

An inaugural dissertation on that species of hernia called bubonocele : submitted to the examination of the Reverend John Ewing ..., the Trustees and Medical Faculty of the University of Pennsylvania, on the eighth day of June, 1801, for the degree of Doctor of Medicine / by Samuel Gartley.

Contributors

Gartley, Samuel.
Maxwell, Hugh, 1777-1860
University of Pennsylvania.
National Library of Medicine (U.S.)

Publication/Creation

Philadelphia : Printed for the author, by Hugh Maxwell ..., 1801.

Persistent URL

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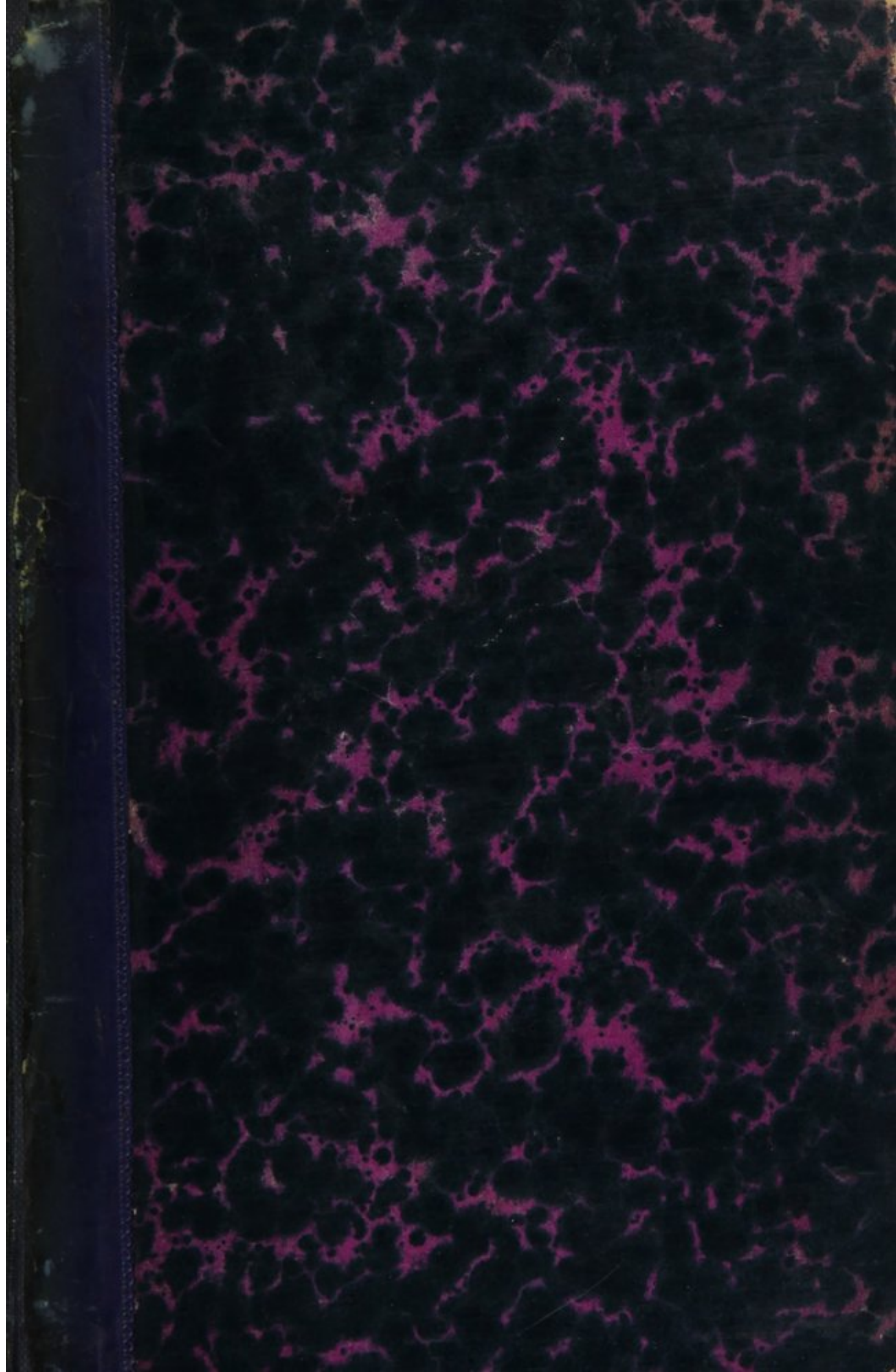
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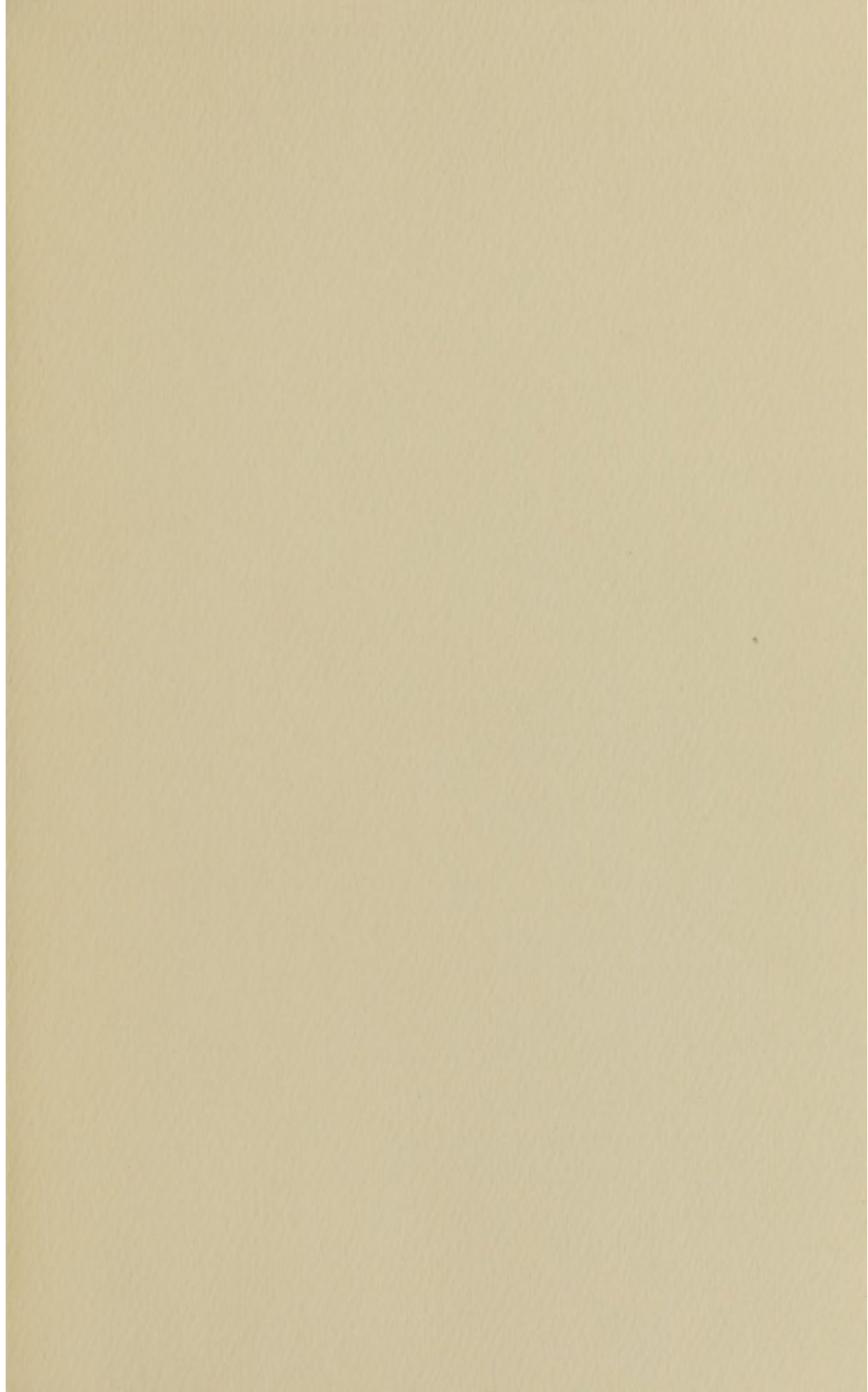
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OBSERVATIONS
ON
BUBONOCELE.

