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ATLAS
OF
ELECTRIC CYSTOSCOPY

BURCKHARDT & HURRY FENWICK

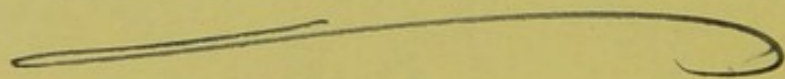


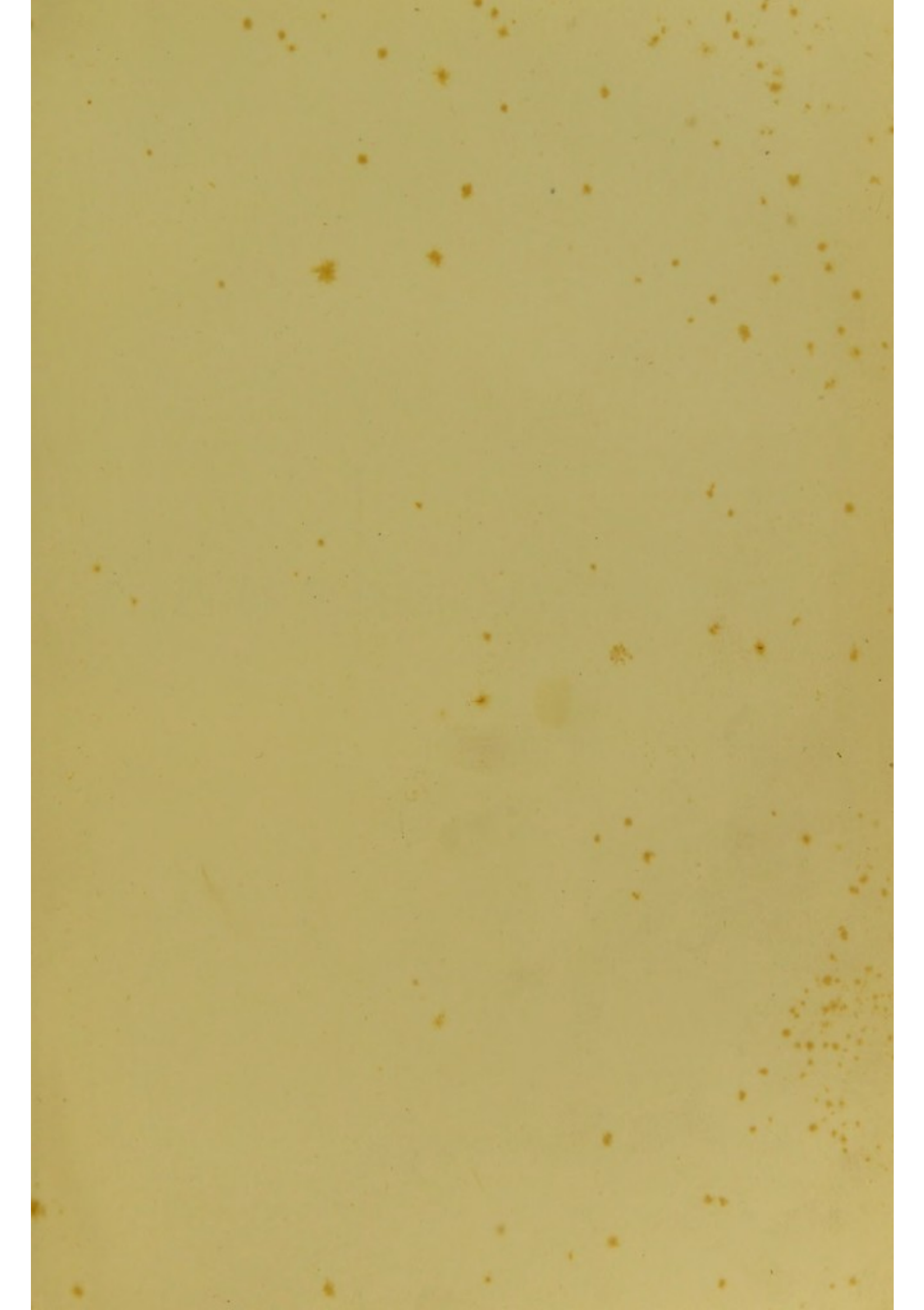
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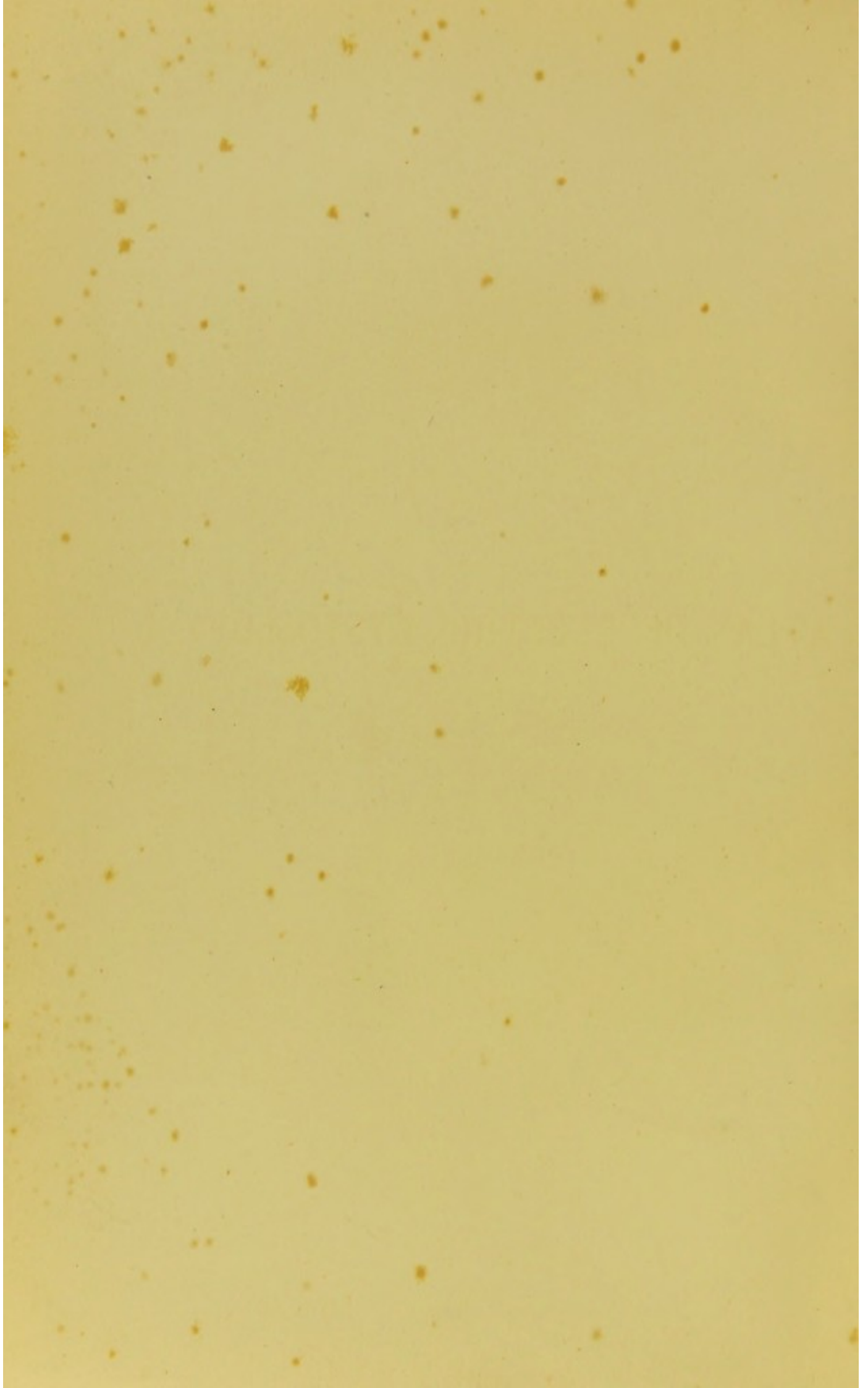


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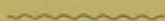
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ATLAS OF ELECTRIC CYSTOSCOPY



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ATLAS
OF
ELECTRIC CYSTOSCOPY

BY

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SURGEON TO THE LONDON HOSPITAL; SURGEON TO ST. PETER'S HOSPITAL FOR STONE
AND OTHER URINARY DISEASES

~~~~~  
WITH 34 COLOURED PLATES, EMBRACING 83 FIGURES  
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LONDON
J. & A. CHURCHILL
11, NEW BURLINGTON STREET

1893



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PREFACE

I HAD made arrangements in August, 1892, to issue an Atlas of Electric Cystoscopy in quarterly parts, and had hoped by this means not only to furnish a reliable guide for those commencing the study of electric illumination of the bladder, but also to provide myself with opportunities for drawing attention to the many important and interesting questions in urinary symptomatology and pathology which the Nitze method is constantly propounding. About this time my friend Dr. Emil Burckhardt, of Basel, suggested that I should translate and edit an 'Atlas of Cystoscopy' which he had published in Germany. We finally decided to unite in publishing an English Atlas, feeling sure that a more valuable work upon the subject would result from joint authorship than from the separate publication of individual experience with the electric light in obscure urinary diseases.

E. HURRY FENWICK.

5, OLD BURLINGTON STREET, W;
January, 1893.



PREFACE TO THE GERMAN EDITION

WHEN I published my work upon 'The Endoscopy of Urethral and Vesical Diseases' at the end of 1888, I was already considering the question of bringing out an Atlas of Cystoscopy. At that time, however, my experience of Electric Cystoscopy was insufficient for such an undertaking. Since then I have been collecting a large number of drawings from a varied and valuable series of cases, which I now propose to form into an Atlas.

Through the great kindness of Professor Socin I have been enabled to utilise some of the most interesting cases which have passed through his surgical and private clinique. I have only introduced a few cases from my own private practice. All the drawings have been made by myself at the time of the electric cystoscopy, and I have in no way attempted to touch them up so as to render them clearer or more distinct. When it was possible the bladder was not cocainised, in order that the real colour of the mucous membrane might be obtained. I have only chosen from my sketches those which would serve to illustrate typical changes of individual diseases, and have expunged all doubtful conditions.

Only one picture is borrowed, fig. 49. It dates from 1886, and is taken from an observation of Nicoladoni. I hope that I may consider that my object, viz. that of providing a reliable guide for those who propose studying the subject of electric cystoscopy, has been attained.

EMIL BURCKHARDT.



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PLATE I.



NORMAL BLADDER.

A. Orifice of the Bladder.

FIG. 1.—Fold of the mucous membrane immediately above the neck of the bladder. Higher up a portion of the anterior superior wall of the bladder is seen. (Cystoscope I.)

FIG. 2.—Fundus of bladder close to the orifice. Part of the posterior bladder wall is visible above the bright red mucous membrane of the vicinity of the trigone. (Cystoscope II.)

FIG. 3.—Immediate vicinity of the orifice of the bladder. The red piece of mucous membrane belongs to the immediate neighbourhood of the entrance, and merges insensibly into the lumen of the urethra. This latter is situated quite close to the centre of the upper periphery of the circle. (Cystoscope III.)

E. B.

Fig. 1.



Fig. 2.



Fig. 3.



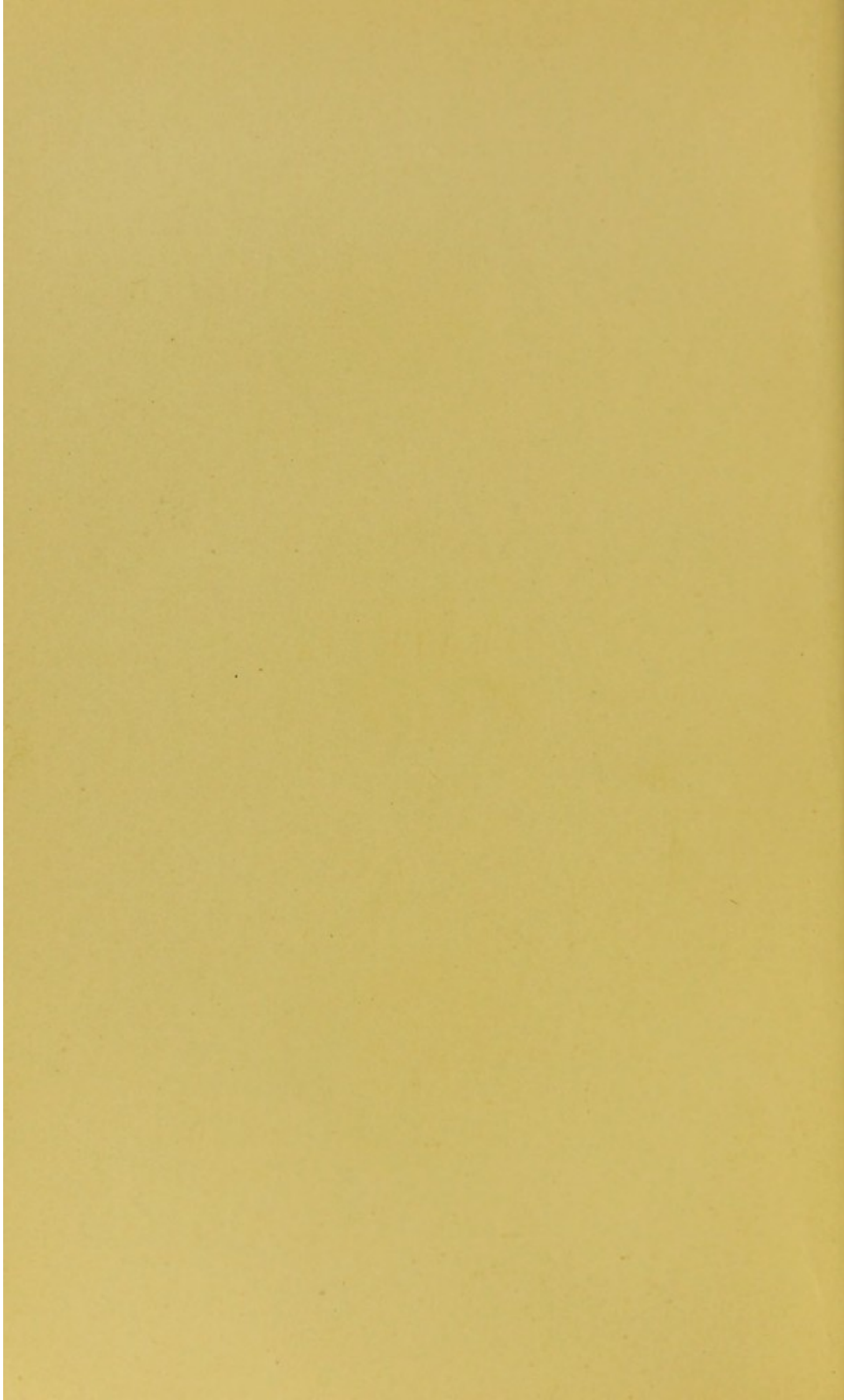


PLATE IA.



