On the cancer of the uterus : being the Harveian Lectures for 1886 / by John Williams.

CANCER OF THE UTERUS

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BEING THE

HARVEIAN LECTURES FOR 1886.

BY

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WITH PLATES

LONDON
H. K. LEWIS, 136 GOWER STREET, W.C.
MDCCCLXXXVIII

PRINTED BY

H. K. LEWIS, 136 GOWER STREET

LONDON, W.C.

TO

SIR WILLIAM JENNER, BART., M.D., K.C.B.,

PRESIDENT OF THE ROYAL COLLEGE OF PHYSICIANS

PHYSICIAN IN ORDINARY TO THE QUEEN

WHO TAUGHT ME WHATEVER I KNOW OF MEDICINE

I DEDICATE THIS BOOK

JOHN WILLIAMS.

PREFACE.

THE Harveian Lectures for 1886 were published in the *Lancet* soon after they were delivered. They are now published in book form, together with the illustrations which were shown at the lectures, but which have not been hitherto published. I take this opportunity of tendering my thanks to Dr. Boxall, who made the drawings of the microscopic sections, and to Dr. Spencer, Mr. Frank Collins, and Mr. Burgess, who made the free-hand drawings.

March, 1888.

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ERRATA.

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CANCER OF THE UTERUS.

No apology is needed for making cancer of the uterus the subject of the Harveian Lectures; the disease has been, and always will be, one of great interest to the practitioner and the pathologist.

The frequency with which it is met, its irresistible progress, the horrible sufferings which it entails upon its victims, the utter helplessness of medicine in its presence, and its fatal character, all alike join in demanding a careful study of its insidious onset, and destructive habits. I should have liked to have reviewed the history of cancer, to have summarised the views which have been held with regard to it, and the various methods of treatment which have been suggested and practised with a view to its cure and the relief of the symptoms and sufferings caused by it, to have traced the progression and retrogression of knowledge with reference to it, but time will not permit me this indulgence. I must be satisfied with endeavouring to depict to you the present state of scientific knowledge with regard to the disease; and to do this I must invite your attention more particularly to the early stages of cancer—the curable stages—if there be any such, before the diseased process has passed beyond the limits of the uterus itself.

Before beginning the consideration of the subject we

must have a clear and exact knowledge of what we mean by cancer; and in order to avoid misunderstanding I will explain the meaning I shall attach to the word. I adopt that meaning which is given to it by the prevailing school of pathologists, and which appears to me to be the most reasonable, and the most likely to favour the growth of our knowledge of malignant diseases.

Cancer, then, is a new growth possessing malignant properties, that is, it possesses the power of invading neighbouring tissues and of reproducing itself in the form of secondary growths in other and distant parts.

It is not so very long—not more than forty years—since the term was applied to growths which are now known to be devoid of any malignant properties. Fibroid tumours of the uterus were then regarded as cancer, but without good reason. They possess none of the peculiar properties, anatomical or clinical, which are possessed by the more serious affection.

The distinction between growths which possess malignant properties and those which do not possess them, is to be made by two kinds of observations—those made at the bedside, and those made in the laboratory. Clinical observation alone is sufficient to decide whether a growth be malignant or not, provided one condition is fulfilled—that is, time is not stinted. Weeks or months of watching will solve the question; but examination of the growth by means of the microscope enables us to solve it at once.

All malignant growths, however, are not cancer, and clinical observation is, as a rule, not equal to making the distinction between the different kinds of malignant diseases. Here the work of the laboratory, and above all that done by the help of the microscope comes to

our aid. It is by the microscope alone that we are enabled to distinguish them. Progress in our knowledge of malignant diseases in the future will depend, in a great degree, upon microscopic or laboratory work. The revelations of the laboratory must form the basis of the classification of our clinical observations. During the early stages of cancer or of other malignant growths, the microscope, I believe, will enable us to recognise and make sure of the disease long before clinical examination; and it is by no means improbable that, in any given case, even in the most advanced stages of cancer, the structures revealed by the microscope will empower us to read back the whole of its past history, when clinical examination and observation of the living growth have failed to cast a ray of light upon the previous progress of the disease.

The varieties of malignant disease which affect the uterus are three—namely, sarcoma, carcinoma and adenoma. Sarcoma and carcinoma are always malignant; adenoma often, but not always, but perhaps always in the uterus.

"Sarcoma is a growth of the connective tissue type; it originates in a structure of the connective tissue group, and grows from its constituent cells.

Carcinoma and adenoma on the other hand contain epithelial elements and these elements are the structures which give its special characters to the class. All these tumours consist of epithelial cells on the one hand and of vascular connective tissue on the other. The latter tissue goes to form the framework or stroma in which the epithelial elements are embedded. Some of these are built exactly on the plan of some particular gland;

the new formed tissue corresponds to a definite glandular type. These are called adenomata.

Another group never reaches this perfection. They exhibit, as it were, only the first stage of the gland-making process. Epithelium and fibrous tissue interpenetrate each other in an inchoate way. The process is never carried higher. By the multiplication of epithelial cells we have produced nests and clusters and strings of cells, and these are embedded in connective tissue whose elements are likewise multiplying. The result is a neoplasm consisting of a fibrous network or framework, in the meshes of which are lodged a multitude of variously shaped epithelial cells. But there is no orderly arrangement of these epithelial cells. In the adenomata they tend to clothe the alveoli in a regular way, leaving open a central lumen in the acinus of a gland." (Ziegler).

It might be thought that with anatomical characters apparently so distinctive, there would be no difficulty in distinguishing between the different kinds of malignant growths. Such, however, is not always the case, because growths of the connective tissue type, or sarcomata, sometimes assume an alveolar form, and their alveoli contain groups of cells, which are indistinguishable by the microscope from epithelial cells; so that, judging by anatomical evidence alone, a sarcoma may be mistaken for a carcinoma, and a carcinoma for a sarcoma.

This fact has led to different views with regard to the origin of cancer. Some authorities maintain that it originates only in tissues in which epithelium is present, while others hold that it originates in connective tissue in the absence of epithelium. I will not

enter upon a discussion of these views, for the definition of cancer which I adopt obviates the necessity for it. I define cancer not anatomically only, but anatomically and genetically; that is, cancer is an alveolar new growth, containing epithelial structures, which have originated from previously existing epithelium. In this sense only will I use the term in these Lectures.

Before classifying and describing the various forms of cancer as they affect the uterus, we must enumerate the parts into which the organ is divided, and note their limits.

The uterus is divided into three parts, according mainly to the character of the epithelium, and of the glands met with in each part. The first is the vaginal portion. This is the part of the uterus exposed in the vagina. It is bounded below, by the stratified epithelium covering the vaginal surface of the cervix, and above, by a line drawn from the external orifice, or a little above that point, to the insertion of the vagina. The discovery of the exact position of the original external orifice is, however, in many cases difficult, and sometimes impossible. The position of it is altered, and its characters are liable to be destroyed, by tears and by "erosions." The position of the external orifice is that place where the squamous epithelium covering the cervix ends and the transitional begins. This transitional epithelium disappears in many cases, and is replaced by a glandular "erosion" which is covered by columnar epithelium, and the columnar epithelium meets the squamous of the portio vaginalis without the interposition of the transitional, and may even extend over an area which in health was covered by squamous epithelium. Such surfaces contain glands,

and present the characters of the mucous membrane of the canal of the cervix. They should, I think, be treated as parts of the mucous membrane of the cervical canal, and therefore I shall limit the term vaginal portion to that part of the cervix which is covered by epithelium of the squamous and transitional kinds. This will give the inner end of the line limiting the portio vaginalis above, a little within the cervical canal in cases of small narrow os externum; and somewhere on the surface exposed to the vagina, in cases of "erosion" or lacerations of the cervix with eversion. This portio vaginalis is really a cup of stratified epithelium resembling a tailor's thimble, which fits on the lower end of the cervix proper.

The next part is the cervix. It is limited below, by the portio vaginalis, above, by a plane drawn transversely through the inner orifice; or more accurately through that point where the follicles characteristic of the mucous membrane of the cervix end, and the tubular glands characteristic of the decidua begin. The portion of the organ above this plane constitutes the body and fundus of the uterus. This division of the uterus, with the boundaries mentioned is of importance, because cancer may begin in any one of them, and we shall find that the disease generally presents different characters, runs a different course, and is amenable to treatment in different degrees, according as it begins in one or other of these divisions. To trace the life history of cancer has always been found to be a difficult task, and the difficulty has arisen from two causes: firstly, because cases rarely come under our notice at a period sufficiently early for observations of the first

beginnings of the disease to be made; they come at an advanced stage when it has become impossible to guess even at their earlier course. From this time on, to its certain and uniform termination, we possess ample knowledge of the disease—of a kind. The second cause of difficulty is, that when cases are examined early, their true nature is overlooked. I believe this to occur much oftener than is generally supposed. The result is, a very scanty knowledge of the natural history of cancer with very imperfect descriptions of it.

Cancer is usually classified into scirrhus, encephaloid or medullary, and epithelioma. This classification has no value, and little meaning, as far as the uterus is concerned. Names have also been given to the disease descriptive of the morphology of the new growth, such as cauliflower excrescence, polypoid, diffuse cancer, etc., but no classification of cancer of the uterus according to its structure has been made with the exception of that made by Ruge and Veit. I shall not refer again to the usual division into scirrhus, encephaloid, etc., but shall describe the structures met with in cancers of the several parts of the uterus, and then I shall arrange cancers according to the structure we shall have met with.

The observation of structure alone is not sufficient. We want to trace the course of the disease, the lines along which it moves, discover the tissues which form its favourite pasture—in short, to read its history. When we shall have done this we may hope to know something about it, and to be in a position to estimate, in some degree at least, the value of any proposed method of treatment.

Cancer of any one part of the uterus is cancer which

has originated in that part, and not cancer which has invaded it from some other source. Now cancer may begin in the vaginal portion, in the cervix, or in the body of the uterus, and these varieties I shall describe by examples of each. Cancers of the vaginal portion and of the cervix have been described together, until Ruge and Veit published their work on *Cancer of the Uterus*—a work which marks an epoch in the study of the disease.

Cancer of the Portio Vaginalis.

Cancer of the vaginal portion begins in the stratified epithelium on the vaginal surface, or in the transitional epithelium at the os externum. Cancer involving this part is common enough; indeed, most of the cases of so-called cancer of the cervix are instances of cancer involving this part, but not originating in it; the instances, however, in which cancer had originated in the portio vaginalis and in which the disease was observed at an early period, are very few. Ruge and Veit, to whose work I have already referred, and to which I shall have to refer again, describe twenty-one cases of what they consider to be cancer of the portio vaginalis. Among them are included glandular cancers, originating in erosions, as well as certain malignant growths originating in the connective tissue—which they include among cancers. The glandular cancers I shall range among cancers of the cervix proper, and the connective tissue growths among sarcomata. If we exclude these two groups from among Ruge and Veit's cases we find they have seen

no case of cancer of the portio vaginalis or only one surrounded by doubt.

Of cancer of the vaginal portion I have observed eight cases only, and have seen specimens from several others; and it is upon these cases, mainly, will depend the account I have to offer, of cancer of this part. I know of no better way of giving you an idea of the disease than by describing typical cases as fully as possible.

Case I.—This case presented, perhaps, the earliest case of cancer which can be distinguished with certainty. It was a patient in whom the cervix had been divided into three lobes by laceration; she improved greatly under treatment; so much so indeed, that she complained of no uterine symptoms at all. Two of the lobes into which the cervix had been lacerated assumed a healthy appearance, but the third remained in an unsatisfactory condition, and I cannot tell you what was unsatisfactory about it. It was not hard, it was not unduly red, it bled slightly on digital examination, it did not enlarge, and yet it looked vicious; and the vicious character seemed to be expressed by a slightly livid appearance of the part only, and scarcely that even.

The patient was 30 years of age, married, had had two children, and one miscarriage. She was admitted into University College Hospital on January the 12th, 1886.

She knew of no cause for her illness; but she began to bleed in February, 1884, when she was two months pregnant; she had several irregular floodings until May, when she miscarried, and was laid up afterwards for six weeks with what she called "rheumatism" in

her foot and elbow. Her health subsequently improved, but since the miscarriage menstruation has been irregular, returning at too short intervals, and lasting longer than usual. She did not feel any the worse for it until eight or nine months ago, when the flow began to be so excessive and prolonged, as to give her only one week clear in the month. Her strength and general health failing, she sought advice.

She has lost flesh lately.

She said she had sore throat and loss of hair in 1884, but no rash.

She began to menstruate at 12 years of age; was regular every four weeks; the flow lasting a week, in considerable quantity, but without pain.

She was married at twenty-two.

Her second labour was accompanied by a flooding, but she made a good recovery.

No family history of cancer was obtained. The mother died of consumption.

The cervix was low in the pelvis; it was torn on the right side and the left, and deeply through the anterior lip; there was considerable eversion of it; there were granules on the everted surface like enlarged and closed follicles. The body of the uterus was anteverted, normal. Through the speculum the vaginal portion appeared pale and covered by squamous epithelium; the left three quarters of the anterior lip was everted and bled when touched. The right quarter formed a projection like a nipple; the posterior lip was everted and paler than the everted portion of the anterior; it did not bleed on examination. There was a considerable quantity of muco-purulent discharge on the surface.

Temperature 98·4° to 100° F.

By the application of a solution of sulphate of copper to the cervix and canal of the body, menstruation became normal; the discharge ceased, and the lips of the cervix assumed a healthy appearance with the exception of the left portion of the anterior lip. In July this portion of the anterior lip was removed for reasons already given.

This was examined under the microscope, and a very interesting state of things was found.

Beginning our examination on the vaginal surface we found the stratified epithelium intact and somewhat thickened. At the reflexion of the vagina, however, the deeper layers of the epithelium sent processes into the sub-jacent tissue (PLATE I.), and beyond this place on the surface of the portio vaginalis several such processes were met with (*b*, *b*, *b*); these processes were branched, and some entered glands, which were evidently the glands of an erosion; further on were found swellings of the deeper epithelial layers and glands lying in them; glands again running more or less parallel to the surface, branched or simple; then a gland, one side of which was invaded by squamous epithelium (*c*), the rest being lined by epithelium of the columnar form (*d*); then irregular thickenings of the deeper strata of the epithelium of the surface running into and between the glands; the cells of such glands were partially replaced by the squamous variety; then we came upon a part of the cervix in which the papillæ were everywhere enlarged, and beneath which were found numerous glands. The cervical tissues near the whole of the surface I have described were infiltrated with small cells; but this was not the case in those portions, over which the superficial epi-

thelium was healthy. In some places glands were filled with secretion, and some of these were changed into closed follicles.

This is the earliest condition of undoubted cancer of the portio vaginalis which I have met with; and it is the earliest condition which is recognisable as cancer. It presented no distinctive symptom and was discovered accidentally; its nature was not recognised with certainty, but was held in suspicion.

Case II.—In this case there was no difficulty in coming to the conclusion that the disease was cancer, for there was a new growth which progressed so rapidly, as to leave no doubt as to its nature. It was in an early stage, but it differed in several respects from the one I have just related. In the first case, cancerous processes appeared to enter the cervix from several points on the portio vaginalis. In the case we deal with now, there was a distinct papillary growth, situated at the external orifice, on the posterior lip.

The patient 39 years of age, married, was admitted into University College Hospital on Dec. 10th, 1883; and gave the following account of her illness.

About September, 1882, she noticed a yellow discharge from the vagina, and since that time she has been getting thinner. She attended as an out-patient in June, 1883, and was prescribed a vaginal injection containing Condy's fluid. About a fortnight later, when administering herself an injection, she noticed blood in the discharge. The blood appeared again when an injection was administered, and varied in quantity from time to time, and afterwards appeared independently of the injections. For nine months there has been pain during, and hæmorrhage after, sexual

congress. For five weeks before admission the blood has increased in quantity, and the discharge has been offensive.

The patient began to menstruate at 11 years of age, and has always been regular until nine months before admission, the quantity lost being moderate.

She has been married eighteen years, has had one child seventeen years ago, and one miscarriage a year later. She says that she has had inflammation of the womb three times, and has suffered slight scalding with micturition, since she had rheumatic fever, nine years ago.

On admission she was thin but looked fairly healthy, and weighed 6st. 1lb.

External examination of the abdomen revealed nothing abnormal.

On vaginal examination there was found what was taken for a red ulcerated surface, raised about one line above the level of the surrounding parts, and situated on the posterior lip and part of the anterior (PLATE II., Figs. 1 and 2). There was a narrow strip of healthy mucous membrane on the posterior lip, between the growth and the insertion of the vagina, and another, about three quarters of an inch in width, on the anterior lip. The red surface had the diameter of a florin: four days before, it was not bigger than a shilling, and affected chiefly the posterior lip. On the left side there was a fissure in the cervix, and the lips were everted.

The cervix was amputated above the internal orifice. The part removed was one and a half inches in length. On the posterior lip was no ulcer, but a raised papillary growth, (PLATE II., Fig. 1, *c*) about three-quarters of an inch in diameter, and on section, its thick-

ness was seen to vary from one-third to one-sixth of an inch (PLATE II., Fig. 2, *a*). It was rough on the surface, and on its sides, towards the commissure, and on the anterior lip, was a shallow narrow depression. At the border of this depression the stratified epithelium terminated abruptly: the border of the epithelium was sinous and somewhat swollen, as if thickened; posteriorly the stratified epithelium was retained up to the growth. The lips were everted so that the disease appeared to affect the lowest parts of the lip: this was, however, not really the case, for it originated at the os externum, and was advancing along the posterior lip.

On examining this specimen with the microscope and beginning on the healthy surface of the vaginal portion, this was found covered by stratified epithelium (PLATE II., Fig. 3, *a*): beneath the epithelium were the papillæ, somewhat enlarged: beneath these, again, was what appeared to be the healthy tissue of the cervix. As we approach the diseased part, the deeper layer of the stratified epithelium was found increased in thickness (*b*). Small cells and nuclei appeared in great numbers in the tissue immediately beneath the thickened epithelium. Close to the new growth the stratified epithelium became greatly increased in thickness: here the papillæ became longer, and strings of epithelial cells ran into the tissues beneath, and papillæ (*c*) grew upwards from the subjacent tissue towards the surface, and penetrated the superficial thickened layer of squamous epithelium, as the processes from that epithelium penetrated the tissue of the cervix. These papillæ grew rapidly, and over their points the horny layer of the squamous epithelium was in the main lost. (*e*) It should be borne in mind that the deepest layer of

the stratified epithelium of the cervix is formed of columnar cells, the cells of the middle layers are variously shaped, and the superficial cells only are flat. At the point where the deeper layers began to proliferate the superficial layer of flat horny scales was lost. As the growth proceeded the columnar cells forming the deepest layer lost their character, and abutting against the proliferating stratified epithelium was a thick layer of what appeared to be indifferent tissue, beyond this was a string of cancerous cells, then again what appeared to be indifferent tissue. This might lead us to the conclusion that the cancer was really developed from connective tissue, both the connective tissue and the epithelial having been first transformed into indifferent tissue. The loss of the flat horny layer of the epithelium, and the apparent termination of the proliferating epithelium, in indifferent tissue, appear to favour this view, a view which has been adopted by Ruge and Veit. A little closer examination, however, will, I think, show that the layer of indifferent tissue in which the proliferating epithelium seemed to end was a rapidly growing papilla: that this was making its way through the thickened epithelium to the surface, and that in the course of this process the horny epithelium fell off. The surface epithelium falls off as the result of the growth of tissues from beneath towards the surface, as I shall have occasion to point out again. The cords and strings of cancerous tissue which appear in the growth, and which anastomosed freely were not cancerous tissue developed from connective or indifferent tissue, but the thickened cancerous epithelium of the part penetrated through and through and in all directions by papillæ growing towards the surface, and the loss of the epithelium in

places on the surface the direct effect of the growth of papillæ.

The accuracy of this view of what occurs is shewn by the fact that in other places the epithelium was continuous from the healthy surface to the diseased, and that in many places in the diseased surface points were found denuded of epithelium.

It is a curious fact that when papillæ grow on a uterine surface covered by columnar epithelium, they are always covered by columnar epithelium, whereas, when they grow on a surface covered with stratified epithelium, the surface epithelium is lost—the horny layers are not compatible with growth.

