

Cystophotographic atlas / by Max Nitze ; translated by E. Michels.

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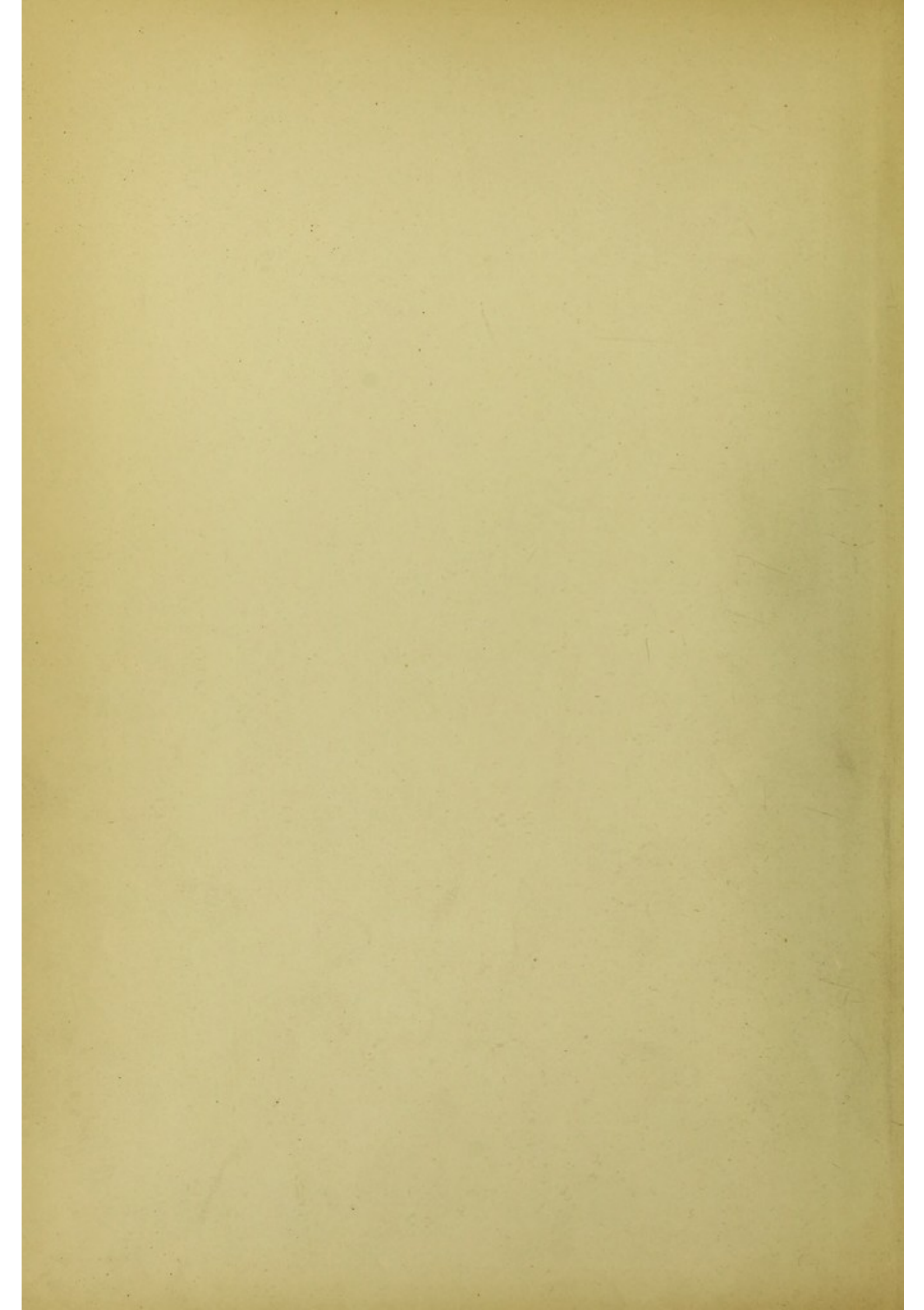
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CYSTOPHOTOGRAPHIC ATLAS.

BY

DR. MAX NITZE,

LECTURER AT THE UNIVERSITY OF BERLIN.

TRANSLATED BY

E. MICHELS,

M.D. F.R.C.S. ENGL.

TEN PLATES CONTAINING SIXTY FIGURES (PHOTOGRAVURES).

WIESBADEN.

J. F. BERGMANN.

1894.

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Preface.

After long and manifold efforts the photographic reproduction of the interior of the bladder has been successfully accomplished. The interest taken in the solution of this question has extended beyond strictly professional circles and the clearness and sharp definition of the photographs have met with general approval.

This hearty recognition of the work would not alone have induced me to publish a cystophotographic Atlas, but I was chiefly led to do so by the fact, that it is so extremely difficult to reproduce cystoscopic pictures by drawings, especially by coloured drawings, and that most of the reproductions hitherto published not only fail to facilitate the interpretation of cystoscopic examination but even lead to mistaken ideas; our cystophotographs therefore seem to supply a real want. Although lacking colour they are mostly very characteristic and they reproduce the actual appearances met with in very realistic manner; they also show very well the brightness and distinctness which is peculiar to cystoscopic pictures.

The amount of time and labour that has been expended in the production of this Atlas can hardly be conceived and it would have been impossible for me to carry out my ideas successfully if I had not been assisted in the most assiduous manner by several gentlemen to whom I wish to record my most sincere thanks. My thanks are due to Mr. *Krause* who from the very commencement of my experiments gave me the benefit of his large experience in technical photography, to Dr. *Alexander* of Breslau who assisted me in a most efficient manner, and above all to Dr. *Schendel* who spared neither time nor trouble over our experiments, but shared in almost all of them. I have also to record my thanks to Drs. *Wohlauer* and *Bentler* for their kind assistance. Further I am much obliged to Dr. *Wollheim*, late assistant at the photochemical institute at Charlottenburg

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who worked most indefatigably in taking photographic enlargements and giving them the artistic finish, which has largely contributed to the success of my work. My friends Drs. *Posner* and *Goldschmidt* I have to thank for a number of interesting cases.

The following plates are selected from a great number of photographs, care being taken to choose the most typical ones. That there should be no doubt as to the truth of the representations the pictures have not been in any way touched up and even defects in the plates have not been corrected. The illustrations have been produced by the well-known firm of Riffarth & Co. in Berlin by the Photogravure-process from negatives on glass and paper prints supplied by me. The figures will appear to their greatest advantage if looked at through a tube of 45 cm length and 4,5 cm width, such as can easily be improvised from a piece of card board or black paper.

After publication of this Atlas we shall of course continue to take photographs of rare or characteristic cystoscopic appearances. The arrangement of the Atlas will therefore be found convenient for the insertion of all plates which may be published in future. The plates are not numbered consecutively throughout the whole Atlas, but are arranged in five divisions (A to E) comprising: Healthy Bladder, Hypertrophy of Prostata, Calculi, Tumours, Various pathological conditions. Each division is lettered and the plates are numbered within their division; so it is easy enough to insert all future plates in their correct place in the Atlas, while at the same time the work is complete as published.

Finally I wish to express my grateful acknowledgment to the publishers for the care bestowed on the execution of the book.

Berlin, January 1894.

Dr. Max Nitze.



Introduction.

Even in the first publication in 1879 on my method of cystoscopic examination I suggested the practicability of photographic reproduction of cystoscopic pictures. The great clearness and brightness of these pictures encouraged the attempt, but the execution of this task proved by no means so easy as it at first appeared. The image which we see when looking through the cystoscope is a virtual one and therefore not capable of photographic reproduction, for which only a real image is suitable. A real image is however seen after removal of the ocular piece of the Cystoscope about 1.5 cm distant from the external end of the optical apparatus; but although this real image, the dimensions of which are about 2 mm diameter, contains all the details of the object under observation, they are so small that they are not recognisable to the naked eye.

It occurred to me therefore to magnify this real image by a suitable combination of lenses until it had obtained the apparent dimensions of the virtual image seen through the cystoscope and to photograph the real magnified image; but experiments proved that the real image if sufficiently magnified is too deficient in light rays to allow of photographic reproduction, even when the illumination is as strong as possible.

There is therefore only one way in which our object can be obtained, namely to take at first a photograph of the small real image within the tube and then to enlarge the small photograph to the dimensions of the virtual image seen through the cystoscope.

Accordingly I suggested a method of Cystophotography which I fully described in 1889 in my text-book of Cystoscopy. Small sensitive plates were affixed to the straight-cut ends of round rods and were inserted into

the tube of the Cystoscope just at a point where the real image fell on the plates. The small photograph obtained in this manner was subsequently enlarged.

Further experiments however proved the extreme difficulty of obtaining good photographs in this way; the handling of the small sensitive plates is only too apt to damage these delicate objects; moreover it is extremely difficult to develop these small plates; finally this method does not permit the use of sensitive glass plates, which would be much preferable, but confines the operator to the employment of paper or so-called „films“. To produce really good views of the interior of the bladder it was necessary to project a series of impressions of the small real image on a large sensitive glass-plate; the development of the photographs was thus facilitated and the whole process simplified. Damage to the plate could also be easily avoided.