AN INQUIRY INTO THE NATURE AND CAUSES OF THE DISEASE

OF THE BUBONIC PLAGUE

IN THE CITY OF BOMBAY

BY JAMES HAMILTON

OF THE MEDICAL DEPARTMENT OF THE EAST INDIA COMPANY

IN TWO VOLUMES

THE SECOND VOLUME

BUBONIC PLAGUE

BY JAMES HAMILTON

OF THE MEDICAL DEPARTMENT OF THE EAST INDIA COMPANY

BOMBAY

PRINTED BY JAMES HAMILTON

1817

AN INAUGURAL DISSERTATION

ON

THAT SPECIES OF HERNIA

CALLED

BUBONOCELE;

SUBMITTED

TO THE EXAMINATION

OF THE

REVEREND JOHN EWING, S. T. P. PROVOST;

THE TRUSTEES

AND MEDICAL FACULTY OF THE UNIVERSITY OF PENNSYLVANIA;

ON THE EIGHTH DAY OF JUNE, 1801,

FOR THE DEGREE OF DOCTOR OF MEDICINE.

BY SAMUEL GARTLEY,

OF PHILADELPHIA, HONORARY MEMBER OF THE PHILADELPHIA MEDICAL AND CHEMICAL SOCIETIES.

..... ut si
Cæcus iter monstrare velit. HOR.

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PRINTED FOR THE AUTHOR, BY HUGH MAXWELL,
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1801.

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PHILOSOPHICAL DISSERTATION

ON

THE SPECIES OF HERNIA

TO WHICH IS ADDED PHYSICAL, M. D.