NORMAL BLADDER.

A. Orifice of the Bladder (continued).

FIG. 3 A is introduced to draw attention to a possible fallacy which is apt to be misleading. The upper part of the field is occupied by congested rugæ, which, in the side view here represented, simulate the edge of a growth. They are merely folds of lax mucous membrane encountered in the half-distended bladder at the very orifice of the viscus. In hæmaturia from the kidney they are even more puzzling, for then small crusts of blood become attached to the summit of the ridges. The mistake is avoided by *full* distension and by turning the prism round so as to full-face the orifice. The side view usually embraces a small patch of the healthy bladder wall beyond and at some distance from the orifice. (Cystoscope I.)

FIG. 3 B.—There is one condition which it is very difficult to assert is abnormal ; it is therefore placed in this section. I refer to scattered swollen mucous glands at the base of the bladder on the trigone. Usually, I will admit, they are invisible, but in some bladders of healthy people, who have no symptoms of vesical mischief and whom I have examined for control purposes, these small swollen glands have been readily seen. They resemble small swollen buccal glands, and are collected into groups of two or more or are found singly. They are probably evoked by concentrated urine, and their appearance may be regarded as an indication of an effort on the part of the mucous membrane to minimise the irritation of the secretion as it rests on the sensitive neck of the bladder when the body is in the vertical position. Compare with this plate the appearance of the mucous glands in other parts of the base when affected by the proximity of tubercular ulceration, &c. (Pl. XI A, fig. 28 D), or hampered in their discharge by hard epithelioma. In the latter disease I have occasionally seen the surface of the edge of the epitheliomatous patch glistening with œdematous folds of mucous membrane as well as with distended cysts, causing the part to resemble a gelatinous tumour.

There is, however, a remarkable *pathological* change which takes place in these glands, and to this reference will be made under the head of tumours of the bladder (Pl. XIV B, fig. 35 C). (Cystoscope I.)

E. H. F.

Fig. 3.^a



Fig. 3.^b





PLATE II.



NORMAL BLADDER.

B. Walls of the Bladder.

FIG. 4.—Anterior superior wall; two air-bubbles in the interior of the bladder. (Cystoscope I.)

FIG. 5.—Posterior wall. (Cystoscope II.)

E. B.

Fig. 4

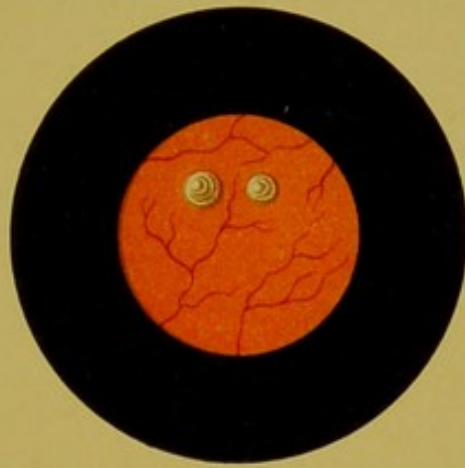


Fig. 5.





PLATE III.



NORMAL BLADDER.

C. Orifice of Ureter.

FIG. 6.—Left ureteral prominence with orifice of ureter, seen from above and at some distance. (Cystoscope I.)

FIG. 7.—Right ureteral prominence, side view, the prism being quite near to the object, the orifice of the ureter being closed. (Cystoscope I.)

FIG. 8.—Left ureteral prominence, side view, at the moment of the efflux of urine. (Cystoscope I.)

E. B.

Fig. 6.

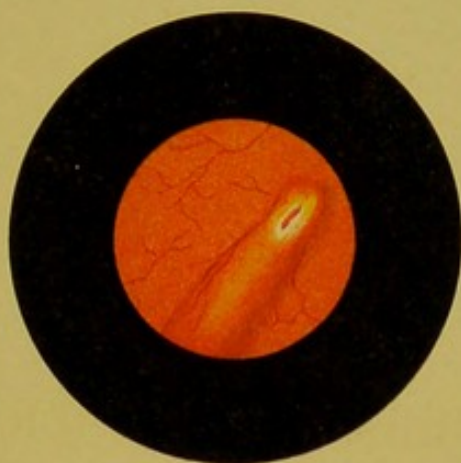


Fig. 7.

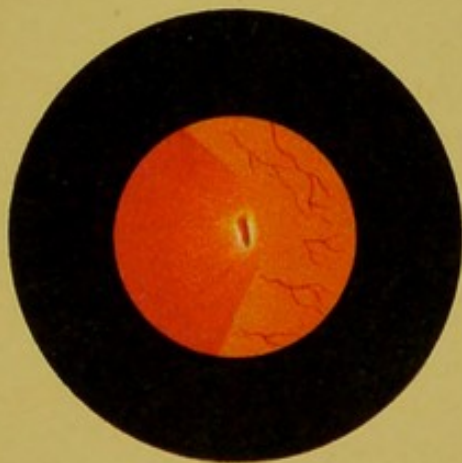


Fig. 8.





PLATE IIIA.



NORMAL BLADDER.

C. Orifice of Ureter (continued).

FIG. 8 A.—Side view of the left ureteral projection—ureteral cone—with the orifice at summit. The healthy posterior wall seen behind it, but too far removed to have the shadow of the cone cast upon it.

Memo.—The cone usually denotes insufficient distension or some irritation in the corresponding renal pelvis.

FIG. 8 B.—The same ureter, seen in profile at the moment of efflux of blood from the corresponding ureter. It will be noticed that the summit is somewhat flattened. The movements of the ureter are of two kinds. One is a pulsating motion imparted by the vessels in the circumureteral region; the other consists of a projection and a recession of the entire cone, due to the wave of contraction which passes down the ureter and flows on to the bladder during the propulsion of the ureteral contents along the tube.

From one of my earlier cases of acute renal hæmaturia.

A lady under the care of Dr. Hepworth, of Manchester, and Dr. Battersby, of Cannes. For eighteen months the patient had suffered from hæmaturia. The urine varied much in colour, but there were no symptoms whatever to afford a clue as to the exact source of the bleeding. The electric cystoscope (No. 30, French gauge) showed the bladder to be perfectly healthy, but on turning the instrument towards the left ureteral orifice, a spurt of bloody urine flowed over the prism. I allowed the ureter to play upon the prism in order to judge of the rhythm of the flow, but it never varied. It was rather like an artery severed under water. [Colouring is a little too bright.]

FIGS. 8 C and 8 D depict the posterior wall of a bladder, healthy in every respect with the exception that great muscular hypertrophy has been induced by a small calibred stricture of the urethra. It is noticeable that the straw or the redder shades so often seen in the bladder is here replaced by a light fawn, and that the vessels are not noticeable. I believe this is due to the thickening of the mucous membrane.

E. H. F.

Fig. 8.^a



Fig. 8.^b



Fig. 8.^c



Fig. 8.^d



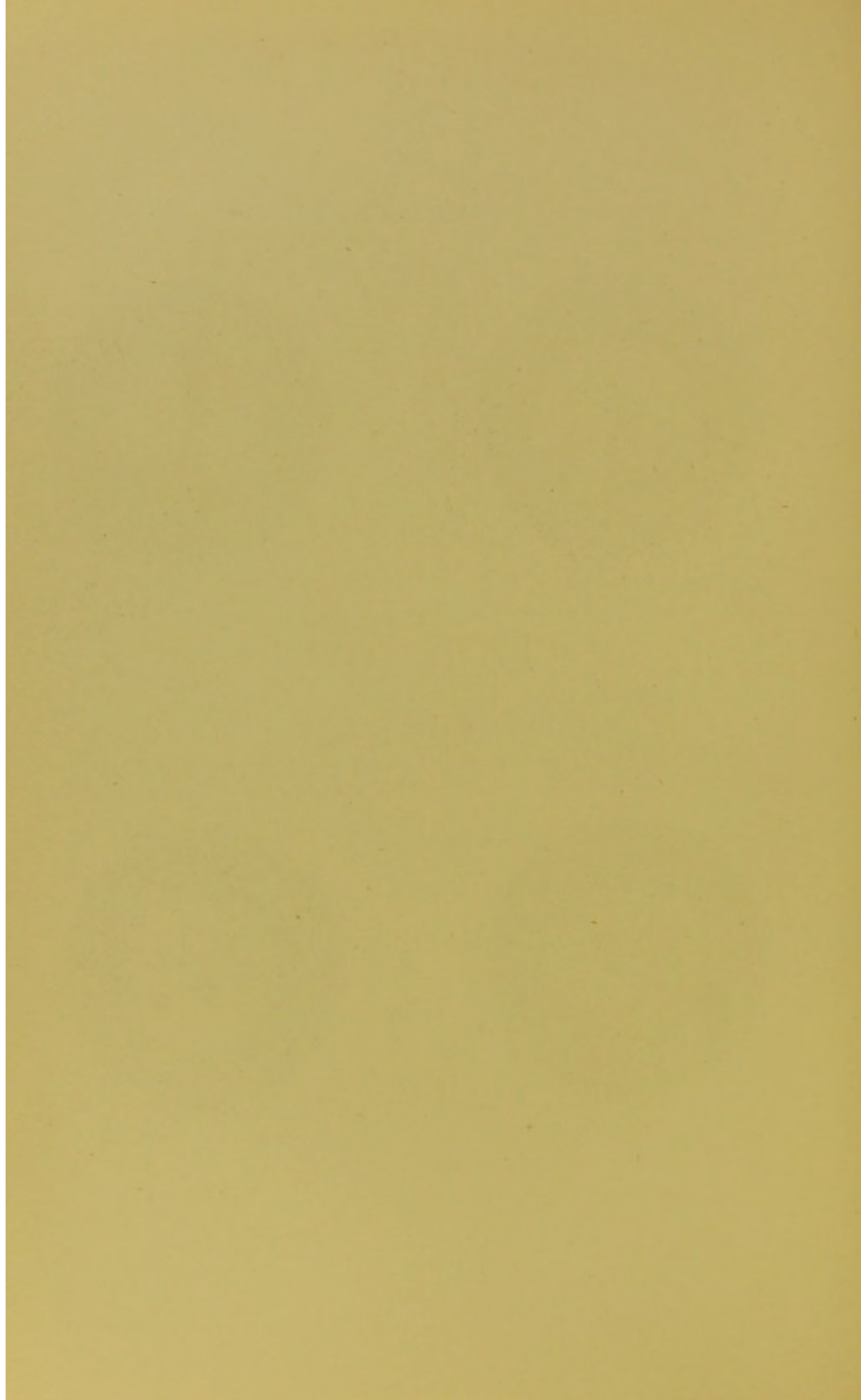


PLATE IV.



CYSTITIS.

FIG. 9.—Anterior superior wall of bladder. Recent hæmorrhage from the mucous membrane, a drop of blood in the act of oozing from the latter. (Cystoscope I.)

Male, æt. 22. Acute gonorrhœal cystitis of eight days' duration. Treatment by internal remedies until the symptoms of irritation ceased; then local measures (disinfectant and astringent irrigations). Cure.

FIG. 10.—Hæmorrhagic extravasation in the anterior wall of the bladder. A rather large tag of tissue floating at large in the bladder casts its shadow on the wall. (Cystoscope I.)

Male, æt. 26. Relapsing acute gonorrhœal cystitis of three weeks' duration. At first internal, then local treatment. Cure.

FIG. 11.—Two coagula of mucus lying to the right on the fundus, and adhering by one extremity to the bladder wall, and swaying freely to and fro in the fluid medium. In the lower half of the picture the folded mucous membrane of the fundus is seen. (Cystoscope II.)

Male, æt. 51. Acute cystitis from catheterisation for gonorrhœal stricture of the urethra. Bladder complaint had lasted three weeks. Ropy urine, with a considerable admixture of accumulations of pus and mucus. Treatment local; dilatation. Cure.

E. B.

Fig. 9.

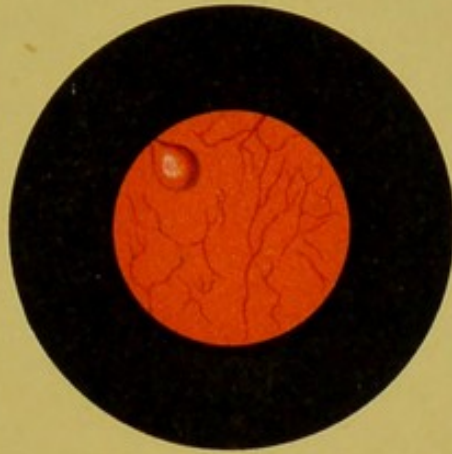


Fig. 10.

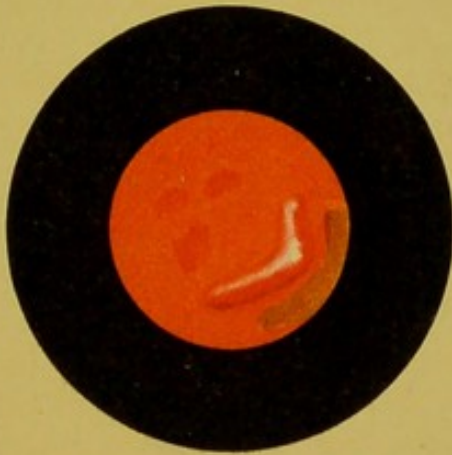


Fig. 11.