This result I have obtained by a new instrument, the „Photographic Cystoscope“, the construction of which is shown in the following figures. A camera of the shape of a flat round box is fixed to the external end of a Cystoscope of somewhat larger diameter and supplied with a stronger lamp and better lenses than usual, but otherwise of ordinary construction. Fig. 1 represents the exterior; Fig. 2 and 3 exhibit the internal construction of the instrument. It will be observed that the cystoscope is fixed at the edge and not in the centre of the camera. To the floor of the camera, which is provided with an opening corresponding to the eye-piece of the optical apparatus, a rotating disc is attached which is perforated by a number of circular openings of exactly the same size as the eye-piece so that on rotating the disc the openings pass in succession over the eye-piece. A glass-plate is put on the rotating disc with the sensitive layer downwards, which by the peculiar construction of the optical apparatus receives the real image. If now the camera is closed and rotated on its axis the disc and the sensitive plate follow the rotation; the arrest of a spring marks the moment when an opening passes over the optical apparatus and a new image is received on the sensitive plate. The number of negatives obtained is consequently the same as that of the openings in the disc (10 in the present instrument).

An ocular-piece made up of two prisms and a lens in combination is fixed laterally to the tube of the Cystoscope, its object being to allow the exact focussing of the part of the bladder to be photographed; when looking through it the observer sees the interior of the bladder just as well as through an ordinary cystoscope and is enabled to focus the object correctly; during that time no rays from the object fall on the sensitive plate. A simple movement now exposes the plate and the small real image is impressed on the exposed plate. The camera is now rotated

Fig. 1.

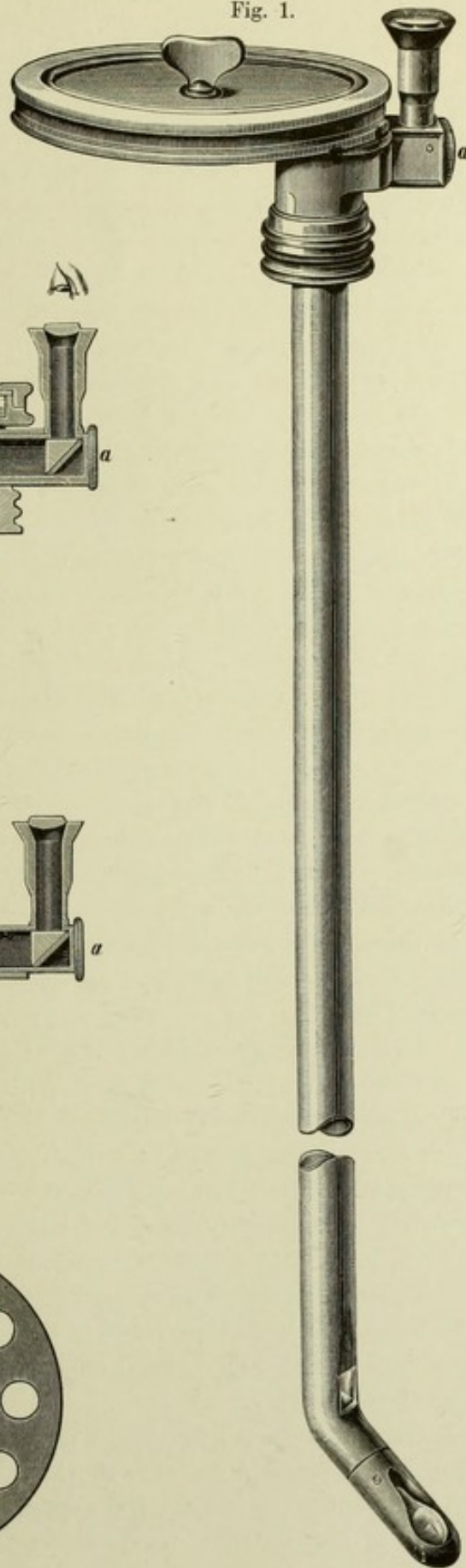


Fig. 2.

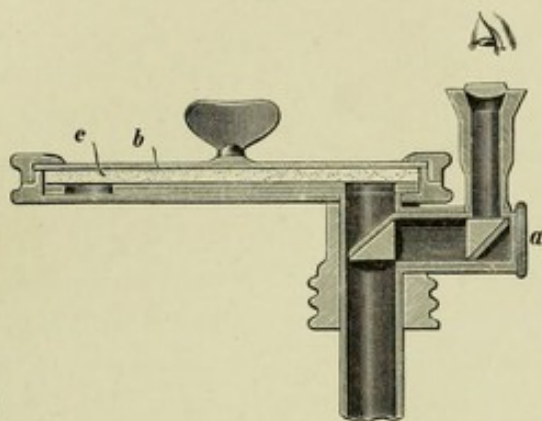


Fig. 3.

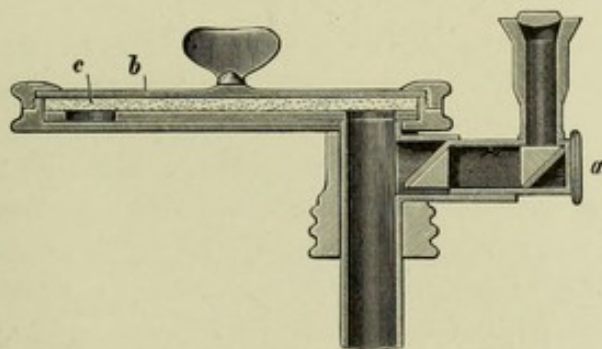
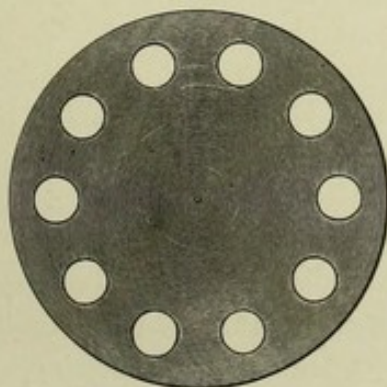


Fig. 4.



until the next opening is opposite the tube, and it is then again ascertained whether the object is in proper focus. Thus it is possible to obtain a series of exposures either of one or more objects on the same plate. The dimensions of the real image in the cystoscope are 3 mm; those of the unenlarged photographs are of course the same.

The manipulation of the instrument is a comparatively simple matter; the sensitive plate is brought into position, the lid screwed on, the ocular piece adjusted and the instrument is passed into the bladder like an ordinary cystoscope. Any part of the wall of the bladder may be easily brought in focus. When the selected spot is found the instrument is fixed, the current interrupted, the ocular piece drawn back and the lamp allowed to burn as bright as possible for a short time. The current is then again cut off and the cover of the camera rotated to the right until the arrest of the spring marks the exposure of another part of the plate; if several exposures of the focussed part are required, the lamp is again made as strongly incandescent as possible for a short time; otherwise if it is required to photograph another part, after cutting off the current and readjustment of the ocular the next selected part is brought into focus and photographed as before. In this way ten negatives may be obtained either of one or of different parts of the bladder; the time of exposure may also be varied at pleasure. As it is well known that even in ordinary photographic work a certain percentage of the negatives obtained are indifferent or useless, it is not surprising that under the increased difficulties attending cystoscopic photography only a part of the negatives give satisfaction. It is therefore the more important to be enabled to take a number of negatives of the same object in a short time as the probabilities are thus increased of being able to select some free from defects.

The photographic plates required for the cystoscope are as sensitive as possible and at the same time possessing a finely granulated surface. Unfortunately the one requirement is to some extent antagonistic to the other; the highest degree of sensitiveness and the finest granulation are seldom found in the same plates; the most sensitive plates are generally somewhat coarsely granulated and the finely granulated ones are not very sensitive.

The importance of great sensitiveness is evident; the shorter the time of exposure the less troublesome is the whole process to the patient. The plates now in use only require an exposure of 3 to 10 seconds, which is certainly satisfactory.

The question of granulation is a more complicated one. By examination of a glass-negative with the low power of the microscope it is seen that the picture is formed by a great number of more or less uniform granules of metallic silver which if not too closely packed appear as small

black points on a transparent ground. In different plates the size of these granules vary within wide limits. Granulation is of no importance for most purposes of ordinary photographs in which the pictures are scrutinized with the naked eye, as even in coarsely granulated plates the granulation is not visible. It is different however in our case. To render all the details of our photograph discernible to the naked eye they have to be magnified considerably and it is of course unavoidable to magnify the granules as well, which if not very fine will present a very clumsy appearance and may spoil the distinctness of the plate, especially of fine details such as vessels, tubercles, etc.

The gelatine-bromide plates now used give satisfactory results; the negatives may be magnified ten times without the granulation appearing too coarse. From our original negatives of 3 mm diameter we obtain pictures of 3 cm diameter which show quite distinctly all details of interest and even very small objects such as vessels and tubercles. This size is sufficient and is about the same as that of the virtual image observed through the ordinary cystoscope.

There is scarcely anything to be added with regard to the development of the exposed plates and to the enlargement of the primary pictures; the usual rules of photographic work apply here. The small original pictures are of course negatives; the enlargements are glass-diapositives. To reproduce these pictures on paper it is necessary to take a fresh negative from the glass-diapositive and with this the ordinary printing out process on paper is followed. It is advantageous to look through the stereoscope simultaneously at two pictures affixed to a plate or card in the ordinary manner; although both pictures are exactly similar a striking impression of solidity is produced.