Case III.—The third patient, a widow, 42 years of age, was admitted into University Hospital on November 26th, 1883. She had been treated on and off for perimetritis for several years. She said that twelve months ago the pain in the side for which she had been treated returned with great severity, it radiated from the left side of the lower abdomen. At the same time she had a dragging pain in the left axilla.

Four months ago she noticed a greenish discharge from the vagina, which became offensive two months ago. The discharge was considerable in quantity during the day, and contained blood. During the last week the blood has diminished while the discharge has increased, but the latter has to a great extent lost its fœtor.

The catamenia appeared first at eighteen; they have returned regularly since, in moderate quantity and without pain.

The patient was married at twenty-two years, and has had seven children. The third labour was hard,

but delivery was accomplished without the use of instruments. It was followed by a flooding. After this she says that she had inflammation of the womb and bowels. In her fourth confinement she was delivered of twins.

She has had no miscarriages.

The father died of asthma; the mother of a cause unknown to the patient; one sister died of cancer of the womb.

The patient was fairly nourished; the heart and lungs were healthy.

The cervix of the uterus was flattened and circular, almost like the head of a mushroom. There was a deep laceration in the left commissure, but the anterior and posterior lips and the right commissure were not torn. The cervix was amputated just above the internal orifice.

The portion removed was an inch and a half in length. The posterior lip was the seat of a papillary growth one inch in diameter. There was a narrow strip of healthy mucous membrane between the disease and vaginal vault posteriorly. The vaginal canal appeared healthy.

On microscopic examination it was found that in places the superficial layers of the stratified epithelium were lost and the deeper layers were exposed; in other places the superficial layers were retained, and the deeper layers were thickened and presented a wavy border. These deeper proliferating layers sent processes into the subjacent tissues, which formed strings and groups of cells and typical nests. In the portio vaginalis no glands were found, but in the neighbourhood of the os externum many were met with, and these presented the characters of those found in an erosion. Among the glands were found in another specimen in many places groups of cancer cells, the glands themselves remaining healthy;

in other places the glands were undergoing changes, the cells becoming atrophied and disappearing with a thick layer of cancer growing around them; in others again the gland spaces were more or less completely filled with cancerous growth leaving a small lumen or none at all (PLATE IV., Fig. 2, *a*, *a*.) In some places the columnar cells of portions of the glands appeared to be replaced by the debris of the former lining while the lining of the remainder appeared to be unchanged. Whenever these appearances were found there seemed to be active growth in the tissues immediately surrounding the glands, shewn by their infiltration with small cells. In other parts again a nest grew into the gland encroaching on its lumen, the columnar epithelium having disappeared over the nest (Fig. 2, *b*.) Occasionally the flat epithelium was seen to grow down into the gland in multiple layers taking the place of the natural columnar lining.

The disease was quite superficial, its thickness being not more than one-sixth to one-third of an inch.

CASE IV.—The foregoing cases illustrate the tendency of the disease to extend along the surface of the portio vaginalis rather than up into the cervical canal; the next case shews this tendency in a still more marked manner.

The patient was married, and forty-seven years of age and had had seven children. She had had some pain and discharge for three months, but no hæmorrhage. Menstruation was quite regular. The body and cervix of the uterus were enlarged but not harder than natural. There was an ulcer on the left commissure about the size of a shilling; its base and edges were not indurated. The external orifice was open and admitted

the tip of the finger as far as the first joint and the palmæ plicatæ felt swollen. The lips were not red, but of a slightly livid hue, and there were a few points in the anterior like suppurating follicles.

A small portion of the anterior lip at the os externum was removed for diagnostic purposes, and in a fortnight afterwards induration was felt in the anterior vaginal vault without other marked change in the cervix. I would observe here that induration which is so frequently mentioned as a sign of cancer of the uterus was not present in these cases. Indeed hardness does not appear to be marked until the cellular tissue is involved in the disease.

Under the microscope the flat epithelium on the surface was found to be intact, and its deeper strata sent processes into the tissues beneath and formed therein cancerous masses. It was a typical case of squamous epithelioma. The depth to which it reached could not be ascertained, inasmuch as only a small piece was removed for diagnostic purposes. The disease, however, clearly spread towards the vaginal vault for the connective tissue in that situation became soon involved.

Case V.—The next case is one of great interest because it shews a further step in the progress of cancer of the vaginal portion (Plate III., Fig. 1). The patient was married, and 67 years of age. She was admitted into University College Hospital, in March, 1866, with the following history.

Thirteen years ago she was knocked down by a bale of goods and almost directly afterwards she noticed that the womb came down. At first it used to go back of itself, but for the last two or three years the patient has had to return it herself. There has been occasional

slight hæmorrhage for twelve months but not much at a time. During the last three months she has become worse: there has been a continuous discharge, sometimes blood sometimes matter. She used to suffer from a yellow discharge before she began to bleed. She could always return the womb until a few days ago when it came down during the act of defæcation which was followed by a profuse hæmorrhage. She has lost flesh rapidly during the last six weeks. She began to menstruate in her 14th year, was regular every four weeks, the flow lasting five days without pain. The catamenia ceased about forty-five.

She was married at twenty-eight, and has had one child and two miscarriages.

There is no history of cancer or tumours in her family.

There was marked rheumatoid arthritis of the interphalangeal joints, and of the metacarpo-phalangeal of the thumbs but not of the other digits: the wrist and elbow were also affected. The joints of the lower limbs were not affected in any marked degree. The vagina was inverted: the mucous membrane of it was pale and horny. The cervix was outside the vulva, and on the anterior part of it, and extending over the posterior half of the anterior wall of the vagina was what appeared to be a large ulcer (PLATE III., Fig. 1). This was red and bled readily: its surface was not depressed but the horny layer of the epithelium appeared to the naked eye to cease at its margin.

The sound passed into the uterus for four inches. Temperature 99° to 100° F., pulse 80.

An incision was made through the anterior vaginal wall about half an inch from the diseased surface and the mass was dissected from the base of the bladder.

The incision was carried round behind the cervix through the posterior wall of the vagina and the cervix was amputated.

On microscopic examination the stratified epithelium of the vagina was found thickened, and the superficial layer horny. On approaching the diseased part the lower strata were found to be proliferating and sending processes into the subjacent tissue: advancing further into the disease these processes increased in length, and cords, masses of cancer cells, and nests with horny cells in their centre were abundant. The disease terminated at the external orifice of the uterus where the stratified epithelium ends: a few glands lined with columnar epithelium and a few closed follicles filled with secretion and with their lining epithelium intact were found in that situation. These were not involved in the cancer. In some places on the surface the stratified epithelium was very little thickened, while in others where the disease was more advanced, it was more or less completely lost. The surface of the ulcer was generally tuberculated. The disease was superficial, its greatest thickness being about three-fourths of an inch. Owing to the extrusion of the cervix and vagina through the vulva these parts were swollen and œdematous, and this naturally increased the apparent thickness of the diseased tissue.

Case VI.—This patient, fifty-three years of age, married, was admitted into University College Hospital in May, 1884.

She said that four years ago she had a slight discharge from the vagina, accompanied by pain, but has seen nothing since. Three weeks ago while in bed she woke up with a severe dragging pain in the right

inguinal region which gradually worked round to the left hypochondriac region and then passed off. It lasted about half an hour and left her prostrate and powerless. She had a similar attack the following night. She has had three such attacks up to the present time, one having occurred since her admission into the Hospital. There was no vaginal discharge until May 7th, the day after her admission, when she observed a slight pale yellow discharge which lasted for one day only. She has had some difficulty in passing her water especially when it has been retained for a long time, but there has been nothing unusual in this respect during the last three weeks. She has suffered from nausea and eructations, dyspnœa on exertion, and, at times, great depression of spirits which passes off after a good cry. Seventeen years ago she had pain in the supra-pubic region but no vaginal discharge.

Menstruation began in her 15th year, was regular every four weeks, lasting three or four days, moderate in quantity with slight pain. It ceased at the age of forty-four.

She was married at nineteen and had four children during the first seven years of married life. She has had no miscarriages. Her labours were lingering and severe but not instrumental. She nursed each of her children sixteen months.

She has been stouter since she ceased child-bearing, but has lost flesh during the last twelve months, and has for the same period been nervous and irritable.

On admission she was well nourished, there being about one-and-a-half inches of fat on the abdominal wall. The mucous membranes were well coloured.

There was slight prolapse of the posterior wall of the vagina, and this wall was red and apparently ulcerated to within an inch of the skin of the perinæum (PLATE V., Fig. 2). The anterior wall was apparently ulcerated to within half or three-fourths of an inch of the meatus urinarius; on the left side the ulcer was prolonged a little further along the wall of the urethra. At the apparently ulcerated part the vagina was greatly narrowed, its walls were rigid so that the finger could be introduced only as far as the second joint. The lips of the cervix could not be felt. The vaginal walls were not fixed. The examination caused slight bleeding. Examination by the rectum shewed that there was no appreciable thickening of the posterior septum.

In October, 1884, she had a slight discharge of blood for the first time since the menopause, nine and a half years before. It lasted one day. She had a dragging pain before it came on. She has had free hæmorrhage since, with clots, and constant pain in the stomach, shooting down the legs. Defæcation has become difficult and the urine escapes involuntarily.

Vaginal examination at this period shewed much the same condition of the parts as was found at the examination made six months previously. Examination by the rectum, however, shewed that the tissues were thickened, and the mass in the situation of the uterus to consist of three lobes, two of which were very distinct; the mass was moveable; there was some thickening on the right side of the uterus.

The growth was scraped with a sharp spoon and the diseased tissue was found to extend backwards into the mass just mentioned.

Temperature 99·4° to 99·6° F.

Specimens of the growing part as well as of the higher and evidently older portion of the disease were submitted to microscopic examination. Beginning the examination on the healthy surface the squamous epithelium was found to be normal. Proceeding backwards towards the disease the deeper layers became thicker and thrown into the appearance of folds by the papillæ growing beneath, and in the diseased part these processes became longer and entered into the tissues subjacent, and masses of epithelial cells were to be discovered in the vaginal wall. (PLATE IV., Fig. 1). The tissues adjacent to the proliferating epithelium were infiltrated with nuclei and small cells. The superficial and horny layers of the epithelium were retained almost to what appeared to be the ulcerating part; there they became thinner and thinner and ceased altogether. The scrapings from the older portions of the growth consisted largely of fibrous tissue with what appeared to be muscular fibre cells in bundles which formed small irregular meshes or alveoli containing abundant nucleated small cells often presenting a granular character (PLATE VI., Fig. 1). In some places well-defined spaces were seen filled with nucleated cells variously shaped but apparently epithelial in character. Sections of these spaces presented various forms; sometimes long string-like collections of cells were seen running from them shewing apparently that these were sections of altered epithelial cords which had grown into the stroma around.

CASE VII.—This patient was 41 years of age, married, and had had three children and one abortion.

She began to menstruate at 13, was regular every four weeks, the flow lasting four days in moderate

quantity, and was before marriage accompanied by pain.

She was married at 27. Her first labour was severe; it lasted sixty hours, and was finally terminated by forceps. She had a flooding ten days afterwards; she kept her bed for a month, and had a bad getting up.

She has had leucorrhœa for three months after the periods. Four days ago she had a flooding.

There was no history of tumours or cancer in her family.

On examination the vagina was found to contain much purulent discharge: the cervix was red, angry-looking and ulcerated (PLATE III., Fig. 2). There was no swelling or induration around the uterus. The sound was passed for a distance of three inches. The cervix was amputated above the insertion of the vagina. The piece removed weighed three ounces and one drachm. It was of a conical shape, and measured two and a half inches from apex to base. The base measured one and half inch from before back, and two and a half inches from side to side. On the lips was a kidney shaped ulcer, the part corresponding to the pelvis of the kidney being on the anterior lip, which was less affected than the posterior. On the posterior lip the ulcer was an inch in depth and it split the lip in its whole length into two layers. The disease burrowed in the substance of the anterior lip from left to right, and had the parts been left untouched it is probable that the anterior lip would have been split in the same manner as the posterior.

In some places the edges of the ulcer were everted, in others they sloped somewhat abruptly towards the the healthy surface. The margin for about one-sixth

of an inch felt slightly raised: the floor was irregular. The external os was near the centre of the diseased mass close to the part corresponding to the pelvis of the kidneys. It was a slit-like opening. The most extensive destruction of tissue had taken place in the posterior lip. The disease was everywhere surrounded by what seemed to be healthy tissue. On slitting up the cervix, the mucous membrane of the canal was found injected but did not appear to be diseased. The amputation seemed to have been made through healthy tissue. Temperature 100° to 101° F.

On examining the specimen microscopically the squamous epithelium on the apparently healthy surface was found irregularly thickened and the papillæ enlarged. Close to the diseased part there was a very marked thickening of its deeper strata and small papillæ penetrated into it. Between this thickened part and the edge of the ulcer the surface epithelium was extremely thin and at one point it appeared to have been entirely lost. This narrow space was occupied not by indifferent tissue but by cervical tissue somewhat altered by the presence of small cells in its substance; beyond this again were large strings of epithelium, and between these strings cords of cervical tissue or papillæ.

Some of these cords or papillæ ran right to the surface having their points bare and not covered by epithelium; the points of others were covered by a thick layer of cancerous epithelium, the papillæ not having yet penetrated through it: they were bounded on each side by a similar cancerous cord. This structure clearly shews the mode of growth in this case. There is no indifferent tissue. The cancerous cords are formed by the ingrowth of the surface epithelium. Papillæ often

break through this proliferating epithelium, and this gives rise in sections to the apparent want of continuity of the surface epithelium with the diseased epithelium. The disease was everywhere superficial, being not more than a quarter of an inch in depth at any point; but the whole of the excavation was lined by such a layer. The new growth appeared to have ulcerated almost as soon as it was formed.

The mucous membrane of the cervix was healthy except at one part close to the disease, where the columnar epithelium had grown into several layers. On its surface were many papillæ, with an erosion presenting large branching papilliferous glands. Between the glands and the cancer there was a distinct layer of healthy tissue. The growth was independent of the glands, although in many places it assumed a form having a central lumen which suggested a glandular origin. The disease evidently began on the surface and then took a very unusual course for squamous epithelioma, by burrowing into the substance of the cervix and then running in a more or less circular manner in the substance of its wall, dividing the wall into two annular layers.

I have seen but one other case which presented conditions of cervix similar to this. In that case the cervix was split completely into two circular layers. The vaginal surface of the outer layer appeared healthy to the finger. In the course of a few days the inner layer fell off completely, leaving a great conical ulcer in the place of the cervical canal. No specimen was obtained in this instance for microscopic examination, and I am unable to state the exact nature of the cancer.

Case VIII.—The patient in this case, who was

35 years of age, was admitted into University College Hospital in June, 1880, under the care of Dr. Graily Hewitt. She had been married sixteen years, had had nine children but no miscarriages. The last child was born ten months previous to admission after an easy labour.

She had had a leucorrhœal discharge during her last pregnancy, and for the last two months, she had had a bloody discharge from the vagina.

She dates her illness from the first appearance of the catamenia. since her confinement, eight weeks back. The bleeding was profuse and continued for four weeks, and she kept her bed and applied ice to the vulva; the bleeding stopped then for a fortnight, and during this time she had a white discharge; then flooding returned but lasted only twenty-four hours, it returned again and has continued since. She is getting weaker but has no pain.

She began to menstruate in her eighteenth or nineteenth year and was regular until eight weeks ago. Her periods were normal in every respect, and were almost quite free from pain.

The mother died in an asylum, the father of dropsy, brother and sisters are healthy.

The patient, looked healthy; she was not anæmic although somewhat sallow. She had lost some flesh.

On vaginal examination a tumour the size of a turkey's egg was felt projecting from the cervix; it was of the shape of a mushroom, and was everywhere hard, firm, and smooth. It grew from the right commissure and anterior lip. The sound could be introduced in the normal direction to the normal distance. The tumour together with a portion of the anterior lip was

removed with the ecraseur. It measured two inches by one inch. When cut through it was found that its surface was decidedly softer than its central part which cut like a fibroid.

On microscopic examination the growth proved to be a fibroid polypus or a hypertrophy of the lip of the cervix, for it was covered on one side by squamous epithelium, and its surface was the seat of a superficial epithelioma of a typically squamous character. The flat epithelium was retained and great processes were sent from it into the substance of the tumour, but they did not penetrate deeply. They formed strings, and groups of cancer cells and nests, in which many cells were horny.

On looking through these cases we find that cancer may begin at any point of the vaginal portion from the os uteri to the vaginal vault. It may begin at more than one point—at several close together as in the first case, or it may originate at the external orifice as in the second and third cases, or it may commence on the surface of a polypus growing from the lip—it may begin in fact on any point of the cervix covered with stratified epithelium.

The forms which it assumes in its early stages are few. Ruge and Veit state that cancer of the portio vaginalis forms nodules, but the cases they describe in which the disease took this form are instances of cancer developed from connective tissue, and if they are correct as to its mode of development we must class the disease as sarcoma.

Of the eight specimens I have seen, three had no special form: there was some enlargement of the lips only. In one the disease was papillary and it was pos-

sibly the beginning of a cauliflower excrescence. True cauliflower excrescence is, I believe, rare, and is a squamous epithelioma growing from the vaginal portion. Cases are met with not infrequently presenting growths not unlike the head of a cauliflower, but they are without a stalk, and they present a firm solid structure after removal, while a cauliflower growth is a soft spongy mass, which collapses after removal, and has the cervix for a peduncle. I have met with in practice but one instance of true cauliflower excrescence, and that was twelve or thirteen years ago, and the specimen was not examined microscopically. Through the kindness of Dr. Godson, however, I have had an opportunity of examining this disease in a specimen which he had removed with the ecraseur with the best results. About one-half to three-fourths of an inch of healthy tissue of the portio was removed together with the disease. The excrescence appeared to grow from the lip around the os uteri, was about an inch in diameter at the base when hardened in spirit, and altogether of the size of a small walnut. It appeared almost like a mass of tangled thread, and was entirely villous and soft.

Microscopically it proved to be a squamous epithelioma growing apparently from the surface covered by transitional epithelium.

One of the eight cases presented a red tuberculated surface, and one an uneven surface having a granular appearance.

It should be borne in mind that a vaginal portion having a thin layer of cancer on its surface may be perfectly smooth, and look fairly healthy, presenting perhaps only a little lividity.

I have seen the disease start from a tear in no in-

stance, nor is there any evidence that a laceration of the cervix plays any part whatever in the ætiology of the form of cancer we have been discussing.

The next point for consideration is the direction of of the growth of the disease. Does it grow deeply and involve the uterine tissues, or does it extend superficially, and if the latter in what direction? In all the cases—six in number—in which the depth of the growth could be ascertained the disease was found to be superficial from a sixth to a third of an inch in thickness only, with one exception, in which it was three quarters of an inch in thickness at its deepest part. In this instance, however, the vagina was inverted and the cervix being outside the vulva was constricted by the vaginal orifice; and the increased thickness was probably due to the œdema and swelling caused by the displacement. Doubtless at a later stage when the disease has destroyed the surface and invaded the cellular tissue, deeper parts become affected, but even at a late stage it may remain superficial for a long period, as in Case VI., in which almost the whole of the vaginal surface was involved in the disease without appreciable thickening. Later the cellular tissue in the broad ligaments, and perhaps the sacro-uterine become affected, but in none of my cases were the latter affected.

The direction which the growth takes is another important matter in respect of treatment especially. In none of the cases was the cervical canal involved in so far as could be discovered. In two of the eight cases this point could not be ascertained. In six the canal was healthy, so that the lines of the growth are not towards the cavity of the uterus, but outwards and downwards towards the vagina. It creeps towards the

vaginal vault, and then down along the surface of the vaginal walls. Various stages of its progress in this direction are shewn by the cases described. In the first it is just beginning at several points; in the second it is growing from the os externum along the posterior lip towards the vagina; the third shews it more advanced in the same direction; in the fourth it has advanced to the vaginal vault, as shewn by the thickening and induration in that situation; in the sixth it has involved the upper part of the anterior wall of the vagina, and in the seventh it has invaded both walls for the greater part; so that the tendency of cancer of the vaginal portion—which is a squamous epithelioma, is to affect the parts superficially, and to spread on to the vagina and downwards along the walls of that tube.