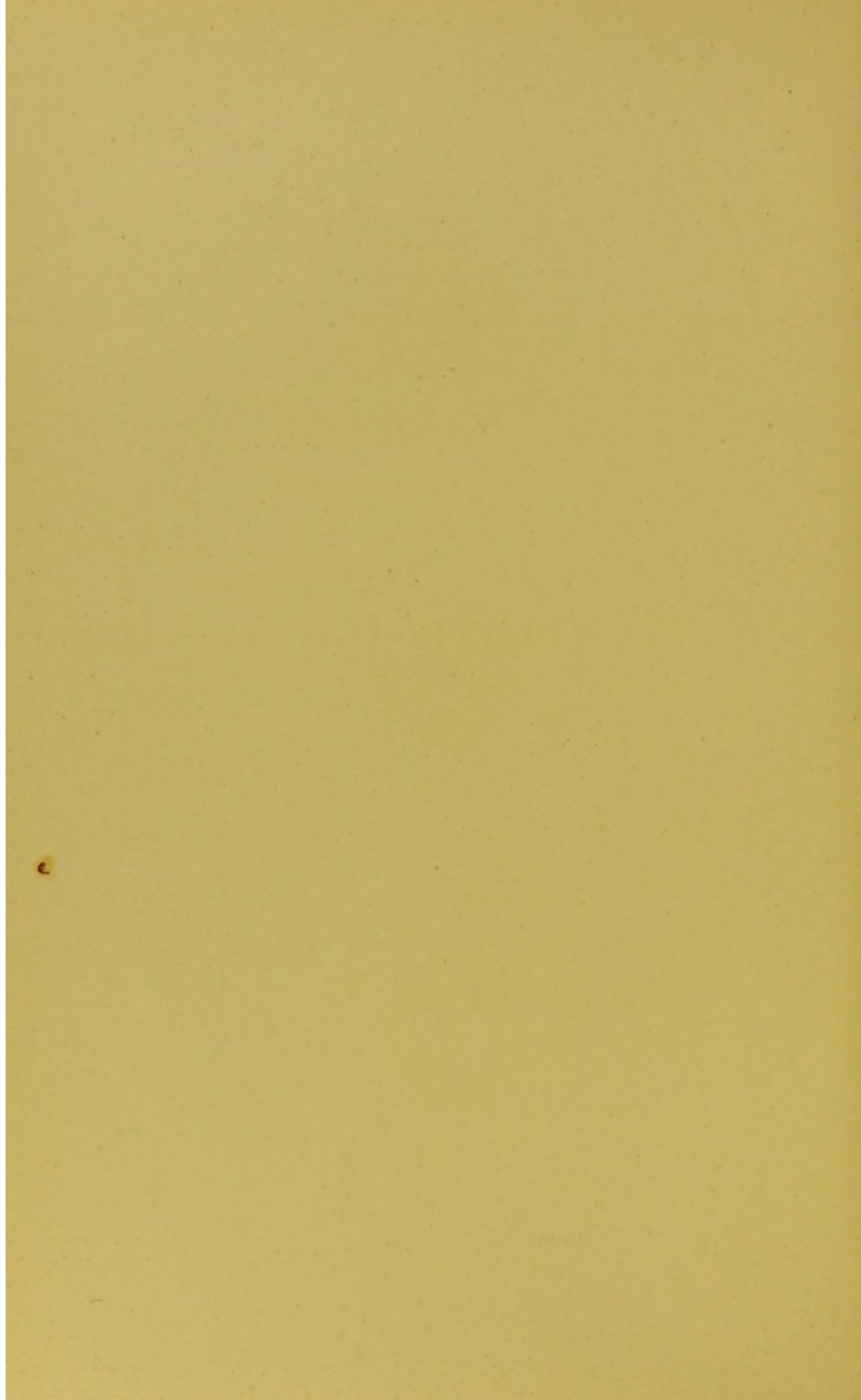


PLATE V.



CYSTITIS.

A. Acute.

FIG. 12.—Catarrhal ulcer of the left bladder wall occurring during subacute cystitis. (Cystoscope I.)

Female, æt. 33. Cystitis of three or four weeks' duration without discoverable cause. No bacilli of tuberculosis to be found. Local treatment. Cure.

FIG. 13.—Ectatic vein on the posterior wall of the bladder in acute cystitis, produced by infection with a catheter. (Cystoscope II.)

Male, æt. 23. Was examined a week ago with sound and catheter for prostatitis. Since then intense cystitis. Urine mucous and sanious. Treatment by local measures. Cure.

E. B.

Fig. 12.



Fig. 13.



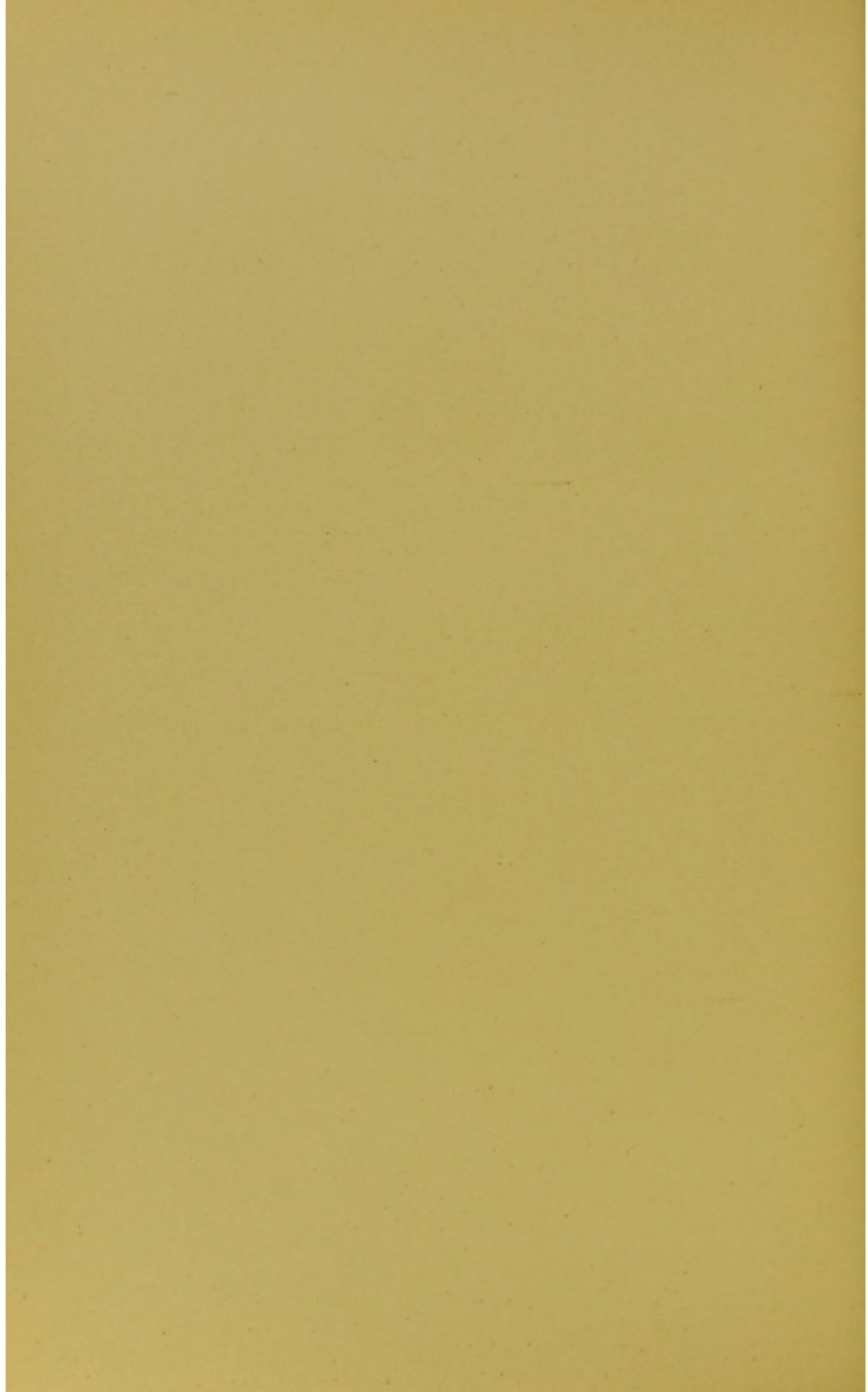


PLATE VI.



CYSTITIS.

B. Chronic.

FIG. 14.—Anterior wall of bladder with an extensive network of large and small vessels. (Cystoscope I.)

Male, æt. 25. Chronic cystitis (of gonorrhœal origin), which had lasted for four years. Local treatment. Considerable improvement.

FIG. 15.—Posterior wall of bladder with numerous vessels. Coagula of mucus and pus floating about and casting their shadow on the walls of the bladder. (Cystoscope II.)

Male, æt. 21. Chronic gonorrhœal cystitis of four months' duration. Treatment local. Cure.

FIG. 16.—Circumscribed blood-clot on one side of the ureteral projection. (Cystoscope I.)

Male, æt. 35. Chronic cystitis of unknown origin of about three months' duration. No bacilli tuberculosis discoverable. Local treatment. Cure.

E. B.

Fig. 14.

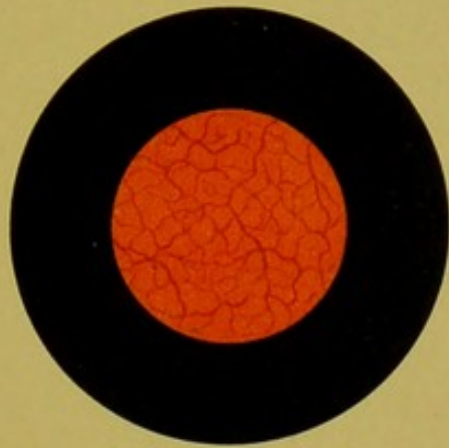


Fig. 15.



Fig. 16.





PLATE VIa.



CYSTITIS.

B. Chronic (continued).

FIG. 16 *a*.—Fundus of bladder, including orifice of left ureter. The former is entirely covered with masses of white muco-pus, but the latter and its immediate surroundings are left entirely free. The latter parts, in consequence, stand out very prominently, appearing as a circumscribed red island. (Cystoscope I.)

Male, æt. 35. Chronic cystitis of gonorrhœal origin and of nine years' duration. Local treatment. Improvement.

E. B.

Fig. 16^a

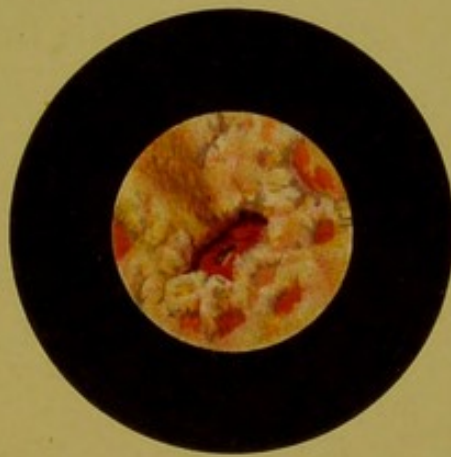




PLATE VII.

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## POSTERIOR URETHRO-CYSTITIS.

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FIG. 17.—Parts immediately above the orifice of the bladder. At some distance from the entrance the mucous membrane is almost normal, while that in its immediate vicinity is highly vascular and is of a bright red colour. The vessels all converge like radii towards the lumen of the orifice. (Cystoscope III.)

Male, æt. 22. Posterior urethro-cystitis of ten days' duration, complicating an apparently healed gonorrhœa. Local treatment (instillation of a concentrated solution of nitrate of silver). Cure.

E. B.

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Fig. 17.





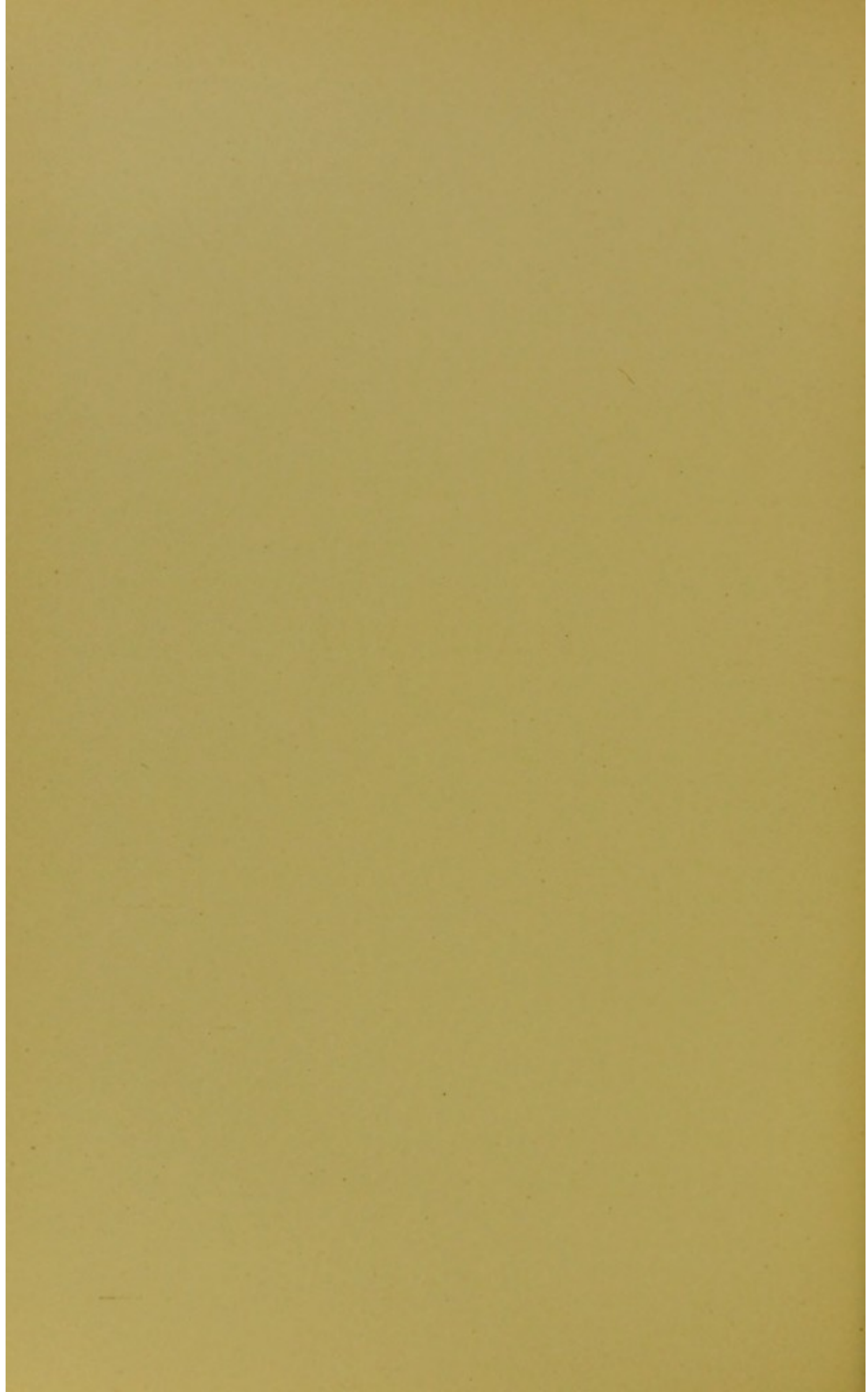


PLATE VIII.



## SENILE ENLARGEMENT OF THE PROSTATE AND ITS COMPLICATIONS.

---

FIG. 18.—Pronounced bilateral senile enlargement of the prostate, with well-marked formation of muscular trabeculae of the bladder wall. (Cystoscope II.)

Male, æt. 72. Dysuria for three or four years (undue frequency of micturition). Prostate about the size of an apple. Chronic cystitis. Residual urine 600 to 700 c.c. (about 20 to 23 fl. oz.). Bladder emptied regularly and irrigated. Considerable improvement.