Having overcome the purely physical difficulties of the question and having obtained satisfactory results on the dummy it was still doubtful, whether it would be possible to obtain good photographs from the living subject. There are certainly many difficulties and the conditions are most unfavourable. The liquid in the bladder is very apt to become turbid even after careful and repeated irrigation and this may prove a serious obstacle. The difficulty of keeping the instrument absolutely steady during the time of exposure appeared still more serious, since the slightest movement would be sure to blur the picture. It was therefore deemed necessary to fix the cystoscope by a special support which was attached to the table and was so constructed as to allow absolute freedom of movement of the instrument and its fixture in any position which might be desirable. Further experience however has shown, that in many cases it is unneces-

sary to take this precaution and that it may even be deleterious; if the hand of the operator is well supported he is generally able to keep the instrument sufficiently steady during the short time of exposure, which is less tiring to the patient, saves time and facilitates the focussing of other parts of the interior of the bladder. A support is only necessary if a patient is very nervous and anxious.

But even provided that absolute steadiness of the instrument was secured, success was by no means certain. The walls and the contents of the bladder even of the quietest patient exhibit certain movements which are beyond our control. Respiration, the contraction of adjacent intestines and the pulse cause movements which are by no means insignificant and which are either irregular or rhythmical according to their cause. Anyone who has attentively followed the movements of an air-bubble in the bladder will confirm this; tumours or other objects often present a pulsating movement.

Contrary to what we expected, however, these various movements have very little interfered with our photographic work; occasionally a picture is blurred, from which we may infer that some movements have taken place during the time of exposure; the rhythmical pulsating movements especially seem to cause no inconvenience, just as the blinking of the eyes does not prevent a good portrait.

In this respect fewer difficulties were experienced than were anticipated and it is now possible to reproduce photographically the interior of the bladder without much trouble to the patient and with almost the same certainty and accuracy as is obtained in ordinary photographic work. The illustrations in our Atlas will confirm this. Our photographs indeed satisfy all reasonable requirements; they represent most distinctly the delicate vessels, tiny miliar tubercles, stones, tumours ect., and also the details of the healthy bladder, the mouth of the ureter, the air-bubble entered with the catheter; calculi within the bladder appear as solid as if photographed when lying on a table. Good exposures at the same time reproduce the peculiar sheen and brightness which is characteristic of cystoscopic pictures. It may be fairly said that with the means now at disposal more cannot be attained; further progress in cystophotography can only be anticipated when the problem of photographic reproduction of colours has been solved and the results applied to this special case.

If it be asked whether Cystophotography does more than solve a very interesting problem and may claim practical importance, it must be answered that at least for educational purposes it is extremely important to be able to submit to students photographic reproductions of cystoscopic

pictures, as it is otherwise very difficult to represent them accurately by drawings and especially by coloured drawings; many rare pathological conditions are also very occasionally seen by those who do not command a very extensive material. Good photographs will under all circumstances prevent mistakes or incorrect interpretations.

In other cases a photograph affords important documentary evidence and depicts the characters of a pathological condition better than the most verbose descriptions; further if photographs are taken at regular intervals a graphic record of the different stages of development of the pathological process is obtained. I need mention only one instance. In hypertrophy of the prostata, so common in later life, at a time when the gland itself seems still quite free from any morbid alterations, a fold may be noticed surrounding the internal orifice of the urethra; from this stage to the typical and most striking pathological changes I have been able to trace the gradual progress by repeated cystoscopic examination; in future photographic representations of the various stages may be obtained and a graphic record of the development of the disease be secured.

Finally cystphotography will furnish documentary evidence of the greatest value either in cases of very rare and entirely unexpected morbid conditions or after some operations, when it is desirable to place the result beyond any doubt; moreover it will furnish information during life such as formerly was obtainable at the post-mortem examination only. Some of the figures published in this Atlas illustrate this most strikingly and may be briefly alluded to here.

At the last International Congress I showed to some colleagues a patient suffering from tumour of the bladder; by the cystoscope I demonstrated the tumour situated on the left side of the bladder and covered all over by a luxurious growth of villi. Cystphotography on Nov. 10th 1892 revealed quite a different state of things; no trace of the villi was found but only a prominence at the former seat of the tumour, covered with mucous membrane and resembling the stump of a tree (Fig. 6 Tab. I Div. D); its height can be inferred from the considerable length of the shadow thrown on the neighbouring bladder wall. The projecting surface was covered by mucous membrane showing some white scars, but in all other respects normal. Here our photograph is indisputable evidence of one of the rare cases of spontaneous cure; evidence which formerly could only have been obtained in the post-mortem room.

When the operation of lithothripsy was being discussed amongst German surgeons it was chiefly objected against the operation that fragments might remain in the bladder forming the nucleus for a new stone which after lithotomy would not be likely to happen. Now in Fig. 6 (Plate I Div. C.) we see a stone on the floor of the bladder left behind

in suprapubic section; our photograph shows this concretion to be of a fragmentary shell-like structure, which is irrefutable evidence that it had formed part of the stone removed by the operation. The operation had been performed by a most skilful and careful surgeon and our photograph goes to show that the advantage claimed for lithotomy is by no means so certain, as fragments may remain in the bladder after this operation as well as after lithotripsy. To make sure of complete removal the bladder should be searched with the cystoscope after either operation.

Another photograph shows a silk thread which has passed into the bladder some time after a gynæcological operation; the twisted end of the thread is distinctly visible. As in the operation the threads were tied in the vagina and the free ends of course originally projected into it, the cystophotograph therefore reveals the somewhat startling fact, that the thread when passing into the bladder has undergone some torsion, in consequence of which the cut ends are now seen in the interior of the bladder, while the knot itself is still fixed in the wall of the bladder. This torsion, although difficult to explain, is nothing very unusual. Threads have been seen repeatedly, which in suprapubic section had been tied on the external surface of the bladder and which have undergone torsion so that after a time the free end appeared in the interior of the bladder.

Division A.

Healthy Bladder.

Plate I.

Division A.

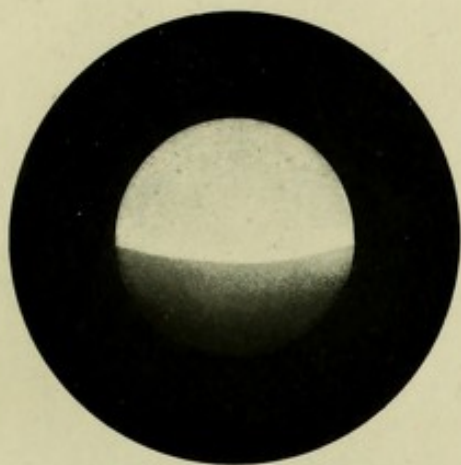
Healthy Bladder.

Plate I.

Fig. 1 and 2 represent the normal view obtained on entering the bladder; when the photograph was taken the posterior part of the prism was still in the urethra. In the lower half of the figure the fold of the orificium urethrae internum, only feebly illuminated, is distinctly marked off from the upper brighter part representing the anterior wall of the bladder. Fig. 1 is taken from a young person; the fold exhibits a delicate homogenous structure. Fig. 2 is from a man of middle age; the fold although normal, shows a somewhat coarser structure.

Fig. 3 and 4 represent the arrangement of the vessels; 3 of the lateral walls, 4 of the floor of the bladder.

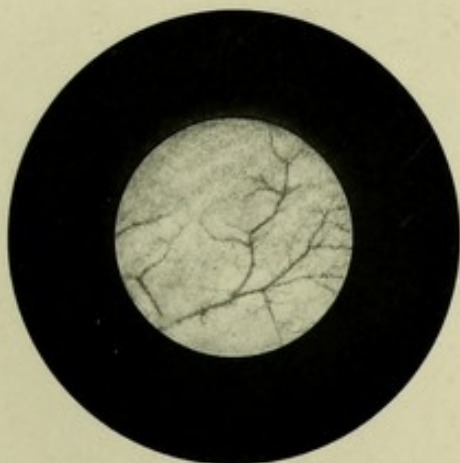
Fig. 5 and 6 are taken from the fundus and show an air-bubble, which has been introduced with the catheter.



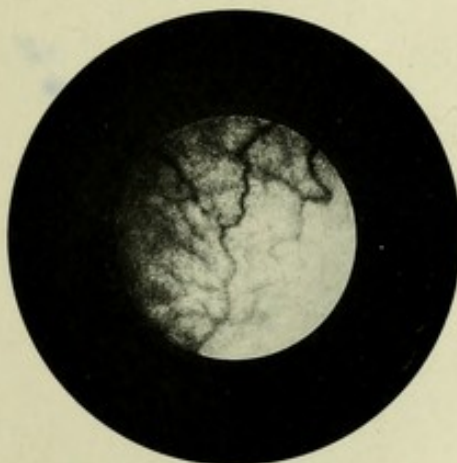
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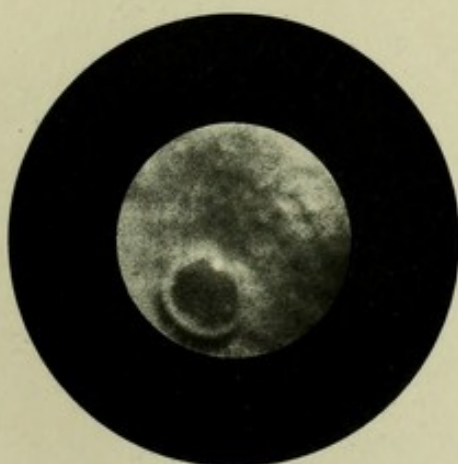
2



3



4



5



6



Division A.