Whether it affects the anterior or the posterior lip most frequently I do not know, and my cases throw no light upon this point. When it grows like a cauliflower it is superficial and enters but for a short depth into the cervix, as is shewn by the cases which have recovered after removal of the growth by the ecraseur—which removes as a rule a very superficial portion of the cervix.

There is among these cases one which has run a course differing entirely from that of all the others. I mean the seventh case. In this instance the disease appears to have commenced on the vaginal surface of the portio vaginalis midway between the external orifice and the vaginal vault, and to have bored its way into the substance of the cervix, ulcerating as it grew until it had entered into the cervical wall to a depth of about one inch. It presented no tendency to spread superficially nor to affect tissues extensively, for the depth of the

diseased tissue at any point was not more than a quarter of an inch.

In most of these cases the disease was in too early a stage for us to expect secondary deposits and in none of them were any discovered; but in the sixth case in which most of the vagina was affected such deposits might have been looked for with the expectation of finding them. None, however, were discovered, except some thickening in the broad ligament; the uterus was still moveable, and the obturator gland and the glands in the groin were unaffected. I have seen two other cases in which the disease had spread down the vagina, but no specimens were obtained for microscopic examination, and therefore I cannot speak positively of their histological structure, although I suspect them to have been cases of squamous epithelioma of the portio vaginalis. In one of these the glands in the groin were enlarged.

The structure of the cancer in all the cases was squamous epithelioma. I have seen no other form commencing in the portio vaginalis, although I have seen it invaded by other forms. My cases are so few that it is but little use to discuss them further, but I must make one or two observations upon the ætiology of this form of cancer. We find the earliest subject of it was thirty, and the oldest sixty-seven years of age. In two it appeared long after the menopause, while the remaining six were between thirty and forty-seven years of age—so that this form of cancer appears much more frequently during menstrual life than after the menopause.

All the cases were married, except one, who was a widow. It does not appear clear that child-bearing has much to do in the production of the disease, for one

had had one child and one abortion; two had had two children and one abortion; one had had three and one abortion; one had had four, two had had seven, and one nine. Here we have five women with less than the average number of children and three with more. Again, among all the labours none appeared to have been very bad; one or two were described as lingering and severe, but none were instrumental. In one case only was a family tendency to cancer traced—a sister had died of the disease.

The previous history of the patients gives no clue to the cause of the disease. Menstruation begins early and late, at eleven and twelve and eighteen and nineteen, and may be regular, painless, and normal in every respect; so that, in so far as these cases show, early or late development makes no difference, nor many nor few children.

The symptoms are few during the early stages. Hæmorrhage appears to have been an early, perhaps the first, symptom in four, on coitus in one, independently of it in three. There was one other in which hæmorrhage was present, but in whom it may have been caused by the polypus present, and not by the cancer; though against such a view is the fact that the polypus must have existed for some time before the bleeding appeared, and it is not improbable that it began soon after the commencement of the cancerous change on the surface of the polypus.

Discharges, white and yellow—are so common in women as to be unreliable as a symptom of cancer.

A white or yellow discharge was present in every case in a greater or less degree with one exception, it had been present in some long before any evidence of

the disease existed. It appeared before, or at the same time as the bleeding in four, and it was offensive at a very early stage in two. It was absent throughout in one—even when almost the whole of the vagina was diseased. Fœtid discharge is generally regarded as a sign of a late stage of cancer, and as depending upon sloughing and breaking down of the new growth. It may, however, be present during the earliest stages, and be quite independent of sloughing of the tissues. The fœtor under these circumstances is perhaps due to slight hæmorrhage retained in the vagina, and undergoing decomposition and then appearing as a fœtid discharge.

There were few bladder symptoms of note.

One had had slight scalding for many years, which she attributed to rheumatism, and one had had slight difficulty of micturition for many years, when the urine had been retained long, which may have been due to the disease, for the disease had probably existed for a long time.

Of the exact duration of this form little or nothing is known. One of the patients died twelve months after an operation for the removal of the disease, which disease had existed for four months at least before the operation was undertaken; in one, almost the whole of the vagina was cancerous when first seen two and a half years ago, and she was living in the autumn of this year. The disease had existed in this instance probably for many years.

Cancer of the Cervix.

We now pass on to the consideration of cancer of the cervix proper, but before entering upon this part of our subject we must take a rapid glance at a condition which has received a great deal of attention from time to time, and for which many kinds of treatment have been practised, but whose nature remained quite unknown until revealed recently by the investigations of Ruge and Veit. I mean so-called ulceration, abrasion or erosion of the os uteri. This is situated on the lips of the uterus, on one or on both. It is of a red colour, and in some cases forms a narrow ring around the os; in others it is limited to one lip; in others again it covers an area as large as a florin, and involves apparently the entire surface of the lips (Plate V., Fig. 1). The surface is soft and often covered by papillæ which bleed readily. The condition is neither an ulcer, an abrasion, nor an erosion. There is no loss of tissue, and the surface is covered by epithelium, but it is epithelium of the columnar kind. The columnar epithelium has encroached upon the territory of the squamous and displaced it.

An erosion may present an appearance very like that of cancer, and on the other hand, cancer may appear very like an erosion. In such cases it is not possible to recognise the real character of the morbid process at once except by the microscope. Clinical observation fails here unless ample time be given, and when this is done the consequences are disastrous in those cases which prove to be malignant; for when time has solved

the difficulty it is too late to have recourse to any curative treatment with any chance of success.

What is an erosion ? and in what does it differ from cancer and adenoma? I cannot describe it better than by saying that it is like an extension of the mucous membrane of the cervical canal through the external orifice on to the lips, which are in health covered by stratified epithelium. In some cases an appearance like that of an erosion is caused by a hypertrophy of the mucous membrane of the cervical canal, bulging downwards through a more or less patulous os with soft lips—as is sometimes seen in pregnancy. In cases of this kind the transitional epithelium is retained, and it can be easily seen in the space between the squamous and columnar epithelium. A true erosion, however, consists of a structure like that of the mucous membrane of the cervix, placed on a surface which in health is covered by squamous epithelium. It may be, and often is, associated with a hypertrophy of the mucous membrane of the lower part of the canal. It contains glands lined by columnar epithelium and its surface is covered by epithelium of the same character. An erosion differs from cancer, in that the epithelium on its surface and lining its glands consists of a single layer and assumes no aberrant forms, and from adenoma of the cervix, in that the glands are comparatively superficial, as well as in some other respects which I shall refer to later.

Ruge and Veit state that the glands of an erosion arise from a change in the deeper layer of the stratified epithelium, which dips into the substance beneath and forms glandular processes. I have not been able to trace this mode of gland formation in erosions and the

process appears to be somewhat improbable. There are two ways in which erosions may arise, and one in which they are certainly produced. On examining a cervix, upon which an erosion is seated, you will see little red points on the surface of the squamous epithelium near the edge of the erosion, and sometimes small islets of pale squamous epithelium in the midst of a red erosion. These points and these islets clearly indicate the manner in which the erosion has been formed. The little red points are small glandular processes from the cervical glands, growing into the superficial layers of the cervix, and making their way to the surface. In speaking of cancer of the vaginal portion, I said that the squamous epithelium falls off at the points where papillæ grow through the surface and protrude. The papillæ do not carry a layer of the horny epithelium with them as a covering. The same thing happens when a glandular process in the cervix abuts against the squamous epithelium; the epithelium becomes thinner and thinner and ultimately disappears.

In cases of erosion the glands of the lower part of the cervix are greatly enlarged and multiplied. They enter deeper into the cervical wall than they do in health, and their interior is frequently covered by papillary processes. Although these glandular processes penetrate into the wall of the cervix their line of penetration appears to be superficial, for they run downwards and outwards, and invade the layer of tissue immediately beneath the squamous epithelium covering the portio vaginalis. They burrow as it were, in the tissue beneath the epithelium and send processes through the latter to the surface. This manner of growing gives to the border of the erosion an irregular outline, and moreover, occasions the

presence of the red points on the squamous surface, where the epithelium is thinned or wanting, as well as of the islets of squamous epithelium in the midst of erosions, where the original squamous epithelium has missed transfixion by the glandular growth. When the squamous epithelium has fallen off its place is taken by columnar epithelium. The glands are lined by columnar epithelium which is usually like the epithelium of the cervical follicles; its cells are often oblong, but frequently they are elongated and apparently pointed, with their points a little separated, and the prominence of a papilla on the inner surface of a gland then looks like the end of a brush with radiating hairs.

Another way in which an erosion may be produced is by direct extension downwards of the epithelium of the cervical canal, a direct encroachment upon the territory of the squamous by the columnar epithelium, followed by the growth of villi, and the formation of glands. This mode of production, however, I have not observed, but I think it by no means an improbable method.

The wealth of glands in an erosion is usually great; they branch and divide and form clusters of follicles having one tubular outlet. Some appear to remain simple, their interior is often, however, divided by papillary processes in such a manner that their lumen forms a very complex labyrinth. (PLATE VI., Fig. 3). While the glands are thus rapidly growing the stroma around is not inactive, and takes a not inconsiderable part in the formation of the erosion, for it is infiltrated with nuclei and small cells and from it are formed the basis of the numerous papillæ which contribute to the complexity of the glandular structures.

But besides the common glandular erosion there is occasionally found around the os externum and in the lower part of the cervical canal a villous growth. It is believed that such growths have a tendency to take on a malignant character though they are benign at the outset. Scientific evidence establishing this view I am not acquainted with. I have seen three cases of villous growths at the os externum, and one in which the whole of the cervical canal was affected. The two in which the parts around the os only were affected presented no malignant structures; the other in which the whole canal was diseased shewed early cancer in the glands. These cases supply no evidence for or against the view in question, and I have therefore formed no opinion about it.

Case IX.—The first case was a married woman 28 years of age, who complained of having had bearing down pains for eighteen months; they came on every fortnight; she had also continuous aching pain in the bottom of the stomach. The catamenia were regular and the patient had no other discharge.

She was married at nineteen, had had three children, with good gettings up, and had nursed all her children.

She had had a tumour as large as a nut removed from the forehead and another from a toe when a child.

The area of the lips of the cervix was as large as a florin. The enlargement was limited to the lips. It was of a red colour and granular to the touch. This looked like hypertrophy of the mucous membrane of the lower part of the cervical canal. Posteriorly the growth was sharply defined, but anteriorly it gradually shaded off into the healthy surface covered with squamous epithelium.

The uterus was of normal size and freely moveable.

The cervix was amputated; an inch of it was removed. The part removed was laid open by section of the anterior lip in the middle line (PLATE VI., Fig. 2). The disease was limited to the surface around the os and about a third of an inch up the canal. It was of a villous character, and grew from the whole circumference of the canal, except the left side, which had been lacerated. Near the edge of the growth there were islets of mucous membrane covered by squamous epithelium, through some of these the growing papillæ were seen beneath.

CASE X.—This patient was sent up to University College Hospital by Mr. Pratt, of Leighton Buzzard. She was 23 years of age, and not married. Her illness began three years before, when severe pain began to accompany menstruation, seated chiefly in the hypogastrium but extending into the iliac region also. It was of a sharp, shooting, burning character, lasting for five or six hours, after which shooting pains continued for two or three days after the period had ceased.

Menstruation first began in her sixteenth year; it was irregular for twelve months, moderate in quantity and painless.

She was in service until three years ago, but owing to her present illness she had to give up work.

There was a great deal of viscid mucus in the vagina. The lips of the cervix looked like a red vascular growth, not unlike a malignant growth. The os was a long transverse slit in its centre. It bled on being touched. The cervix was amputated half an inch above the disease (PLATE V., Fig. 1).

After removal the disease was seen to be formed by an exuberant growth of mucous folds; they grew from all

the circumference of the os, and extended up the canal for a third of an inch. Its limit towards the vaginal portion was abrupt, and the folds in this situation were smaller than those at the os externum. In both these cases microscopic examination revealed nothing but rapidly growing papillæ and glands. There was no cancerous change in any part.

Glandular growths limited to superficial tissues lead us naturally to glandular growths which are not thus limited, and which involve deep structures, affect the whole thickness of the cervix and invade the connective tissue beyond. These are adenomata and they possess malignant properties. They appear to be rare, for with the exception of Schroeder, Ruge and Veit, who have described a case, I know of no other author who has referred to them. I have seen two cases of this affection, and both were taken for cancer. Indeed, I know of no means by which they can be diagnosed clinically, though the diagnosis can readily be made with the help of the microscope.

Case XI.—The first case of this nature which I saw was a married women, 49 years of age, who had had eight children and five miscarriages. Menstruation ceased two years before she came to the Hospital, and she had "seen nothing" since until the May of 1885—four months before admission. Since May she had lost a great deal of blood and suffered much pain. She had had a white discharge from the beginning of the year, and lately this had become offensive. When admitted she complained of pain of a dull aching character in the bottom of the stomach, back, and thighs; it was sometimes severe; the duration of the attack varied; the pain always ceased on lying down. She had lost flesh lately.

Micturition was very frequent and painful.

She began to menstruate in her sixteenth year. She was regular every twenty-eight days; the flow lasted a week, and was moderate in quantity. She had suffered from leucorrhœa all her life.

She was married at 22. All her labours were good.

There was no history of tumour or cancer in the family.

There was much purulent discharge in the vagina, and the mucous membrane was red and injected. The upper part of the vagina was occupied by a large mass, which was the diseased cervix of the uterus. The disease involved most of the posterior lip and a part of the anterior, and had invaded the insertion of the vagina, both anteriorly and posteriorly. The vaginal surface of the cervix was intact, that is, the stratified epithelium was still retained, but it was generally thinner than it is in the absence of disease. The degree of thinning varied; in some places the epithelium had almost disappeared, while in others it was nearly of normal thickness. Immediately subjacent to it was a layer of tissue of irregular thickness, which appeared to be the tissue of the cervix infiltrated with small cells. (PLATE VII., Fig. 1, *a*,*b*). This layer was everywhere thin, though not everywhere of uniform thinness. The rest of the tissue was formed of glands innumerable, with a scanty framework between them of fibrous tissue, full of round cells. In fact the cervix had been changed into a glandular mass. These glands were of every shape and form. Their cavities were often of great size, some were like great collapsed sacs lined with columnar epithelium. They differed in a marked degree from the glands in an erosion by the absence of papillæ

on their inner surface. They were lined by a single layer of columnar epithelium, the cells of which were regularly oblong. The cells generally presented no cancerous change.

This appears structurally to be a pure adenoma, but it possessed distinct malignant properties. The whole thickness of the cervix and the connective tissue beyond it had been invaded.

Case XII.—The second patient who suffered from adenoma was 44 years of age, married, and was admitted into University College Hospital in August, 1886. She had been regular until eighteen months before when she had a flooding; since that time she has had a profuse flooding every ten or fourteen days. She has suffered from a thick yellow discharge for the same period, but it has not been offensive. She has had no pain.

Micturition has been normal as well as defæcation, but the bowels have been confined.

She has lost a stone in weight during the last two years.

She has frequent nausea.

Menstruation commenced at thirteen; it was regular every month lasting two or three days; the flow was not much and painless. She had continuous leucorrhœa.

She was married at twenty-three; has had three children, the last twenty years ago; she has had one miscarriage since.

Her labours were good, but she regained her strength slowly. She nursed each of her children for about eight months.

Two brothers and one sister died of consumption but there was no history of cancer in her family.

Pulse 99. Temperature 99·2° F.

She was fairly nourished. There was a thin watery discharge from the vagina. The cervix was represented by a mass which felt rough like the head of a cauliflower. It was half as big as a man's fist and grew from the whole of the cervix.

It nowhere invaded the vagina but on the sides posteriorly it extended as far as the vaginal insertion. The body of the uterus was anteflexed and slightly enlarged. There was no induration to be felt around the uterus on examination by the vagina and by the rectum. The obturator glands could not be felt and the glands in the groins were not enlarged. The mass was scraped away and it was found that the whole thickness of the cervix up to the inner orifice was diseased. The microscopic appearances presented by the growth were similar to those in the previous case; but the stratified epithelium was everywhere thinner, though in part retained.

We now proceed to the study of true cancer of the cervix, distinguishing it from malignant adenoma by characters which I shall describe. It may commence in almost any part of the cervix and we will begin with an account of it as it is met with in the lower part of this structure.

Case XIII.—For notes of this first case I am indebted to Dr. George Bird with whom I saw the patient. Previous to her marriage at twenty-two she had enjoyed good health. The cervix was divided bilaterally in 1876. She went to India. In 1877 menstruation recurred every three weeks. In 1885 menstruation was excessive lasting seven days. The cervix was ulcerated, a stringy discharge issuing

from the os. She had no bearing down but much aching pain in the vagina. The os bled on being touched. She first noticed excessive menstruation in 1883. She had a discharge which was slightly tinged with blood escaping during micturition. A sojourn at Malvern improved her condition, and in February, 1886, it was noted that the periods lasted five days—the intermenstrual interval being twenty-one days. She was losing flesh. When I saw her, there was an erosion on the cervix, and the canal was filled with a soft dark red growth, which bled freely on examination with the finger.

The cervix was amputated at the inner orifice.

On cutting open the part removed, it was seen to be covered with villi, almost three-fourths of an inch long and of a dark red colour. They were in the main simple and not branched—in fact not unlike the simple tentacles of an actinia.

The squamous epithelium of the portio vaginalis was intact but there was an erosion at the os with numerous large glands. Just within the external orifice were some superficial glands undergoing cancerous degeneration (PLATE VII., Fig. 2). The upper and more superficial part of the gland was lined by healthy columnar epithelium ; in the deeper part it was many layered and filled the lumen so that the fundus of the gland appeared like the end of a club. This little mass was nodular, and short processes of fibrous tissue projected into its interior like imperfect septa, the spaces formed by them being filled by cancer cells. It seemed as if a gland in the fundus of which were many papillæ had become cancerous. The transition from the columnar epithelium into cancer was well seen. The cells became many layered and

losing their columnar form, became many shaped. In many places there were vacuoles containing several small cells or nuclei generally closely aggregated together, in others more loosely. The cancer in this instance began in the superficial glands, or in the deep recesses between the villi, and not on the villi themselves.

The cervix was removed because the villous growth was suspected to be malignant. The villi were not cancerous, however, although cancer was present at their bases, and it was present at such an early stage, that it would have been impossible to discover it, except by the aid of the microscope, for it gave rise to no physical signs which would lead to a suspicion of its presence. It is I think certain that in this case the growth of villi preceded the growth of the cancer, but this does not prove the tendency of villous growths of the cervix to become carcinomatous, for the cancer attacked structures which are present in every healthy cervix—namely the glands and not the villi.

Case XIV.—In the next case cancer had attacked the lower two-thirds of the cervical wall and formed a kind of nodule in it.

The patient was admitted into University College Hospital on January 23rd, 1884. She was 42 years of age and married. She has always been a strong healthy woman previous to her present illness. About Christmas, 1882, she noticed that she was growing stouter and fancied she was pregnant; at the same time there was milk in her breasts. At the beginning of her illness she had a discharge of blood from the vagina during micturition; this discharge would last for a week or a fortnight and then cease for a time. It only appeared during micturition. For a long time—she does not re-

member how long—she has been subject to bleeding after coitus; but in August, 1883, connection was followed by a large flooding; since that time the hæmorrhage has been almost continuous and liable to be greatly aggravated by exertion of any kind. Previous to August the discharge was almost pure blood, but during the last four or five months a yellow discharge appeared whenever the bleeding ceased. The discharge has been offensive throughout. She has had a dull aching across the loins but no pain in the stomach. There has been no difficulty in micturition or defæcation. She has lost flesh lately.

Menstruation began at fifteen, and has always been regular and never painful. It returned at intervals varying between three and four weeks and lasted three days each time until four years ago; but from that time till now the flow has lasted for not more than a day; the loss was not excessive.

The patient was married at thirty-four and has had one child; her labour was easy and natural; she has had no miscarriages. Her father died of cancer of the stomach, and her mother at fifty, of "effusion on the brain." Brothers and sisters healthy.

The whole uterus extirpated. The following description of it is by Mr. Victor Horsley, M.S.

The parts removed consisted of the uterus and parts of the vaginal wall. The body of the uterus was healthy.