BY

WILLIAM WELLS

OF THE UNIVERSITY OF PENNSYLVANIA

IN ANSWER TO A QUESTION PROPOSED

BY THE

ACADEMY OF NATURAL SCIENCES

OF PHILADELPHIA

AND THE MEDICAL FACULTY OF THE UNIVERSITY OF PENNSYLVANIA

ON THE TWENTH DAY OF JUNE, 1801

AND THE DEGREE OF DOCTOR OF MEDICINE

BY THE FACULTY OF THE UNIVERSITY OF PENNSYLVANIA

BY SAMUEL GARTNER

OF THE FACULTY OF THE UNIVERSITY OF PENNSYLVANIA

PHILADELPHIA

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TO PHILIP SYNG PHYSICK, M. D. &c.

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AS A SMALL BUT GRATEFUL TRIBUTE

OF

RESPECT AND ESTEEM,

FOR THE MANY OBLIGATIONS

SO GENEROUSLY CONFERRED,

AS WELL AS

VALUABLE OPPORTUNITIES OF INSTRUCTION

RECEIVED,

DURING THE STUDIES OF HIS

FRIEND AND PUPIL,

SAMUEL GARTLEY.

TO PHILIP SYNG PHYSICK, M. D. &c.

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DISSERTATION

IS DESCRIBED,

AS A SMALL BUT GREATLY USEFUL

OR

RESPECT AND RETURN

FOR THE GREAT OBLIGATION

SO GENEROUSLY CONFERRED

ON HIM

BY THE AUTHOR OF THIS

DISSERTATION

AND HIS STUDENT

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BUBONOCELE.

THE term Bubonocèle, the subject of the present Dissertation, appears to be derived from the two following Greek words, *Βουβων*, which signifies the Groin, and *Κηλη*, a Tumor; and might, from the strict etymology of the word, be applied to every kind of swelling situated in the groin. But surgeons have agreed to define it to be a tumor, or swelling, beginning in the groin, and descending, by degrees, into the scrotum, in men, and into the labia pudendi, in women; occasioned by a protrusion or descent of some part, or parts, of the abdominal viscera, through the ring or slit formed by the tendon of the external oblique muscle; which tumor is said to afford a different sensation to the touch, according to the difference of its contents.

For the better understanding the nature, situation, and method of curing this disorder, it will be proper, before proceeding any further, to give a

short, anatomical description of the parts, in which it takes place. These are, a portion of the abdominal muscles, the peritoneum, spermatic vessels, and testicles.

The fleshy boundaries of the abdomen are formed by five pair of muscles, viz. the obliqui externi, obliqui interne, transversales, recti, and pyramidales. It frequently happens, that the pyramidales are wanting, and, as the obliqui externi are alone concerned with the present subject, we shall confine our description to them, more particularly.

The external oblique muscles form a covering for all the anterior and lateral parts of the abdomen, being bounded, above, by the serratus major anticus, and pectoralis major; on the posterior side, by the latissimus dorsi; and below, by the margin of the pelvis. The fibres of the tendons of each muscle meet and interlace at the part called linea alba, which is nothing more than a whitish appearance, extending from the xiphoid cartilage to the symphysis pubis, occasioned by there being no muscular fibres under them at this particular place. It originates from the eight lower ribs. On the fifth, sixth, seventh and eight ribs, it makes digitations with the serratus major anticus; and, from the four lower ribs, it arises under the latissimus dorsi. The pectoralis major generally sends a slip of fibres downward, which are inserted into a part

of the tendinous expansion from the oblique muscle; this is generally very narrow. The tendon of this muscle, though commonly said to be inserted into the linea alba, yet, in fact, the tendinous fibres, on one side, meet, and interlace with the same fibres on the other, from the symphysis pubis to the xiphoid cartilage. Another portion of the tendinous fibres, is inserted into the os pubis, near the symphysis, and the rest are inserted into the spine of the os illium. Generally speaking, the direction of this muscle is from above, downwards and forwards; but, to be more particular, we shall observe, that the upper fibres are nearly transverse; as they descend they become more oblique, and those, at last, which arise from the lower ribs, are nearly in a perpendicular direction. The muscles contiguous to this, are the pectoralis major, on a part of the upper and fore side; the serratus major anticus, on the upper part of its origin; and behind its origin it is covered by a portion of the latissimus dorsi. There are three lines in the tendon of this muscle, which have each received different names, viz. the linea similunares, linea alba, and linea transversales. The first extends to the margin of the chest, down to the brim of the pelvis, on the outside of the recti muscles; the second is in the middle of the belly; and the last are transverse tendinous intersections of the recti muscles. All these appearances arise from the same cause, viz. from there being no muscular fibres under the tendon at those parts, so that it appears whiter than

elsewhere. It is through the tendon of this muscle, that the spermatic chord passes to the testes, in men, and the round ligaments to the womb in women. The part through which these pass, is commonly called the ring of the external oblique muscle, which, however, conveys a wrong idea, as it is nothing more than a mere split in the tendon. It is not however, a natural opening, because a number of tendinous fibres are continued down over the anterior surface of the spermatic chord, forming a sort of theca for it. We may observe, that the lower part of this tendon is thick and strong, from a collection of these fibres; and that just about the ring there are some, running transversely with respect to the others, which strengthen exceedingly this otherwise weak part. It was said, that a portion of this tendon was inserted into the spine of the illium, but, it must be further observed, that it is not lost there, but extends downwards over the muscles of the thigh. From the anterior superior spine of the illium, a number of these fibres are stretched across to the os pubis, and are folded inwards, particularly as they approach the os pubis. This is called Poupart's ligament, from the circumstance of his having been the first who described it. It may, however, be observed, that this is not improperly called a ligament, for the only difference between tendon and ligament is, that the tendon is attached at one end to muscle, and at the other to bone, cartilage, &c. and ligament only connects bones together. There is like-

wise, in the fore-part of this tendon, an opening, called umbilicus. The fibres are here circular; through this the umbilical arteries and vein, pass into the abdomen of the fœtus.