Healthy Bladder.

Plate II.

Division A.

Healthy Bladder.

Plate II.

Fig. 1 shows the mouth of the ureter situated close behind the internal orifice of the urethra with a feebly developed ridge. In the right half of the figure the fold of the internal orifice is seen; its margin is very distinct in the upper part; the lower portion passes gradually into the floor of the bladder. (The beak of the instrument was directed towards the side during exposure, the prism being partly still in the urethra).

Fig. 2. Mouth of the Ureter on well developed ridge.

Fig. 3. Ridge totally absent; the mouth of the ureter is represented by a simple cleft.

Fig. 4. Mouth of the ureter immediately before the discharge of urine; the orifice and its surroundings form a „button like“ prominence.

Fig. 5. Mouth of ureter in an elderly man; the marked development of the arteries and veins is quite characteristic.

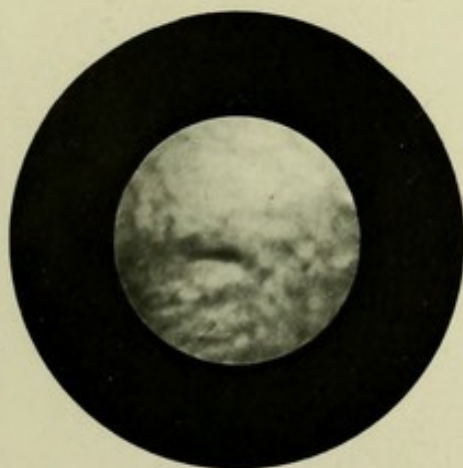
Fig. 6. Well developed ridge of the ureter; the mouth only indicated by a shallow groove; the upper undulated part of the figure represents part of the fundus.



1.



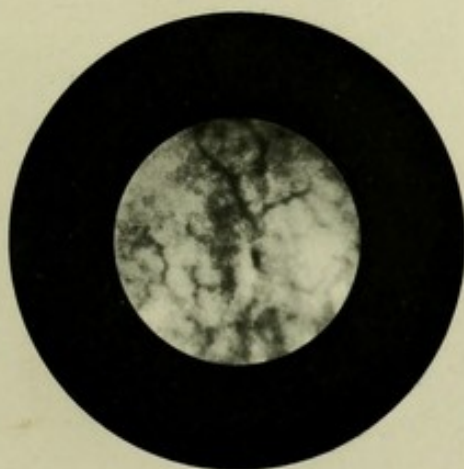
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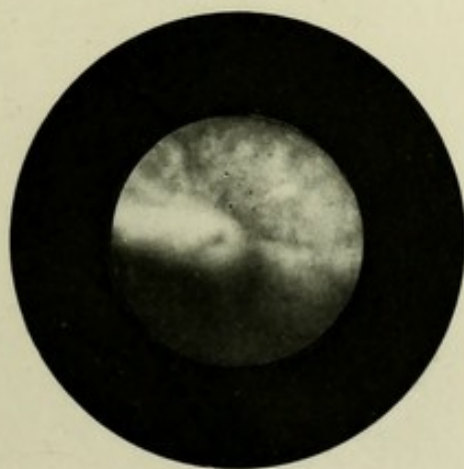
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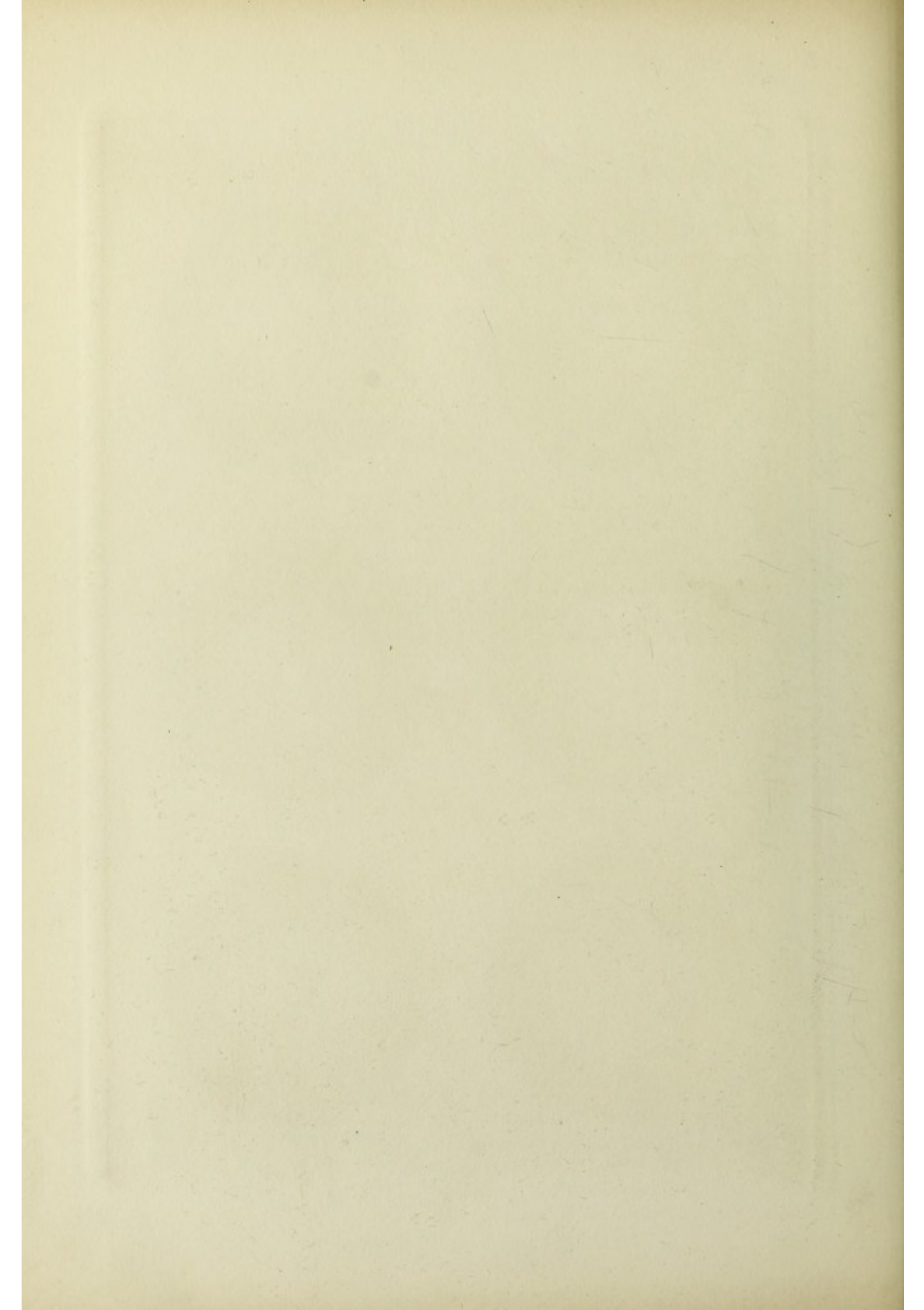
4.



5.



6.



Division B.

Hypertrophy of Prostata.

Plate I.

Division B.

Hypertrophy of Prostata.

Plate I.

All these figures are taken from patients suffering from hypertrophy of the prostatic gland; they represent the alteration which the fold of the internal orifice undergoes in these cases and may be compared advantageously with Fig. 1 and 2 (Div. A) which represent the same parts in a normal bladder. While in those figures the fold is seen as a delicate line either straight or crescent-like in contour, in hypertrophy of the prostata it presents irregularities and prominences often of very considerable size which give it a very peculiar appearance.

In Fig. 1 the alterations are still insignificant; the fold is smooth and crescent-shaped; only a few dark spots in the feebly illuminated fold indicate a circumscribed thickening of its structure. These changes, though apparently so slight, have yet caused some obstacle to the emptying of the bladder; for the walls of the bladder in the upper part of the figure show distinct signs of trabecular hypertrophy.

Fig. 2 from a patient of 65 with hypertrophy of the prostata shows two large prominences in the fold of the internal orifice.

Fig. 3 represents a state of things which is very frequently found and is almost typical; both lateral lobes are hypertrophic and form large symmetrical prominences encroaching upon the interior of the bladder; the internal orifice is situated between them. At the point of the angle a small piece of mucus is seen adherent.

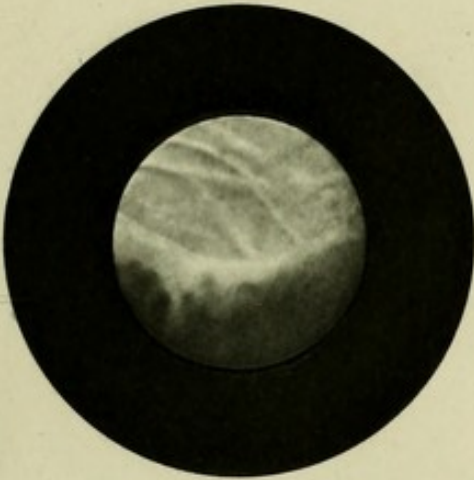
Fig. 4. A small median part of the fold, almost healthy, connects two large prominences, of which however only a part is included in the photograph.