The cervical wall is occupied for its lower two-thirds by a whitish mass of new growth which apparently ceases above a well-defined margin. The rest of the cervical wall is pale almost as far as the internal os. The new growth has infiltrated the lips of the external

os so as to form a large bulbous swelling around that orifice, especially anteriorly, where the growth is about one-fourth of an inch in thickness. At the upper part where this growth appears to end, the muscular wall is pressed upon so as to form a sort of capsule. The under surface of the lips is ulcerated exteriorly, and this condition extends upwards along the right side of the cervix as far as the middle. On the front wall are still present remains of the arbor vitæ. The surface of the vagina posteriorly is encroached upon for a distance of half an inch. The margin, of the ulcer are thin but raised.

This was a typical case of cancer growing from the cervical glands.

The patient died, and the lymphatic glands along the iliac vessels and one gland at the bifurcation of the aorta were considerably enlarged and infiltrated by creamy white new growths.

Case XV.—A married woman, 31 years of age, who was admitted into University College Hospital in December, 1884, gave the following history:—

She first noticed a yellow discharge three years ago, which has greatly increased in quantity during the last three months. It was preceded by bearing down pain. During the last three months she has had hæmorrhage about a fortnight after each menstrual epoch, lasting only for about two hours. This was first noticed after a fall.

She began to menstruate in her fifteenth year; has always been regular, with bearing down pain for two or three hours. She has been losing flesh for twelve months, but more rapidly during the last five months, and during this time she has suffered from indigestion,

swelling of the feet and faintness at times, once causing her to fall and hurt her back.

She has had rheumatic fever three times.

She has been twice married; the first time at eighteen; she became a widow at twenty, and was married again at twenty-nine. She has had one child by the first husband, and no miscarriages. She was fairly nourished, somewhat sallow; she weighed 7 stone 7 lbs.

The uterus was moderately low down, slightly retroverted and freely moveable; the cervix had been lacerated on the right and left sides. The anterior lip was rough and there was a rough edge apparently at the junction of the vaginal surface with that of the canal. The posterior lip was thickened, soft, everted and bled readily on examination. The surface of the growth was of a pale pink colour, and somewhat like brain substance in appearance. The growth in the posterior lip extended backwards but did not involve the vagina.

The cervix was amputated above the vaginal insertion. After removal the nodule on the posterior lip was found to be three-fourths of an inch in diameter. On the anterior was a papilliary superficial growth about three-fourths of an inch in diameter and one-fourth of an inch in depth. The surface appeared rough, and the stratified epithelium was retained to the border of the disease on both lips, and at that point there was a slight depression as if it ceased abruptly. On the vaginal surface of the nodule on the posterior lip the stratified epithelium was intact.

On microscopic examination the squamous epithelium on the vaginal portion was found preserved. The whole thickness of the posterior lip was cancerous;

the cancer extended downwards so as to abut on the squamous epithelium. It was of the columnar type and developed in the glands. It appeared to have begun in the deeper parts of the glands.

She returned twelve months afterwards with recurrence, and I ask your particular attention to what I have to say about this, for its importance from a clinical and therapeutical point of view cannot be exaggerated. A portion of the vagina and of the stump of the uterus remaining after the first operation was removed, and when the part removed was submitted to examination a very curious and interesting condition was found.

The surface of the vagina, as well as its walls, was healthy. The epithelium was somewhat thickened but it showed no sign of malignancy. The surface of the stump was healthy. There were numerous glands in the mucous lining of the portion of the canal left, and these were healthy; none of them showed signs of cancer. Deep in the uterine wall, however, on its outer aspect was found well developed cancer. (PLATE VII., Fig. 3). Between the glands on the inner surface of the canal and the diseased tissue, was a layer of perfectly healthy uterine tissue, containing neither glands nor cancer. There was no connection between the glands present in the canal and the malignant new growth. The cancer was of a typically glandular character, every stage of transition from almost healthy glands to cancerous masses could be distinctly traced in it. Whence came the disease? The recurrent disease presents the same glandular character as the primary disease in the cervix, and yet it does not grow from the glands.

On examining the whole section, we find the cancer grows from the outer end of the cicatrix upwards and inwards into the wall of the cervix; and it is clear that before the first operation the disease had extended through the whole thickness of the cervix and invaded the cellular tissue around, though in so slight a degree as not to have affected the mobility of the uterus, and to have escaped notice during the operation. As far as the uterine stump was concerned the cancer had been extirpated, but the cellular tissue around proved traitorous, and the disease recurred on the outer and non-glandulous side of the organ.

I will illustrate this further by another case of no less interest.

Case XVI.—A married woman, very sallow and cachectic looking, was admitted May 9th, 1885. She weighed 8 stone 3 lbs. For the last six months she has been getting thinner; she has noticed a slight discharge, and has lost a great deal of blood; during the whole time she has hardly been free from hæmorrhage. She has had slight pain in the stomach and between the shoulders. She has frequent frontal headache, and lately has frequently vomited after taking food. She has no pain or flatulence after food. Temper bad.

She was married when nineteen years of age, and has had five children, at twenty, twenty-one, twenty-three, twenty-five, and twenty-seven years of age. Her labours were good.

The catamenia appeared at thirteen, and have always been regular until a few months ago; lasting six days without pain.

The cervix was low down, freely moveable, and ot

the diameter of half-a-crown. It was flattened and granular, some of the granules being hard, others soft. The cervix was greatly thickened. The body was not large for a woman who had had five children; it was freely moveable.

Supra-vaginal amputation of the cervix was done; and in the course of the operation the disease was found to extend up higher than was expected, the whole of the cervix being thickened. The cervix and the greater part of the body were removed, and the mucous membrane of the fundus together with that at the orifice of the fallopian tubes was shaved off. The cancer in this instance proved to be histologically of the same character as that already described—glandular. (PLATE IX., Fig. 1). The patient was lost sight of until August last, when she came back complaining of a return of the bleeding. On examination it was found that recurrence of the disease had taken place, and the manner of it, and the lines of its growth were very clear, and have an important bearing upon the operative treatment of cancer of the cervix.

The patient was re-admitted into the Hospital on August 31st, 1886—sixteen months after the operation. She said that she had been well until lately when bleeding returned, and recurred occasionally, lasting four or five days. She had a varying amount of offensive discharge, but it was always small in quantity.

The mucous membrane of the vagina was healthy up to the old wound. A finger was passed through the opening at the top of the vagina into a cavity large enough to hold a cobnut. The sides of this cavity were formed by the cellular tissue around the cervix, the bases of the broad ligaments, the bladder and

peritoneum, and the roof by the remains of the body and fundus of the uterus left after the operation. The sides of this cavity were cancerous. The walls of the vagina were fixed, thickened and rigid, the anterior in almost its whole length, the posterior for about an inch from the top; the sides were also similarly affected.

On microscopic examination of a portion of the vagina at the edge of the wound the superficial epithelium was found intact, and the papillæ were not enlarged; beneath the epithelium was a layer of healthy vaginal wall, and deeper still was cancerous tissue. The recurrence was of a cylindrical shape, but the cells composing it might have been taken for those arising from squamous epithelium rather than from columnar. (PLATE IX., Fig. 2).

While in the Hospital she had several attacks of severe hæmorrhage, and died on September 20th.

On examination after death the peritoneum of the pelvis was in the main healthy. The fundus of the uterus was normal. It was freely moveable within certain limits; the limits being determined by the indurated tissues below the stump at the upper end of the vagina. There was a chain of cancerous glands running up along the iliac vessels on the left side; on the right side were a few enlarged glands at the brim of the pelvis at the sacro-iliac synchondrosis, and along each side of the spine.

There were three yellowish-white spots each of the size of a hemp seed on the posterior aspect of the fundus. They were covered by peritoneum, and the vessels running into them were injected. The ovaries were healthy; the right fallopian tube was closed at the outer extremity but not dilated. The left was

healthy, but a little more bent than usual owing to an old adhesion.

The rectum and sacro-uterine ligaments were healthy. There was a large opening between the bladder and the vagina. The new growth had spread for the most part in the cellular tissue around the vagina breaking through mucous membrane in a few spots only.

The tissue between the vagina and the bladder was involved as far down as the opening of the urethra; posteriorly the disease extended for a much shorter distance. The growth was sloughy in places. The mucous membrane of the vagina was healthy, except at a few points where a few whitish spots as big as carraway seeds were seen, caused by the encroachment of the new growth from the surrounding tissue.

The kidneys shewed extreme interstitial nephritis; the pelves were dilated, the right contained pus; there was commencing suppurative nephritis of the right kidney.

In this instance the recurrence took place not in the uterine stump nor in the vagina, but in the pericervical cellular tissue. It grew into the bladder forming a large opening into it, and into the cellular tissue at the base of the broad ligament and around the vagina, and at the time of death had only just begun to invade the uterine stump and the vaginal mucous membrane by extension.

Case XVII.—This patient 41 years of age, married, was admitted into University College Hospital in March, 1884.

Her previous health had been good.

The catamenia appeared in her sixteenth year, were always regular every four weeks, free, but accompanied by severe pain in the groins before the flow appeared.

She was married at sixteen, and has had seven children and one miscarriage. She has had twins twice. She became a widow at twenty-five, and was married again two years afterwards. The last pregnancy was in 1876 (twins). All her labours were easy except the last which was protracted.

There is no history of tumour or cancer in the family.

The patient says that for the six months previous to September last, the interval between her periods had been gradually decreasing until in September it was only four or five days.

The discharge was at times red, containing large clots, at times pale, and occasionally greenish. The red and pale discharges were not offensive, but the green was very fœtid. Up to the date of admission the discharge has continued to increase in quantity, but more especially the red. She has been confined to her bed because she could not move about by reason of the hæmorrhage.

She has never had much pain, there being "only a slight pain in the front passage." She has suffered considerably from giddiness. There has been no trouble or pain with micturition or defæcation. Temperature 98·4 to 99·8. F.

The cervix of the uterus was much enlarged by a growth of a pinkish white colour, with numerous white spots seen everywhere upon it. The whole circumference of the os and the whole thickness of the lips were involved in the disease, except about three-fourths of an inch on the left side, where the lip was thin and crescentic. The mass extended upwards above the insertion of the vagina, and outwards, involving the whole thickness of the cervix; the uterus was freely

moveable; examination caused profuse hæmorrhage. The body of the uterus was enlarged; the sound entered three and a half inches, and the interior of the organ seemed to be healthy.

The cervix was amputated above the vaginal insertion.

The part removed presented the following appearances:—There was a fissure in the right side, but not in the left. The left commissure was healthy; the healthy part being about three-quarters of an inch in length. The right side of the anterior and posterior lips was occupied by the mass which was about as large as a peeled walnut. It was smooth on the surface except at the insertion of the vagina on the right. On section it appeared of a whitish colour and firm consistence for the most part, but villous or papillary in some parts on the vaginal surface. The mucous membrane of the canal of the cervix appeared everywhere to be intact and its folds were distinctly visible. No ulceration was to be found anywhere, except it was on the vaginal surface of the growth on the right side.

On microscopic examination the squamous epithelium was found partly intact; the rete was not thickened; the disease grew down close to it near and up to the insertion of the vagina on the right side; the epithelium on the surface was retained on the portio vaginalis for a short space from the insertion of the vagina, and then suddenly ended in a pointed process which dipped slightly into the substance of the cervix, and a short bulbous process beyond. Beyond this point again the disease reached the surface, and the squamous epithelium was more or less completely lost. The nodules

of cancer forming the big mass were formed of tubules with a lumen, with the cells of the columnar epithelium lining the tubes greatly elongated. At the external orifice there were a few glands running more or less parallel to the surface which had not become cancerous.

In this case we had to deal with a cancer growing in the deeper glands in the lower part of the cervix, and extending outwards to the pericervical tissue, and downwards through the portio vaginalis to the surface. This surface had not yet been entirely destroyed despite the great size of the growth.

In this case recurrence took place not in the uterine stump but in the cellular tissue around it.

Case XVIII.—A patient, 41 years of age was admitted into University College Hospital in January, 1886, complaining of a clear continuous watery discharge, with a disagreeable odour, which began five months previously; a "gnawing pain in the womb" more or less continuous, worse at times, especially when the patient is tired; it was less severe at night.

She has been getting thinner for the last three weeks and has had morning vomiting for two months. She was nervous and subject to fits of hysteria. Micturition was normal. Eighteen years ago she suffered from "ulcerated womb," for which she was under treatment for six months.

Menstruation began at fourteen, was regular every month, lasting one to three days, with severe labour-like pains in the back, abdomen and thighs.

She was married at twenty, had one child fifteen months after marriage. Labour lasted forty-three hours; she had hæmorrhage for three weeks after it.

There was no history of tumours or cancer in the family; one brother died of consumption.

The catamenia have been regular, but she has had a little discharge of blood after a fall on her back a week ago.

The cervix was high up and enlarged to the diameter of a crown piece, the lower end being flattened. The disease affected the right half of the cervix, the left half being for the most part healthy. It extended up into the cervical canal on the right side for about three-quarters of an inch. The body of the uterus was not enlarged.

The cervix was amputated above the inner orifice, the peritoneum was opened during the operation. This was a cancer growing from the glands in the cervix.

The patient had a recurrence of the disease and died ten months after the operation.

On examination after death the broad ligaments were found cancerous in almost their whole extent, and the septum between the vagina and bladder was cancerous almost to the inner opening of the urethra; there was a large opening between the bladder and the top of the vagina, the recto-vaginal septum was diseased for a short distance only; the rectum was healthy; the vaginal mucous membrane was "diphtheritic," evidently the result of irritating discharges. There was a thin layer of cancer on the uterine stump. The recurrence in this case, as in the previous cases, took place in the cellular tissue around the wound and extended into the bladder, forming a large communication between that organ and the vagina; the other lines of growth were in the cellular tissue between the bladder and vagina, in the broad ligaments and at the upper part between

the bladder and the rectum. The stump was not free from disease but only a thin layer of its surface about one line in thickness was involved.

CASE XIX.—This patient was 46 years of age, has had one child and no miscarriages.

She dates her illness seven weeks back, when she thinks she strained herself, for five months before that, however, she had suffered from leucorrhœa and irregular menstruation, the interval amounting to six or eight weeks. Seven weeks ago she had hæmorrhage for the first time, and she has had it daily since. It is profuse, but not continuous, and comes in gushes. She has had scarcely any pain, and what she has had has been like a little colic in the lower part of the abdomen.

She has become much thinner during the last two months.

She began to menstruate at eighteen, was regular every four weeks; the flow was free, lasted seven days and was not accompanied by pain.

She was married at twenty-eight, and had one child sixteen years ago. The labour was easy. There is no family history of cancer.

The face was a little sallow.

The uterus was freely moveable.

The cervix was amputated above the vaginal insertion. The part removed (PLATE X., Fig. 1) was cone shaped and measured two and a quarter inches from above down, and one and three quarter inches across the base. The circumference at the base was five and a half inches. A part of the vaginal wall was removed also and was quite healthy.

The cervix was flattened upwards, and its surface was occupied by a rough papillary surface, which

reached to within a third of an inch of the vaginal reflexion. The papillæ were very friable. The os uteri was in front of the centre of the diseased tissue, there being about one inch of tissue behind and half an inch in front of it. Around this papillary surface was a strip of healthy mucous membrane of the portio vaginalis. The disease extended up the cervical canal for about one inch obliterating the rugæ. The whole circumference of the lips was involved in the growth except the left side where there was a deep tear.

On section it was seen that almost the whole thickness of the cervical wall was involved, and that the growth was villous throughout its whole thickness.

This was a cancer growing from the glands. The columnar cells on the surface of the cervical canal were in part multiple and continued multiple into the glands deep in the cervix; but there were parts of the growth in which the villi were not cancerous, nor the glands, they were simply rapidly growing papillæ.

Recurrence appeared in the connective tissue.

Case XX.—This patient was 40 years of age, married, and had had one child and one miscarriage.

She was regular until three weeks ago, when bleeding came on, but menstruation had been scanty since she had small-pox, twelve years ago. She has had pain with it of late years. She complains now of long continuous severe pain across the loins. She has lost a great deal of flesh during the last two years.

She was married at nineteen. Her labour was easy.

The cervix was elliptical in shape, measuring two and a half inches from front to back, and one and a half across. It was formed of the everted lips on each of which was a rough warty growth. There was a

deep tear on the right side. The growth did not appear to extend to the vagina except anteriorly where there was a small nodule of the size of a pea at the insertion of the vagina. There was no swelling anywhere in the pelvis, and the body of the uterus was not enlarged.

The cervix was amputated above the insertion of the vagina. Recurrence took place in three months.

Then it was noted that the vagina was three and a half inches in length, and healthy. At the top of it was an irregular excavation with hard irregular edges and walls. Above this excavation was a mass about one and a half inches in diameter which was almost fixed. It was evidently the stump left after the operation. Here the disease had returned in the connective tissue around the cervix, but it appears also to have invaded or returned in the stump.

No microscopic examination of the recurrent disease was made, but the primary affection was a glandular cancer.

Of these six cases in which supravaginal amputation of the cervix was performed, recurrence took place in the cellular tissue and not in the stump in five, and in the cellular tissue and the stump apparently in one.

For the notes of the next case I am indebted to Dr. Herman.

Case XXI.—The patient was 25 years of age. She began to menstruate at fifteen and was regular until she was twenty; then menstruation ceased for three months, and she had a fit during which she bit her tongue and screamed; when she recovered one of her eyes was blacked. Menstruation was regular after this until marriage, but she had a second fit six months after the first.

She used to have a yellowish white discharge about ten days before the period, which lasted two or three days; when this ceased, headache, backache, and abdominal pains set in, which went off when the menstrual flow appeared.

She was married at twenty-three, and became pregnant two months afterwards. During the first half of gestation she had a yellowish white discharge every ten days, lasting two or three days, but it ceased after she had quickened. During the last month she kept her room, otherwise she enjoyed good health during her pregnancy.

Her labour was prolonged; she had pains during the whole of the last month of her pregnancy; the child was born by podalic version. She made a good recovery, and nursed her child for ten weeks, when the secretion of milk ceased. A month afterwards she menstruated, and after this the yellow discharge reappeared, and has lasted more or less since.

She dates her present illness from her confinement. Ever since, the yellow discharge has been more profuse and slightly tinged with blood, and the premenstrual pains have been more severe, sharp plunging pain in the pit of the stomach, high up in the vagina as if in the womb itself, the small of the back, arms and head. The menstrual flow lasted eight days, requiring her to use one or two dozen napkins, instead of lasting four days, and requiring four napkins as before her pregnancy. But during the last six months, and particularly during the last two or three, the pains have been worse, almost continuous, and aggravated by walking. About a week before the menstrual flow during the last three months she has been sick on getting up in the

morning for three or four days. She says that she has lost a great deal of flesh. She weighed 6 stone 3 lbs.

She referred her pain now to the vulva and hypogastrium; cervix was split deeply on both sides; interior of cervical canal granular; cervix drawn to right of pelvis, fundus inclined to left; cervix thickened, lips everted.

The greater part of the vaginal aspect of the cervix is healthy, but on the left side of the anterior lip is a raised granular surface about the size of a small bean, which bleeds readily.

The cervix was amputated above the insertion of the vagina. About an inch was removed. On cutting it open a growth about the size of a bean was found on the anterior wall. It was about an inch in length, half an inch in width, and involved the greater part of the thickness of the wall. It is to be noted that the commissure on each side was healthy, and that the deep fissures at the sides of the cervix were quite free from disease. (PLATE XII., Figs. 1, 2, 3).

CASE XXII.—This patient was admitted into the Hospital in December, 1885. She was 81 years of age and had had four children.

The catamenia ceased at forty-five.

She has had a red and yellow discharge alternating since February. She has had pain of a smarting character in the back and pelvis, paroxysmal but not severe. It always came on the day before a bleeding and ceased after the bleeding had begun. The yellow discharge was very offensive.

Micturition has been frequent since February, but not painful.

There has been very little wasting.

Temperature 96·2° to 99° F.

The catamenia appeared in her sixteenth year, recurred regularly in moderate quantity and with slight pain.

She was married at thirty-two; her labours were straight-forward, and gettings up good.

There was no history of tumour or cancer in her family.

The uterus was senile. The anterior lip was healthy. The posterior was as large as a cob-nut and the seat of a soft friable growth which bled on the slightest touch. It was scraped off, and then it became clear that the growth originated from the anterior surface of the lower part of the wall of the cervix. It was a glandular cancer.