FIG. 19.—General but not uniform enlargement of the prostate. Left lobe projecting into the interior of the bladder, ulceration of the mucous membrane covering it. A few coagula of mucus were seen floating about. (Cystoscope I.)

Male, æt. 61. Dysuria for a twelvemonth. Prostate about the size of a hen's egg; catheterisation difficult. Urine turbid and bloody. Residual urine 100 to 200 c.c. (about 3½ to 7 fl. oz.). Death with uræmic symptoms. (Degeneration of the kidneys.) The condition revealed by the cystoscope was confirmed by the autopsy.

FIG. 20.—Partial enlargement of the prostate. Central lobe projecting like a tongue into the interior of the bladder. (Cystoscope II.)

Male, æt. 60. Difficulty in micturition for about eight years. On rectal examination the prostate appeared but slightly enlarged. Chronic cystitis of mild degree. Residual urine 80 to 100 c.c. (3 to 3½ fl. oz.). Local treatment and massage. Improvement.

E. B.

---

Fig. 18.



Fig. 19.



Fig. 20.







PLATE VIII<sub>A</sub>.



## SENILE ENLARGEMENT OF THE PROSTATE AND ITS COMPLICATIONS.

---

FIG. 20 A.—A small monkey-nut-sized median lobe of the prostate, which contrasts markedly with the pale fawn-coloured, fasciculated bladder wall beyond. On the right side of the outgrowth is a buff-coloured clot, still plugging the site of a sharp, recent hæmorrhage. (Cystoscope I turned over on to base and ocular end much depressed.)

Male, æt. 60. Hæmaturia on an average three times in a week. Frequency of micturition, no pain. Prostatectomy refused.

FIG. 20 B.—A small, sessile, chestnut-sized median prostatic outgrowth. Fasciculated wall beyond. [The colour of the lobe is too dark.]

Male, æt. 50. Prostatic symptoms for two and a half years; patient dependent on catheter for a year. Cystoscopic diagnosis: supra-pubic prostatectomy. Cure. Stream very large and full a year after the operation.

Both these plates were taken from *enlarged* pictures of the cystoscopic view, so that the detail might be clearer.

E. H. F.

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Fig. 20.<sup>a</sup>



Fig. 20.<sup>b</sup>







PLATE IX.

## SENILE ENLARGEMENT OF THE PROSTATE AND ITS COMPLICATIONS.

---

FIG. 21.—Exquisitely trabeculated bladder, with considerable bilateral enlargement of the prostate. Upper wall of the bladder. (Cystoscope I.)

Male, æt. 72. *Vide* Pl. VIII, fig. 18.

FIG. 22.—Fold of mucous membrane at orifice of bladder (upper circumference), with multiple prominences of the surface. The trabeculæ of the anterior upper wall of the bladder appear somewhat indistinct and obliterated. (Cystoscope I.)

Male, æt. 72. *Vide* fig. 21.

FIG. 23.—Ectasia of the vessels of the bladder wall in a man, the central lobe of whose prostate was much enlarged (engorged). Left wall of bladder and orifice of left ureter. (Cystoscope I.)

Male, æt. 60. *Vide* Pl. VIII, fig. 20.

E. B.

---

Fig. 21.



Fig. 22.



Fig. 23.







PLATE X.



## SENILE ENLARGEMENT OF THE PROSTATE AND ITS COMPLICATIONS.

---

FIG. 24.—*Vessie à colonnes*. Enormous trabeculæ of the posterior wall of the bladder. (Cystoscope II.)

Male, æt. 65. Difficulty in making water for about four years. Irregular enlargement of the prostate, chiefly involving the left lobe. Chronic cystitis. Residual urine 300 c.c. (11 fl. oz.). Bladder emptied regularly and irrigated. Massage of the prostate. Improvement.

FIG. 25.—*Vessie à colonnes*. Diverticulum in the lateral wall of the bladder. (Cystoscope I.)

Male, æt. 65. *Vide* fig. 24.

(Compare Pl. IIIA, figs. 8 c and 8 d, which represent the fasciculated bladder of advanced stricture.)

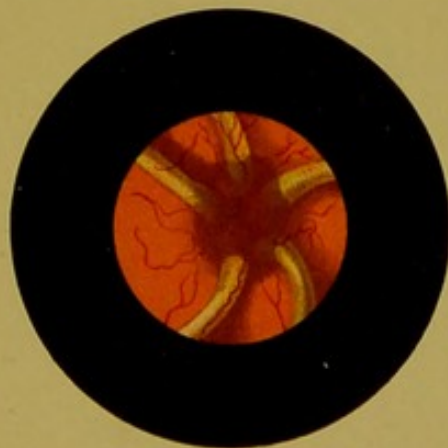
E. B.

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Fig. 24.



Fig. 25.







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PLATE XI.



## TUBERCLE OF THE BLADDER.

---

FIG. 26.—Tubercular cystitis, initial stage. Scattered throughout the hyperæmic mucous membrane numerous dot-like ecchymoses, each with a dark red areola, are to be seen. Numerous arborescent vessels are also visible. (Cystoscope I.)

Male, æt. 37. Cystitis of nine or ten months' duration, the sequel of a chronic gonorrhœa; neither bacilli tuberculosis nor gonorrhœa could be found. Local treatment (irrigation, instillation of iodoform) without success. Suspicion of tubercular cystitis confirmed by the appearance of tubercle of the testes four and ten months later, rendering bilateral castration necessary. Not cured.

FIG. 27.—Commencing ulceration in the region of the fundus in tubercular cystitis. Circumscribed hyperæmia of the mucous membrane, commencing to ulcerate in the centre. (Cystoscope II.)

Male, æt. 27. Cystitis of one and a half years' duration, origin unknown; bacilli tuberculosis found in the sediment of the urine. Local treatment (irrigation and instillation of iodoform; cauterisation) unsuccessful. Cystotomy refused. Not cured.

FIG. 28.—Deep, well-defined ulcer of the anterior bladder wall in the neighbourhood of the internal orifice of the urethra. (Cystoscope I.)

Male, æt. 27. *Vide* fig. 27.

E. B.

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Fig. 26.

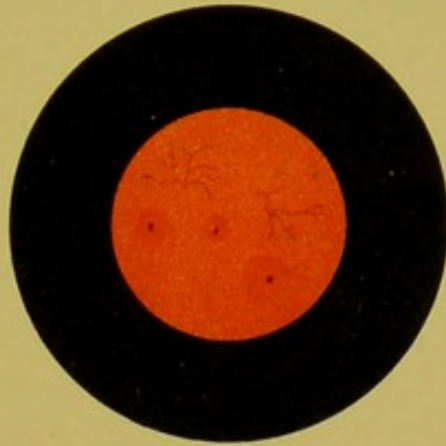


Fig. 27.

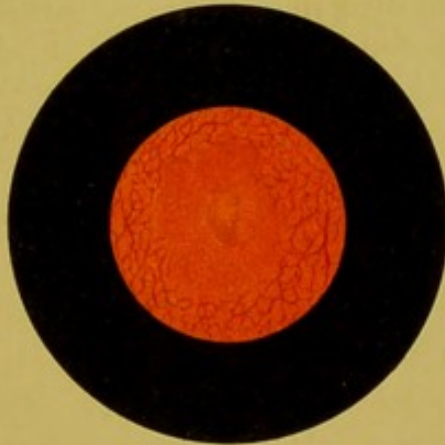
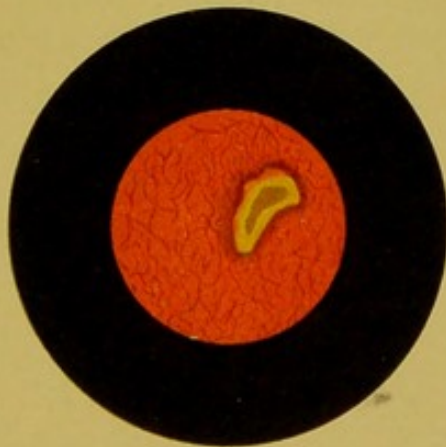


Fig. 28.





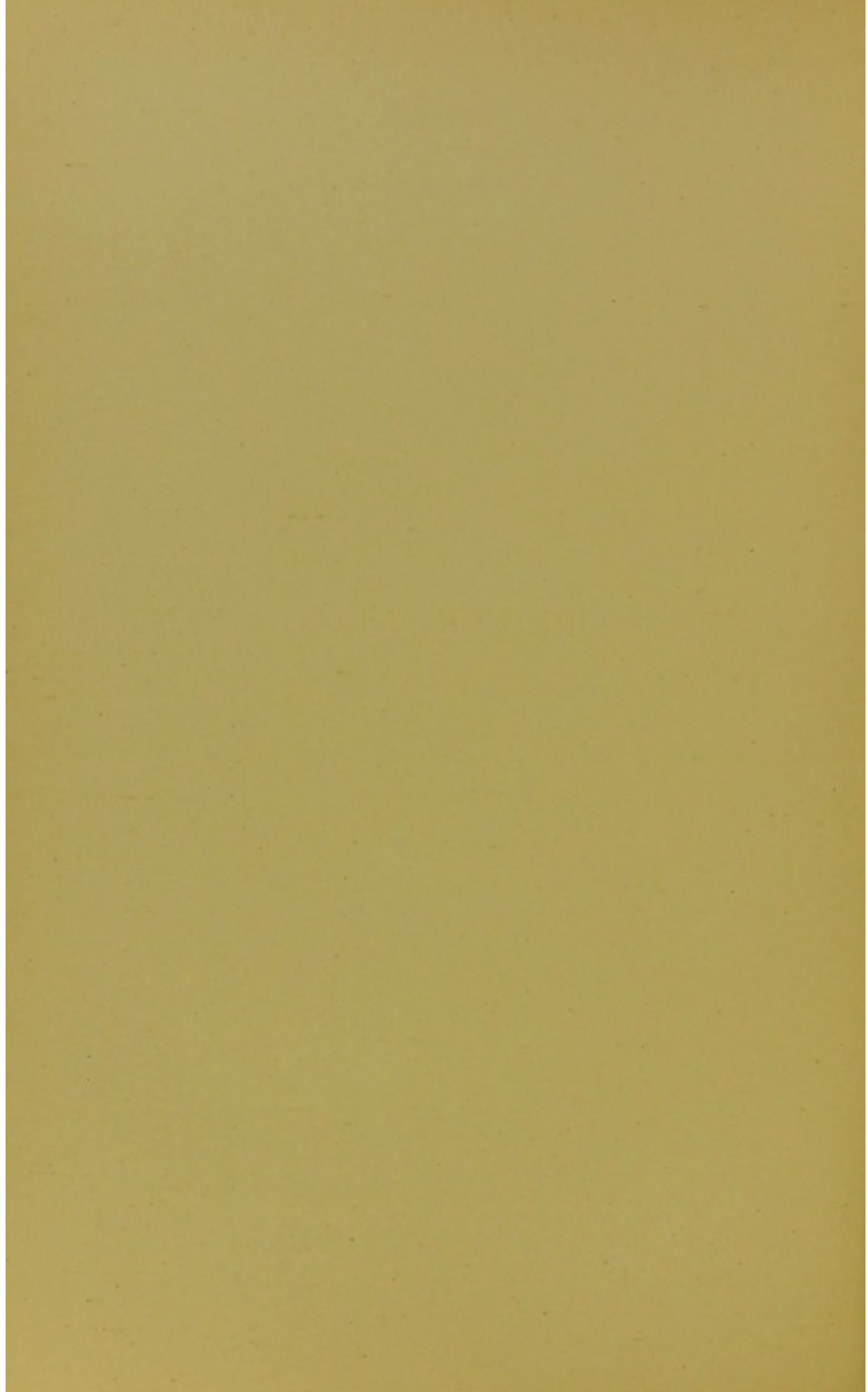


PLATE XIA.



## TUBERCLE OF THE BLADDER.

FIG. 28 A represents the appearance seen in some cases in the early stages of primary tuberculosis of the posterior wall of the bladder. A broad red stripe of varying thickness and length is found upon the back of the bladder after the co-existing cystitis has been subdued. The edges of this extravasation shade off imperceptibly into the apparently healthy mucous membrane beyond. The surface of the stripe is dull, and its epithelium has been shed. It has a threadbare linen look, and white necrotic tissue scraps curl up and peel off. (Seen with Cystoscope I without a magnifying lens.)

Female, æt. 17. A robust, ruddy country girl sent by Dr. Steele, of Hemel Hempstead. Frequency of micturition had commenced a year previously. Two or three months after onset a supra-pubic pain appeared before urination, then hæmaturia. (Cystoscope I, telescope of low power; the cystitis having been first subdued by appropriate treatment.)

FIG. 28 B.—A necrotic piece curled up and lying on broad stripe of extravasation referred to in preceding. It is represented highly magnified by the use of a different lens and the approximation of the prism to the object. (Cystoscope I, magnifying telescope.)

FIG. 28 C.—A patch of minute ulcerations due to tubercular deposit, breaking through the mucous membrane; lower down in the picture is depicted an elongated, upraised extravasation of blood. Edges of the ulcers are hardly vivid enough. (Cystoscope I.)

Male, æt. 27, admitted into the London Hospital April 9th, 1888, with hæmaturia. The patient first noticed blood in his urine on April 8th, but for some days previously he had been compelled to pass water very frequently. He had also experienced a good deal of smarting pain in the perinæum and penis. The urine was very bloody, clots and almost pure blood being expelled at the finish of the act. Sp. gr. 1026; acid. On rectal examination the right lobe of the prostate was found to be very hard, though the bulk was not increased. The left lobe contained a hard nodule the size of a small marble.

On passing the cystoscope and completely rotating it, the base of the bladder on the left side was seen to be covered with small punched-out ulcers. The base of most of the ulcers had still adherent to them little yellowish sloughs,—clear evidence that the change was very recent. Case lost sight of.

FIG. 28 D.—A small group of distended mucous glands in the immediate neighbourhood of a tubercular ulceration. Probably the exits of the glands were blocked by inflammation from the contiguous ulcer.

*Memo.*—Œdematous folds of mucous membrane are also often present, and impart a myxomatous polypoid appearance to the disease. (Cystoscope I.)

Male, æt. 16, under the care of Dr. Williams, of Talgarth, Wales. Blood, rapidly followed by dysuria and pain, had been noticed for some four months. Sinus leading down to a tubercular deposit in the left testicle. Sea air relieved all the symptoms.

E. H. F.



Fig. 28.<sup>a</sup>



Fig. 28.<sup>b</sup>



Fig. 28.<sup>c</sup>



Fig. 28.<sup>d</sup>







PLATE XII.