Fig. 5. Part of the lateral wall of the bladder; the muscular bundles are hypertrophic and between them diverticula are beginning to form. To the left we see a prominent ridge meeting the fold, which has undergone only slight thickening, at a sharp angle.

Fig. 6. Circumscribed prominence composed of several nodes; to the left Vessie à colonnes.

B.

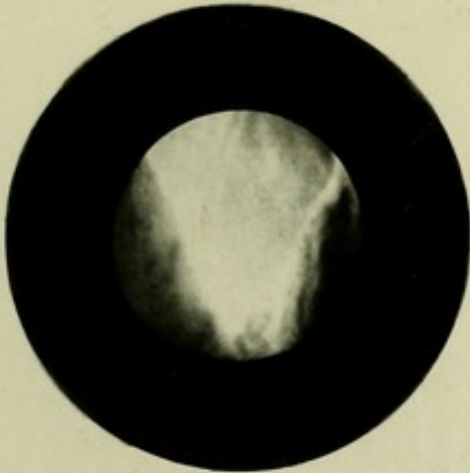
Tab. 1.



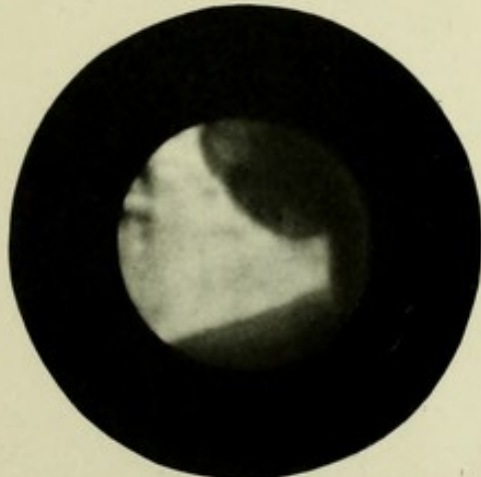
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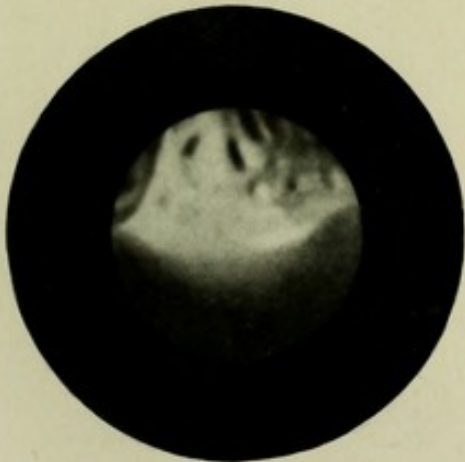
2.



3.



4.



5.



6.



Division B.

Hypertrophy of Prostata.

Plate II.

Division B.

Hypertrophy of Prostata.

Plate II.

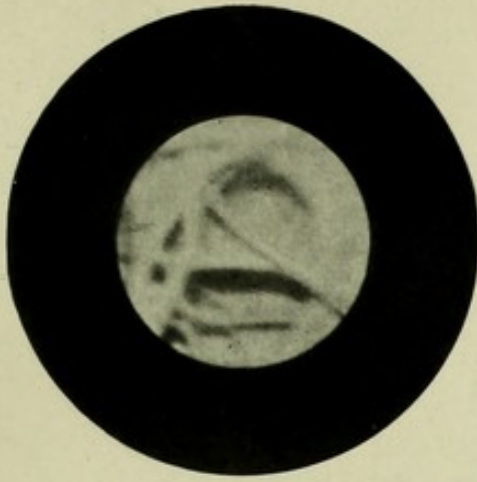
Fig. 1, 2, 3, 4. Vessie à colonnes. The prominent ridges formed by the hypertrophic muscular bundles are well seen, also the pouches between them (formation of Diverticula).

Fig. 5 represents the lower lateral part of the fold and the mouth of the left ureter close behind it. (The beak of the instrument was directed downwards and to the left, when the photograph was taken, the lower part of the prism being still in the urethra.)

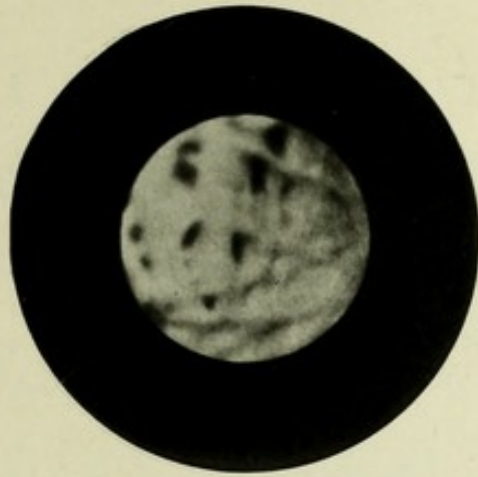
Fig. 6 again shows the mouth of the left ureter and its ridge as seen from a different point, the position of the cystoscope having been altered; the instrument has advanced further into the bladder; the prism is close to the mouth of the ureter, the outline of the ridge consequently appears very prominent and the distinctness of outline is enhanced by the deep shadow caused by the advanced position of the lamp.

B.

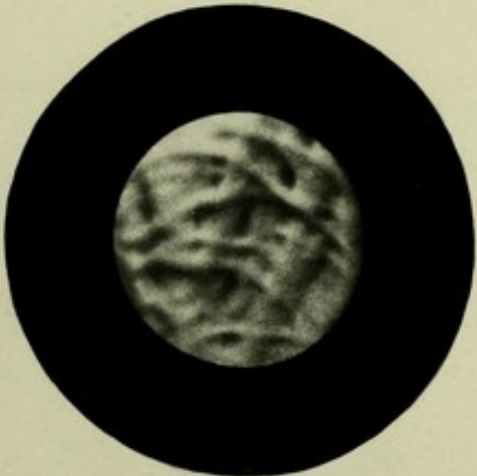
Tab. II.



1.



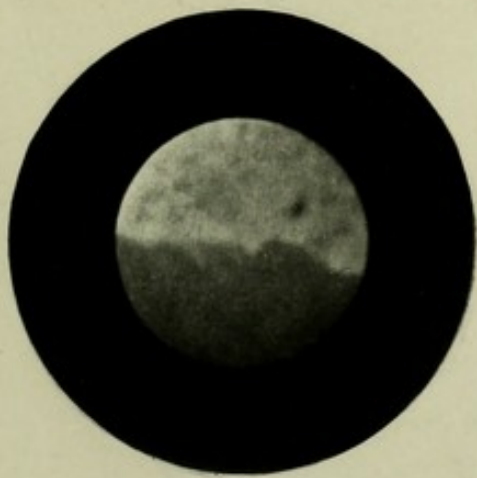
2.



3.



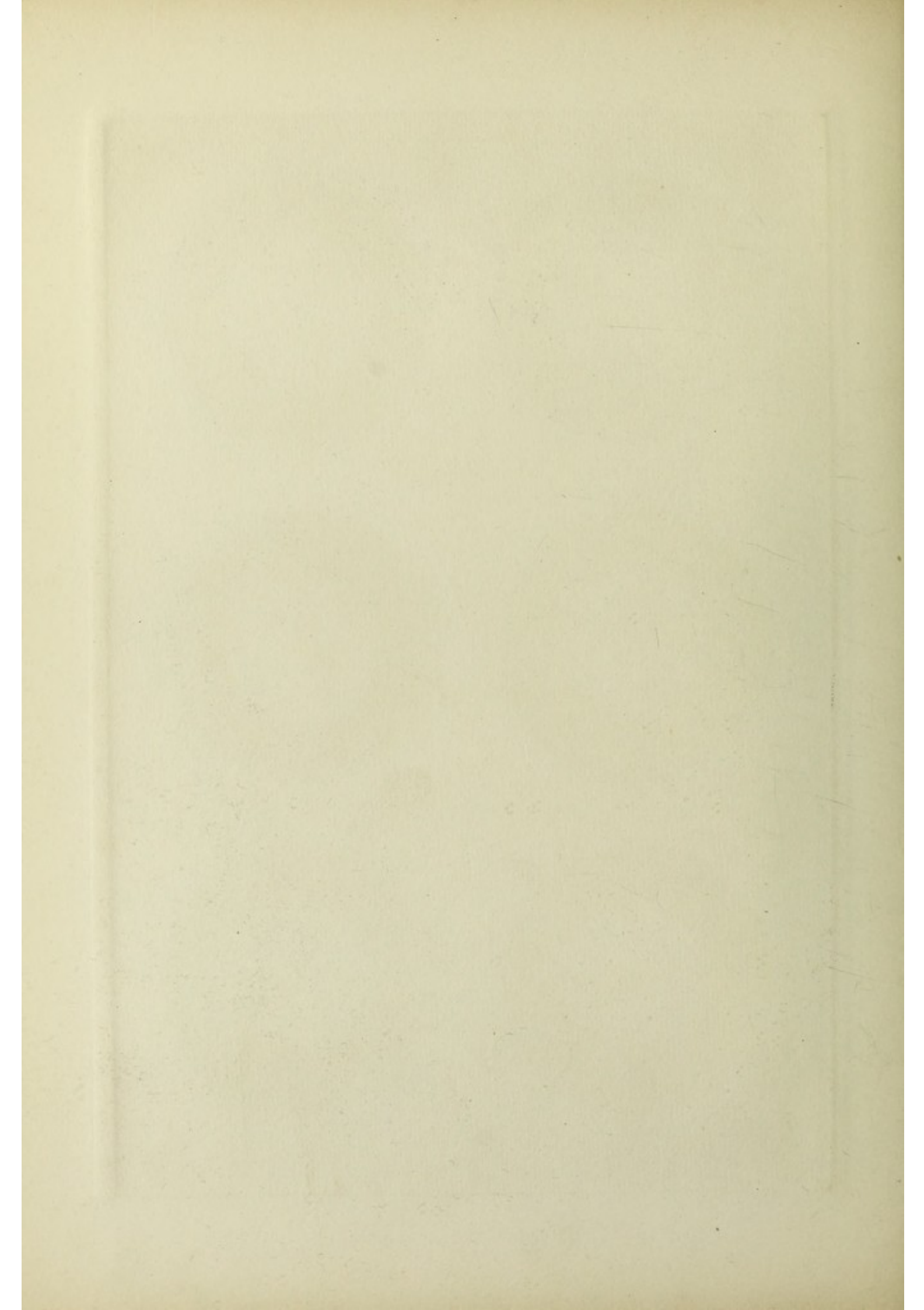
4.