Case XXIII.—This patient who was 35 years of age was admitted into University College Hospital in July, 1886, complaining of flooding and a greenish discharge. She stated that she had been irregular for a year, menstruation returning at intervals of from two to five weeks. The flow was very scanty until Easter, when she had a profuse hæmorrhage; since that time she has had a greenish watery discharge. Five weeks after the first flooding she had a second, and she has bled every fortnight since; the last, which was the most severe, came on two days before her admission into the hospital. The hæmorrhage came on suddenly and without pain when she was making some effort.

She has lost much flesh.

Defæcation normal.

Menstruation began when patient was fourteen; it recurred regularly every four weeks until one year ago. The flow used to last three days and was not excessive, nor accompanied by pain. She was married at twenty-three, but has not been pregnant.

Her father is healthy, her mother died of an internal tumour, her brothers are all healthy.

Pulse 72 to 84. Temperature 98·6 to 100·4 F.

The patient is well nourished there being a layer of fat about two inches thick on the abdomen.

A large polypoid mass was found filling the vagina; it was of the size of an egg and somewhat flattened; it grew from the anterior lip of the cervix. It was soft and very friable. The cervix was amputated at the inner orifice. The growth was a glandular cancer.

In all these cases the disease began in the lower part of the cervix. But cancer may begin not only in the lower section of the cervix, but also in the upper close to the internal orifice. This happens perhaps oftener than is generally supposed, and the fact has not been taken into consideration in theorising about the cause of cancer. I have seen two clear instances of this, which were observed from an early period.

Case XXIV.—The first (Plate X., Fig. 2) was a lady about 40 years of age, of a very fair complexion, who had had two children and some miscarriages. I saw her first in July, 1878. She said that she had not been poorly for six weeks, that she felt sick and had very frequent micturition. On examination the os was found large and patulous; and high up close to the inner orifice in the wall of the cervix was a small hard mass the size of a pea. This was thought to be a small fibroid. I saw her again in 1879. She said that she had had a miscarriage at Christmas time. Her husband was away for six months and returned a fortnight ago, and she had observed a slight loss of blood after coitus since—but at no other time. She had no pain and no discharge.

The uterus was somewhat enlarged and freely moveable. The posterior wall was thickened and on its inner surface was a small ulcer about the size of a shilling which extended slightly on to the vaginal surface of the lip; it was depressed with hard edges, and it bled on the slightest touch.

The uterus was extirpated.

It was three and a half inches in length; the walls of the body were somewhat thickened but otherwise appeared to be healthy. The cervix was considerably enlarged, the enlargement affecting chiefly the posterior wall, and a small ulcer was situated on the anterior surface just within the os. The anterior lip was papillary on the surface. Section shewed the posterior wall to be occupied by a mass of the size of a kernel of a walnut; this reached upwards to a little above the level of the internal orifice and occupied the whole thickness of the wall, and it reached downwards to the vaginal surface, but it had nowhere penetrated through the mucous membrane of the portio vaginalis; this remained intact; the mucous membrane of the lower half of the cervical canal had broken down and there was found the ulcer I have already mentioned. The growth looked to the naked eye almost as if it were encapsuled, but this appearance seemed to be due to the pressure exercised by the growth upon the parts immediately surrounding it. The growth was a glandular cancer.

The glands of the cervix were greatly increased in size and number, and many of those on the surface had not become cancerous. The mucous membrane of the lower part of the body was thickened and villous, and its glands were greatly enlarged, and shewed what is never seen in the glands of the body in health, namely,

frequent division with numerous papillæ on their inner surface. They were like the glands of an erosion. Between these hypertrophied glands and the disease in the cervix there was a distinct layer of healthy tissue.

Case XXV.—A case very similar to this was that of A—— F——. She was 45 years of age and was first seen in March, 1882, when she complained of a discharge from the vagina like thin poor blood which was sometimes very offensive, together with a violent pain across the bottom of the back. The os uteri was large and the finger could be introduced into the canal as far as the inner orifice; and in the posterior wall just below that orifice was felt a small hard mass the size of a pea which was thought to be cancer. She did not come into the Hospital; soon afterwards she had a severe flooding, and bleeding recurred in April, July, September and October. These floodings occurred during the intermenstrual intervals. With the exception of these floodings, she has been regular every four weeks, but she has lost a great deal of blood each time. She has had very little pain, but she has had to make water every hour during the day and two or three times during the night. She has lost flesh during the last three months.

She began to menstruate in her fourteenth year; she was regular every four weeks; the flow lasted four or five days; she has suffered much from whites; had slight backache at the periods. She was married at 22, has had five children and five miscarriages. There is no history of syphilis. The fourth was a difficult labour; the last in 1879 was an easy one.

Father died of old age at 84. Mother of something the matter with the womb at 66 years. One sister died of consumption.

The patient was of dark complexion with a good deal of colour in the cheeks, but she was rather thin.

There was a little dirty watery discharge from the vagina which was offensive; the uterus was low down, the anterior lip was healthy; the posterior lip was greatly thickened and irregular on the surface; the growth had involved the posterior wall of the vagina for almost three-quarters of an inch; it was breaking down and ulcerating in the groove between the posterior lip and the vagina. It was removed by scraping with a sharp spoon, and then it was found that the growth extended up quite as far as the internal orifice and a large cavity was formed by the process of scraping about the size of a walnut. In front the anterior lip could be felt apparently healthy. The uterus was freely moveable.

This proved to be a glandular epithelioma.

But cancer may have more than one point of origin in the same cervix. It may begin near the inner orifice, and also at or near the os externum. This happened in the following case.

Case XXVI.—The patient was 39 years of age, she had had three children and was admitted into University College Hospital in July, 1885. She said that menstruation had always been regular until July, 1884 when she had a "tremendous hæmorrhage." She has been bleeding now for three weeks. She has had no pain until the last few months, and now it is only slight and situated in the umbilical region, and of a sharp shooting character, lasting a few seconds.

Micturition is normal.

She has lost a little flesh.

Menstruation began between fourteen and fifteen;

it was regular, lasting two or three days, in large quantity, accompanied by a little backache.

Her labours were good, the last was "rather hard." She made good recoveries.

The father died of cancer of the stomach; five brothers and sisters died of consumption.

The patient was well nourished, fat; but looked very ill, sallow and anæmic. She was of dark complexion.

There was a slight watery discharge from the vagina. There was a growth on the anterior lip of the uterus and inner surface of the canal, extending to the vaginal portion, but the mucous membrane over this part appeared healthy. The posterior lip was healthy. The body of the uterus was somewhat enlarged and freely movable.

The cervix was amputated at the inner orifice. She died of septicæmia.

After death no enlarged glands or secondary deposits were discovered. The body of the uterus was healthy.

Examination with the microscope shewed the squamous epithelium of the vaginal portion to be intact and unchanged up to a point close to the external orifice. Beneath the part of it close to that orifice were many glands, clearly glands of an erosion. Before it terminated at the external orifice it became suddenly much thickened, and beyond this point it was cancerous and this cancerous part overlapped the glandular cancer which I shall immediately describe. This cancerous portion was in part separated from the glandular cancer by glands which were not cancerous. Then we came upon the cancer which appears to have been developed from the lower cancerous centre (PLATE X., Figs. 3 and 4). This was developed from the glands in the sub-

stance of the cervix and had not involved the whole of the superficial glands, so that the inner surface of the cervical canal was in the main intact. Higher up towards the inner orifice was the cancer developed from the upper centre near the internal orifice, and this also had grown from the deeper glands and had left some superficial glands of the canal unaffected. The growth of the cancer from the glands is clearly shewn by the transition from columnar epithelium of the glands into cancer (PLATE XI., Fig. 2, and PLATE XIV., Fig. 1). Here we have cancer developing from two points of origin, if not from three—that is from the glands just below the inner orifice, from glands near the external orifice, and from the squamous surface of the portio vaginalis.

It may be asked what is the relation of the growth of cancer in the squamous epithelium to that growing from the glands. I cannot answer this question. I do not know whether it was an independent growth, or whether it was due to irritation caused by the presence of the glandular cancer in its immediate neighbourhood.

A form of cancer which has not been described before is the squamous epithelioma which attacks the mucous polypus of the cervix. I have met with only one instance of the kind. It was the following case :—

CASE XXVII.—A patient aged 42 was taken into the Hospital for a few days to have a small mucous polypus removed. She said that she had been losing a good deal of blood at her periods. The uterus was low down and a small polypus was found projecting from the os externum. It was seized with forceps and twisted off.

The polypus was about three quarters of an inch in

length and half an inch in diameter at its widest part. Its pedicle was quite thin. A section was made of the growth in its whole length and this was examined microscopically, and a very curious and not less important state of things was discovered. The lower and larger end of the tumour was capped by a layer of cancerous squamous epithelium (PLATE XI., Fig. 3), which sent processes into the substance of the growth and into some of the glands. Above the point where the cancer ceased the surface of the pedicle was covered by columnar epithelium, upon which many glands opened. The pedicle was quite healthy.

This was a mucous polypus and evidently had grown from the surface of the cervical canal. The lower portion of it which projected outside the os externum, appears to have acquired a squamous epithelial covering, while that covering the base retained its original columnar form.

Uterine polypi in advanced age are apt to be malignant, and whenever removed they should be examined by means of the microscope with a view to ascertain their true character.

The changes in the glands in cancer of the cervix are various. The glands increase in number and develope in places where glands are not present in health. They assume forms which are not seen in health, but which are often seen in erosions. The chief and the characteristic changes, however, are those observed in the epithelial lining of the glands. The cells which are arranged in a single layer in health, become stratified or multiple layered in cancer, and frequently fill the gland obliterating its lumen. The cells instead of having a single nucleus acquire several, and become many shaped.

Not infrequently they form long branching tubes, or strings of cells, and clusters and nests, which often contain horny cells, just like those found in squamous epitheliomata, and frequently the true character of the neoplasm can only be made out by tracing it to its origin, or by tracing its mode of growth. The latter method fails, however, in some cases, as in the recurrence in case 16.

Sometimes the cells preserve their original columnar character, but become thinner and larger and stratified as in case 16. (PLATE IX., Fig. 1). In other cases the new product consists of small round or oval cells as in case 26, and here it would have been impossible to have arrived at certainty with regard to the origin of the growth, but for the discovery of the actual transition of the columnar to the round cells. (PLATE XI., Figs. 1 and 2).

The cells in the recurrences may maintain the character of those met with in the original growths, retaining more or less the columnar shape as in case 15, (PLATE VII., Fig. 3) or they may lose all trace of it, and present appearances which are not distinguishable from those of growths from squamous epithelium as in the recurrence in case 16. (PLATE IX., Fig. 2).

The starting-point of cancer of the cervix is in so far as I have seen the cervical glands. I have seen no clear instance in which the disease originated in the epithelium of the surface. But I have seen it in the glands close to the surface as well as in the deeper portions of the glands.

Of twenty-five cases the whole cervix was involved in nine when first seen, and it was not possible to discover the starting point of the growth. It is not impossible, indeed I think it is probable that in some of

these the growth had begun near the inner orifice, and among other reasons for this opinion is the fact that the portio-vaginalis was not ulcerated in any one of them, although the whole of the cervix was involved. In eleven the cancer had clearly begun in the lower part of the cervix. In two it began near the inner orifice, in one it appears to have begun in two if not in three separate centres, one being near the outer and one near the inner orifice, and the third in the squamous epithelium, and in one it had commenced on the surface of a mucous polypus. So that although the upper part of the cervix is by no means uncommon as the starting point of cancer, yet the lower half appears to be a far more favoured site.

Of the twelve in which the disease had begun in the lower part of the cervix, the posterior lip was alone, or chiefly affected in six, the anterior in three, and the right commissure and lips in two leaving the left commissure free. So that cancer appears to shew a preference for the posterior rather than the anterior lip of the uterus.

The forms assumed by cancer of the cervix are various. It may form a polypus hanging from one of the lips as in case 23; in this form its surface carries for a considerable time a thin layer of normal squamous epithelium which has nothing to do with disease. In other cases the cancer forms a papillary growth on the surface, which penetrates deeply into the wall of the cervix as in case 19, and then it looks much like the head of a cauliflower; or the growth may begin as a small nodule in the wall of the cervix as in cases 15, 16, 17 and others; or again, it may begin as a nodule close to the inner orifice, and gradually extend and involve the whole cervix as in cases 24 and 25. I have

met with no clear instance in which the disease began on the surface.

The lines of growth of cancer of the cervix appear simple, and unfortunately they take a direction which is calculated to baffle treatment. If we consider first of all the polypoid form, we find here the tendency of the disease to grow downwards into the vagina and to form a sort of excrescence on the lip.

The growth appears to invade the lip for a short distance only, apparently not for more than about three quarters of an inch, but it involves the whole thickness of it and soon infects the cellular tissue around. If we take three or four cases in succession beginning with case 15, we shall find the disease commencing as a small nodule near the surface and gradually extending downwards and outwards, but upwards in a less marked degree, invading the wall of the cervix deeper and deeper, until it has passed through its whole thickness, and has reached the cellular tissue around it, where it luxuriates. At the same time it grows downwards, causing elongation as well as thickening of the lip. In the course of this process of growth the squamous epithelium is retained, but it becomes thinner and thinner apparently by the tension placed upon it. As the disease progresses it extends upwards and reaches the internal orifice and sometimes, but rarely, passes it (PLATE XIII., Fig. 1). This tendency to grow downwards and in a lateral or horizontal direction towards the peri-uterine tissues is very clearly shown by the instances of recurrence which I have related. (Cases 15 to 20).

Again, when it begins high up, just below the internal orifice, its lines of growth are similar. It has no

tendency to grow towards, or preference for the body. It does not, however, invariably respect the internal orifice, for sometimes it passes beyond it and invades the body. It has, however, a greater tendency downwards towards the vaginal portion and outwards towards the cellular tissue around, and ultimately it involves the whole of the cervical wall in its length and thickness. This was well seen in cases 24 and 25, the only two cases in which this form was observed from an early stage.

So that the lines of growth of cancer of the cervix are mainly outwards and downwards, in such a direction as to involve the portio vaginalis and the vesico-vaginal and recto-vaginal septa, but respecting the mucous membrane of the vagina.

Most of the cases recorded, are, perhaps too little advanced to manifest secondary growths discoverable by clinical investigation, and in only three of them was the disease watched to the end and a post-mortem examination made. In these the glands along the internal iliac vessels, and in one those along the spine, were cancerous. The sacro-uterine ligaments were not affected in any of them, but the cellular tissue around the cervix, and in the broad ligaments was diseased in two.

Small cancerous masses are sometimes seen on the interior of the body of the uterus in cases of primary cancer of the cervix. These are sometimes spoken of as secondary deposits. It is, however, difficult to see how secondary deposits can be produced in the body of the uterus from a primary cancer of the cervix. Neither the arrangement of the blood-vessels nor that of the lymphatics can explain it, and it appears more reasonable to regard such formations as new growths from independent centres, such as I have described as

occurring in the cervix itself. They are not often met with.

Age seems to have a considerable influence on this form of cancer, though no age above twenty-eight excludes it. The oldest patient was eighty-one, the youngest twenty-nine. There was only one under thirty, there were six between thirty and forty, fifteen between forty and fifty, one between fifty and sixty, and one over eighty. It appears then, that during the ten years in the course of which the menopause generally occurs, this disease is far more rife than at any other period of life, it is next most frequent between thirty and forty and it is comparatively rare before thirty and after fifty. The history of the menstrual function throws no more light on this form of cancer than it does on that of the portio vaginalis. The age at the time of marriage and the duration of married life throw just as little.

With regard to child-bearing, it is to be noted that three or an eighth of the whole number had never been pregnant, four had had one child, two had had one child and one miscarriage, two had had two children, one had two children and abortions, one had had three children, one three and one abortion, one had had four children, one five and five abortions, one seven, one eight, one eight and five abortions, one eleven and one miscarriage, and one thirteen and two miscarriages. So that fourteen out of the twenty-four had been pregnant fewer than five times.

The characters of the labours again, appear to have no influence on the development of cancer. Of seventeen cases in which this point was investigated, eleven had had good, one lingering, and five difficult labours; but only two of these required the use of the forceps, one

on five occasions, the cervix being probably cancerous on the last, and one once, the cervix being probably cancerous at the time. So that we have two cases only among the whole number in which labour had been instrumental.

The chief symptoms of cancer are hæmorrhage, pain, discharges, and wasting.

Hæmorrhage was present in greater or less amount in all the cases. Its quantity, however, varied greatly, and the time of its appearance with respect to the onset of the disease varied not less. In some it began at a very early stage, while in others it set in only when the growth had attained a large size. For instance, in one case hæmorrhage had been present for three years when first seen; the disease affected the whole of the cervix, but the surface of the portio vaginalis was still intact. In this instance the hæmorrhage began probably soon after the growth commenced.

In another case, again, where there was a large growth in one lip, hæmorrhage had been present for three weeks only.

Pain may be absent throughout; it was absent or present in a very slight degree in six of these cases. When present it is often relieved by the onset of bleeding and by lying down.

Discharges are commonly present; four of those with advanced disease had none, six had an offensive discharge, five a watery, two a greenish, four a yellow, and one a white discharge.

Wasting was present in varying degrees. Eight of the patients had lost much flesh, six very little, and all these presented a somewhat advanced stage of cancer, except case 22, who was eighty-one years

of age. In some cases extreme emaciation was present, while in others even at the time of death, there was an abundance of subcutaneous fat.

Micturition was frequent in only five of all the cases, in the two cases in which the disease began near the internal orifice, and in two in which the whole of the cervix was diseased, and in the old woman; as a rule, when the disease attacks the lower part of the cervix, the bladder is not disturbed until an advanced stage of it.

There is a view of the etiology of cancer of the cervix and portio vaginalis which has been recently brought into prominence, chiefly because it has been made the ground for procedures of an operative kind, I mean the view that lacerations of the cervix are a cause of cancer. If this view be correct it speaks strongly in favour of treatment of a prophylactic character; on the other hand, if it be untrue, no less strongly is such operative treatment for the prevention of the disease to be condemned. It has been said again and again, that lacerations of the cervix are the cause of cancer of the lower part of the uterus, and that the cure of the lacerations by Emmet's operation is a means of preventing the development of the disease. Now what is the evidence with regard to this view? Are there any known facts which favour or oppose it?

One fact which favours this view, or which is supposed to favour it, is that cancer is frequent in women who have had many children.

Laceration of the cervix occurs so frequently in first labours, and probably far more frequently than in subsequent ones, that we cannot regard multiparity as the cause of lacerations as against uniparity. Indeed it may fairly be said that when laceration is present, the

time when it was produced was during the first labour, and if this be true, and if it be also true that laceration of the cervix is a cause of cancer, uniparity should be as frequent a cause of cancer as multiparity, and if multiparity is really a cause of cancer, as against uniparity, then we must explain the fact in some other way than by the laceration present.

In the next place, cancer is often present in association with laceration. But association does not necessarily involve the relation of cause and effect—a fact too frequently lost sight of in the study of uterine disease. It is said, moreover, that lacerations occasion the development of cancer by reason of the irritation to which they give rise. Now if this be true, we should expect to find the starting points of cancer to lie at the place of greatest irritation, that is, in or close to the tear, or in the surface of the irritated part. But what are the facts? I have described to you twenty-seven cases of cancer of the portio vaginalis and of cancer of the cervix proper, some of them in association with lacerations, but in no instance have I seen it attack the lacerated part primarily. Indeed it appears to avoid it and to invade it at a late period only, after the rest of the cervix has become involved in the disease. The tear is the last part to be attacked.

But it may be said that although cancer does not commence in lacerations, yet it begins in the everted or irritated surfaces of the lips. I have been able to trace cancer primarily to the surface in no single instance, except in squamous epithelioma, when it necessarily begins on the surface. But in cases of squamous epithelioma the disease begins on any part of the surface of the vaginal portion except perhaps the

edges of a tear, a fact which does not favour the view I am discussing.

When cancer attacks the cervix proper, it begins, in so far as I have been able to discover, in the glands in the substance of the cervix, and a layer of non-cancerous glands is often, though not always, seen between the disease and the surface. This is the condition present whether laceration exists or not, and the fact that the disease begins in the same situation in the lacerated and the non-lacerated cervix militates against the view that lacerations are a factor in the development of the cancer.

Moreover, if irritation be such a very frequent cause of cancer of the uterus as is sometimes maintained, the disease should be frequently met with in the procident uterus, but this again is not the case. In some hundreds of cases of cancer of the uterus which I have seen there was but one in which the organ was procident. Further there is not a single case recorded in which a careful clinical and anatomical examination was made which gives support to the view that cancer of the cervix begins in lacerations.