## TUBERCLE OF THE BLADDER.

---

FIG. 29.—Large ulcer of the anterior wall of the bladder, extending towards the vertex, covered with necrotic shreds of tissue, of which some swing freely to and fro in the fluid medium. (Cystoscope I.)

Female, æt. 42. Cystitis for two years and a quarter; bacilli tuberculosis discovered in the urine. Local treatment unsuccessful. Supra-pubic cystotomy (Trendelenburg's method); curetting, followed by galvano-cauterisation of the two ulcers which were present (*vide* Fig. 32); primary suture of the bladder, secondary sutures applied to the abdominal walls (private clinique of Prof. Socin). Transitory improvement. For condition on dismissal *vide* Pl. XXIII, fig. 56.

FIG. 30.—Ulcer in the vicinity of the trigone; adherent to the margin, but freely oscillating, is a blood-clot. On the posterior wall of the bladder is a sharply projecting ruga of the mucous membrane which simulates the opening of a diverticulum by the shadow which it casts. (Cystoscope II.)

Male, æt. 36. Cystitis of nine months' duration, of unknown origin; bacilli tuberculosis found in the urine. Subsequently tubercle of the right testis and prostate developed. Castration (surgical clinique of Prof. Socin). Not cured.

E. B.

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Fig. 29.



Fig. 30.





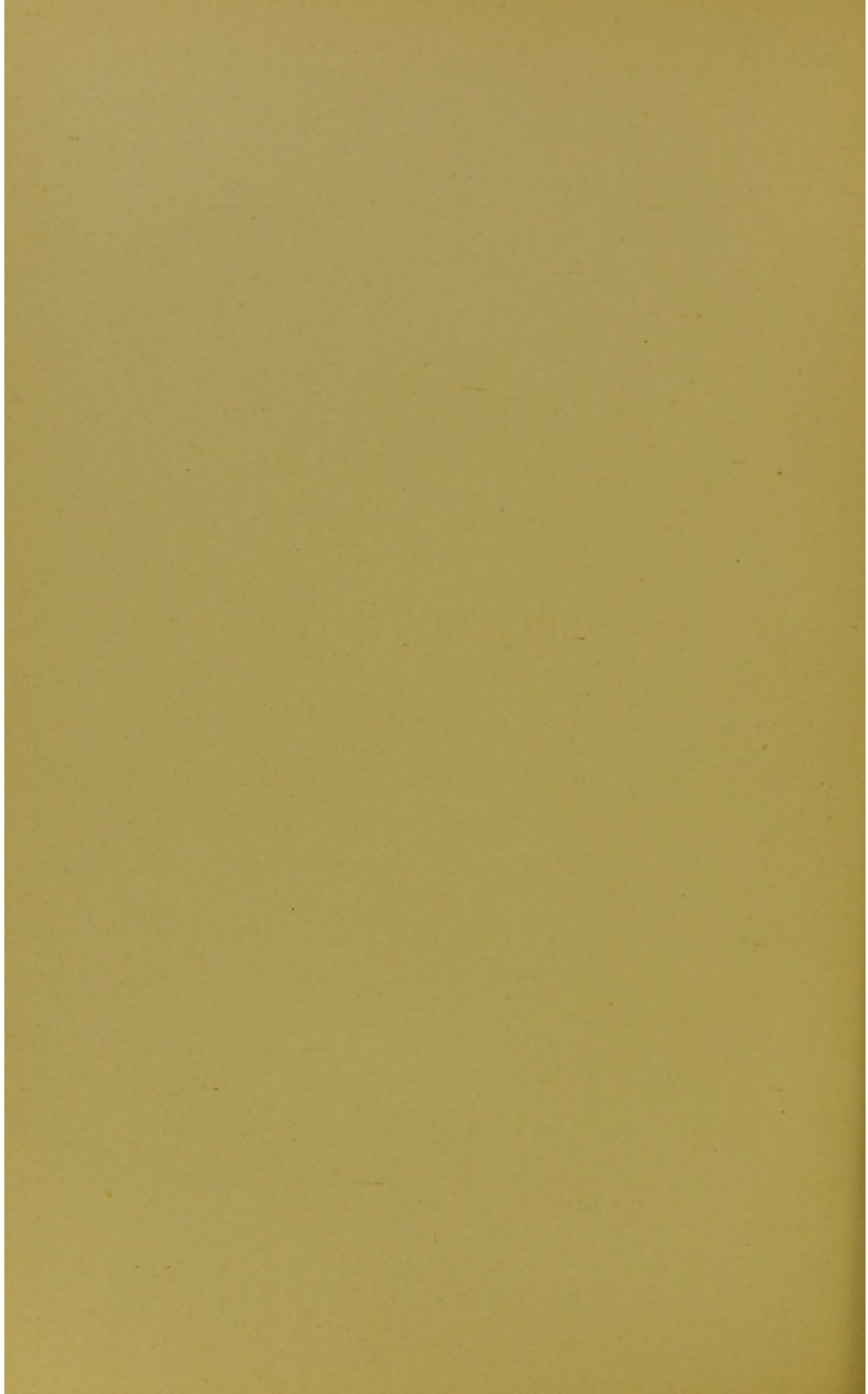


PLATE XIII.

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TUBERCLE OF THE BLADDER.

FIG. 31.—Large ulcer of the anterior wall of the bladder in the neighbourhood of the inner orifice of the urethra. Cauterisation with nitrate of silver. (Cystoscope I.)

Male, æt. 30. Cystitis of three months' duration, producing serious symptoms. Bacilli tuberculosis demonstrated in the urine. Local treatment without success. Cystotomy (perinæal) and scraping (private clinique of Prof. Socin) procured only temporary relief. Not cured.

FIG. 32.—Ulcer of the posterior wall of the bladder. Repeated injections of iodoform emulsion ; commencing incrustation. (Cystoscope II.)

Female, æt. 42.—*Vide* Pl. XII, fig. 29. This state was confirmed by cystotomy, which was performed after local treatment had been tried.

E. B.

Fig. 31.



Fig. 32.





PLATE XIV.



TUMOURS OF THE BLADDER.

FIG. 33.—Small papilloma near the right ureteral orifice ; chronic cystitis. (Cystoscope I.)

Female, æt. 44. (Surgical clinique of Prof. Socin.) For six months there had been occasional attacks of hæmaturia, each lasting several days, but always yielding to rest, irrigation of the bladder, &c. Gradual loss of strength. Beyond the above condition nothing pathological in the bladder. Death in the course of six months. Autopsy (Prof. M. Roth) revealed a medullary carcinoma of the right kidney and confirmed the cystoscopic diagnosis.

FIG. 34.—Fibro-papilloma springing from the right side of the fundus. (Cystoscope II.)

Male, æt. 54.—First attack of hæmaturia four or five months before cystoscopy, after a tour on the mountains. A second and last hæmorrhage was again due to prolonged walking and standing. The bleeding lasted three to four days each time. By rest and internal treatment the urine became perfectly clear.

FIG. 35.—The same tumour as in fig. 34, seen from above. (Cystoscope I.)

E. B.

Fig. 33.

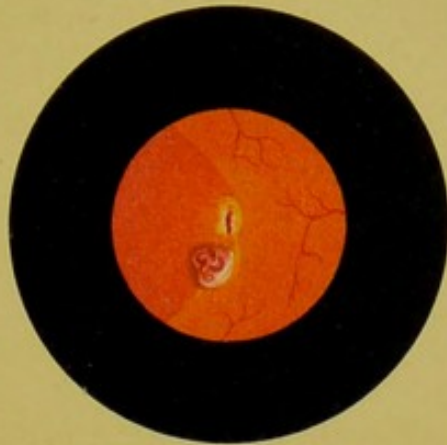


Fig. 34.



Fig. 35.





PLATE XIV_A.



TUMOURS OF THE BLADDER.

FIG. 35 *a*.—A patch of villous papilloma situated over the right side of the urethral orifice. The individual villous processes are long and branched; the small vessel which is often seen in the centre of each process when the substance of the villus is transparent, is, in this instance, unrecognisable. The colour, moreover, is of a more tawny colour than is usual. The tumour was sessile and matted; parts of it had been passed in the urine. There was no reason either in the aspect or feel of its base to justify the suspicions of carcinoma which its colour gave rise to. Note: The more the colour of a tumour approaches an opaque white the more likely is its character to be malignant.

Male, æt. 21. Sent by Dr. Henry Kempster. First attack of hæmaturia six days before cystoscopy, difficulty in urination for six months previously. Supra-pubic cystotomy (in the Trendelenburg position), ablation by means of a caisson.* Wound closed in a fortnight; left hospital at end of third week. Cured.† (Cystoscope I, ordinary telescope picture, enlarged to match fig. 35 *b*.)

FIG. 35 *b*.—An individual villus, from above, enlarged by means of the magnifying telescope and by the approximation of the prism. Shadow cast upon anterior wall of bladder, low down and a little to the right of the urethral orifice. (Cystoscope I, magnifying telescope, still further enlarged.)

* "Caisson Working," 'Brit. Med. Journ.,' November 19th, 1892, p. 1111.

† Case 21, 'Cardinal Symptoms of Urinary Disease,' p. 42.

Fig. 35^a

Taf. XIV^a



Fig. 35^b





PLATE XIV_B.



TUMOURS OF THE BLADDER.

FIG. 35 *c*.—Cystoscopic view of the posterior edge of the trigone and of the adjoining lowest part of the posterior wall. The former surface is depicted as being covered with closely massed, flattened, polypoid projections, each being of an apple-jelly colour. Individual specimens are sparsely scattered over the adjoining healthy posterior wall. (Cystoscope I, enlarged to show detail.)

This is a condition apparently of great rarity, and it is here introduced partly on account of its great resemblance to a low form of epithelioma, and partly to draw attention to the subject.

I believe it to be a pathological change of the mucous glands of the base of the bladder. I discovered it in the bladder of a young man who had left renal scrofulosis (obsolescent). When the patient was first cystoscoped (*i. e.* eighteen months before this picture was taken) the appearance was much less marked. My notes are as follows:—"Eight ounces of medium easily tolerated. Every part of the bladder, except the trigone, is of a dazzling milk-white colour. At the left side of the trigone the vessels, which are remarkably sparse elsewhere, are here thick and branched. Situated on one of the branches of a vessel is an apple-jelly-coloured body the size of a split pea. Each seems to have some connection with the vessel, and reminds me of the Malpighian tufts of an injected kidney. On bringing the prism towards the urethral orifice, along the edge of the trigone, these small bodies are more numerous, the vessels being split and resplit into branches, and on each twig are several of these flattened ovoid bodies."

"On the trigone itself, towards the orifice of the bladder, these bodies are collected into clumps, and here and there interspersed among them and raised from the surface are mucoid glands distended with clear secretion, and stained partially with the same colour as the bodies to which I have referred. I shall call these 'lupoid tubercles,' which they resemble exactly, to remind me of their appearance, until I understand their exact pathology."

I examined from time to time, and found these apple-jelly coloured bodies increase in number, but not in size, until now the entire trigone is covered, and the anterior wall of the bladder immediately above the urethral orifice, is spotted with them. The patient, a young fellow of thirty, is apparently in the best of health, though liable to attacks of pain in the left kidney. The urine is generally clear, contains half albumen, is acid, and even when fresh it swarms with micrococci. Occasionally he passes a cast of the ureter (?) in the form of slough.

(Compare healthy mucoid glands of base, Pl. I A, fig. 3 *b*.)

FIG. 35 *d*.—A small, lobulated, delicately pedicled, pendulous polypus hanging from the bladder of a boy aged 11; one of many similar isolated tumours. It proved to be a fibro-sarcoma. (Cystoscope I, enlarged to match preceding.)

