, and the inflammation great, attempts ought to be made with the fingers to puſh it out ; but previous to this, the penis ſhould be relaxed as much as poſſible, ſo as to remove a certain degree of ſpaſm which the preſence of ſtone here probably creates. Blood ought to be drawn by general or local means, according as the pa­tient may be of a plethoric or emaciated habit. He ſhould be immerſed in a warm bath, and get a full doſe of lauda­num, and warm oil ought alſo to be thrown into the urethra. After theſe remedies have relaxed the parts as much as may be, the extraction is to be attempted.

For this purpoſe certain inſtruments have been contrived, particularly a tube containing a pair of elastic forceps (fig. 89.), to be introduced into the urethra ſo as to lay hold of the ſtone. In ſome caſes they certainly might anſwer the purpoſe, but they have not been found very uſeful ; and as they may increaſe the irritation already preſent in the ure­thra, they are ſeldom, if ever, employed. Inſtead of them, the ſurgeon uſes gentle pressure on the penis to puſh the ſtone outwards ; and as calculi larger than a field bean have ſometimes been paſſed by the urethra, an operation ought not to be performed till gentler means have been perſiſted in for ſome time. When theſe means have failed, an inciſion ought to be made immediately upon the ſtone, which is then to be removed by a probe, or with a pair of ſmall forceps. When a ſtone is lodged near the neck of the bladder, after the patient has been placed and ſecured in the ſame manner as for the lateral operation, while an aſſiſtant ſupports the ſcrotum and penis, the ope­rator introduces a finger oiled into the anus, to ſupport the ſtone in its place, and prevent it from slipping into the blad­der. An inciſion is then to be made, and the ſtone turned out. The after treatment will be nearly the ſame as that after the operation of lithotomy.

When, again, a ſtone has advanced further in the ure­thra, the beſt method is to draw the skin ſtrongly forwards or backwards, and then to cut upon it and turn it out, when the ſkin will ſlide back ſo as to cover the wound, and prevent the urine from paſſing through it ; and by this means it will generally heal by the firſt intention. If part oſ the urine paſs through the wound, and insinuate into the cellular ſubſtance, an attempt is to be made with the hand to press it back. If that prove inſufficient, a cut is to be made through the ſkin oppoſite to the inciſion of the ure­thra ; but this will ſeldom be found necessary. If a ſtone is fixed near the point of the urethra, it may be removed with a pair of forceps ; or, if this fail, the urethra is to be dilated with a ſcalpel ; and if this alſo be inſufficient, an in­ciſion is to be made as above directed. When the cure is nearly completed, a tube formed of ſilver or elaſtic gum, or a hollow bougie, may be uſed to keep the uretha of a pro­per ſize.

The worſt part of the urethra for a ſtone to stick in is that immediately behind the ſcrotum ; for then the urine is apt to paſs by the inciſion into the cellular ſubſtance of the ſcrotum, ſo as to occaſion large ſwellings there. To pre­vent this, a ſtone ſo ſituated ought, if poſſible, to be pushed forwards with the fingers ; or if this be impracticable, it ſhould be puſhed back into the perinæum by means of a ſtaff. If both methods fail, a cut is to be made at the under part of the ſcrotum, which is to be well ſupported, and at one side of the ſeptum, and continued upwards till the ſtone is felt, when an inciſion is to be made into the urethra, and the ſtone extracted as before directed.

Chap. XXVIΠ. *Of Incontinence and Suppression of Urine.*

Incontinence of urine may ariſe from various cauſes, as, from a loss of power in the ſphincter of the bladder, while the natural tone of that organ remains unimpaired ;or from irritation about the neck of the bladder, produced by the friction of ſtones contained in it ; or from a lacera­tion of parts by the operation of lithotomy ; or from the pressure of the uterus in a ſtate of pregnancy.

When the diſeaſe is owing to a want of tone in the ſphincter, the cure is very difficult, becauſe the constitutionin general is frequently affected. The moſt uſeful remedies are tonics, eſpecially peruvian bark, chalybeate waters, and