If both these muscles act at once, the effect will be, that of compressing and diminishing the abdomen, and thereby pressing on its contents; they will also bend the pelvis to the chest, if the chest be fixed, and the chest to the pelvis, if the latter be fixed. If one acts, it will give a rotatory motion to the chest on the pelvis, if this is fixed, and *vice versa*.

The internal surface of the abdomen, as well as every other part of that cavity, is lined with a smooth and somewhat elastic membrane, termed peritoneum, which, after having covered the cavity, is continued or reflected over all the viscera, so as to give an external coat to each.

The testes in the fœtus, till near the approach of birth, are lodged in the cavity of the abdomen, immediately below the kidneys, on the fore part of the psoæ muscles, and by the side of the rectum. Where this intestine passes down into the cavity of the pelvis they are covered by the peritoneum, as the rest of the abdominal viscera are, except at their back part, where it is reflected from them, at which place their blood-vessels, nerves, &c. en-

ter. To the lower end of each testis and epididymis, is attached, the largest end of a ligament, which is something of the shape of a pyramid, called gubernaculum testis. This ligament runs down behind the peritoneum to the abdominal ring, through which it passes, and still diminishing in diameter, it descends into the scrotum and is united to the lower part of it. This ligament serves as a director to the testis in its descent, and the largest end may be useful in dilating the abdominal ring.

The testes, in most cases, descend into the scrotum, about three or four weeks before birth; in some instances sooner, in others later; in a few they remain in the abdomen, or, at least, within the abdominal ring through the whole course of life, but this is uncommon.

The peritoneal covering, which the testes have, whilst in the abdomen, retains its firm attachment to them during their descent, as well as afterwards, and forms their immediately investing membrane, called tunica albuginea. As the testes descend they carry along with them that part of the peritoneum which, in the abdomen, was reflected from them; this must necessarily form an additional covering. Immediately after their descent, that portion of the peritoneum, which they carried down, forms a canal, leading to the abdomen. But this is not long the case; for, soon after the testes have reached

their destined situation, the upper part of the canal, in a short time, begins to contract and unite. This contraction and union is continued downwards, till it comes near the testicle, where the disposition for such an union does not exist; here it loosely envelops the testicle, except at its back part, where it is reflected off the tunica albuginea: this loose covering, or bag is what is called the tunica vaginalis testis.

The testes, and their investing membrane, just described, are contained in the scrotum, which consists of the common integuments, and a loose cellular membrane, called dartos. Thus have I attempted to give as concise a description of the anatomy of the parts, as the nature of the subject would admit.

We have already observed, that Bubonocoele is occasioned by a protrusion of some parts of the abdominal viscera through the ring of the external oblique muscle, so as to produce an evident and preternatural swelling in the groin. The viscera, which are, most commonly, thus protruded, are some part of the intestinal canal or omentum.

As all the internal surface of the abdominal muscles are lined by the peritoneum, it is evident, that the protruded parts, in their passage out of the abdomen, must either break through the peritoneum, or carry a portion of that membrane along

with them. Dissections, however, prove, that the peritoneum is never torne, but is simply elongated, and pushed before the viscera composing the tumor, forming, what is called, the hernial sac. This sac, which, in recent herniæ, is very thin, is, on the contrary, in those of long standing, extremely thick, owing, perhaps, to an extravasation of coagulating lymph ; as this portion of the peritoneum is now necessitated to sustain a greater weight than it did when the protruded intestines were within the cavity of the abdomen.

The causes which produce hernia are various, but it is most generally induced by such actions as diminish the abdominal cavity ; amongst these are reckoned, violent coughing, crying, &c. But above all, and especially in adults, it is most frequently occasioned by violent bodily exertions ; as straining to lift heavy weights, jumping, &c. It is evident, that these must operate, by exciting violent pressure upon the intestines, from the strong contraction of the abdominal muscles and diaphragm.