It appears to me that the facts at present known tend to shew that lacerations play no part in the causation of cancer of the uterus.

Cancer of the Body of the Uterus.

The next part of our subject is cancer of the body of the uterus. This part of the uterus is much less commonly the seat of the disease than is the cervix, and indeed, it was at one time thought that cancer never at-

tacked this part primarily. It is certain that the disease occurs much more frequently than is generally supposed. Pichot has collected forty-four cases of what he terms cancer of the body of the uterus. They are all apparently cases of malignant disease, but there is no sufficient evidence that they are all cases of cancer. In saying this, I wish it to be understood that no case can be scientifically admitted to be a case of cancer, unless sections of the growth have been submitted to examination with the microscope. This brings us down to very recent times, past the time when microscopic examination of the tissues meant the examination of scrapings, and the search for characteristic cells; down to the time when the arrangement of the various elements of a growth were examined into and their relations observed in their undisturbed position in sections.

Ruge and Veit have described more or less fully twenty-one cases in which the nature of the disease was established by microscopic evidence.

I have seen twelve cases which were believed to be malignant disease of the body of the uterus, but in only three of them was the growth ascertained to be cancer by microscopical examination, and consequently these three only are of sufficient value to serve my purpose in these lectures. It would only lead to confusion were I to introduce cases as a basis for description, around the nature of which—that is whether they were sarcoma or carcinoma—any doubt rests. I have also examined one specimen of cancer of the body of the uterus, from the Museum of St. Bartholomew's Hospital, one specimen supplied by Dr. Herman, one by Dr. Allchin, and one by Dr. Lewers, making in all seven

cases of undoubted primary cancer of the body of the uterus. These cases, together with those recorded by Ruge and Veit will mainly form the material for the description of cancer of the body which I shall give you.

Case XXVIII.—The patient was a widow aged fifty-two. She was admitted into University College Hospital complaining of a profuse and offensive vaginal discharge, which excoriated and caused swelling of the external parts. She was a nurse, and eight years previously she received a shock through the sudden death of a patient. This brought on a sanguineous discharge which has continued more or less ever since.

She has been losing flesh for some time, but more especially during the last three months. She was married at twenty-two. Her husband lived eight years. She had one child twelve months after her marriage and no miscarriages.

She said that during the lifetime of her husband she had sore throat, lost her hair, and took medicine which made her gums sore and her teeth to ache.

She had a polypus removed from the womb five years ago. She began to menstruate in her twelfth year, was poorly every three weeks, losing a great deal, with bearing down pain in the abdomen. After the birth of her child the flow returned regularly, but in far greater quantity, and with much more pain than before her marriage. She has suffered from leucorrhœa since she was fifteen. There was no history of cancer in her family.

On admission in January 1881, she was pale, anæmic, and emaciated, the pulse was 100 and temp. 99° F. The uterus appeared to be of the normal size, but less

moveable than natural. The cervix was normal except that a small villous growth could be felt in the os. The outline of the body could not be made out, and the sound was not used. Examination by the rectum revealed several nodules growing apparently from the posterior wall of the uterus. There was little or no tenderness. The villous growth in the os was removed. On Feb. 5th, she had several rigors, and her temperature rose to 105° F. and remained above 100° F. until Feb. 10th. This attack of fever was accompanied by severe pain in, and exquisite tenderness over, the whole of the abdomen.

A month afterwards she had a similar attack but without rigors. With these exceptions her temperature remained between 99° and 100° F., while her pulse was always over a hundred a minute.

She complained also of globus and other symptoms usually called hysterical.

In March there was œdema of the vulva, and a hard growth about the size of a hazel nut projected slightly through the os. There was copious greenish yellow discharge with some blood. She gradually became weaker and died on March 20th.

At the autopsy, the small intestines were found adherent to the fundus of the uterus and the posterior wall of the bladder. There was a small cyst at the end of the Fallopian tube. On the posterior surface of the uterus there were several nodules, two of the size of cherries, others smaller, projecting into the peritoneal cavity. These were of a whitish colour, with injection around them. The upper half of the posterior surface in the middle, and the fundus were white and bloodless. The rest, especially the sides, were of a purplish colour

with the veins injected. There was a big nodule on the anterior surface where the intestines were attached and a communication which admitted the thumb was found between the adherent intestine and the cavity of the uterus. The ovaries were white and atrophied. The uterine wall varied from one half to one inch in thickness. In the cavity of the uterus was a stinking abscess; its surface was irregularly nodular, and of a greyish green colour; beneath this was a layer of highly vascular tissue and still deeper the altered uterine tissues. (PLATE XII., Fig. 4).

The cancer was a columnar epithelioma growing from the glands.

CASE XXIX.—This patient was fifty-two years of age, was admitted into the hospital in January, 1884.

She had enjoyed good health until fifteen months before, and was a strong woman. "Menstruation," which had ceased about nine years previous to this date, recommenced, and recurred about every three weeks. At this time the flow was of the ordinary colour and not profuse. It lasted at first for two or three weeks, but latterly only for one day. For the last five months bleeding has ceased entirely, but a yellow offensive discharge has been continuously present. Some time after the bleeding commenced, labour-like pain was felt at the bottom of the stomach and back, but since January, 1883, the pain has been seated principally in the right side of the pelvis, and down the right leg, shooting at times to the left side.

For some years before her present illness, the patient suffered from pain in passing water, and micturition became frequent in June, 1883, for which she had a growth removed from the entrance to the bladder.

Micturition continued to be frequent after the operation. There has been no difficulty or pain in defæcation.

She has lost much flesh during the last fifteen months.

Menstruation began at fifteen, was regular and painful. It ceased at forty-three.

She has been twice married, first at twenty-three. During her first marriage she had four children; one child and one miscarriage during the second.

All her labours were natural.

One sister died of cancer of the womb in an Asylum. On admission the patient was thin, but not greatly emaciated. The perinæum was excoriated. There was a small superficial ulcer on the inside of the right labium. On the vaginal wall were about a dozen small greenish patches, which felt slightly raised to the finger; there was no loss of tissue.

The anterior lip of the uterus was thickened by a growth which projected into the cervical canal, and bled on examination.

The uterus was freely moveable; the body was a little enlarged, thick and roundish, so that the whole of the uterus—body and cervix—approached a globular form. There was no thickening anywhere in the pelvis. The sound passed in three inches. The chief thickening was in the anterior wall. The cavity of the body was considerably enlarged; the sound was moved about freely in it causing a good deal of bleeding. The uterus was extirpated. I am indebted to Mr. Victor Horsley, M.S., for a description of it.

The parts removed consisted of the whole uterus with the exception of a small irregular rounded portion,

situated on the left side of the middle line and reaching almost to the origin of the Fallopian tube. The margin of the opening where this piece was absent was lacerated and nodular. The absent portion was about one centimetre in diameter. The whole organ was increased in size laterally and antero-posteriorly.

The external os and cervix for the lower two-thirds were normal in appearance, but soft and pale. The cavity of the uterus contained some dirty muco-pus. The surface was occupied by a nodular new growth, which on section was seen to extend into the muscular wall as pinkish-white granular looking growths, the tissue which it invaded appearing gelatinous. The nodules of new growth were irregularly scattered over the inner surface, but were thickest on the right side of the posterior wall. Outside the new growth everywhere except at the point mentioned was a layer of muscle and peritoneum which varied from 1 to 3 mm. in thickness.

A month after the operation the patient died. The wound had almost entirely healed, but there was a small abscess in the remains of the right broad ligament. In the small intestine were several small fistulous openings which were connected with the scar of the operation. These fistulous openings were the result of extension of the disease from the fundus of the uterus to coils of intestine which were adherent to that part. These adhesions were soft, and were broken down readily, and were only discovered when the fingers were introduced above the fundus during the operation. The kidneys and ureters were normal, but the bladder was in a state of chronic inflammation.

The cancer was a columnar epithelioma growing from the glands. (PLATE XV., Fig. 2).

Case XXX.—The patient, a single woman, aged 63, was admitted into University College Hospital in January, 1883.

She said that she had been losing blood from the vagina occasionally for two years, but did not lose very much until March, 1882, when she lost a great quantity and since she has been continually losing more than she had from the commencement of her illness until that date. She has fainted several times from the loss of blood. She suffered no pain until last March, but since that date she has suffered pain on and off in the bottom of the back and stomach; it was twitching in character and never lasted more than a minute. It was never severe enough to lay her up, but was not made worse by walking. After the bleedings there was a slight yellow offensive discharge. Micturition has been at times frequent, and sometimes scalding. The patient has suffered for the last two months from acute eczema of both arms.

She has lost much flesh since her illness began; her appetite is good.

Menstruation began in the 13th year, usually regular and profuse and without pain. It ceased in her 54th year. She saw nothing afterwards for six years, then she had a slight bleeding twice, after that it ceased for one year, and since that time she has bled frequently.

There was no history of cancer in her family. On admission she was well nourished and fat. The hymen was intact and the vagina senile. The body of the uterus was large, apparently nodular, and filled the pelvis. It could be felt above the pelvic brim and it appeared to extend further to the left than to the right. The cervix was far back, very short: the lips were

softish. There was no tenderness. The vagina contained a dark brownish, very offensive discharge. Temp. 98·4° to 99·6° F.

The cavity of the uterus was scraped, after which the bleeding and discharge ceased for some time. She ultimately died in the cancer ward of the Middlesex Hospital under the care of Mr. Henry Morris, through whose courtesy, together with that of Dr. Kingston Fowler, I am enabled to give an account of the appearances found at the necropsy, and to show a drawing of the uterus. The body was well nourished. There were several firm adhesions between the omentum and the parietal peritoneum. A large swelling having the appearance of a uterine fibroid was seen at the lower part of the abdominal cavity. The intestines in the middle of the abdomen were matted together, forming a sac, which on being torn open, was found to communicate with the bowel, and appeared to be the seat of a slight fæcal accumulation. The lungs contained several secondary cancerous nodules scattered over the pleural surfaces. Numerous minute secondary deposits were found on the surface and in the substance of the liver.

There were three cancerous deposits of the size of peas on the surface of the right kidney. In other respects the kidneys were fairly healthy.

The uterus was large and its walls contained three fibroid tumours, two of which were calcified and of the size of walnuts, and one was as large as a man's fist. The walls were much thickened.

The inner surface of the body was everywhere cancerous, irregular and ulcerating. The cervix was healthy. The cancer had not invaded the fibroid

growths, but had penetrated through the part of the wall free from fibroids into the broad ligament on the left side, and formed a large mass in that situation apparently involving the ovary and Fallopian tube. The Fallopian tube on each side was inflamed and contained pus. (PLATE XIV., Fig. 2).

The cancer was glandular and the glands presented a very remarkable appearance. Many of them were coiled up in spaces, so that the spaces were in section filled by circles of columnar epithelium with scarcely a trace of connective tissue framework (PLATE XIII., Fig. 2). In many places the epithelial cells appeared normal, while in others they were changed, many shaped, and more or less broken down.

The nodules in the liver presented a glandular structure similar to that of the glands in the uterus. (PLATE XVI., Fig. 2).

CASE XXXI. (Dr. Herman's case).—This patient was 48 years of age, and was admitted into the London Hospital in September, 1886. She had enjoyed excellent health until eight weeks ago. Menstruation began at fourteen, recurred regularly, was not excessive, and was not accompanied by pain; it ceased three years ago.

Patient was married at eighteen and had two miscarriages during the first twenty-three years of married life, and has not been pregnant since.

Eight weeks ago she felt a discharge come suddenly from her when at work. It was considerable in quantity and of a dirty brown colour. A week after a second discharge occurred which was red and clotted. Three weeks ago pain came on suddenly. She describes it as a dull gnawing pain. The discharge has been

coming more frequently, and now it occurs every day; the pain comes on regularly every day, lasts about two and a half hours, is followed by discharge and then ceases. Recently she has pain in the legs also. No shooting pain complained of. The discharge has lately been offensive. The patient says she has been losing flesh, and feels weak although her appetite continues good. Micturition and defæcation are not painful. Complexion is dingy. Temperature sub-normal. Pulse 76, regular and fairly strong.

Nothing abnormal could be felt on palpation of the abdomen. The vaginal mucous membrane was pale, the cervix small. The sound passed for nearly two inches into the uterine cavity and brought a few old blood-clots away. No hæmorrhage followed its use. The uterus was freely moveable. The cervix was dilated with Hegar's bougies and the uterine cavity examined. The fundus and posterior wall of the uterus were found to be covered with a papillary growth, the mucous membrane feeling rough and rugose to the touch. The uterus was scraped with a curette and a good deal of growth was brought away. The cavity was then swabbed with sol. acid. carbol. 1 in 7. Temperature 99° F.

She rapidly improved and gained four and a half pounds in weight.

Ten weeks afterwards she was re-admitted into the Hospital and said that the first fortnight after her discharge she felt quite well and had neither pain nor vaginal discharge. Since that time she has been troubled with severe bearing down pains in the lower part of the abdomen, which usually occur during the middle of the morning, and last for one, and sometimes

two hours. These paroxysms of pain have returned almost daily, and have been accompanied by vomiting and flatulence, and have been so severe as to necessitate her lying down. They pass off preceded by expulsion of much wind from the mouth. She feels then quite well and free from pain and continues so throughout the night. The discharge has been much more copious during the last five weeks than before her first admission. At times it is dark and stained with blood, at others of a slimy character. The appetite is good and the patient enjoys her food. Patient is pale and cachectic looking, with a somewhat worn anxious expression of countenance.

She says she is thinner than when she left the Hospital. The uterus was removed per vaginam.

The uterus measures about two and three quarter inches in length. The broad ligaments were divided close to the uterus. The whole of the interior of the body of the uterus is covered by very soft villous growth which is thrown on one side into large polypoid folds. Occupying the whole of what appears to be the posterior wall, except about half an inch at the lower part, is a smooth round soft tumour about the size of a kernel of a walnut. On section, this appears to be villous and to invade the wall of the uterus to the thickness of about a quarter of an inch. The cervix appears to be healthy. The mucous membrane of the cervix is quite healthy.

Under the microscope, sections presented an irregular surface, the shreds of which were not covered by epithelium. These shreds and the superficial layer of the uterine wall were composed of rapidly growing tissue. In some places cancerous glands were found, but they

were scanty. Round or oval spaces were found beneath the surface, which appeared to have been gland spaces, out of which the epithelium had fallen out. The tumour in the posterior wall was a loose-textured non-encapsuled myoma; its surface presented appearances similar to those met with in the rest of the uterine cavity, and was cancerous. Here we have a columnar epithelioma growing from the uterine glands and invading a myoma. (PLATE XVIII., Figs. 1 and 2).

For the following case I am indebted to Dr. Allchin.

CASE XXXII.—This patient was 44 years of age, and a widow.

The father and mother died at seventy-six and seventy-seven respectively; cause unknown. A sister died of phthisis. No history of cancer in family.

She has had three children, the last fourteen years ago. All died within three years of birth of convulsions, small pox, and idiocy. Husband died insane.

She had measles as a child. No other illness except frequent bilious attacks and headaches.

Two years ago she had a succession of bilious attacks, and about this time large clots of blood came away at the period; she was very irregular, catamenia every fortnight until six months ago, since when she has seen nothing. The discharge was sometimes offensive. Jaundice began two years ago and continued ever since until lately. She had occasional griping pains during the same time.

There has been swelling of abdomen within the past six months; never suffered from piles, hæmatemesis or melæna. Reputed to have drunk considerably. Lost much flesh during past six weeks. A diagnosis of uterine cancer was made, but the extreme distension of

the abdomen rendered it impossible to determine the state of the abdominal viscera, liver, etc.

No albumen but a considerable quantity of bile in the urine.

Two days after admission she became much worse, lapsed into a typhoid state and died five days after admission, sickness being a marked symptom.

The uterus was considerably enlarged, and the walls, especially the posterior, thickened. It was adherent to the rectum. The epithelial lining of the body was for the most part intact, but it was lost at the lower part and at the upper part of the cervix. The glands were everywhere cancerous.

Dr. Lewers furnished me with the next case.

Case XXXIII.—A married woman aged 58 was admitted into the London Hospital in February, 1886. She was married in 1859, and her husband left her three and a half weeks afterwards. She had had one child stillborn twenty-six years ago, and no miscarriages.

There was no history of cancer or phthisis in the family. Before the beginning of the present illness she had had a good deal of trouble. In May, 1885, she noticed that she had become "unwell" suddenly; she had no pain, but the discharge continued for six or eight weeks. It then ceased for a day or two, and came on again as freely as before. She began to lose flesh, and latterly her appetite failed. Pain came on within the last two months in the back and thighs, at first of a throbbing character then cutting. It has been worse at night, and kept her awake. Lying down if anything makes it worse. With the pain came a watery and yellow discharge, which has been offensive latterly.

Menstruation began at twelve, was regular after the first year, and normal in amount and character, and without pain. It ceased at thirty-eight, and she has seen nothing since until ten months ago.

The vagina was short, a sharp bridle was found between the cervix and vagina on the left side. Vaginal portion was normal. An irregular hard lump the size of a cob-nut was felt posteriorly apparently in the supra-vaginal cervix. The examination caused a good deal of pain, and therefore an anæsthetic was administered. The uterus was freely moveable, the body which was felt to the right of the middle line was moderately enlarged. The sound was passed for two and three quarter inches. Some blood escaped from the uterus before passing the sound, and after its introduction fragments of soft brain-like material were mixed with the blood. Temp. 98·4° to 100·8° F. The uterus was extirpated by the vaginal method. After removal it weighed seven ounces.

About an inch of the Fallopian tube on each side was removed. The peritoneum was smooth everywhere. The cervix appeared normal, but it seemed as if it had been lacerated on each side. The uterus was opened along the left side, and then it was seen that the mucous membrane of the cervix appeared healthy, but that of the body of the uterus was thrown into folds of a soft nature, and almost the whole of the anterior wall, except about a third of an inch above the inner orifice, together with the right three quarters of the posterior wall, was occupied by a soft villous mass. This mass was on section, villous, and extended to a depth of nearly an inch, outside which was about two-thirds of an inch which appeared to be healthy uterine wall.

There was a gradual transition from the growth to the uterine wall. On the Posterior aspect of the cervix there are two small nodules about the size of a pea.

On microscopic examination this proved to be a columnar epithelioma growing from the glands.

Dr. Matthew Duncan's case.

Case XXXIV. — The patient, an aged woman, began to suffer pain and think herself ill only about three months before she died. Her complaints were occasional attacks of pain in the hypogastrium, and occasional losses of blood per vaginam. She looked healthy for her years. Three weeks before her death she was admitted into the Hospital under my care. A mobile hard tumour of the size of a fœtal head was felt projecting through the brim of the pelvis into the hypogastrium. It was rounded and not tender. She was seized with ordinary acute suppurative nephritis and sank in a few days. Cancerous nodules were found in the lungs and liver. The uterus weighed four pounds and a half, measured eight inches in length and six and a half in breadth. Its cavity, from os tincæ to fundus measured six inches. The walls of the body were about an inch thick. Examined by a competent histologist, the structure was declared to be that of hard cancer. Its section resembled that of scirrhus mamma. The lining membrane of the body was thick and villous, only in some parts destroyed. There was cancerous degeneration of the ovaries, and a similar state of some limited parts of the vagina was discovered after death. The cervix, although healthy to appearance and to digital examination, was discovered by the microscope to be the seat of cancerous degeneration (Duncan, *Diseases of Women*, 3rd edit., p. 351).

Through the kindness of Dr. Griffiths who supplied me with sections of the growth I am able to shew you a drawing of this uterus which is in St. Bartholomew's Hospital Museum, and the microscopic appearances presented by it. The disease originated in the glands, and extended along the mucous membrane into the Fallopian tubes. (PLATE XVII., PLATE XV., Fig. 1, PLATE XVI., Fig. 1).

Cancer of the body may be diffuse or circumscribed. The diffuse form is much the more common; indeed I have not met with an instance of the circumscribed. Several cases of the latter, however, have been described.

They assume a polypoidal shape, and the uterine wall at their base may be healthy; or they may form sessile tumours and grow in the substance of the uterine wall projecting into the uterine cavity like a sub-mucous fibroid.