E. H. F.

Fig. 35.c

Taf. XIV.^b

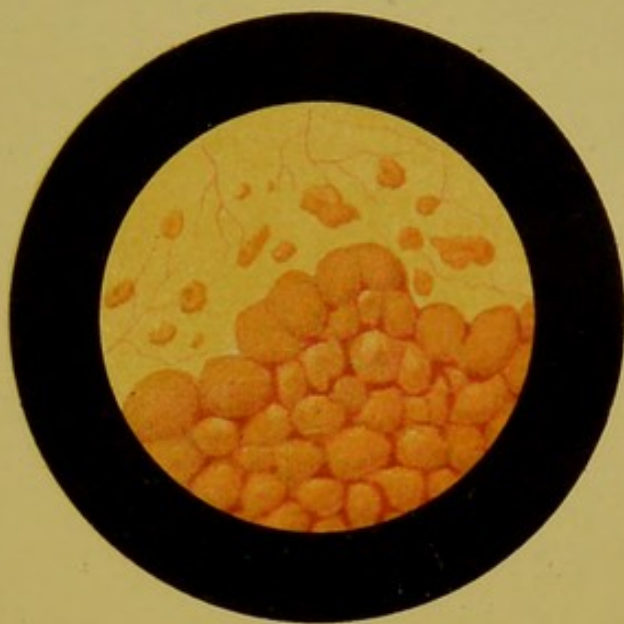
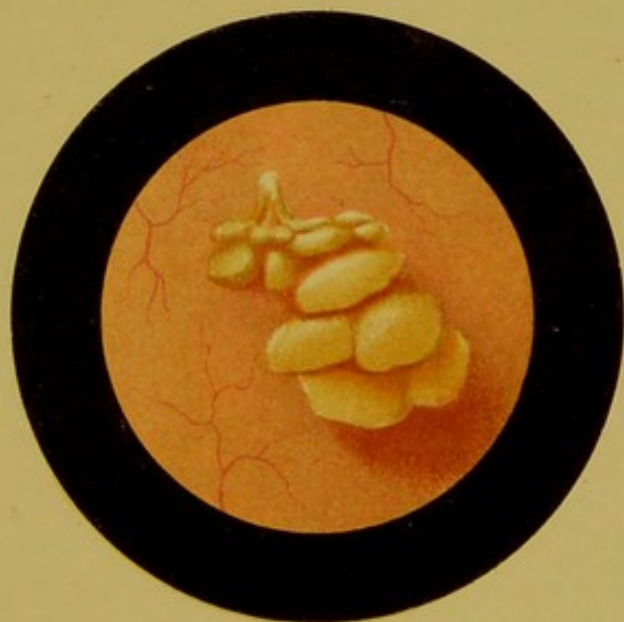


Fig. 35.d



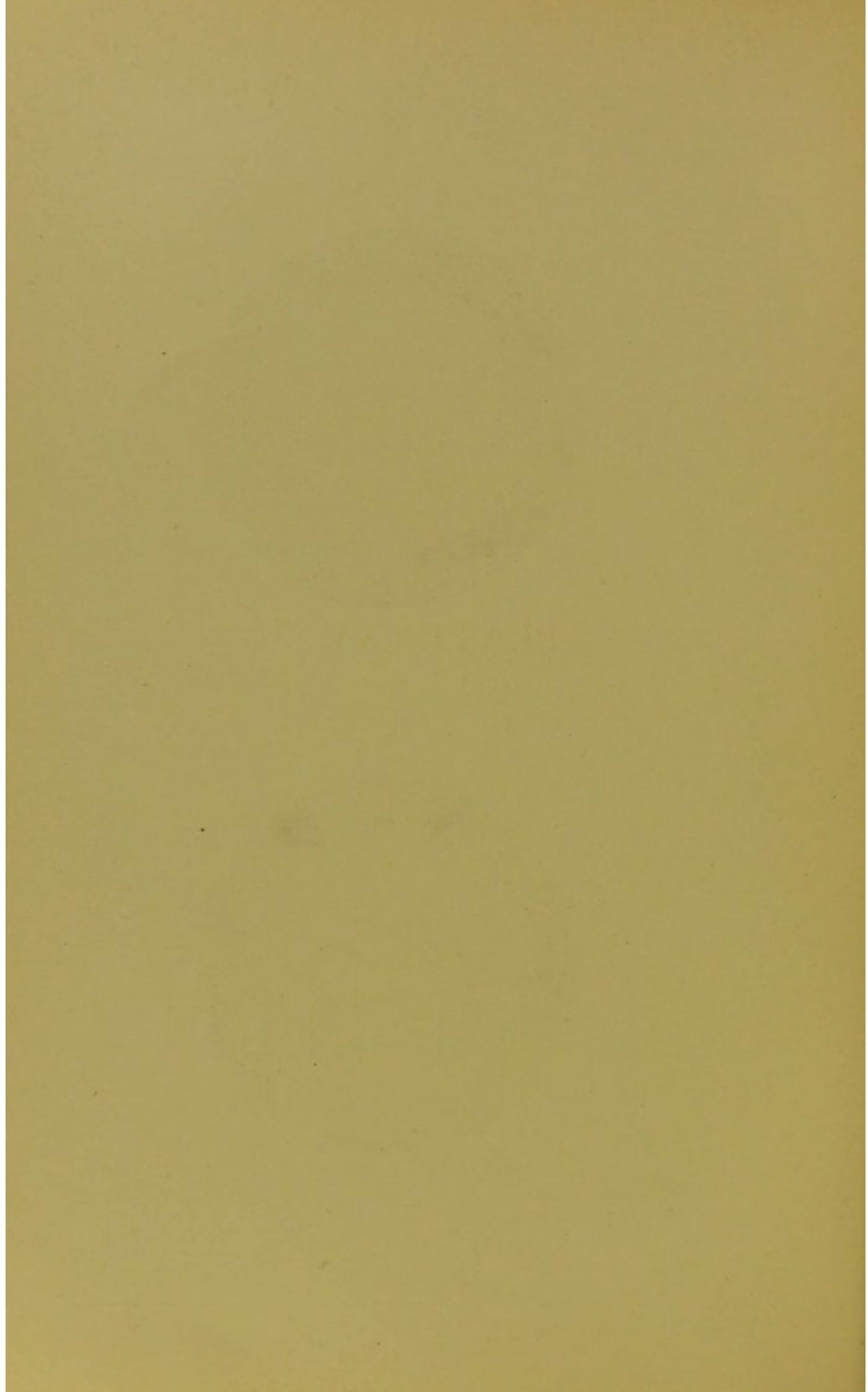


PLATE XV.



TUMOURS OF THE BLADDER.

FIG. 36.—Two villous polypi springing from the left upper portion of the fold of mucous membrane surrounding the orifice of the bladder; their free edges were translucent, the central vessels were clearly visible. The bladder wall was trabeculated; towards the right side a superficial diverticulum existed. (Cystoscope I.)

Male, *æt.* 51. Cystitis complicating gonorrhœal stricture of the urethra. On being examined after successful treatment, before final dismissal, the above condition was discovered by means of the cystoscope.

FIG. 37.—Large fibro-papilloma springing from the right side of the fundus. The surface of the tumour was covered with villous processes. (Cystoscope I.)

Male, *æt.* 31. Dysuria of four months' standing; tenesmus; intermittent stream; occasional hæmaturia. Supra-cystotomy (Trendelenburg's method, surgical clinique of Prof. Socin); pedicle severed with the thermo-cautery. In consequence of severe secondary hæmorrhage it became necessary to reopen the primary sutures in the bladder; tampon was used after the application of the galvano-cautery to the surface of the pedicle. Closure of the bladder wound. Uncomplicated healing by granulation. On dismissal sixty-seven days after the operation the following condition was discovered by cystoscopy:—A uniformly even, pale yellow cicatrix of the fundus. The otherwise normal mucous membrane in the neighbourhood was gathered up into several cord-like prominences which converged towards the scar (cicatricial contraction). On the anterior wall of the bladder nothing abnormal was seen except a whitish-yellow linear cicatrix. Microscopy of the tumour (Prof. M. Roth):—“Papillary fibroma, the base consisting of connective tissue and a few fasciculi of smooth muscle-fibres.”

FIG. 38.—Carcinoma of the wall of the bladder in the region of the orifice of the bladder. (Cystoscope I.)

Male, *æt.* 61.—Difficulty in passing water for one and a half years; cystitis with occasional exacerbations, intense tenesmus, hæmaturia, passage of necrotic shreds of tissue. Prostate very hard, nodulated, about the size of an apple. Inguinal glands of both sides swollen and hard. Inoperative.

E. B.

Fig. 36.



Fig. 37.



Fig. 38.





PLATE XV_A.



TUMOURS OF THE BLADDER.

FIG. 37 *a*.—Papilloma growing from the left side of the trigone. The tumour was seen to consist of a number of various-lengthed villous processes, some short, others long. The pedicle was slender. The rest of the bladder was normal. (Cystoscope I.)

Female, æt. 52. Ten years ago hæmaturia for the first time, recurring since then, the intervals between the attacks becoming gradually shorter. No cystitis. Supra-pubic cystotomy, Trendelenburg's method being employed. Primary suture of the bladder, secondary suture of the abdominal parietes. Healing by first intention in twenty days.

FIG. 37 *b*.—Solitary villous process of the same tumour as depicted in Fig. 37 *a*, seen nearer and therefore more highly magnified. The vessels are plainly visible coursing inside the transparent villi. (Cystoscope I.)

FIG. 38 *a*.—An alveolar carcinoma of considerable dimensions, springing from the left side of the bladder wall. Two adjoining lobules are depicted. (Cystoscope I.)

Male, æt. 53. Some two and a half years ago patient had his first attack of hæmaturia, followed by a second hæmorrhage six months ago. Since then dysuria and occasional hæmaturia have been suffered from. Operation was declined. Unrelieved.

E. B.

Fig. 37^a



Fig. 37^b



Fig. 38^a

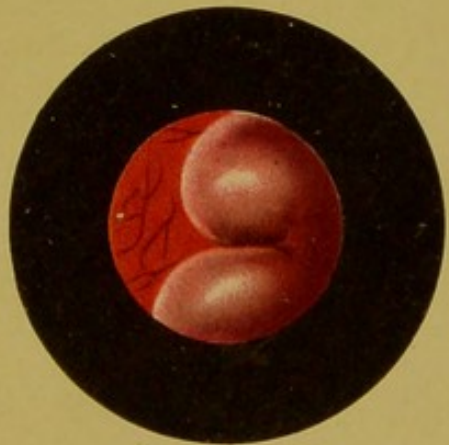





PLATE XVI.



STONE IN THE BLADDER.

FIG. 39.—A large solitary uratic stone. (Cystoscope I.)

Male, æt. 66. Symptoms of stone for one year. Chronic cystitis, occasionally hæmaturia. Litholapaxy (private clinique of Prof. Socin); the débris weighed (on being dried) 1 oz. Cure.

FIG. 40.—The same stone as in fig. 39, seen with Cystoscope II. On account of the bilateral hypertrophy of the prostate, the folds of the mucous membrane surrounding the orifice of the bladder project inwards in the shape of mounds.

FIG. 41.—Solitary phosphatic stone. (Cystoscope I.)

Male, æt. 57. Symptoms of stone for six to eight weeks. No stone found on repeated examination with sound. Diagnosis uncertain until the introduction of the cystoscope into the bladder. Litholapaxy; the débris weighed (dry) 83 grains. Cure.

E. B.

Fig. 39.



Fig. 40.



Fig. 41.



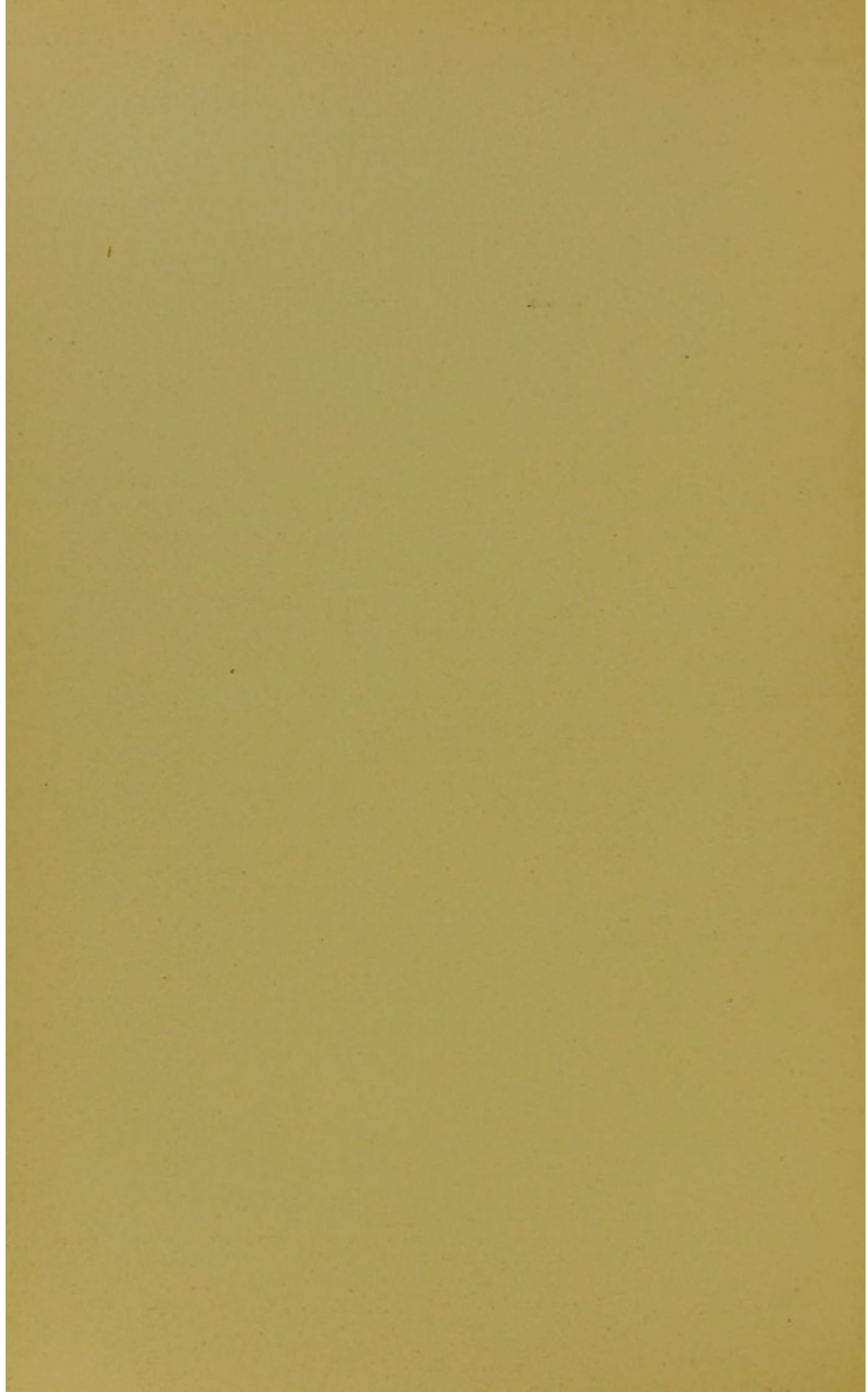


PLATE XVII.



STONE IN THE BLADDER.

FIG. 42.—Two middle-sized uratic calculi. (Cystoscope I.)

Male, æt. 68. Symptoms of stone for nine months. Slight cystitis. Litholapaxy; the fragments weighed (dry) about 230 grains. Cure.

FIG. 43.—Multiple small uratic stones. (Cystoscope I.)

Male, æt. 58. Symptoms of stone for about four years. Chronic cystitis; occasionally hæmaturia. Litholapaxy; the fragments weighed (dry) 270 grains. Cure.

E. B.

Fig. 42.



Fig. 43.



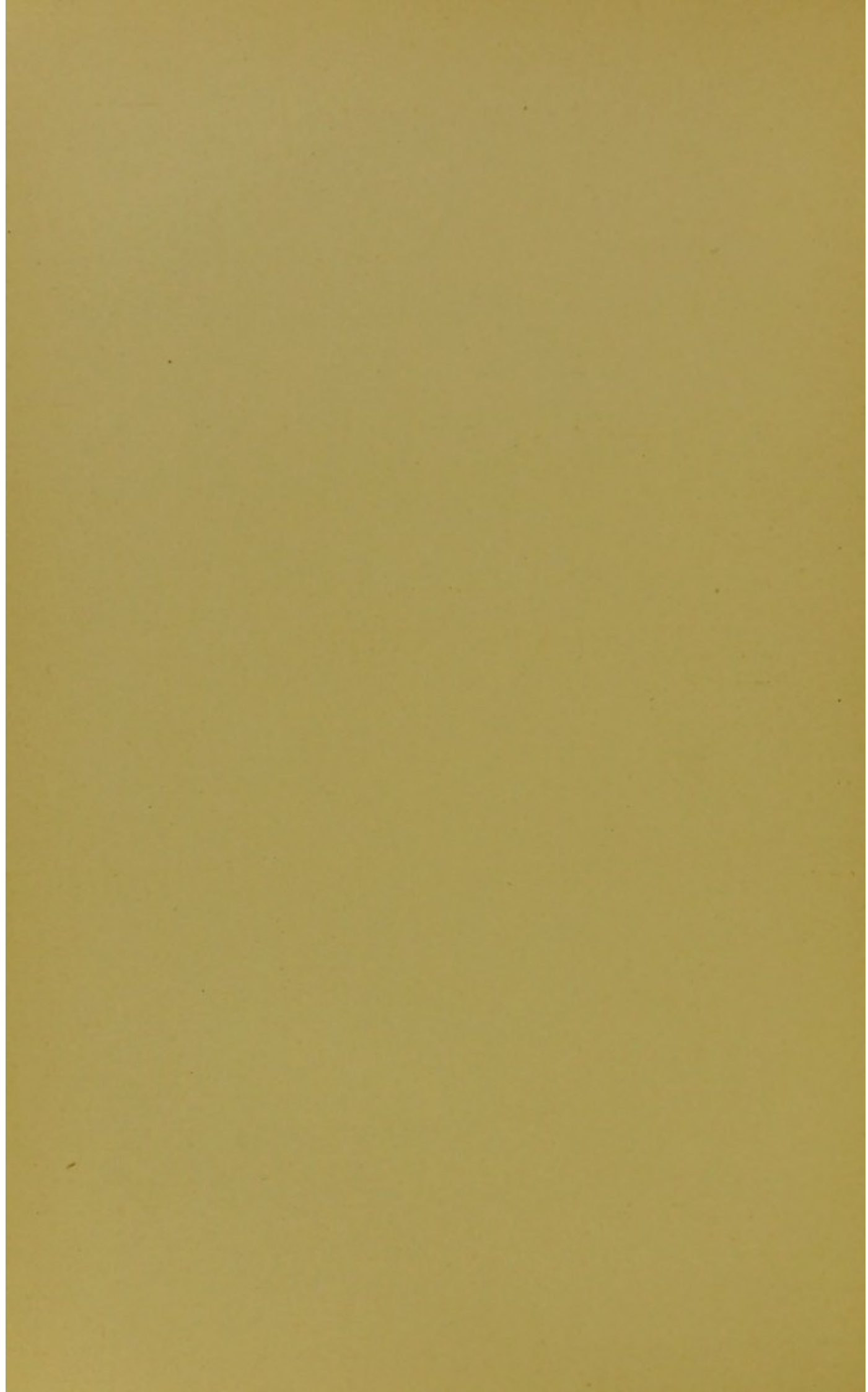


PLATE XVIII.