The symptoms of this disorder are more or less violent, according to the nature of the viscera which descends, and especially to the degree of strangulation attending it. Thus a protrusion of omentum alone, is attended with less danger than a protrusion of any part of the intestinal canal ; because the omentum is much less essential to life than this last mentioned part. Yet, when

the pressure upon it is sufficiently violent to obstruct the free circulation of the part, and if this pressure be not soon relieved, there is certainly great danger of mortification ensuing, which would be attended with symptoms as fatal as in any other part of the body. Indeed, it is this stricture alone, which creates the danger, and not the mere descent of the bowels; for instances daily occur, where large portions of intestine have continued, for a great length of time, within an hernial sac, performing all their functions in a proper manner, until, from some circumstance or other, a strangulation takes place, attended with all the usual bad symptoms that generally accompany this complaint. It has been a matter of dispute, whether the disease first originates in the gut itself, or in the ring; that is, whether strangulation takes place in consequence of an affection of the ring itself, or from the intestine first becoming inflamed and afterwards strangulated. The former of these opinions I think best founded; for cases frequently occur where the patient, without any previous indisposition whatever, is suddenly attacked with strangulated hernia, in consequence, evidently, of some violent exertion, which, if operated upon, is found to be owing to a stricture of that part of the tendon, forming the ring, upon the protruded parts; for if this tendon be dilated, the parts immediately expand, and every symptom of strangulation is removed. Again, if the disease originated from an inflammation of the intestine, the reduction would

not be attended with a relief of the symptoms, because those of inflamed intestine would still remain. But we know, that this is far from being the case; reduction of the protruded intestine instantly, in most cases, and, perhaps, in all recent ones, sets the patient at ease, though previously labouring under the most excruciating pain. It is true, inflammation of the intestines is attended with symptoms very much resembling strangulated hernia; but these never cease instantaneously, as those of hernia almost always do, after reduction of the protruded parts.

The danger attending Bubonocoele, as has been observed, proceeds from an obstruction, produced in consequence of a stricture made upon the intestines, at the abdominal ring. As soon as this pressure becomes considerable, the swelling, which takes place in consequence of the obstruction of circulation and from inflammation, augments the disease; for the intestines, being unable to propel their contents, obstinate costiveness ensues. The fæces being accumulated along the canal, the stomach sympathising with the part affected, excessive nausea and vomiting are induced, accompanied with violent pain all over the abdomen, but more particularly at the obstructed part, and at the umbilical region. This pain is always increased by coughing, sneezing, &c: the pulse in this state is generally hard and tense. If these symptoms be not soon relieved, by a removal

of the stricture, the vomiting becomes more violent; the pain increases prodigiously; and a great degree of tension takes place in the abdomen, together with an increase of restlessness, fever, and anxiety. These continue for some time, and are succeeded by evident symptoms of mortification. The pulse then sinks rapidly; the thirst is excessive; the extremities become cold, attended with clammy sweats; the hernial tumor subsides very much; the ring of the abdomen, losing its tension, the intestines are frequently spontaneously reduced; the patient then discharges freely by stool; the tenseness of the abdomen subsides, together with an abatement of the pain; the vomiting ceases, but is succeeded by a hiccough, which is usually a forerunner of speedy death, and this sometimes takes place in so unexpected a manner, that it is often thought by the patient, as well as his attendants, that he is getting the better of all his complaints. In short, he dies with all the symptoms which usually attend mortification of the intestines.

It must, however, be observed, that when the omentum alone is protruded, all those violent symptoms above enumerated will not occur; for though even here the symptoms may be very distressing and alarming, yet death rarely ensues. It may, therefore, be of consequence to discover, if possible, whether the disease be occasioned by a descent of omentum or intestine; which, it is said, may be determined by the following signs, viz. when the

tumor is formed by omentum only, it feels soft and flabby, yielding to the finger like dough, without that smoothness and elasticity perceptible in those cases where the intestine is alone concerned. But this is, by no means, to be depended upon; for a sensation, similar to this, obtains in old gut-herniæ of long standing, when there happens to be a considerable collection of hardened fæces in the protruded parts. It must, likewise, be very difficult to discriminate by means of this test alone, between a simple omental tumor, and one formed by a protrusion of omentum and intestine, as the sensation communicated by the touch from both are very much alike. There is, it is said, little or no pain in handling omental tumors, the contrary of this is the case when intestine is protruded. Among the other distinctions which have been made, between those tumors, is their difference in size, form, &c. but these we shall pass over, as there are objections to all of them. Indeed, the only just and certain criterion, that we are acquainted with, to judge of their difference, is that of obstinate costiveness, which almost always attends those of the intestinal kind when strangulated, and which cannot frequently be the case when omentum is alone concerned.

Bubonocèle has sometimes been confounded with complaints of the groin and scrotum; such, for instance, as the venereal bubo, and other swellings of the groin; sarcocele; the different species

of hydrocele, &c. but, from all these, it may readily be distinguished; and the marks of distinction are so very obvious, that I think it unnecessary to describe them here.

When we first discover this swelling in the groin, we should direct the patient immediately to lie upon his back, for its reduction; which, in most recent cases, will take place while he is in this situation. But if it cannot readily be effected by this means, then we ought to have recourse to the operation of the taxis, presently to be described. After the protruded parts are completely returned into the cavity of the abdomen, we ought to endeavour to prevent any future descent. The only means which we are acquainted with, that can be depended upon, for this purpose, is the application of a well adapted truss; this ought always to be of the steel-spring kind, for if made of any kind of soft materials, it can never be kept rightly fixed. In the application of the truss, it is absolutely necessary, that the pad or bolster should bear properly against the opening upon which it is placed, or there will be danger of a portion of intestine slipping out, and in this state it might be materially injured by the pressure of the pad.

