

one hypothesis the changes are due to the action of alkali upon lardacein; by the other, to the action of alkali upon iodine. The following experiments prove, I think, conclusively that the latter is the case:—

EXPERIMENT 1.—A few drops of liquor potassæ were added to a blue solution of iodide of starch:—the colour vanished but presently returned upon the addition of an acid. Free alkali then has the property (in virtue of its faculty for combining with iodine) of annulling colourations produced by the latter element. Free acid restores the colour by destroying the combination and setting the iodine free.

EXP. 2.—A thin microscopical section, taken from an advanced waxy spleen, was steeped in a solution of potash for four hours. Dr. Dickinson would have us believe that the neutralisation of the "acid-albumen" is the work of a few moments; after four hours the process must be indeed complete. The section was now withdrawn and was immersed for a few seconds in pure water, in order that any free alkali might be removed. It was then placed upon a slide and treated with iodine, when it at once exhibited the usual mahogany-red reaction. This conclusively proves that free alkali<sup>2</sup> has no action upon lardacein which in any way interferes with the iodine colouration.

EXP. 3.—The same section, which had been already stained by iodine, was treated with a few drops of the alkaline solution in which it had floated for such a lengthened period: the colouration vanished. Its disappearance, then, is due to action of the alkali upon the iodine.

I do not think it is too much to say that the foregoing experiments are fatal to an argument to which Dr. Dickinson has attached considerable importance.

In the following experiments I have endeavoured to investigate the nature of the reputed reaction produced by treating lardacein with iodine and strong sulphuric acid. Virchow has stated that a blue colouration may be thus induced, but English pathologists have usually succeeded in obtaining little more than a dirty-black stain.

EXP. 4.—A microscopic slide was stained with blue iodide of starch, and another with a solution of iodine. The one was then placed upon the other, and when viewed together the colours presented a dirty-black appearance, for it must be remembered that they are in a degree complementary. It occurred to me that this fact might account for the difficulty which so many have experienced in detecting any blue colouration in Virchow's reaction, for the presence of the slightest excess of solution of iodine, or of unimplicated tissue stained thereby, would mask the colour effectually.

EXP. 5.—The remains of a digested section of waxy spleen were treated with iodine solution. The excess was removed, and a drop of concentrated sulphuric acid added. A dirty-black colour made its appearance, nor was any suspicion of blue anywhere discernible. But after some time bluish spots began to appear here and there, and I at first thought that I had succeeded in obtaining the result which Virchow has described. In operating, however, upon a section of healthy spleen in a like manner similar blue spots made their appearance. They are to be accounted for, I think, in the following way:—Concentrated sulphuric acid, when added to wet iodine, not only abstracts water therefrom, but likewise raises the temperature thereof in a marked degree; both these actions favour volatilisation, and the colour is, I believe, due to the formation of violet iodine vapour.

It will be seen that these experiments, while they do not absolutely negative Virchow's reaction, throw, nevertheless, a certain amount of suspicion upon its character, a result which, while it does not advance my theory in any way, does not, on the other hand, retard it, as I will endeavour to show later on.

Dr. Dickinson has stated that waxy substance has been subjected to analysis, and that some deficiency in the minute amount of potash salts usually present in healthy tissue has been ascertained. I am at a loss to understand how any trustworthy results can have been obtained in this direction, for if an affected organ were examined *en masse*, the results would, I think, be of little value, for even in an organ in which the disease is far advanced, there is always a large percentage of unimplicated tissue; while, on the other hand, if an effort were made to isolate the lardacein, the digestive fluids used for that purpose would vitiate and render worthless the results.

In conclusion, I would state that all the experiments recorded above have been performed several times under varying conditions, and their accuracy thus guaranteed. I am greatly indebted to Dr. Waller for his kindness, and for the facilities he has afforded me for making the preceding experiments.

(To be continued.)

## OBSERVATIONS ON A CASE OF URINARY FISTULA.

BY DR. DE LABORDETTE,

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M— had six years ago constriction of the canal of the urethra. The flow of urine was very slight, and was only expelled after considerable efforts. In the month of October, 1878, great pain was felt in the perineum. A rupture of the canal of the urethra had occurred. Some hours afterwards this pain extended to the sinuses and inguinal folds. M— had to take to his bed. At each time of passing water the pain increased; the urine, which entered the scrotum and filtered through the tissues, occasioned acute pain in the sacs and lower part of the stomach. Abscesses were formed, and were opened one after another. The scrotum became the seat of a hard and uneven tumour, through which the urine passed each time the patient made water. The urine passed both through this fistula, open at the lower part of the scrotum, and by the canal. The patient whenever he micturated made tremendous efforts, which caused the expulsion of faecal matter. His sufferings were terrible. Such was his condition when he applied to me on the 4th of June, 1878.