5.



6.



Division C.

S t o n e s.

Plate I.

Division C.
S t o n e s.

Plate I.

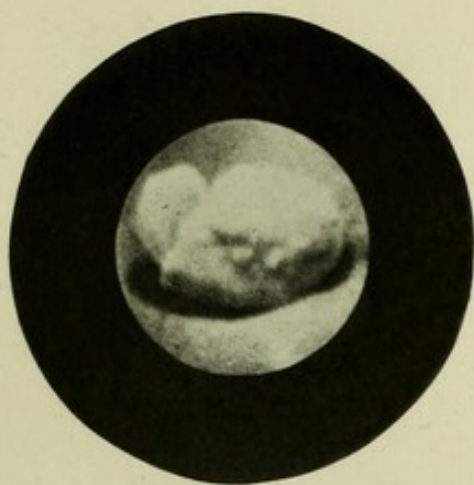
All the figures represent phosphatic calculi. Fig. 3 and 4 show a stone from the bladder of a patient of 40. In Fig. 3 the prism is some distance from the stone; consequently we see a considerable part of the surrounding floor of the bladder at the same time. In Fig. 4 the prism is close to the concretion, only a part of its surface is therefore seen; being magnified the surface appears strikingly uneven and nodulated.

Fig. 5. Phosphatic concretion from a patient suffering from prostatic disease; to the right a part of the hypertrophic fold of the internal orifice is seen.

Fig. 6. Shell-like fragment left behind after suprapubic section; the fragment lies in a deep depression on the floor of the bladder, with a trabecular prominence of the bladder-wall in the background. The fragment was easily removed by lithotripsy.

C.

Tab. 1.



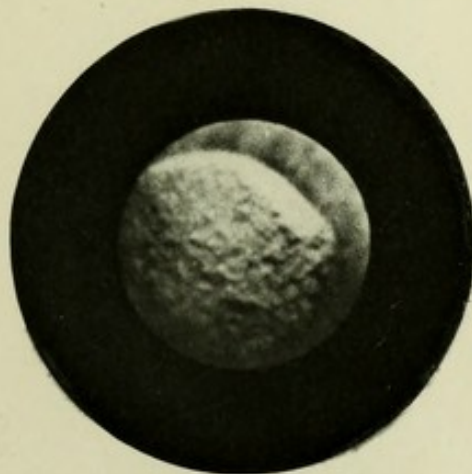
1.



2.



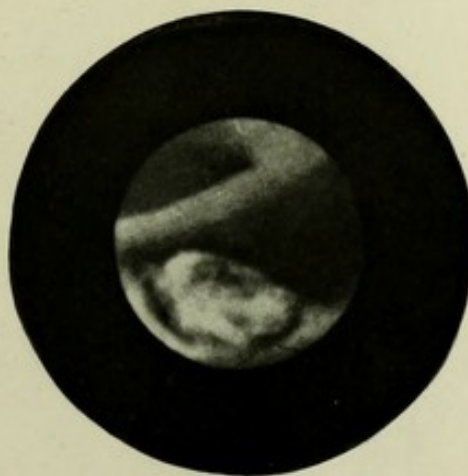
3.



4.



5.



6.



Division C.

S t o n e s.

Plate II.

Division C.

S t o n e s.

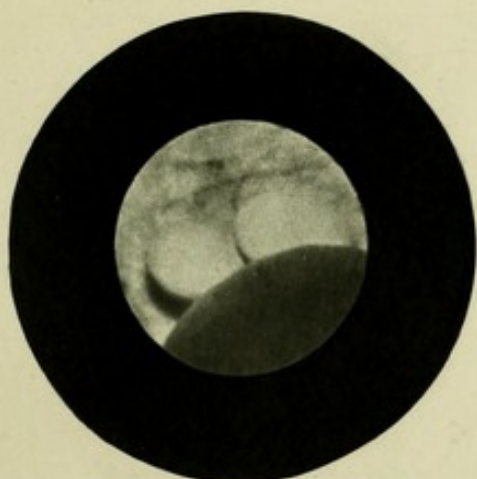
Plate II.

Fig. 1—4 represent views of two uric acid concretions at different distances from the instrument.

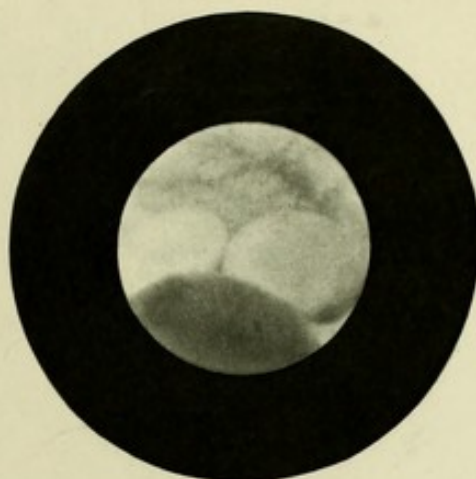
In Fig. 1 and 2 a considerable part of the field is occupied by the hypertrophic middle lobe of the Prostata; the two calculi lie in a pouch behind the gland. In Fig. 2 they appear a little larger, the prism being nearer. In Fig. 3 only a small part of the prostatic prominence is seen the instrument having passed further into the bladder; close to the stones and a little in front of them we notice the mouth of the ureter.

In Fig. 4 the prism has approached so near that only one stone is visible in the field; to the right only a small margin of the prostatic ridge is present while in the upper part of the figure the furrowed mucous membrane of the floor of the bladder is seen.

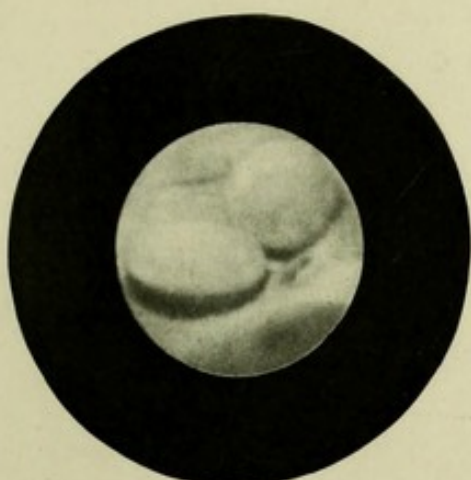
Fig. 5 and 6 represent uric acid calculi from the bladder of a patient aged 45, also viewed from different distances. In Fig. 6 the prism has not entered the bladder completely; the hypertrophic fold at the neck of the bladder presents a peculiarly irregular form. In Fig. 5 the prism is further forward and only a small margin of the fold is seen. Both figures give a good idea of the granular surface of the stones.



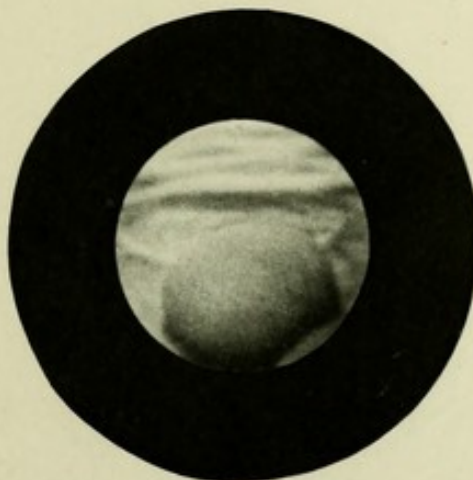
1.



2.



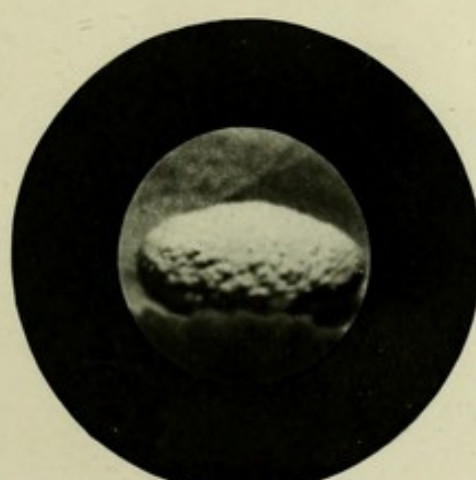
3.