When, however, the protruded parts have been in a state of strangulation, before the surgeon is called in, immediate attention should be paid to

the relief of those symptoms which usually accompany it. The only proper methods for this purpose are, either to procure the reduction of the intestine, through the abdominal ring, by which it descended, without the interposition or assistance of any chirurgical operation, strictly so called, or, if this cannot be effected, then to divide the tendon, forming that ring. This last is what is usually termed the operation for Bubonocoele, and should not be resorted to, until most of the following methods fail.

The manner, in which the reduction of the strangulated viscera should be attempted is as follows: First, the patient should be laid on his back, with his thighs and breech raised considerably higher than his head and shoulders. The surgeon is then gently to press the tumor with his hands and fingers, obliquely upwards, and outwards towards the os illium, so as to correspond as nearly as possible to the opening in the external oblique muscle. When the tumor is of any considerable size, or when it descends into the scrotum, pressure as here recommended, is most conveniently made by grasping the swelling with one hand, at the bottom, while, at the same time, he endeavours, with the fingers of the other hand, to push forward the contents at the superior parts; this is what is usually denominated the operation of the taxis. When, however, this is found insufficient for the reduction of the tumor, we must have im-

mediate recourse to the assistance of other remedies. The first, and, perhaps, the most efficacious of these, is blood-letting, which ought to be sufficiently copious to induce fainting, it being well known, that this is attended with a general relaxation of every muscular part of the body. So effectual, indeed, is this remedy, that it frequently happens, when patients are in this state, that the protruded parts return spontaneously. At all events, the surgeon ought to seize this favourable opportunity to endeavour to reduce the parts by means of pressure.

Injections, composed of an infusion of tobacco in water, are invaluable remedies in strangulated *Herniæ*. If not equal, they, at least, rank next in efficacy to the lancet, producing, like this, a complete state of relaxation over the whole body. Indeed, they are the only remedies, besides blood-letting, which we can make use of here, that have this property in so eminent a degree: they also possess somewhat of a purgative quality.

It has been commonly recommended, to use tobacco in form of smoke; but as this requires, for the proper exhibition of it, a particular kind of machine, which is seldom at hand; and as it has no superiority, whatever, over the simple infusion, we think the latter of these ought to be preferred. This infusion may be made by boiling one drachm of dried tobacco, for fifteen or twenty minutes, in

one pound of water; we do not, however, recommend this to the exclusion of other injections, as many of them at least deserve a trial.

CATHARTICS are of great efficacy, and ought always to be used as auxiliaries to the other remedies. Jalap and cream of tartar, are the best adapted to this purpose. When there is great nausea at the stomach, a few drops of oil of mint may be added.

The WARM BATH, FOMENTATIONS, and EMOLLIENT POULTICES. The first of these is of great utility, and much advantage has been derived from it in this disorder. While the patient is immersed in the bath, the surgeon ought to attempt the replacement of the protruded parts by the taxis.

The utility of warm bathing may be explained by the universal relaxation which it is known to produce. Indeed, it has often happened, that the intestine has gone up while the patient was in the bath. Fomentations and emollient poultices applied to the ring itself, are now seldom employed. It must be very evident that they can have but little or no influence upon the constricted tendon, as it always lies too deep to be within the reach of any local applications of this nature. If however, the warm-bath is not attended with the desired effect, than we should have recourse to

COLD APPLICATIONS, applied to the ring, and tumor itself, which have, in many instances, been attended with success. By the use of these, the size of the tumefied intestine is much diminished, and its reduction more easily accomplished. The cold applications, for this purpose, should consist of ice or snow; either of which may be applied in a bladder, to the affected part. For this mode of application I am indebted to our ingenious and learned professor of anatomy, doctor Wistar; under whose direction, I saw it used with remarkable success, in a case which occurred, about two months ago, in the Pennsylvania Hospital. When neither ice nor snow can be procured, we may use, in lieu of them, a recent solution of sal ammoniac in vinegar, which produces a considerable degree of cold.

OPIATES. It has sometimes happened that, after all these remedies have failed, a large opiate has procured the desired relief. As the stomach, however, is almost always so much affected as to prevent the exhibition of them by the mouth, they may in such instances, be advantageously applied in the form of injections.

If, after all the above methods have been tried, the reduction should still be found impracticable, the only resource which we have remaining, is the division of the parts, producing the stricture, by a surgical operation. A great deal of diffi-

culty exists in determining the precise time, when to proceed to the operation; perhaps, however, in those cases attended with very violent symptoms, it would be wrong to spend more than twenty-four, or thirty-six hours, at farthest, in attempting to reduce it by the above mentioned remedies.

I know, in opposition to this, it may be said, that many cases occur where the gut has been in a state of strangulation, accompanied with every untoward symptom, for the space of five, eight, or ten days, and has, at last, yielded to the treatment just recommended; but were this to happen even more frequently than it is known to do, I think it would, by no means, compensate for the loss of a single patient, whose life might have been saved if the operation had been performed in time.