In the former case the disease may have originated in a polypus already formed, as in case twenty-seven, in which a mucous polypus of the cervix was removed while undergoing the process of becoming a cancer; or it may develope from the first in the form of a polyp. In the second case—when the cancer dips deeply into the uterine wall, it is not improbable that it begins in the deeper portions of the gland as it so often does in the cervix, and then as it grows, it becomes more and more superficial and prominent in the uterine cavity; at the same time it penetrates deeper and deeper into the uterine wall. The further growth of the polypoid form is said to be, not in a superficial, but in a radial direction towards the peritoneum. The polyp may break down and disappear and leave a mass of cancer in the uterine wall—exposed on the inner surface. In this

way Ruge and Veit explain the origin of circumscribed masses described as primary in the uterine wall, and it may be in some cases a correct explanation of what occurs, but it is certain that cancer may begin in the deeper portions of the uterine glands and there form nodules in the wall just as we found to occur in the cervix, for the uterine glands are known to enter deeply into the muscular wall of the body of the uterus.

The diffuse form affects usually the whole of the inner surface of the body. Whether this is the case from the beginning or whether it is the result of its mode of growth is not known, and is difficult to determine. In some cases, however, a part of the surface escapes. The cervix is generally respected until a late period. The surface is villous, rough and ulcerated, or covered with warty nodules, or sessile masses or polypi.

The uterus is usually much enlarged, sometimes, however, the enlargement is not great; and it may be even slight; the wall becomes thickened and hypertrophied by a process similar it is said to that which takes place during early pregnancy. As the cancer grows successive deeper layers of the wall become involved, and the muscular part becomes thinner and thinner. The cavity of the uterus is sometimes considerably elongated and deformed, in others, but little; in some, after the disease has broken down, the cavity is considerably increased in capacity.

In some cases, or in some parts of the uterine surface the disease is quite superficial, the decidua not being much thickened although diseased throughout as in case thirty.

The disease grows from the glands; it may perhaps begin also in the epithelium of the surface; this has

not been actually observed, but the fact that the whole of the surface is generally involved, at least in most of the specimens which have been examined, is in favour of this mode of origin.

Several cases have been recorded in which fibroid tumours were present with cancer, one of my cases was such. In this case the cancer clearly grew from the uterine glands, and had not invaded the fibroid; while in another a myoma was present and was cancerous on the surface.

Klob, however, has recorded a case in which a fibroid was present and cancerous, and he was of opinion that the cancer had commenced in the fibroid. His case is imperfectly recorded, and the growth had begun to break down and slough, so that the tissues over it had been destroyed, and were in a condition which precluded the possibility of establishing the view of the case adopted by Klob. Moreover, all the histological evidence collected goes to shew that cancer of the body begins nowhere except in the epithelium of the surface or of the glands. It has further been shewn by the observations of Buhl and Ruge, that cancer may extend from the mucosa covering a fibroid and involve the fibroid itself.

The direction or lines of growth of cancer of the body appears to be in two directions, that is, such as to involve the surface and to spread into the deeper structures. The spread of the disease superficially, often ceases at the inner orifice of the uterus and the openings of the Fallopian tubes, and this, although not invariable, appears to be the rule. In some of my cases the cancer had passed the os internum and invaded the cervix, and in a specimen in the museum of St. Bartho-

lomew's Hospital already referred to, the disease had invaded the Fallopian tubes. Microscopically, there are two forms of cancerous disease of the body as of the cervix, adenoma and true cancer.

Dr. Matthews Duncan first described adenoma of the body of the uterus, and I reproduce the case here.

"Miss E., æt. 52, has enjoyed almost uninterrupted good health up till the commencement of her present illness two years ago. Now she is very weak, pale, and of anæmic appearance. She complains of pain in the back, but chiefly in the lower part of the abdomen, in which situation it is greatly aggravated at times, and especially during the night.

Two years ago she began to be troubled with a copious, red, watery discharge. After it had endured for nine months, she began to have in addition, discharges of clotted blood in the vagina, and occasionally of pieces which she describes as fleshy. The discharge still continues and is not fœtid.

The hymen was found entire, and was ruptured by passing the finger to examine the uterus. This organ was found to be enlarged and retroverted, and had a globular form, as felt through the roof of the vagina; it was not tender. There was no sign of the existence of perimetric adhesions. The cervix was enlarged, being distended; and its os was open to such an extent as to admit the tip of the examining index finger. The finger, pressed against the os, discovers a greatly enlarged cervical cavity, high in which the surface of a tumour or polypus can be reached. Continuing my investigation on a subsequent day, I enlarged the os uteri by scissors, cutting through its lip, and passed my finger into the uterine cavity; while my left hand,

applied over the hypogastrium, pressed the uterus down upon the examining finger of the right hand. I then discovered occupying the upper parts of the cervical cavity, a rounded tumour of about one and a half inches in diameter, having a smooth surface, diversified with smooth, soft projections of about the size of a split pea. The neck of this tumour I judged to be little less than an inch in diameter; it was surrounded by a constriction apparently formed by the internal os uteri, and passed upwards to its insertion in the fundus uteri. While what I regarded as the cavity of the cervix was greatly distended by the tumour, which also did not quite fill it; the cavity of the body of the uterus was short and occupied by the thick pedicle of the polypoid tumour.

I immediately proceeded to remove it, and found that it was very fragile, so that it could not be seized, far less removed in one mass. Under the finger and forceps it broke down into unnumbered pieces, many of which were washed out of the vagina by a lotion used after the operation was over. Ultimately, the whole mass and its neck were removed down to the level of the wall of the fundus uteri. I was then able to feel, on the wall of the uterus, close to the insertion of the pedicle of the tumour, some soft projections about the size of a split pea.

The patient has done well, and has returned to her home in the country. There is still discharge going on but less in amount than formerly.

The clinical history of the case as recorded—including the age of the patient, the nature of the discharge, the softness and fragility of the polypus, the existence of soft sessile masses at the insertion of

the pedicle, the degradation of the general health—has led me to be very cautious in prognosis as to the result of the operation for the removal of the tumour. I can entertain very little doubt that, whether the disease is as yet truly malignant or not, it will before many months are passed, show the terrible characters of undoubted cancer.

Anatomical Investigation by Kronid Slavjansky, M.D.—I received from Dr. Matthews Duncan several fragments of the above described tumour. The largest of these was about three-quarters of an inch long, and half an inch broad. It was of very soft consistence, and the fresh cut surface yielded a considerable quantity of juice slightly tinged with blood. On the cut surface there could be easily seen many extravasations of blood, which were of different ages, being of different colour and consistence; the older being somewhat brown and more solidified than the more recent, which were softer, red, and quite freshly coagulated.

Microscopical examination of the juice showed many red and white blood-corpuscles, cylindrical epithelial cells, and fusiform cells of the character of connective tissue. Besides, there were seen many cells of different sizes, some having two or three nuclei and a quite transparent protoplasm, which becomes opaque when treated with acetic acid, the opacity not disappearing in excess of acetic acid.

* * * *

By the low power the tumour is seen to be permeated by many canals of different sizes and shapes, between which lies common, slightly fibrillar connective tissue, in which are observed many extravasations.

The higher power shows that the canals are lined

with a continuous stratum of epithelium, the cells of which have the character of short cylindrical, with a well-marked nucleus. On the inner surface of the epithelial layer, are often observed quite round cells of a very transparent aspect. These cells can be found also lying in the lumina of the canals conglomerated in masses. The size of the cells is a little greater than that of a white blood corpuscle; sometimes the nucleus can be detected; the reaction of the transparent protoplasm is that of a mucus. Besides these cells, we find in the canals enlarged epithelial cells whose protoplasm has also become transparent. In a few places such altered epithelial cells can be found lying *in sitû* in the lining epithelial membrane of the canals.

The demarcation between the epithelial layer and the connective tissue is, in every part of the tumour, extremely well-marked. The connective tissue consists of a very few fine fibrils and fusiform cells, and in many places it is infiltrated with wandering white cells. This connective tissue, as it lies between the canals, is in some parts reduced to a small line consisting of only one layer of fusiform cells; but in other parts it is very thick, and contains blood vessels, which present, for the most part, the appearance of veins, very few having the characters of arteries. The capillaries are in some places very highly developed, and can be seen filled with blood corpuscles.

In many parts of the tumour can be found large extravasations, which have, in these parts, very much destroyed the structure of the tumour, so that its tissues are broken up, and lie in the midst of the blood, and these show sometimes traces of fatty degeneration.

Extravasated blood can also be found lying free in

the canals, and sometimes in such abundance as to obstruct them."—*Edin. Med. Jour.*, vol. xix., p. 97.

The growth rapidly recurred, distended the uterus, opened up the cervix, grew into and filled the vagina, and protruded through the vaginal orifice before death, which took place five months after the first examination. Latterly the discharge was fœtid, but there was never hæmorrhage. The patient died in the country, and the autopsy was made under unfavourable circumstances. It was said to verify in every respect, the opinion formed of the case before death.

The changes in the glands in adenoma are of two kinds; the cells may retain pretty much the character of the epithelium of the glands in health, or they may be somewhat smaller but regularly formed, or they may be larger.

In true cancer, the cells lose their shape, becoming irregular many-nucleated, and fill the lumen of the glands. The changes often call to mind scirrhus, and Mr. Stanley Boyd, after examining such a case for me, and finding in the growing part that the disease grew from the glands, suggested that all cancers of the body were columnar epithelioma. This has been shewn to be the case, for of all the cases examined by Ruge and Veit and myself, there was no instance in which the disease grew from anything but the epithelium of the glands or of the surface.

The direction which the growth takes is analogous in some respects to that taken when it attacks the cervix primarily. It involves the whole surface of the body but tends to respect the cervix. In the later stages, however, it passes through the inner orifice and attacks the cervix and extends down as far as the os externum.

It spreads deeply, involves the muscular wall and may pass through it, giving rise to inflammatory exudation on the peritoneal surface, and adhesions to neighbouring organs, and then it invades the adherent parts. In one of my cases it had opened the small intestine, in one it had all but caused a fistula between the small intestine and uterus, and in one it had passed through the uterine wall into the broad ligament where it had formed a considerable tumour.

The glands affected are those in the broad ligament and those along the spinal column. Secondary deposits may be present in many organs—as the lungs, liver, and kidneys. Their structure is always glandular.

In all my cases the disease began after the menopause. One was 53 years of age, one 54, and one 63, Dr. Herman's patient was 48, Dr. Lewers' 58, Dr. Allchin's 44 and Dr. Duncan's was old. Of Ruge and Veit's cases two were under 40, the youngest being 32; one was between 40 and 50, six were between 50 and 60 and seven were between 60 and 70. So that the disease is rare under 50 and before the menopause, and as frequent between 50 and 60 as it is between 60 and 70.

With regard to child-bearing, it is to be observed that five had never been pregnant, five had had one child and eleven had been pregnant twice or oftener. So that we find sixteen out of twenty-one had been pregnant and five had not, shewing a much larger proportion of sterile women suffering from cancer of the body than from cancer of the cervix.

Hæmorrhage is the symptom which usually attracts the patient's attention and points to the existence of the disease. After the menopause, bleeding sets in and

frequently returns at tolerably regular intervals, and women think that menstruation has returned. It is often profuse, but sometimes only slight. It is said to increase as the disease progresses. It is, however, not characteristic, for it is present in the endometritis of old age, and in certain forms of ulceration of the cavity of the body called lupus. There is generally an offensive discharge present.

Pain is a common symptom, and in some cases it comes on at stated hours and lasts for a longer or shorter time, and is of great severity, as was pointed out by Simpson. It is believed to be due to contraction of the uterus. In all my cases cachexia was present in a marked degree.

I regret to have to pass over these matters so briefly, but it appears to me that the questions I have been discussing, are of far greater importance in their bearing upon the great aim of practitioners than the enumeration or the discussion of symptoms described in most works on diseases of women, that I felt it necessary to devote most of the time at my disposal to them; and I must now point out the bearing of what I have already said upon treatment.

I do not propose to discuss the palliative treatment of cancer of the uterus. With this you are all of you well acquainted from experience in your own practices. It is the common property of all practitioners, and is in the main fully given in all works on medicine, and the part of it which is specially applicable to cancer of the uterus is given in most works on the diseases of women. It consists mainly in the relief of pain, and the practice of special cleanliness; while in some special cases

particular means may be called for to arrest hæmorrhage and other discharges. These I pass by, and proceed to discuss the radical methods of treatment which have been practised during the last ten years. These methods are two—the supra-vaginal amputation of the cervix and the total extirpation of the uterus.

Freund, of Strasburg, introduced or re-introduced total extirpation into practice some dozen years ago. He practised it by abdominal section and the results of this method proved disastrous—the mortality from it amounting to 72 per cent at least. This method was modified by Czerny and others who amputated the cervix by the vagina first and then performed abdominal section to remove the remainder of the uterus. Schroeder subsequently described what is known as the vaginal method, in which the whole of the organ is removed through the vaginal canal; and by this method much greater success has been obtained as far as recovery after the operation is concerned than by the abdominal, for about 72 per cent. of the cases operated upon recover from the operation.

Amputation of the cervix has been practised for many years, but only recently in the way it is done now. I am not going to describe these operations further than I am obliged to, but I want to shew the bearing of what I have told you in these lectures upon the application of the two methods of treatment—total extirpation and partial extirpation of the uterus. That you may follow me, I must remind you of what I said about the sites of the origin of cancer and the lines of its growth. And in the first place, cancer of the vaginal portion begins in the squamous epithelium; it is superficial and remains superficial for a long time; it spreads

towards the vaginal vault and along the vaginal walls superficially. In these cases the whole of the disease provided it is limited to the uterus can be easily removed; indeed in most cases if the lower half of the cervix be removed the disease will be extirpated from the uterus. The difficulty arises after the disease has spread beyond the limits of the portio vaginalis into the vaginal walls, and lies in the obstacles to the removal of a large superficial area owing to the conformation of the parts—the near proximity of the bladder and ureters especially. Many cases have been cured by amputation of the cervix or of a portion of it with the écraseur. Recurrence, when it occurs, takes place superficially at the edge of the cicatrix and not in the deeper structures and consequently no advantage would be gained by total extirpation of the uterus.

In the next place, we have to discuss the applicability of total and partial extirpation to cases of cancer of the cervix proper, first of all, in the light of pathology. In a previous lecture, I pointed out that cancer may begin in the cervix in two situations—in the lower part near the external orifice or in the upper part near the internal orifice. I showed that the tendency of the disease was to grow downwards towards the portio vaginalis and upwards and outwards towards the parametric connective tissue. It does not spread upwards into the body of the uterus, except in rare instances, and in the later stages of the disease, when no operation can be undertaken with any hope of effecting a radical cure. Before it has involved the whole of the cervix, it has probably in some places invaded the parametric tissues, and this is the case long before the body is attacked. Under these circumstances what are the advantages, if

any, of total, over partial extirpation (Fig. 1 and PLATE VIII.). If you look at these drawings you will see what can be done by partial extirpation—or supra-vaginal

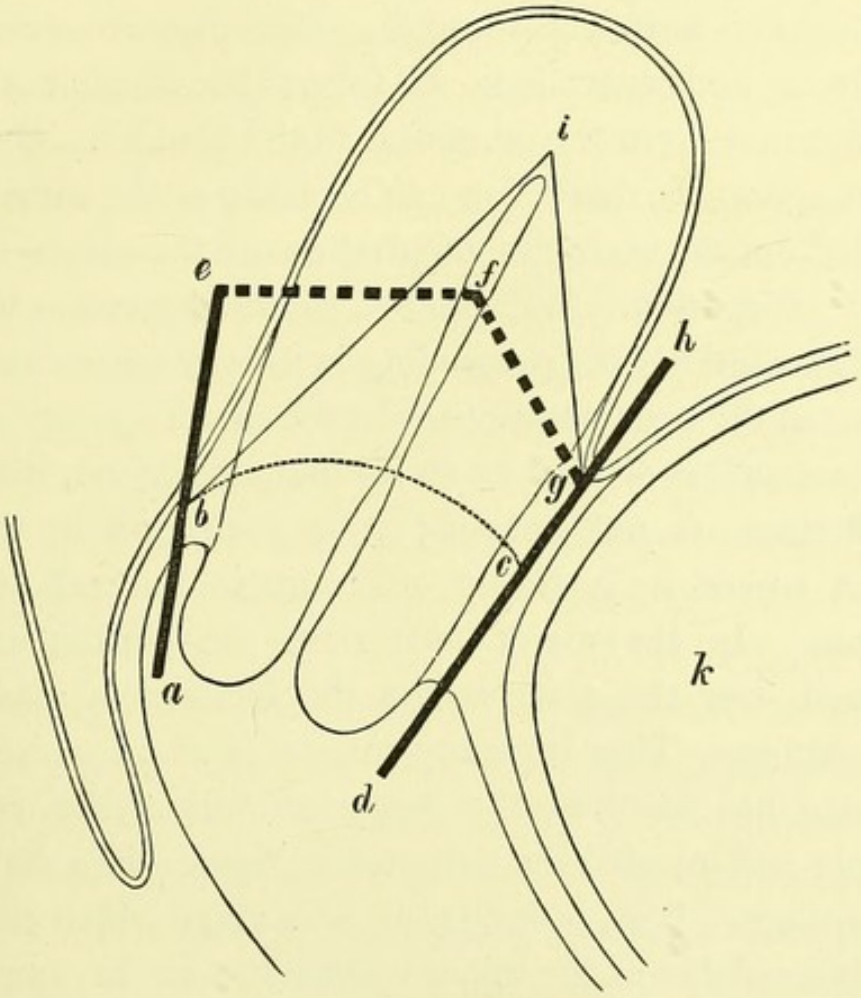


FIG. 1.

a b c d. Lines of usual supra-vaginal amputation.

a e f g d. Lines of supra-vaginal amputation when Douglas's pouch is opened.

a b i g d. Lines of supra-vaginal amputation when a large part of the body is removed without opening the peritoneum.

a e d h. Lines of incisions through anterior and posterior vaginal walls in total extirpation.

k. Bladder.

amputation of the cervix. The lines of incision in the vaginal walls can be made in the same situation in amputation of the cervix, as in the operation for total extirpation, so that in this respect total extirpation has

no advantage over the minor procedure. Then in both operations the dissection in front is made in the cellular tissue between the uterus and bladder. It is generally advised to tear through this tissue after the vaginal walls have been cut through. The dissection can be made in both operations as far as the reflexion of the peritoneum from the uterus on to the bladder. On the sides again, the dissection can be made at the same distance from the uterus in amputation of the cervix as in total extirpation. With regard to the dissection to be made posteriorly the proceeding is usually somewhat different in the two operations. In the minor operation the vaginal wall is divided as far as the peritoneum, but the peritoneum is not opened; it is peeled off up to the point where it is firmly adherent to the wall of the uterus. In the major operation, the peritoneum is opened over the place where the incision is made in the vagina. This in many cases—cases in which the disease has involved the posterior wall of the cervix deeply and invaded the parametric tissue—is a distinct advantage. It is, however, an advantage which can be made available in the minor operation—for in amputation of the cervix, the peritoneum is often deliberately opened, and this does not appear to add greatly to the risk incurred. As far as we have gone then, total amputation presents no advantage over supra-vaginal amputation.

But what are the facts with regard to the entire removal of the disease from the uterus itself, and the prevention of recurrence. How much of the uterus can be removed by the minor or less severe operation? Can enough be removed to ensure prevention of recurrence?

In reply to the first question, I say the whole of the cervix can be easily removed; and a great part of the body can also be removed (Fig. 1 and PLATE VIII.). When the reflexion of the peritoneum has been reached, the dissection can be carried up in the uterine wall near the peritoneal surface, and a cone-shaped piece of the body reaching up to the fundus can be cut out. This was done in Case 16 (PLATE VIII.). In this instance the mucous membrane of the fundus was removed, together with that at the uterine orifices of the Fallopian tubes. This was done without injury to the peritoneum. So that the entire uterus can be removed by this method, except a shell of the upper part of the body. But is this sufficient to prevent recurrence? Is the risk of recurrence greater or not, when a part of the uterus is left behind? I believe it is not any greater, and on grounds which appear to me to be sufficient. For in six cases in which recurrence took place, in four the stump remained healthy; in one it was superficially and probably secondarily affected, as well as the parametric tissue. In all, recurrence took place in the parametric tissue, and in four, in that only. This evidence shows clearly that it is possible to extirpate cancer from the uterus by supra-vaginal amputation, and that in so far as the prevention of recurrence in the uterus itself is concerned, total extirpation of the organ presents no advantages over partial amputation.