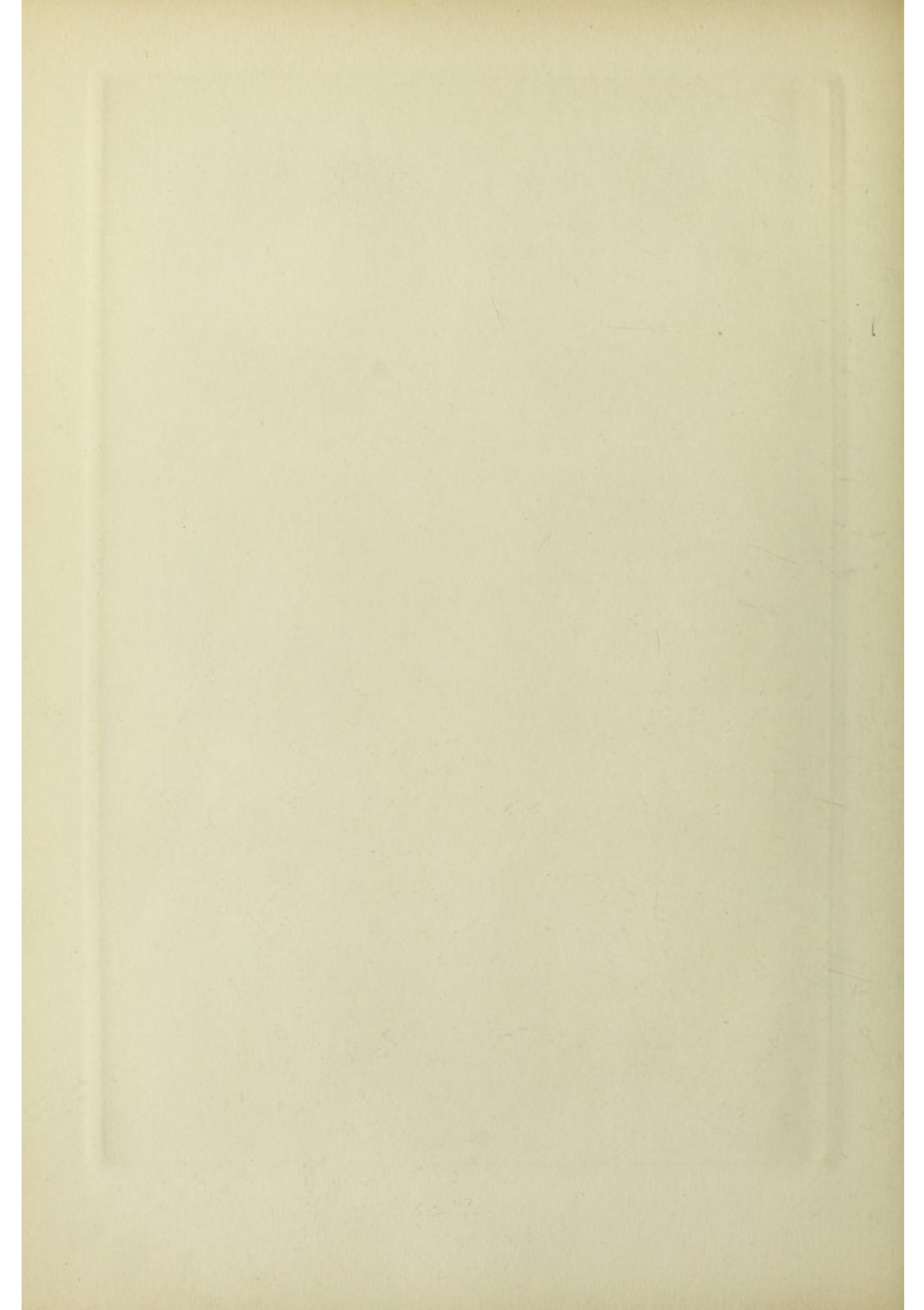
4.



5.



6.



Division D.

Tumours.

Plate I.

Division D.
T u m o u r s.

Plate I.

Fig. 1, 2, 3, 4 give various views of a tumour from the bladder of a patient of 70 years; the tumour is of the size of a walnut; its surface covered with villi; it is attached to the bladder by a thick pedicle.

Fig. 1 shows a part of the pedicle and the adjoining wall of the bladder; the white heads of the villi (deposits of calcareous matter) are characteristic.

Fig. 2 and 3 give a good representation of the villous tumour which contrasts sharply with the surrounding mucous membrane.

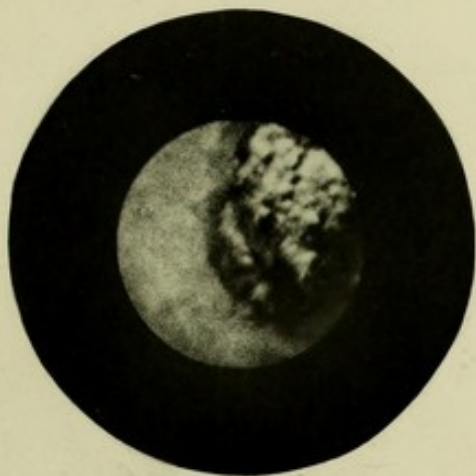
Fig. 4 gives the cystoscopic view of a single prominent villus which appears considerably magnified owing to its position between prisma and lamp; only a few details are recognisable, the diaphanoscopic illumination being very feeble. Its deeply shaded outline forms a striking contrast to the bright mucous membrane.

Fig. 5. Part of a malignant tumour from the bladder of a patient 54 years of age; the tumour is attached by its broad base to the Prostata. Its shape and pink colour made it somewhat resemble a rose and distinguished it well from the yellowish looking mucous membrane. In the latter small hæmorrhages were seen.

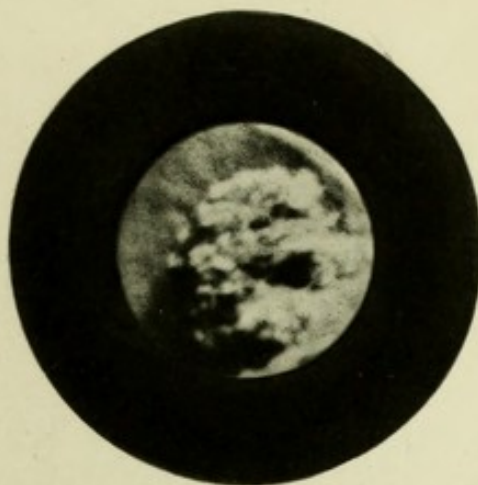
Fig. 6 shows the stump of a vesical tumour from a patient of 56 years. At the time of the Berlin Medical Congress a well developed villous tumour was found; but at a later examination (November 10th 1892) the villous prominences had altogether disappeared, and only a stump covered with mucous membrane remained, the considerable height of which is demonstrated by the length of its shadow. The figure therefore records an instance of spontaneous cure so very unusual in these cases.

D.

Tab. I.



1.



2.



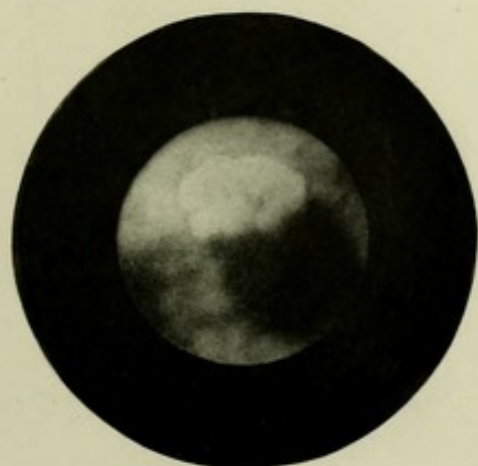
3.



4.



5.



6.



Division D.

Tumours.

Plate II.

Division D.

T u m o u r s.

Plate II.

Fig. 1, 2, 3, 4 are taken from the bladder of a woman. On August 3rd 1891 suprapubic section was performed for the removal of a papilloma. The tumour was of the size of a fist, attached by a short pedicle of the thickness of a finger and was removed together with the surrounding mucous membrane. After recovery repeated cystoscopic examinations showed that a radical removal had been effected. A recurrent tumour however was found, at considerable distance from the seat of the primary tumour several months after the operation and was photographed on November 3rd 1892 (Fig. 1). Shortly afterwards at the seat of the primary tumour two small new growths were discovered and photographed on January 12th 1893 (Fig. 2). The ridge seen between the two tumours is a part of the scar left by the operation. The rapid growth of the two tumours is demonstrated by Fig. 3, taken on June 17th 1893; the tumours now touch each other and are covered by adherent white sloughs.

These tumours were now removed in several stages by the „Operation-Cystoscope“ the wire-écraseur being used. A view taken on August 8th (Fig. 4) shows that only two small prominences have been left behind. Since then these small remnants have been also removed.