From what has been already said, concerning the nature of this disease, I think it will evidently appear, that in common cases the only obstruction to the reduction of the contents of the sac, is in the ring itself, and to dilate this is all that is required. Certainly, then, it would be wrong to suffer a patient to run the smallest risk of being attacked with those fatal symptoms which usually attend strangulated herniæ, without attempting an operation, in itself quite simple, and when performed, with proper care, and in due time, will be generally attended with success.

When the operation is concluded upon, the patient should be advised, first to empty his bladder entirely, in order to afford as much space as possible for the return of the protruded parts, and the hair should be shaved from off the lower part of the belly. He is then to be laid on a table of convenient height, and in a room properly lighted. His head and body should be almost horizontal, whilst, at the same time, his thighs and buttocks are somewhat elevated by pillows placed under them. The legs, hanging over the edge of the table, ought to be firmly secured by assistants, and opened so wide that the surgeon may stand between them. The thighs ought to be sufficiently raised to relax the abdominal muscles; after which, the operator is to make an incision with a scalpel, about four inches in length, through the skin and cellular substance, beginning about two inches above the upper part of the swelling, and continuing it to the same length below the ring. He then continues to divide every part of the cellular substance, and whatever tendinous bands he may come across, with the greatest attention; for by this method of proceeding, if there be no preternatural formation of parts, which indeed is rarely the case, he will always be able to avoid mischief. The ring must now be brought distinctly into view, with a small portion of the protruded sac; after which the operator must make a small opening with his scalpel, in the tendon, about one inch above the upper edge of the

ring. Into this he must introduce a small director, upon the groove of which the probe-pointed bistoury ought to be inserted, and make an incision through the tendon, in the direction of its fibres, beginning from above downwards, until the upper edge of the ring is divided. He is now to attempt the reduction of the protruded parts, by the taxis, which may be accomplished with the greatest ease, if the strangulation is owing to the stricture at the ring. But it sometimes happens that this is otherwise; adhesions having taken place between the gut and sac, so firm as not to be disengaged, except by dissection. Concerning the treatment of such cases we will speak hereafter. After the operation is finished, the sides of the wound are to be brought together, and retained so by means of slips of adhesive plaster, that union, by the first intention may, if possible, be accomplished; over this is to be placed a pledget of tow, and the whole secured by a bandage properly applied.

In performing this operation we are of opinion, that the sac should not be opened, except in those cases where we have reason to suspect, that mortification has taken place; or, where the intestine cannot be returned on account of adhesion between it and the sac; or, from the stricture being formed by the thickening of the sac at its neck*. In judg-

* In this last case, the tendon at the ring, when laid bare, will be found loose, making no compression whatever, on the hernial tumor.

ing of the first of these circumstances, we may, in a great measure, be guided by the usual symptoms of mortification, some of which we have already mentioned. Inquiring how long the gut has been in a state of strangulation, before the surgeon was called in, would contribute no little in informing us of the probable state of the strictured parts.

Adhesions generally take place in those cases of hernia, which are of long standing, and their presence may be suspected, from the intestine, previous to strangulation, not returning when the patient has been in a horizontal position; nor by any other method which he has been accustomed to make use of for this purpose. In all those cases the sac ought to be opened, and should be done in the following manner: The patient, having been secured in the position just described, the operator is to make an incision, beginning about two inches above the ring, and carrying it down to the bottom of the tumor, dissecting, in the same cautious manner, as we have before advised, until the sac itself is exposed, which must be opened as near the bottom of the tumor as possible. In attempting this, he ought to use the utmost circumspection and nicety, by making repeated and slight scratches with his scalpel, and frequently searching with a probe, until he finds the perforation is completed. In this manner it may always be effected without danger of wounding any of the protruded parts. As soon as this opening is made quite through the sac, it ought to be further en-

larged, till it is of such a size as to admit the fore-finger of the operator's left hand. Upon this he is to introduce the probe-pointed bistoury, and divide the sac its whole length from below up to the opening in the external oblique muscle, which is next to be dilated with the probe-pointed bistoury. The sac being now laid fully open, the parts contained in it ought to be strictly examined. If they are discovered to be sound, they ought immediately to be reduced, but if this cannot be done on account of adhesions, and these adhesions are slight, they may be easily separated by the fingers, or snipped with scissors. If, on the contrary, they are found to be so adherent as not to be returned without extensive dissection, perhaps it would be better to divide the stricture and let them alone. If any part of the intestine is found to be in a sphacelated state, and if it does not already adhere to the sac, we ought to prevent it from returning into the abdomen, while in this state, by stitching it to the sac. After the operation is finished, the sore should be dressed with lint spread with simple cerate, over which a small pledget of tow is to be laid, and the whole secured by a proper bandage.

The patient, on being carried to bed, should be so placed as to have the part on which the operation was performed somewhat higher than the rest of his body, in order to prevent a return of the disorder. Great attention ought to be paid in keeping the body moderately open; and should fever

succeed, blood-letting, together with such antiphlogistic means as are generally employed, will be found necessary.

