TECHNICAL MEMORANDA.

(Under this heading will be published from time to time notes on points of practical interest in regard to methods of treatment, operative and therapeutic, and on the general management of Obstetrical and Gynæcological cases in hospital and private practice.)

An Operation for Incontinence of Urine.

By Ralph Worrall, M.D. (Mch.), Q.U.I.
Senior Gynæcologist to the Sydney Hospital.

I propose in this paper to deal with only one form of incontinence of urine, that arising from a dislocation of the urethra from its normal position below the pubic arch.

A large number of multiparæ suffer from a minor degree of this affliction, that is, on coughing, sneezing, skipping, etc., urine escapes on to the clothing to the great discomfort of the patient. In its severer form, which is comparatively rare, the unfortunate woman is reduced to as pitiable a condition as if there existed a large vesical fistula.

Of fifteen gynæcological text-books in my library, only one, that of Dudley of Chicago, holds out much hope of cure. He, after enumerating the various methods of treatment which have been resorted to by different surgeons, most of which, it seems to me, were conceived with the idea that desperate diseases require desperate remedies, and must frequently have left the patient worse off than she was before—proceeds to describe his own ingenious operation, which he says "he has performed with almost uniformly gratifying results." I regret to say that, although I have done the operation with rigid adherence to detail and with success, so far as primary union is concerned, cure of the incontinence has not been attained.

Dudley's operation "by longitudinal traction tends to straighten out the urethrocele and by lateral traction to collapse and hold together the dilated walls of the urethra and thus to overcome the sacculation at the neck of the bladder." "It is based on the same principle as that proposed by Albarran—advancement of the meatus urinarius to the clitoris."

It fails, in my opinion, because it does not sufficiently provide for restoring the normal curve and lumen of the urethra and for the re-attachment of the neck of the bladder to the pubic arch. All the

natural canals of the human body are curved—anal, urethral, vaginal, inguinal—when in any of them the natural curve becomes straightened out, disability of some sort occurs. In operations for inguinal hernia and procidentia one of the main objects to be attained is restoration of the normal curve and obliquity of the inguinal and vaginal canals. Close examination of cases of urinary incontinence will show that the urethra has lost its curve and that the sphincter is placed at a great disadvantage in having to resist intra-abdominal pressure acting along a vertical axis.

The normal curve of the urethral canal can be, to a large extent, restored by advancing the meatus, and at the same time re-attaching the neck of the bladder to the pubic arch by buttressing it up with fascia drawn from the sides.

The third requisite, the diminution of the urethral calibre, can be attained by forming a convex ridge on its floor.

These essentials to a cure of this distressing incapacity of the bladder function can, I believe, be better attained by the operation I submit than by any of the other procedures at present before the profession.

The technique of the operation is best explained by the accompanying illustration, for which I have to thank Dr. J. W. Kennedy, of this city.

It is, of course, understood that when necessary the pelvic floor must, at the same sitting, be reconstituted and the uterus kept in position by round ligament or ventral suspension operations. In minor degrees of the trouble it may not be necessary to advance the meatus by the making and uniting of crescentic raw surfaces, semi-circling it posteriorly and laterally. The raw surfaces are made by denudation or flap-splitting according to the redundancy or otherwise of the tissues. The suture material is No. 2 plain catgut, except for the crescents where silkworm gut is used.

I append a report of three cases in which the incontinence was most distressing and the difficulty of cure correspondingly great. Even when the trouble is intermittent and not constant, as in these three cases, it is a source of great discomfort and embarrassment, the means of relief must therefore be worth the study of every surgeon:—

Case I. Mrs. F. C. B., 30, well-formed, handsome woman, living in New Zealand, gave the following history:—"One labour a year ago; this began with premature rupture of membranes, whereupon the doctor said she must be delivered at once, although there had been no labour pains whatever. Chloroform was administered and instruments were used. She was in such danger from hæmorrhage that the doctor was not able to leave the house for thirteen hours; her life hung by a thread for four days. Since the labour urine had