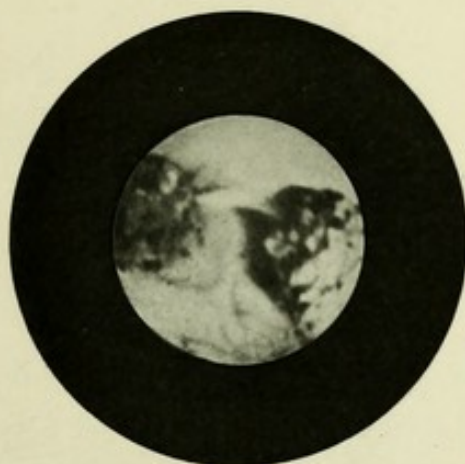
Fig. 5 and 6 represent recurrent growths in a patient from whom several large villous tumours were removed by suprapubic section on April 16th 1891. For several months cystoscopic examination showed the patient to be free from any signs of recurrence, but afterwards recurrent growths were detected and photographed (Febr. 20th 1893). A large papilloma (Fig. 5) was found on the floor of the bladder and two smaller growths near the fold of the internal orifice (Fig. 6). The figures represent very distinctly the appearance of these small pink growths.

D.

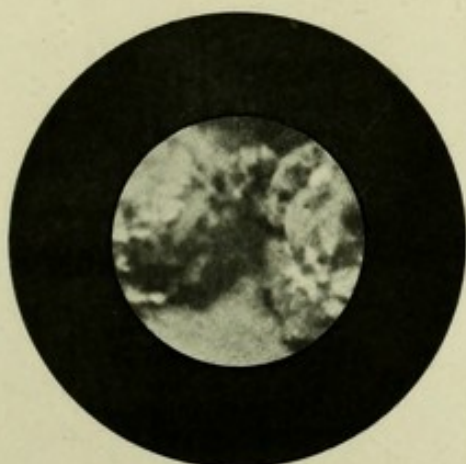
Tab. II.



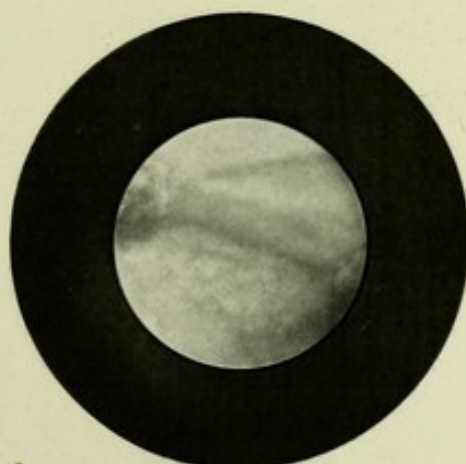
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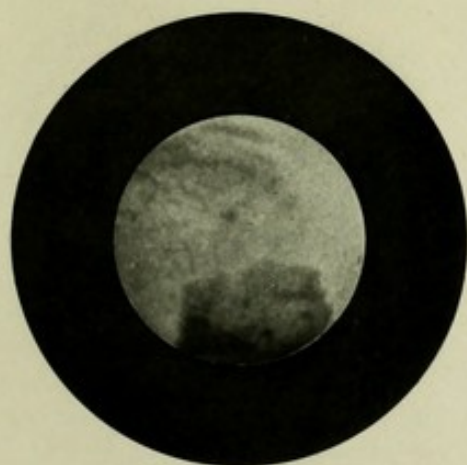
2.



3.



4.



5.



6.



Division D.

Tumours.

Plate III.

Division D.

T u m o u r s

Plate III.

Fig. 1 and 2. Malignant Tumour from the floor of the bladder of a patient, aged 72. Fig. 1 represents the edge of the tumour which is seen to encroach upon the neighbouring healthy mucous membrane.

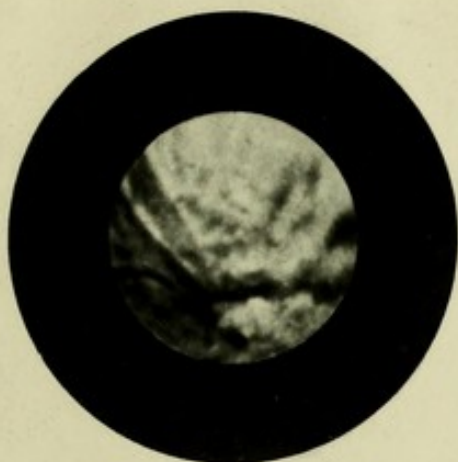
Fig. 3 and 4 represent different parts of a broad-based carcinomatous tumour (Patient of 62 years). Fig. 3 shows an irregular prominence; Fig. 4 is a somewhat flat but much ulcerated and infiltrated portion.

Fig. 5. Benignant vesical tumour of the shape of a raspberry from a patient aged 73. The seat of the tumour close to the mouth of the ureter is most characteristic.

Fig. 6. Villous broad-based papilloma from the bladder of a woman aged 73. The tumour was removed by the „Operation Cystoscope“.

D.

Tab. III.



1.



2.



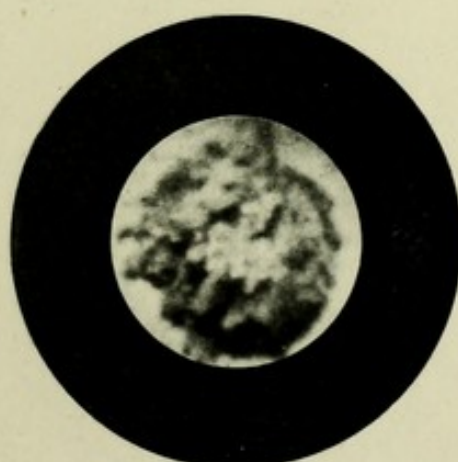
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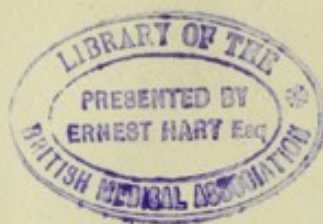
4.



5.



6.



Division E.

V a r i a.

Plate I.

Division E.

V a r i a.

Plate I.

Fig. 1 shows a silk thread which has passed into the bladder after a gynæcological operation (vaginal Utero fixation); its end floats free in the bladder. It was easily removed by the „operation-cystoscope.“

Fig. 2. Phosphatic concretion which has formed round a thread penetrating into the bladder after a gynæcological operation.

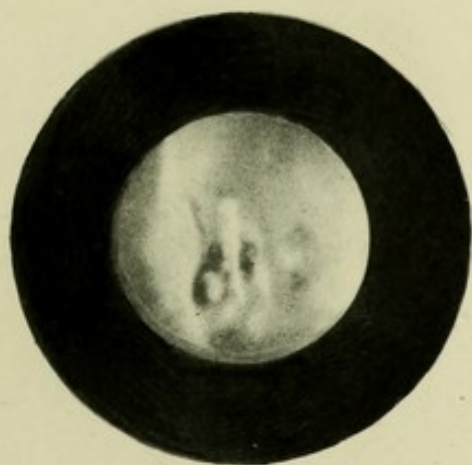
Fig. 3 records a very rare pathological condition, a villous tumour originating within the ureter, and which having passed into the bladder through the enlarged mouth of the ureter simulated a vesical tumour.

Fig. 4. Hairpin from the bladder of a girl of 20 years. The hairpin appears much contorted owing to its oblique position relative to the prism; the two forks which in reality were almost parallel seem to diverge; the fork nearer to the prism appears much shorter; the shadow thrown by the other fork is very clearly seen. Between the two forks the ridge of the ureter with its somewhat prominent and pointed mouth may be noticed.

Fig. 5. Congenital Diverticulum of the bladder; the mucous membrane is seen passing into the diverticulum forming a well defined edge. Contrary to what is seen in the case of acquired diverticula the walls of the bladder do not show any trabecular structure.

Fig. 6. Recent miliary tubercles from the bladder of a patient aged 43, forming groups of small globular nodules arranged very much like the vesicles in herpes. They are sufficiently distinguished from the otherwise healthy mucous membrane by their dull pink colour.





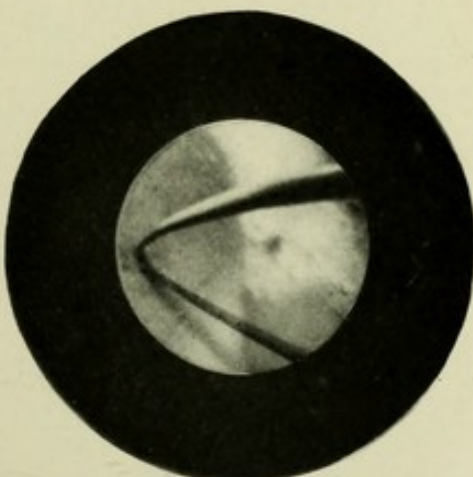
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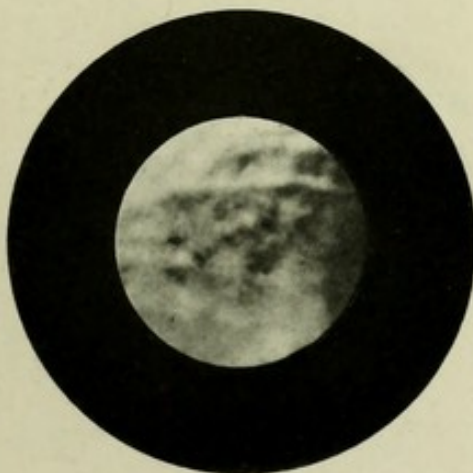
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4



5



6