After examining the affected parts, and forming a clear opinion as to their state, I decided to advise the patient to submit to the following treatment:—In the first place, the dilatation of the contraction, in order to be able to penetrate into the canal, and judge of its condition as respected the fistula; to determine its exact position, and afterwards proceed to remove it. With this object I proposed to him to accompany me to the Chartreuse, Italy, where I was about to spend the summer. He agreed to my proposal, and in the following week the treatment was begun.

I endeavoured to overcome the contraction with olivary bougies. After attempting during five days to introduce three filiform bougies, by alternately pressing very gently on one of them, I succeeded in passing the obstruction, and in entering the bladder. I left the bougie (an olivary one, No. 4) in position, and the patient kept it in all night, passing his urine through it.

Next day I introduced a No. 3, and leaving it in withdrew No. 4, replacing this by a No. 5, which remained the following night. After employing these means for three days I removed the bougie, allowing the canal to rest for ten hours. I then introduced without much trouble a No. 5, which was left in for two hours. The urine issued forth in a filiform manner, but with an even flow, and without the previous violent efforts. I continued the use of the catheter for fifteen days, and succeeded in introducing Nos. 8 and 9, which I left in for two hours morning and evening. At the end of a month No. 14 was passed easily. The patient could sound himself. The flow of urine increased in volume, and M— passed his water freely. The passage of the urine through the sinuses had greatly diminished.

I then attempted the introduction of full Béniqué bougies. I passed No. 12 easily, and succeeded in passing No. 15 on the same occasion. I withdrew the metallic catheters as soon as they were introduced; they caused a rather sharp pain. No. 20 was reached in eight days. The patient was then requested to micturate through a No. 17 metallic catheter, which he himself introduced without difficulty. After fifteen days of this treatment I tried to get the patient to pass his water naturally, which he did without feeling the least pain in the locality of the fistula. The tumour in the scrotum had almost disappeared, and was no longer painful when touched.

From that time M— has passed his urine without

<sup>2</sup> Caustic alkalies, of course, dissolve and decompose lardacein.

trouble. He sounded himself morning and evening with a full No. 17 india-rubber bougie. After eight days he only sounded himself in the morning, then every three days, and now only every eight days. He has been entirely cured, and the fistula healed for three months.

I may be permitted to add a few reflections to my notes on this case. The considerable difficulty met with in the first instance in overcoming the obstruction made me consider the possibility of performing urethrotomy after the introduction of the first catheters. But the sufficiently easy graduation of catheters which I was able to introduce made me renounce this idea. There were severe spasms in the navicular fossa, which had to be contended against; but I ought to state that in this case, as in other cases occurring in my practice, the canal having grown accustomed to a gentle use of the catheter, I have found little difficulty in increasing the size of the bougie. One precaution I never neglected; I commenced with a number lower than that used on the previous evening.

The india-rubber bougies were changed for metallic ones because I wished to use metallic catheters repeatedly, as they empty the bladder much better. I have always had reason to congratulate myself on this proceeding.

I was also fortunate in having neither fever nor hæmorrhage in the slightest degree to contend against in the whole course of this treatment. At the end of eight days M— could get up and walk about, and during the two months the treatment lasted he was able to live like the other boarders at the hotel.

The inconvenience of the treatment by progressive dilatation has been much exaggerated. When the patience and the gentleness of hand of the surgeon have somewhat overcome the spasms met with in the first instance, the urethra becomes very yielding, and permits the gradual increasing of the size of the bougie. At length you find not the slightest trace of stricture, and the urethra has become completely manageable. The introduction of the bougie must be continued for a long while after recovery, but only at intervals of fifteen days to a month. I conclude in affirming that there exists no stricture which a persevering patient and able surgeon may not successfully overcome without division or the use of force.

Nice, Alpes Maritimes.

## CASE OF HYPERTROPHY OF THE MEDIAN PORTION OF THE CERVIX UTERI.

By D. LOWSON, M.D.

I SAW Mrs. W— for the first time on April 8th, 1876. She then complained of pain in the back; weight and swelling in the lower part of the abdomen; painful, copious, and very frequent menstruation, and profuse leucorrhœa. She was forty-seven years of age; and had been married seventeen years, but had borne no children. On making a digital examination, the cervix uteri was found in its normal position, the os being somewhat more patent than natural. The anterior vaginal cul-de-sac presented nothing unusual, but the posterior was roofed by a dense globular mass; whilst, by bimanual palpation, the fundus was found to be absent from its natural situation, and through the speculum a thick glairy mucus could be seen issuing copiously from the os.