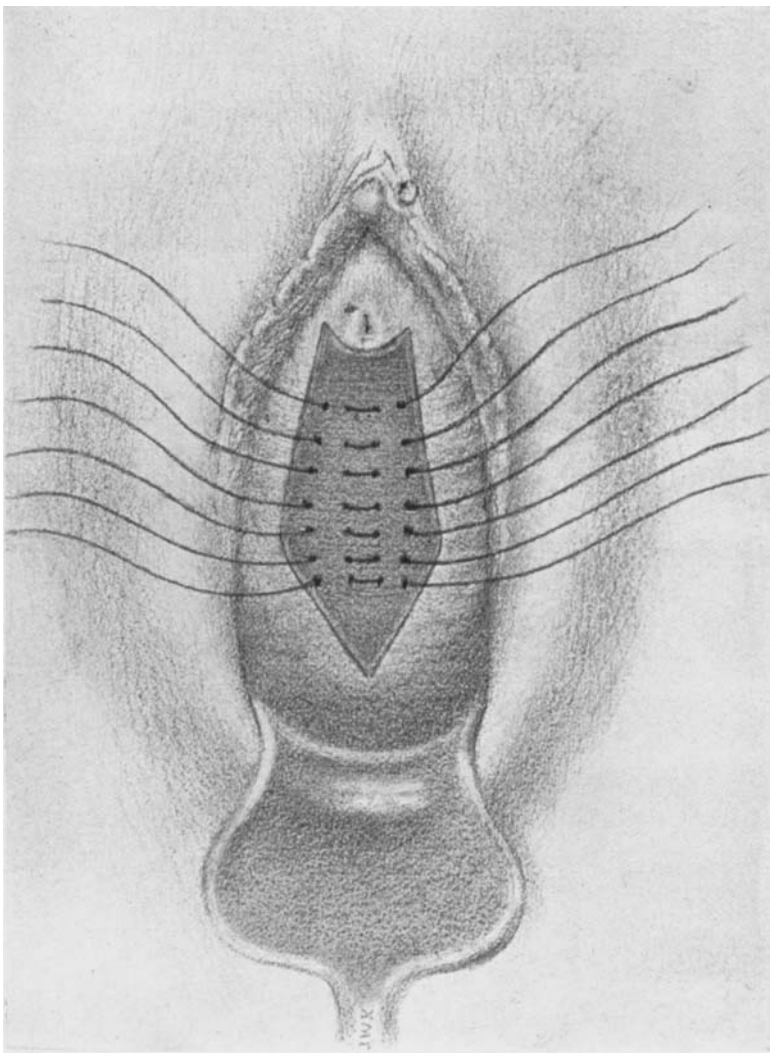

Fig. 1. The denudation somewhat kite-shaped, extending from urethra nearly to os uteri. The sutures inserted to form the projecting ridge on floor of urethra and neck of the bladder, and thus lessen the calibre of the canal.