STONE IN THE BLADDER.

FIG. 44.—Phosphatic incrustation of the left wall of the bladder, in a case of severe chronic cystitis and trabeculation of the bladder. (Cystoscope I.)

Male, æt. 68. Paralysis of the bladder for the last four years ; impossibility of voiding urine except by catheter. Chronic cystitis, with ammoniacal urine in consequence. Symptoms of stone for six weeks. Litholapaxy. The fragments weighed (dried) 64 grains. Cure. Two months later a control examination with the cystoscope was made, and the above condition was discovered. Removal of the incrustation by means of the lithotrite. Definite cure.

FIG. 45.—Fragment from the shell of a uratic stone left in the bladder after litholapaxy ; over it lay a clot of mucus sprinkled with calculous particles. (Cystoscope I.)

Male, æt. 66. Cf. Pl. XVI, figs. 39 and 40. The fragment was removed by means of the spoon lithotrite. Definite cure.

E. B.

Fig. 44.



Fig. 45.





PLATE XVIII_A.



ENCYSTED STONE IN THE BLADDER.

FIG. 45 A.—A wrinkled-edged diverticulum situated at the left side of the left ureteral orifice, the wall of the bladder being extremely spongy and congested. This diverticulum was seen packed with superimposed stones, the four piled in the centre being the only ones depicted, for the sake of clearness. They are drawn to size; the two uppermost were small enough to be sucked out bodily, and are now in the collection at St. Peter's Hospital. (Cystoscope I, enlarged.)

Male, æt. 60, sent by Mr. Debenham. Symptoms of an enlarged prostate complicated with stone, had been present for many months. I sounded the patient on four separate occasions—with and without ether—but without result. Finally I inserted the cystoscope and saw the pile of small concretions lodged deep in a sac. Guiding a small-jawed lithotrite to the mouth of the pouch, I edged the beak in, seized and pulled out the calculi, and crushed them. He recovered completely, and I examined him two years after and found the sac had contracted almost entirely, and that he was free from stone.

FIG. 45 B.—Two deep pouches at the base of the bladder. The left-sided* sac contained a flattened stone the size of a shilling (uratic, with a thin covering of phosphatic material). Mucous membrane much inflamed.

Male, æt. 40, who had been under my care off and on for three years with prostatitis of gonorrhœal origin, began to develop symptoms of stone. I sounded him very carefully, with a negative result. The trouble gradually increased until the symptoms were so characteristic of calculus that I again examined him with the sound, but again failed to detect any foreign body. After sounding this patient *six times* I insisted on examining the bladder with the electric light, at that time a novelty. On turning the light upon the base I discovered at once the narrow orifice of a saccule, and in its cavity I saw the shimmer of a white stone. I now passed a sound, and directing its point towards the spot where I knew the saccule to be, I was able to strike the stone, and finally to insinuate the beak into the saccule, and to scoop or force out this stone, which weighs $\frac{1}{2}$ ounce, into the vesical cavity, whence I removed it by a median cystotomy. My colleague, Mr. Reginald Harrison, kindly examined the patient with me, and verified the cystoscopic diagnosis before the operation was performed.

Though this picture is enlarged the prism of the cystoscope had to be removed as far as possible from the sacs in order to embrace a view of both. (Cystoscope I.)

* Left side of patient.

E. H. F.

Fig. 45^a

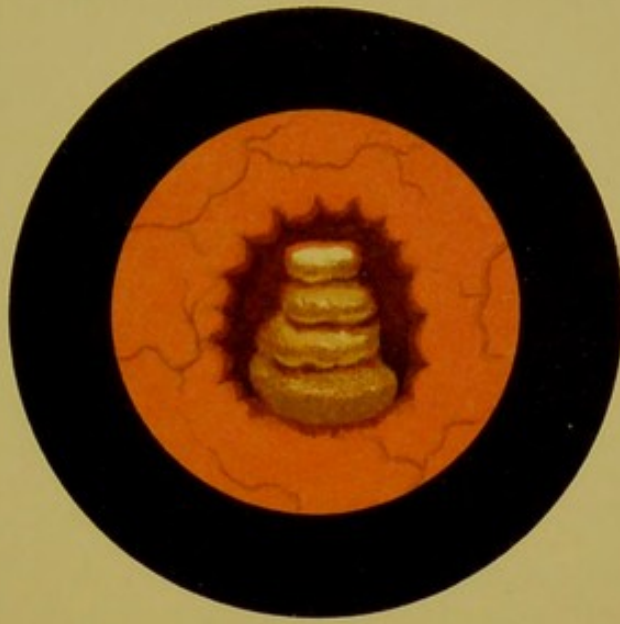


Fig. 45^b

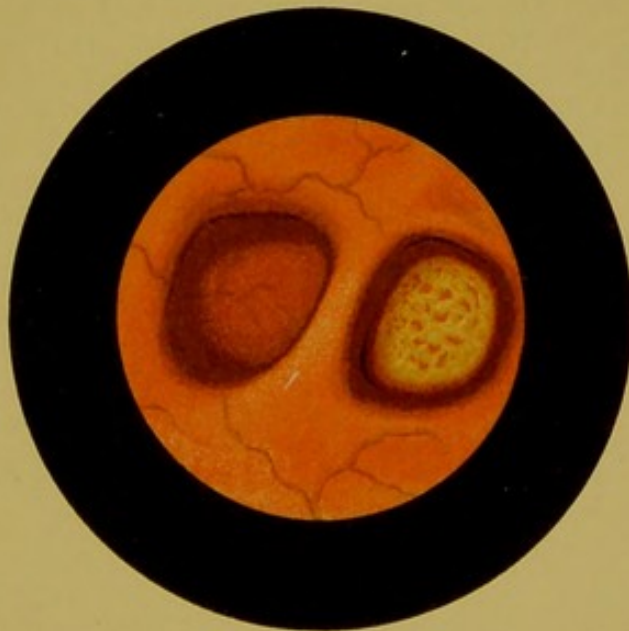




PLATE XIX.

FOREIGN BODIES IN THE BLADDER.

FIG. 46.—Two lumps of wax floating free in the bladder. Marked trabeculation of the mucous membrane. (Cystoscope I.)

Male, æt. 63. Urethritis from the passage of sounds for the dilatation of a very narrow and indurated gonorrhœal stricture. Introduction of astringent suppositories. Soon afterwards difficulty in passing water; interrupted stream, bladder not being completely emptied. Diagnosis made by means of the cystoscope. The foreign bodies were squeezed between the jaws of a lithotrite, and an injection of a hot solution of boracic acid was then made, which permitted of the softened fragments being removed by the evacuator. Cure.

FIG. 47.—Little lump of wax lying between the trabeculæ, and firmly adherent to the posterior wall of the bladder. (Cystoscope II.)

Male, æt. 63. *Vide* fig. 46.

E. B.

Fig. 46.



Fig 47.





PLATE XX.



FOREIGN BODIES IN THE BLADDER.

FIG. 48.—Elastic bougie in the bladder. Its shadow is cast on the background of the bladder ; at its lower end an oscillating blood-clot is depicted. (Cystoscope I.)

Male, æt. 60. A bougie, No. 22 (Charrière), 30 cm. long, slipped into the bladder in consequence of maladroit sounding. Position of bougie recognised by means of the cystoscope. Extraction *per vias naturales* with the Robert-Colin instrument. Cure.

FIG. 49.—Pin sticking in the anterior wall of the bladder near the vertex. (After Nicoladoni.*)

Male, æt. 18.—A medium-sized pin had slipped head foremost into the bladder. Diagnosis established by the cystoscope nine days later. Suprapubic cystotomy ; extraction. Cure.

* Nicoladoni, "Stecknadel in der männlichen Harnblase," 'Wiener med. Wochenschr.,' 1886, No. 7.

Fig. 48.



Fig. 49.





PLATE XXA.



FOREIGN BODIES IN THE BLADDER.

FIG. 48 A.—A broken-off piece of a Nélaton catheter in the bladder. The fragment was discovered embedded in dense masses of muco-pus in the region of the fundus. (Cystoscope I.)

Male, æt. 70. Very considerable enlargement of the prostate, necessitating catheterisation for the last five years. Intense cystitis. The day before admission a Nélaton catheter, No. 16, had been introduced and had broken off on the patient attempting to withdraw it. Removal *per vias naturales* was attempted, but the attempt was fruitless on account of the brittleness of the fragments. Median perinæal section was therefore performed, and the fragment was removed in two portions. The length of the two pieces together measured 15 cm. Recovery.

FIG. 49 A.—Two catgut sutures in the bladder wall, seen 140 days after suture of the bladder. (Cystoscope I.)

Female, æt. 52. Papilloma of the left side of the bladder wall, removed by supra-pubic cystotomy. Oval excision of the pedicle from the wall of the bladder. Linear coaptation of the defect by two catgut sutures. Healing by first intention. 140 days after the operation the patient was examined, and this condition was discovered. The sutures are swollen by soakage.

E. B.

Fig. 48^a



Fig. 49^a



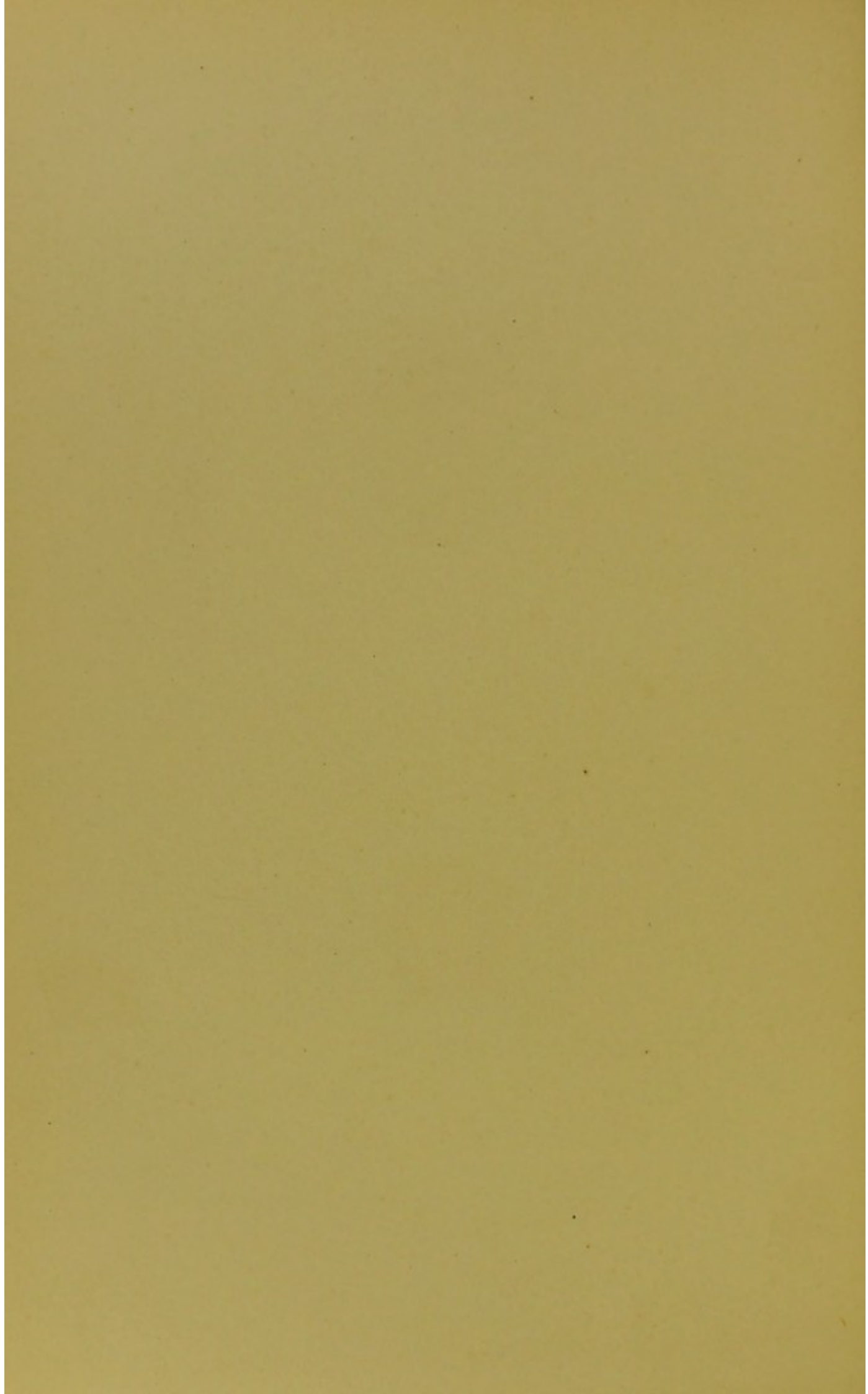


PLATE XX_B.



FOREIGN BODIES IN THE BLADDER.

FIG. 49 B.—Spikelet (in flower) of one of the grasses, seen on the right side of the bladder, casting a shadow upon the healthy mucous membrane.