When the intestine has been found in a mortified state, and the patient should be so fortunate as to recover, the diseased portion of gut must separate from the sound part, and a preternatural anus will be formed at the groin, through which the fæces will be discharged for a considerable time; but this, for the most part, will not always be the case; for we will find, that, in the process of healing, the sides of the wound will contract, at the same time that the edges of the intestine approach each other, and unite in such a manner, with the cicatrix, that the continuation of the canal is preserved, and the fæces discharged in the usual way.

We have observed, that in most cases of hernia, where the operation is performed in due time, the intestine may be safely reduced without opening the sac; the advantage we derive from this, is the prevention of that inflammation which frequently occurs from exposure of this cavity. Many objections have been made to this mode of treatment, but none of them apply with more force here, than they do against reduction by means of the taxis, which is recommended and supported by all chirological writers.

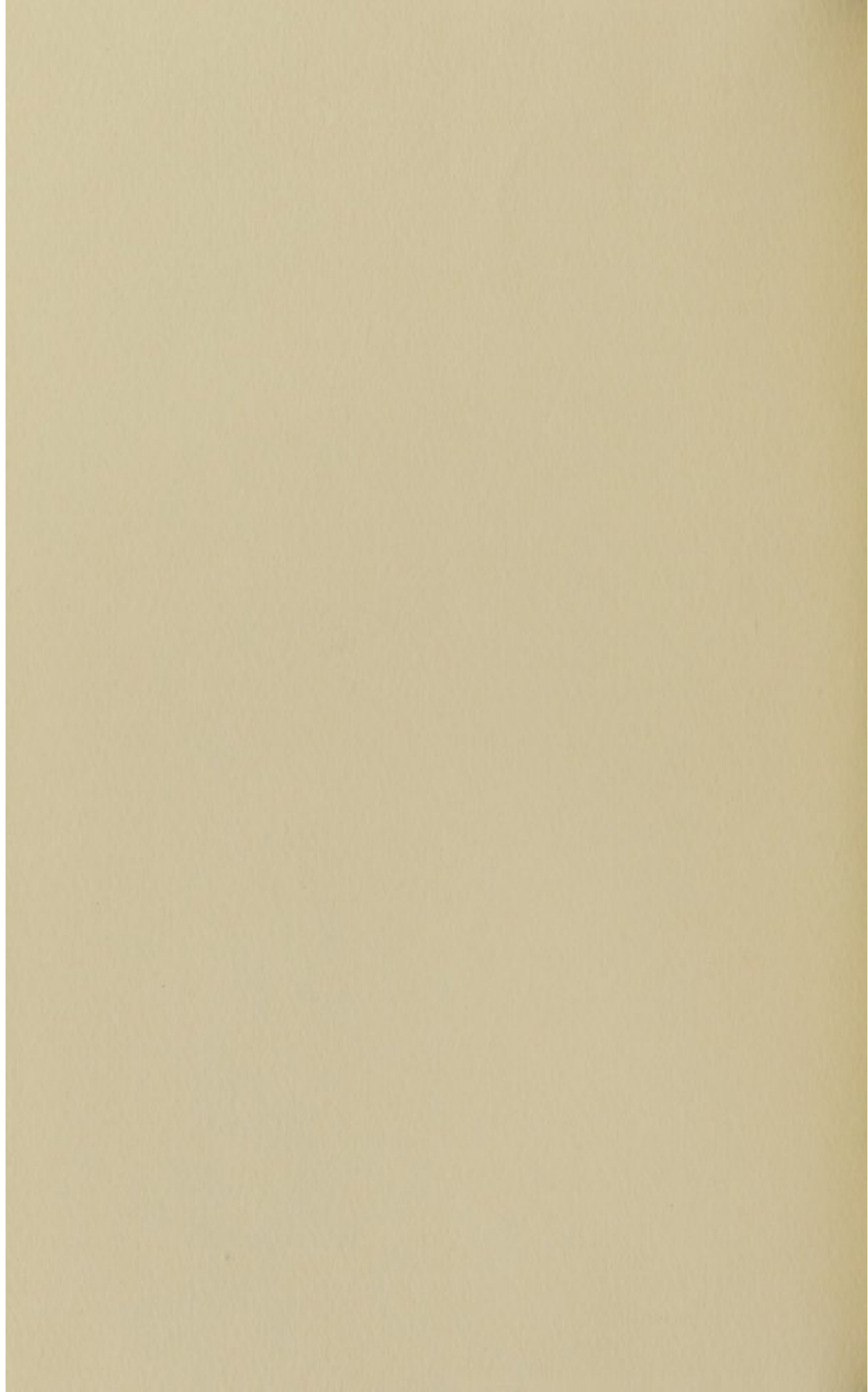
Upon the whole, it appears to me probable, that at least, in every recent case, the patient may be

relieved, without danger, simply by dilating the ring, so that the protruded parts may be reduced.

I cannot conclude this Essay without acknowledging myself indebted to each of the professors for the numerous opportunities of improvement that I have received from them during my studies in this university.

To doctor Woodhouse I am bound to confess myself under particular obligations, for the many friendly admonitions, as well as valuable instructions, with which he has honoured me. With gratitude I acknowledge them, and shall consider it as a duty, in future, to deserve their continuance.

THE END.



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