Having reduced the retroflexion, which was easily accomplished, a sound was introduced, and the uterine canal was found to measure rather more than normal—namely, three inches. Rest for several weeks in bed, small doses of ergot, the application of astringents to the cervical mucous membrane, and the subsequent introduction of Hodge's pessary, so far improved the patient's condition that she was able to resume her ordinary occupation and to walk about with comfort.

On January 6th, 1877, she called at the surgery with a return of her former symptoms. She had removed the pessary. The metrorrhagia had become more frequent and more severe; the leucorrhœa was very profuse; and, on examination, I found the cervix low down, about an inch within the vaginal opening, and the fundus occupying its former position in Douglas's space. The same treatment was resorted to as before, with the addition of frequent astringent vaginal

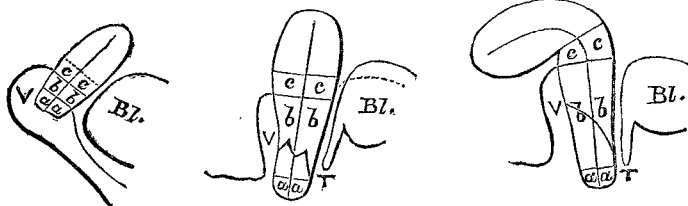
douches; and again very great improvement took place, but, as formerly, only for a time.

On October 24th, 1877, I was sent for, and found that after lifting a heavy weight patient felt something give way internally, was attacked with severe sickness and violent pain over the sacrum, and had to be carried to bed. The pessary had dropped out a fortnight before. The cervix was protruding an inch beyond the vulva, presented the cutaneous appearance of chronic prolapse, a shallow ulcer surrounded the os, and a thick mucous discharge tinged with blood issued from it, while the inner aspect of the thighs was red and excoriated from the friction of the projecting cervix and the irritation of the discharge. For some time she had been in a very miserable state, walking with difficulty from the dragging pains in the back, the feeling of weight in the pelvis, and the soreness of the thighs; and not sitting comfortably on account of the pressure of the chair against the tender and ulcerated os. A very large globular tumour occupied Douglas's space, and formed the roof of the posterior cul-de-sac (which retained its normal relations), whilst the anterior cul-de-sac had disappeared, so that the finger could not be passed up behind the pubis. With some difficulty the mass in front of the sacrum was pushed up into the abdominal cavity, and after getting it beyond the sacral promontory (the patient being on her hands and knees), it was felt to fall heavily forwards towards the anterior abdominal wall. The pain and sickness now passed off, and next day she felt comparatively easy; the flexion not having recurred, but the cervix protruding as before. On introducing Simpson's sound it passed easily, and was not arrested till it marked six inches and a half. Slight hæmorrhage took place when it was withdrawn, the mucous membrane being soft and granular. A male sound was then introduced into the bladder, and directing its beak downwards it could be carried along the front of the cervix in a downward direction, till it stopped about an inch above the os, showing that the lower part of the bladder had become prolapsed along with the front wall of the vagina. From this examination little room for doubt remained that the case was one of uterine hypertrophy, prolapse being excluded because of the great increase in length of the uterine canal, whilst the normal relations of the posterior, together with the obliteration of the anterior cul-de-sac limited the diagnosis to what Schroeder calls median hypertrophy of the cervix. This authority describes three varieties of cervical hypertrophy. Fig. 1 from Schroeder shows the normal cervix divided into three regions effected by the uterine insertions of the vaginal walls, the posterior being inserted considerably higher than the anterior; *a a*, or infra-vaginal portion, being situated below the insertion of the anterior wall, *c c*, or supra-vaginal, extending upwards from the posterior insertion, and *b b* placed between the two insertions. Looking now at Fig. 3, which is a sketch of the relative position of vagina, uterus, and bladder in Mrs. W—'s case, it is plain that while the supra and infra-vaginal portions (*a a* and *c c*) are nearly of normal dimensions, the median (*b b*) is very much elongated. No doubt the hypertrophic process was not entirely confined to this portion, for the body and fundus were very much increased in bulk, partly on account of engorgement due to retroflexion, and partly from increased growth of uterine structure, but still the middle part of the cervix was the chief, and, in all probability, the primary seat of the disease.

FIG. 1.

FIG. 2.

FIG. 3.



The patient not having received permanent benefit from internal remedies or local applications, I proposed amputation of part of the cervix, hoping that subsequent involution would considerably diminish the volume of the rest of the uterus, and, having received her consent, the operation was performed on October 31st, 1877. The plan adopted was essentially the same as that recommended by Schroeder. As described by him his operation consists in bilateral incision of the cervix, so as to divide it into an anterior and posterior flap, the posterior being next cut off transversely,