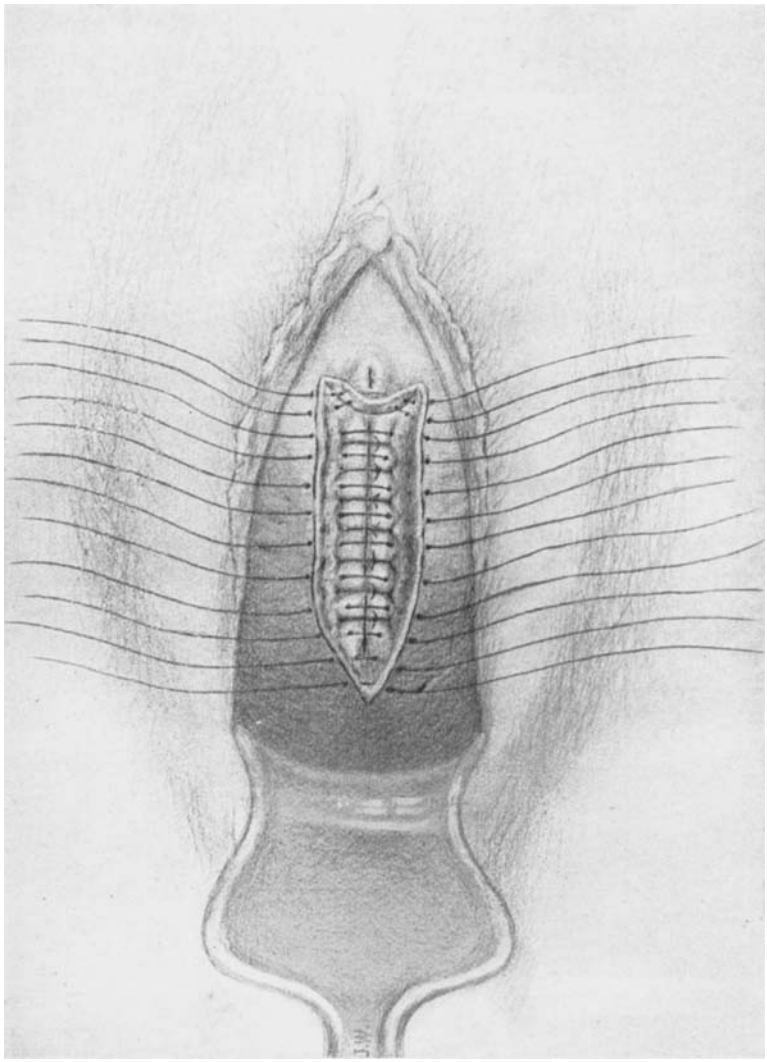

Fig. 2. First row of sutures tied, second row of sutures inserted by which the horns of the crescent semicircling the meatus are brought together, thus advancing the meatus; the remaining sutures gather in the fascia on each side, thus buttressing up the urethra and neck of the bladder. In a bad case the horns of the crescent extend higher and nearer the meatus.

been escaping continuously. Three operations had been performed, but without any benefit whatever. The general health had become impaired by confinement to the house."

Examination. External genitals macerated. Partial destruction of the pelvic floor with rectocele. Urethra and neck of the bladder displaced downwards from the pubes, so that the urethral canal is quite straight and patulous, external meatus is $1\frac{3}{4}$ inches from the clitoris. Much scar tissue in the anterior vaginal wall; a vesico-vaginal fistula just above the neck of the bladder, admitting one finger. Extensive laceration of the cervix into the right fornix.

Operation. The bladder opening was closed by flap-splitting, buried catgut sutures united the bladder, and silkworm gut closed the vagina over these. On injecting milk into the bladder it was seen to escape from the cervix. The bladder was therefore dissected up and another fistula discovered—vesico-uterine; this was closed in a similar manner; milk then injected proved the bladder to be water-tight. The lacerated cervix was repaired at the same sitting. All these wounds united perfectly by first intention, and as a result the patient was perfectly dry and comfortable while lying down; directly she sat up or walked, however, the urine escaped as badly as ever from the displaced and dilated urethra.

Dudley's operation was performed, combined with an extensive colpo-perineorrhaphy. One month afterwards the patient reported a great improvement, urine escaping only on sneezing, etc. Three months afterwards she wrote: "Urine comes away almost as badly as ever when on feet."

The operation described and figured above was performed. Six weeks afterwards the patient told Prof. Watson of Adelaide that she was "as well as ever, and a new woman." Six months afterwards the patient wrote to say that there was a slight escape on sneezing, etc., if the bladder was full, but not bad enough to make her wish to have anything further done. She had become pregnant again.

Case II. Mrs. C., wife of a physician, complained of incontinence of urine ever since her only confinement, 13 months previously. Labour was difficult, necessitating forceps. She could retain urine when lying down, but on sitting or moving about there was a continuous flow, so that she had to wear a macintosh over diapers in order to prevent the wetting of chairs on which she might sit down.

The medical attendant wrote to say he had given an injection of indigo-carmine with a view of discovering the situation of the fistula which he felt sure, from the extent of the leakage, must exist. The result had been negative.

Examination. The urethra and neck of the bladder dislocated downwards, and pouching into introitus vaginæ. The pelvic floor fairly normal. The uterus in normal position; a sound introduced

into the urethra showed the canal to be unduly wide and straight. Milk injected into the bladder escaped only by the urethra.

January 16, 1913. Operation as described. Patient left the hospital on February 1 with perfect control of urine. Her husband wrote last month to say the patient had become pregnant again, and "has had no return of her trouble, I am thankful to say."

Case III. Mrs. A., 27, complains of incontinence of urine and fæces since the birth of her only child nine months ago. Labour was extremely difficult; the child was still-born; convalescence was protracted. The incontinence of urine is marked only when patient is erect, but "her clothing is constantly wet during the day."

Examination. Complete rupture of the perineum with slight protrusion of the rectal mucosa. The urethra and neck of the bladder dislocated downwards and presenting at the ostium vaginæ. The cervix partly destroyed, so that it is practically flush with the vaginal vault. Much scar tissue and fixation of the vault, which is very high.

Operation on April 1. In scrubbing the vagina it was discovered that fæces issued from the uterus; a finger in the rectum high up and a sound in the uterus came in contact, and enabled me to make out a small recto-uterine fistula. Owing to the height and fixation of the vault it was quite impossible to pull down the uterus to allow of its being dissected off and the rectal opening closed; it was evident this could be accomplished only by the abdominal route. I contented myself at this operation, therefore, with repairing the complete rupture of the perineum and performing the operation for dislocation of the urethra. Six weeks afterwards the patient stated there had been no further trouble with the urinary incontinence; the sphincter ani was perfect, and the recto-uterine fistula gave trouble only when the bowels were loose. "She would consider the question of further operation for this."