The patient from whom I have taken this picture came under the care of my colleague, Mr. Reginald Harrison, to whom I am indebted for permission to allude to the case. During a drunken debauch a friend had taken the head and stalk of a grass, and had passed it down the penis stalk foremost. As nothing could be felt with the lithotrite the story was discredited, but on introducing the electric light the flowering spikelet could be clearly seen, and the lithotrite being directed towards the object, the stem was easily grasped and the grass withdrawn. There was no cystitis. (Cystoscope I, picture enlarged.)

FIG. 49 C.—A fine "ferret," or guide of a Teevan urethrotome, tied in a knot, casting a shadow on the healthy wall of the bladder.

The ferret had been used to traverse a moderately tight stricture; it was then screwed on to the urethrotome and the obstruction divided. The instrument hitched as it was being removed, and the screw slipped, leaving the guide in the bladder. It was easily removed by means of a lithotrite.

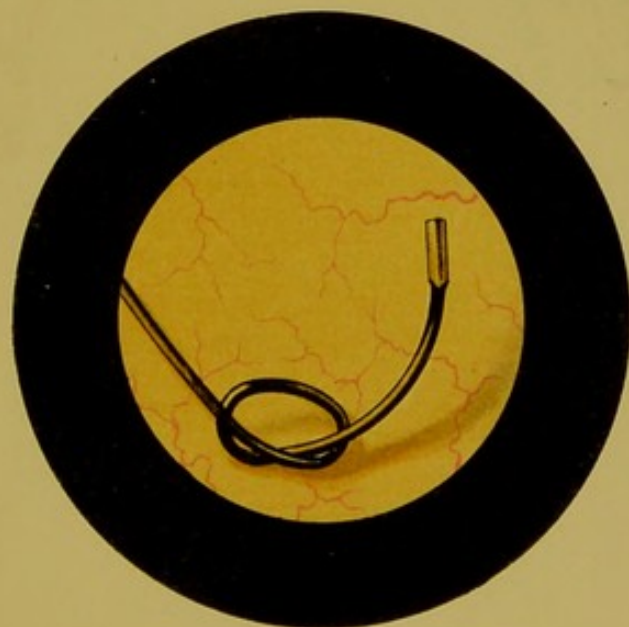
This accident has happened five times to the author, and in each case the screw was tested before the urethrotome was introduced. Knotting of the ferret is unusual, but the to-and-fro friction of the screw-junction through a tight stricture tends to loosen the attachment of the joint or to weaken the hold of the socket on the blunt end of the ferret. There never has been any difficulty in grasping it and removing it at once with the lithotrite. (Cystoscope I, picture enlarged.)

E. H. F.

Fig. 49^b



Fig. 49^c



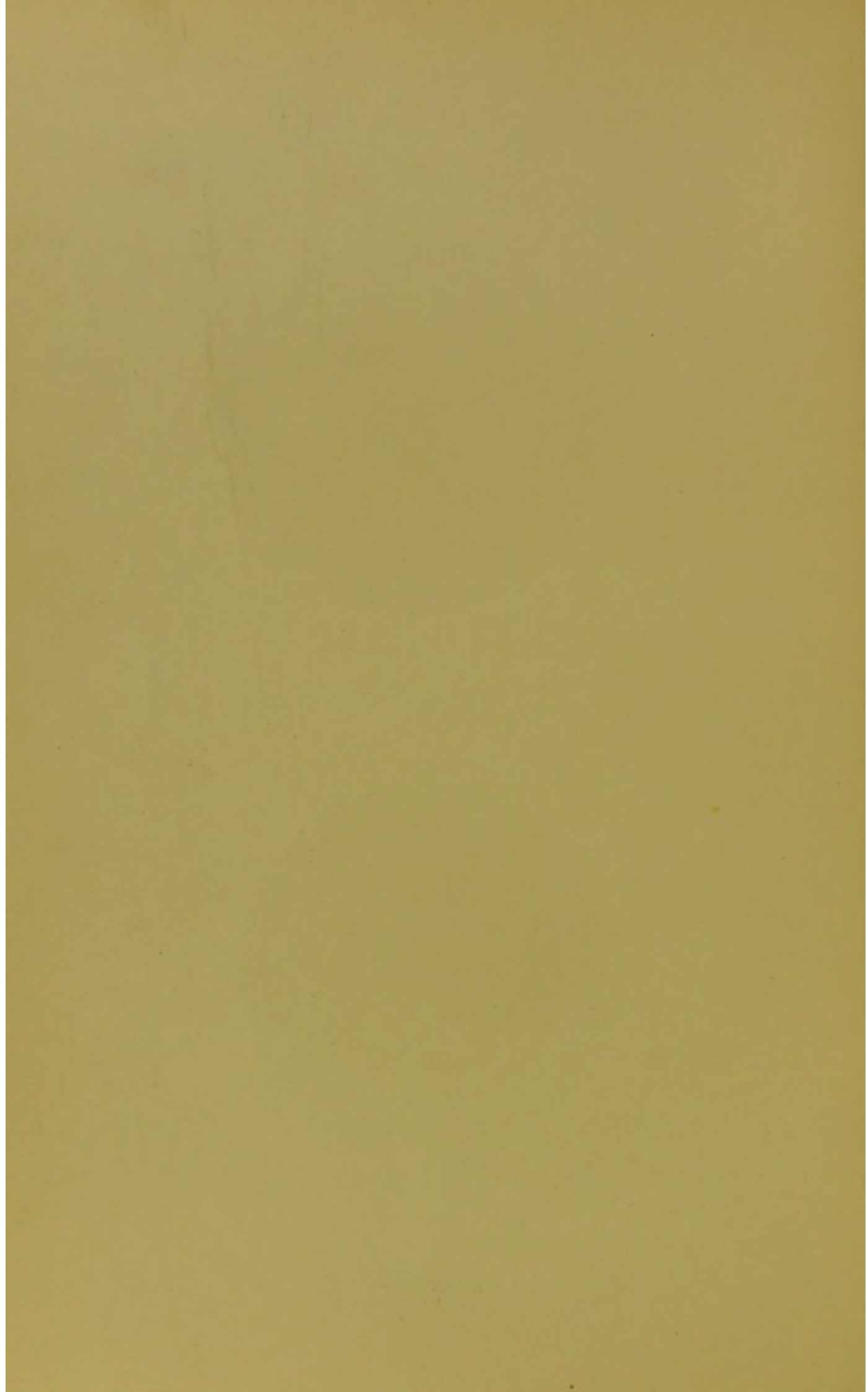


PLATE XXI.



INJURIES AND FISTULÆ OF THE BLADDER.

FIG. 50.—Slight hæmorrhage, due to a superficial injury of the mucous fold at the entrance to the bladder by a catheter. (Cystoscope I.)

FIG. 51.—Blood-clot, adhering by its base to the mucous membrane, but otherwise moving freely and simulating a pedunculate tumour. The bleeding was caused by an injury to the entrance of the bladder from a metal catheter. (Cystoscope II.)

E. B.

Fig. 50.



Fig. 51.





PLATE XXII.



INJURIES AND FISTULÆ OF THE BLADDER.

FIG. 52.—Superficial removal of the mucous membrane of the right side of the bladder, due to injury inflicted in the performance of litholapaxy. (Cystoscope I.)

Male, æt. 70. Symptoms of stone for four years; slight cystitis. Litholapaxy; the fragments of the uratic stone weighed (dried) 230 grains. Cure. The above condition was noticed a fortnight after operation.

FIG. 53.—Fold of the mucous membrane of the left side of the bladder which had been firmly squeezed during litholapaxy. The notches corresponding to the teeth of the jaws of the lithotrite are plainly visible. (Cystoscope I.)

Male, æt. 66. *Vide* Pl. XVI, figs. 39 and 40. The above condition was observed ten days after the operation.

FIG. 54. Pedunculated prominence of the mucous membrane of the fundus, caused by seizing the membrane with the lithotrite. On the anterior portion of the tumour a brown blood-clot is seated. (Cystoscope II.)

Male, æt. 66. *Vide* Pl. XVI, figs. 39 and 40. A fortnight after litholapaxy a fragment which had been left behind, and which was only detected by means of the cystoscope (fig. 45), was removed with the spoon lithotrite; great difficulty was experienced in seizing it. Four days later the above condition was observed.

E. B.

Fig. 52.



Fig. 53.

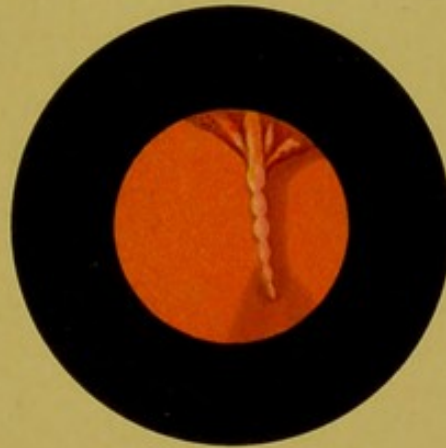


Fig. 54.



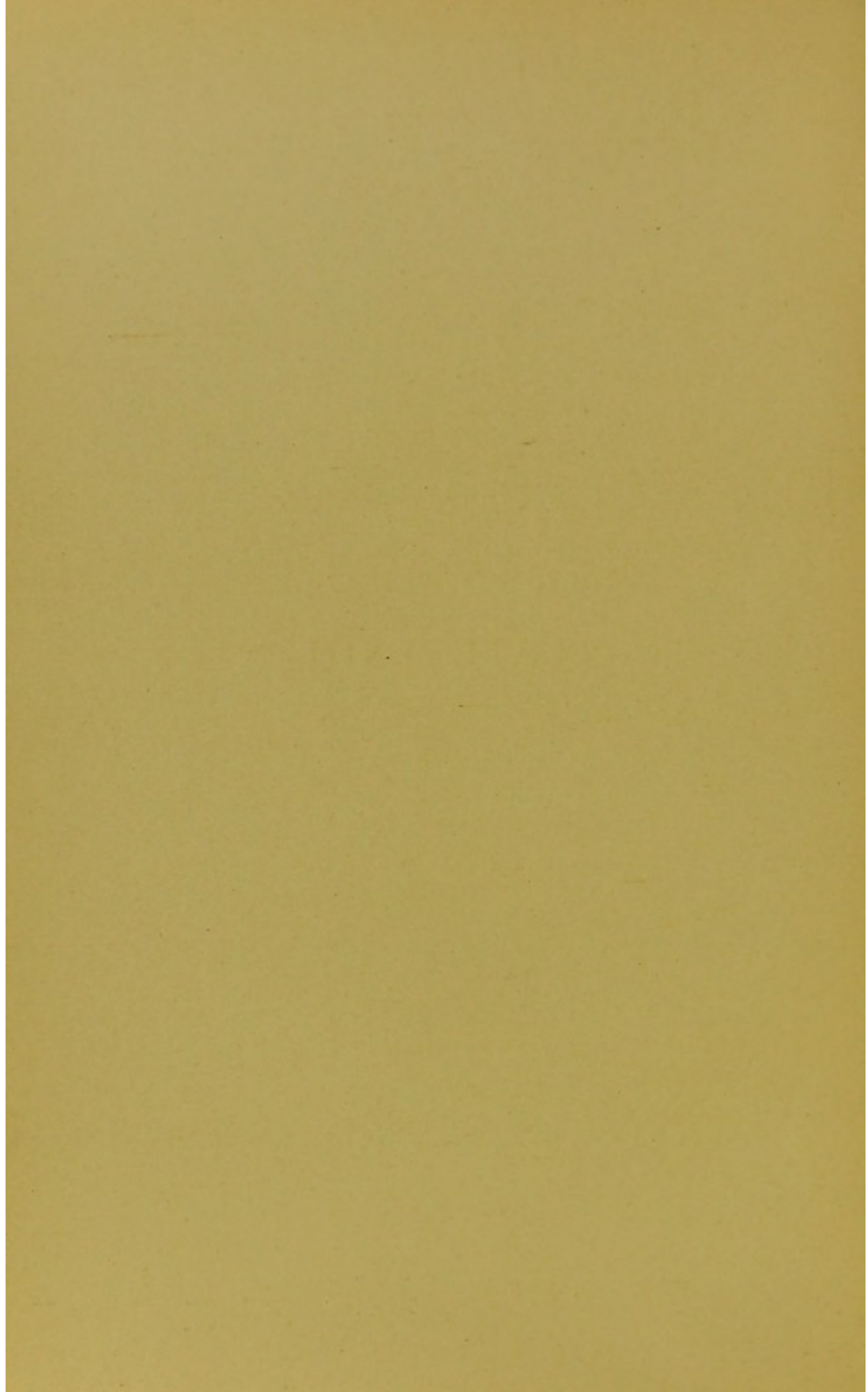


PLATE XXIII.



INJURIES AND FISTULÆ OF THE BLADDER.

FIG. 55.—Supra-pubic fistula after cystotomy for prostatectomy. Suspended from the fistula, through which a probe has been passed from outside, is a shred of necrotic tissue floating free in the bladder. (Cystoscope I.)

Male, æt. 60. Considerable enlargement of the prostate, the central lobe impeding the emission of urine. Supra-pubic cystotomy (Trendelenburg's method) was performed, and the median lobe excised (surgical clinique of Prof. Socin). Healing, with formation of a urinary fistula in the anterior abdominal wall. The above condition was seen cystoscopically three months after the operation. Definite occlusion of the fistula only achieved after repeated freshening of the wound and cauterisation in the course of a year.

FIG. 56.—Cicatrix of the anterior wall of the bladder after cystotomy. In the pale yellow surroundings of the flat white scar a few delicate vessels are seen converging like radii towards it. (Cystoscope I.)

Female, æt. 42.—Supra-pubic cystotomy for tubercular ulceration (*vide* Pl. XII, fig. 29). Healing of operation wound without reaction. The above condition was observed three months after the operation.

Fig. 55.



Fig. 56.





PLATE XXIV.



DISEASES OF THE KIDNEYS AND URETERS.

FIG. 57.—Tubercular pyelitis. The urine from the left ureter appears turbid, and has an admixture of opaque, yellowish-white particles. (Cystoscope I.)

Male, æt. 33. Pyelo-cystitis for about two years ; local and internal treatment unsuccessful. A year ago commencement of tubercle of the testes ; eight months ago bilateral castration was performed by a colleague. Pain in the back, referred chiefly to the left side, complained of for one year. In the urine numerous bacilli tuberculosis were discovered. The mucous membrane of the bladder presents two superficial ulcerations. Not cured. Treatment with tuberculin was instituted in the further course of the disease, but without producing any changes in the ulcers in the bladder as far as could be observed by the cystoscope.

(Compare Pl. IIIA, fig. 8 B.)



Fig. 57.