But how about recurrence in the parametrium? Will total extirpation help us to prevent this mode of recurrence more frequently than amputation of the cervix? I think not. I have shewn that the line of dissection around the cervix up to the level of the inner orifice or the reflexion of the peritoneum is the same in both

operations, that the peritoneum can be and often is opened posteriorly at the same level frequently in amputation of the cervix as in the operation for removal of the whole uterus—that, in fact, the tissues in the area of recurrence are cut through in the same planes in both operations and therefore that one presents no advantage over the other.

It has been suggested, however—and I believe practised—to remove a portion of the bladder when the cancer has invaded the connective tissue between that organ and the uterus. This could be done in the minor operation without increased risk—but I imagine that it would greatly enhance the danger of the operation for total removal of the uterus. So that if anything is to be gained by such a procedure, this gain would be in favour of the minor operation. I doubt, however, whether such a proceeding would be likely to possess any advantage over the ordinary method.

In so far, then, as the natural history of cancer of the portio vaginalis and of the cervix throw light upon the value of operative procedures for its cure, it appears, that supra-vaginal amputation of the cervix is quite as satisfactory an operation as the removal of the entire uterus.

But what does the experience of operators tell us on this point? Does it accord with the conclusions we have arrived at upon pathological grounds?

A large number of patients have been operated upon for cancer, as well as for other conditions, and the results of operation have been recorded in societies or published in journals soon afterwards, and long before the cases were completed by observation of the permanent results. All these cases are absolutely of no value

for our purpose. I cannot conceive any good object in operating upon a patient on a Monday, and reporting the case on a Thursday, and then bury it out of sight for ever. The cases, which have been watched for years after operations for cancer are comparatively few. I do not profess to know them all, and I shall, therefore, take the results obtained in the Vienna Hospital, published by Pawlik, and those of Schroeder published by Hofmeier. They are the most numerous and the most complete. Those of Martin of Berlin, and those of Fritsch of Breslau, are for my purposes and for purely scientific purposes valueless, because the cases were not watched for a sufficient length of time to determine whether recurrence took place or not. They are useful for the purpose of estimating the mortality of total extirpation only.

Recurrence may take place early or late, but if a considerable time has elapsed before its appearance, it may be inferred that the reappearance is not a true recurrence but a new development; for just as a new development of cancer may take place in a part of the body quite independently of cancer in another part, so may a new growth appear in the stump of a uterus whose cervix had been amputated for cancer, independently of the cancer which was removed. I consider, and I believe justly, that if recurrence does not take place in the course of two years, a cure has been effected, and that should the disease break out after the lapse of that time the new growth is not a real recurrence, but a new development. Bearing this in mind we find that Pawlik reports thirty-one cases of cancer of the portio vaginalis and cervix which were cured by amputation of the cervix; 136 cases were

operated upon. Of these thirty-three remained in good health at periods varying from one to twenty years after the operation.

Pawlik operated by means of the galvanic écraseur —and opened the peritoneum thirty-nine times.

Of 105 partial operations performed by Schroeder, ten died, the fate of seven is doubtful, recurrence took place in forty-three during the first year and forty-five remained well. Thirty-one remained well at the end of two years, twenty-three remained well at the end of three years, one had died of cancer of the bones, one of cancer of the ovary and three had recurrence, the state of one was doubtful and two were lost sight of.

If we now compare this result with that of total extirpation in Schroeder's hands, we find the uterus extirpated during the same period in forty cases, with ten deaths. Recurrence took place in fifteen during the first year, and one was lost sight of, leaving fourteen healthy at the beginning of the second year. Recurrence took place in seven during the second year, and in one case the point was doubtful. Four were known to be healthy. We have, therefore, at the end of two years, about 30 per cent. in good health after partial operation and only 15 per cent. after total operation—that is of those operated upon ; and nearly 35 per cent. of those who recovered after partial operation, and 20 per cent. after total extirpation.

It should not be forgotten that these cases of total extirpation were cases of more advanced disease, than those in which partial extirpation was performed—or, at least, that they were cases in which the disease had involved the uterus to such an extent, that partial amputation was thought insufficient.

Hofmeier, who reports Schroeder's cases divides cancer of the lower segment of the uterus, into cancer of the portio vaginalis, cancer of the mucous membrane of the cervix, and cancer of the cervical tissue.

For cancer of the portio vaginalis he advocates amputation of the cervix; for the other forms total extirpation of the uterus. All the cases in which he had observed a long and lasting recovery after total extirpation are cases of cancer of the mucous membrane. The results obtained in cases of cancer of the cervical tissue are much more unfavourable. He states that this form of cancer is not discovered until it has existed a long time, and until ulceration has taken place; total extirpation is indicated, for the disease may have extended into the body. The prognosis is very unfavourable, and recurrence is most frequent in them. I cannot accept Hofmeier's classification of cancer of the lower segment, but it should be said that his paper is purely clinical, and not in any sense pathological, so that I lay but little stress upon his division. He does not describe the seat of the recurrence, but as the whole uterus was removed, it must have taken place in the parametrium and so far, his observations are in accord with mine; and as the recurrence takes place not in uterine, but in connective tissue it cannot be said that total extirpation is indicated in these cases. Moreover he shews emphatically, that of the forty-three cases in which recurrence took place during the first year after partial amputation, in only two did it appear in the uterine stump; in all the others its seat was the cellular tissue, and therefore, as a rule, total extirpation is not indicated.

Clinical experience appears, therefore, to point to the

same conclusion as pathological investigation—that is, that in cancer of the portio vaginalis and of the cervix, total extirpation of the uterus possesses no advantages over supra-vaginal amputation of the cervix, because the tendency of the disease is to invade not the body of the uterus but the parametric tissue.

In cancer of the uterine body there is but one operative procedure which holds out any—the slightest hope—of a radical cure, and that is total extirpation.

There is one other question in connection with the operative treatment of cancer of the uterus upon which I wish to make a few observations—and that is the indication for operating. All cases of cancer should be operated upon, provided they are met with at a period sufficiently early, to justify the hope of effecting a radical cure. But what are the physical signs which justify this hope. The pathological condition which justifies it—be the cancer in the portio vaginalis, the cervix, or the body—is that the disease has not passed beyond the uterine tissues. This, however, is not easily discovered either before, or during the operation. Frequently, indeed, the after results prove that it was too late, even in cases which appeared to be favourable for the operation.

The physical signs generally relied upon are, mobility of the uterus, absence of induration around it, and absence of affection of the glands. In endeavouring to establish these points, the examination should be made under an anæsthetic, and the whole pelvis should be explored by the vagina, and by the rectum. In spite of every care, however, clinical investigation may prove misleading, because the disease may have passed beyond the limits of the uterus, and yet give rise to none

of the physical signs mentioned. The extent of the the disease present is most easily established by clinical examination in cancer of the portio vaginalis, for when the disease has reached the vaginal vault, it gives rise to superficial induration at the place invaded, and this is more easily discovered, than when induration of a slight degree is present in deeper tissues. In such cases, and indeed in all cases, the rule should be, to make the incision in the vaginal wall wide of the indurated part. In this means alone, lies the hope of preventing recurrence.

In cancer of the cervix proper, the investigation is much more difficult—for the uterus may be freely moveable, mobility of the organ may be unimpaired, no indurated tissue may be discovered, and no enlarged glands may be found, and yet the disease may have passed into the cellular tissue around the cervix. I have seen several such cases, and in them the tissues through which the incisions were made appeared to be healthy. I know of no way in which the difficulty can be overcome. Coarse induration can be readily discovered ; that points to an advanced stage of cancer, but the commencement of infection of the parametric connective tissue will escape the most sensitive and cultivated touch. If the parametrium is healthy, no anxiety need be felt about the degree of extension of cancer upwards towards the body. It can be entirely extirpated in that direction. The difficulty is to extirpate it in a lateral direction, according to both pathological and clinical research.

The difficulty of discovering the limits of the disease is sometimes just as great in cases of cancer of the body. The tendency in these cases is to invade the

broad ligaments and peritoneum or adherent intestines. I have seen one case in which the uterus was moveable without surrounding induration or large glands, and yet the fundus was adherent to a coil of small intestines, and the disease had invaded the wall of the intestine and almost formed a utero-intestinal fistula. This patient was examined under ether, and yet the condition escaped detection.

In spite of these difficulties, and in spite of recurrence, the operative treatment of cancer gives in some respects satisfactory results—and this is especially true of cancer of the portio vaginalis and of the cervix. Sometimes permanent cures are effected—while in a large number, a respite for one or more years is given.

In Schroeder's cases the respite was as follows:—

Of 105 partial operations; ten died; the fate of seven was doubtful, recurrence took place in forty-three during the first year, so that forty-five had a respite of one year; forty-one of eighteen months; thirty-one of two years; twenty-seven of two and a half years; twenty-three of three years; seventeen of three and a half years; ten of four years; seven of four and a half years; seven of five years; three of six years; one of seven years. Besides these cases, which remained under observation, many were lost sight of and their fate was not known.

Of forty total extirpations, ten died; fourteen had a respite of one year; eight of eighteen months; four of two years; two of three years; one of three years and a half, and one, who died of apoplexy, a respite of four years.

I thought at one time that recurrence caused more and earlier suffering than the primary disease, because

it affected the deeper tissue sooner than the primary disease would have done, but a larger experience of such cases has convinced me that in this, I was in error; and that the pain depends on some peculiarity in the patient or the disease, for many recurrences are painless.

I cannot speak of the duration of the disease after recurrence. I have not a sufficient number of cases—but I have seen it last from four to eighteen months.

It is not impossible that a more careful study of the pathology, and natural history of cancer of the uterus will help us much further in its diagnosis and treatment, and the earlier we are enabled to make the diagnosis the more successful will the treatment prove. No haphazard and blind procedures of treatment will prove of any avail; the only method which can give us a sound and firm basis upon which to build, is patient study in the laboratory as well as at the bedside, and although I would in no way depreciate clinical research, yet I cannot help thinking that in the present stage of our knowledge, the investigations conducted in the laboratory, are far more likely to give us light upon cancer of the uterus, to elucidate the laws which govern its development and growth, as well as those which must rule our methods of treatment.

PLATE I.

Parts of Section through portion of Cervix removed in Case I.

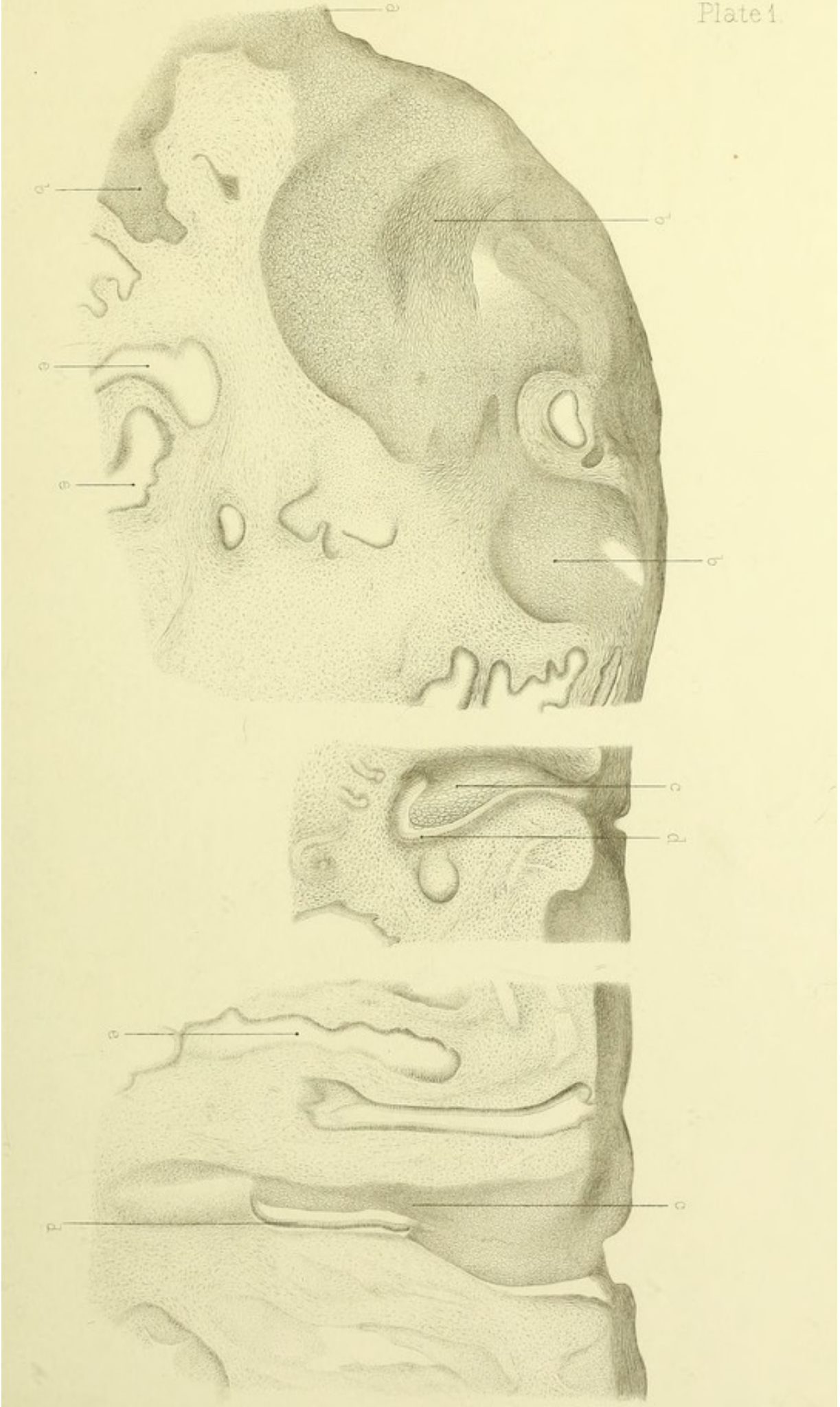
a. Vaginal reflexion.

b. b. b. Masses of cancerous squamous epithelium.

c. d. c. d. Glands, one side of which is occupied by cancerous epithelium of the squamous variety, the other lined by columnar epithelium.

e. e. e. Glands of an erosion.

Plate 1.



J. Buxall del.

Damelsson & Co. lith.

PLATE II.

Fig. 1.—Part of Cervix removed in Case II. Shewing the growth on the posterior lip.

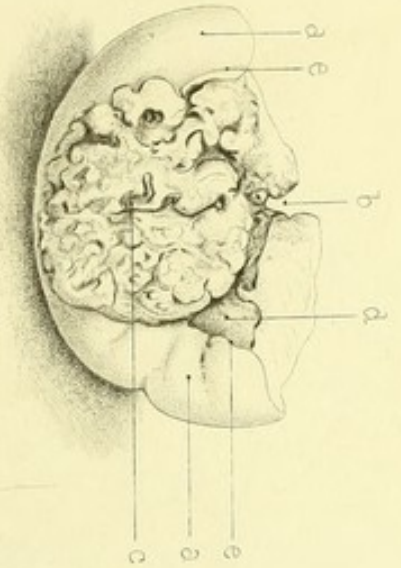
a. a. Healthy portion.
b. Cervical Canal.
c. Cancerous growths.
d. Part where the epithelium was wanting.
e.e. Thickened edge of squamous epithelium.

Fig. 2.—Vertical section through the same specimen.

a. a. The shaded part shews the thickening of the diseased growth.
b. Inner surface of the cervix.

Fig. 3.—Section through diseased and healthy tissues in same specimen.

a. Thickened squamous epithelium.
b. Squamous epithelium much thickened and becoming cancerous.
c. Papilla growing through the thickened epithelium and protruding on the surface.
d. Cancerous epithelial strings.
e. e. Places where the horny layer of epithelium has been lost.



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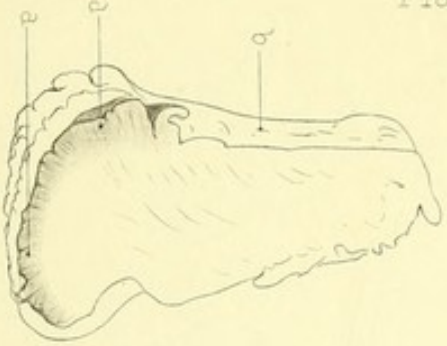

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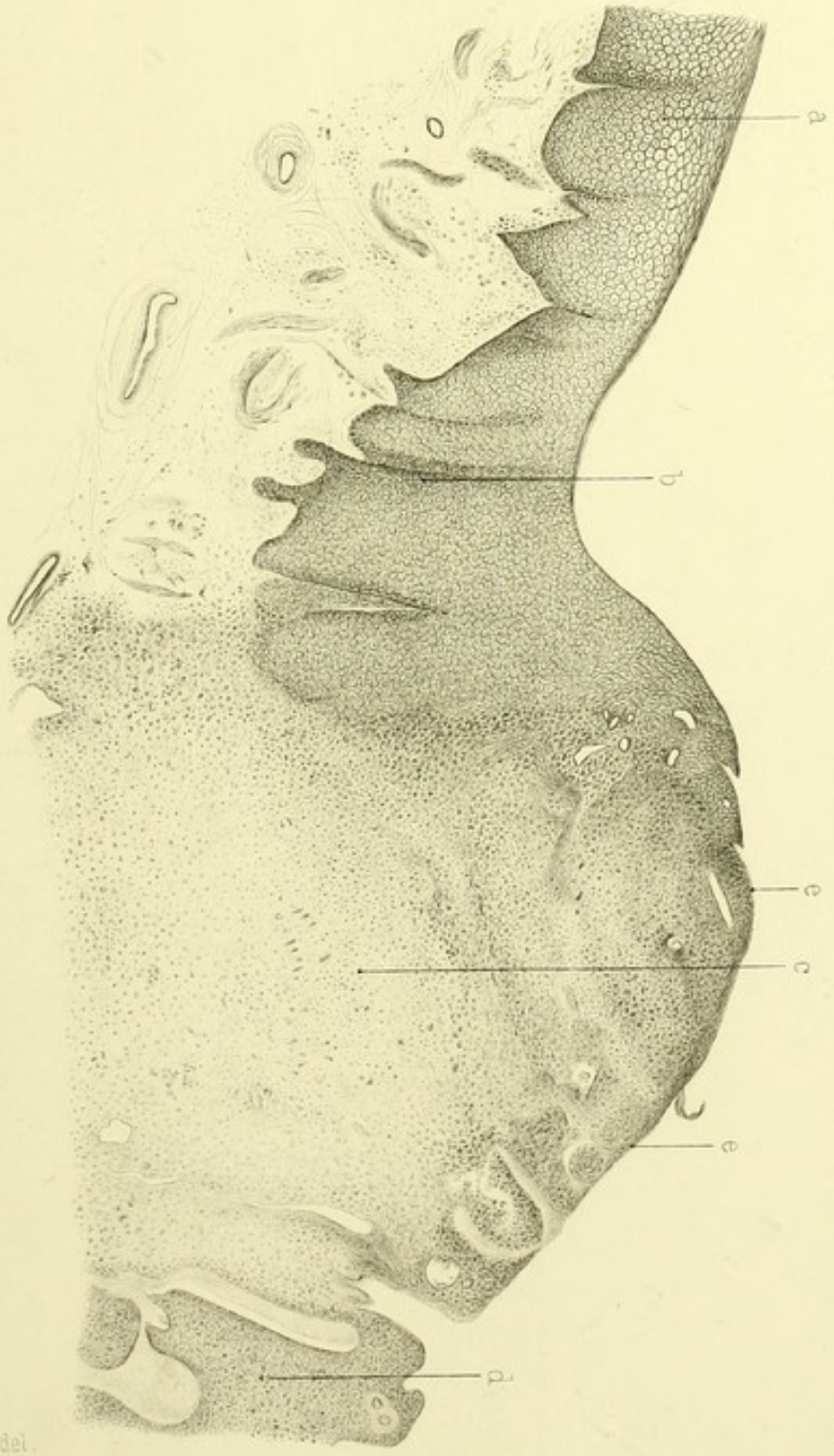


Fig 3

R. Boxall del.

Danielsson & Co. lith.

PLATE III.

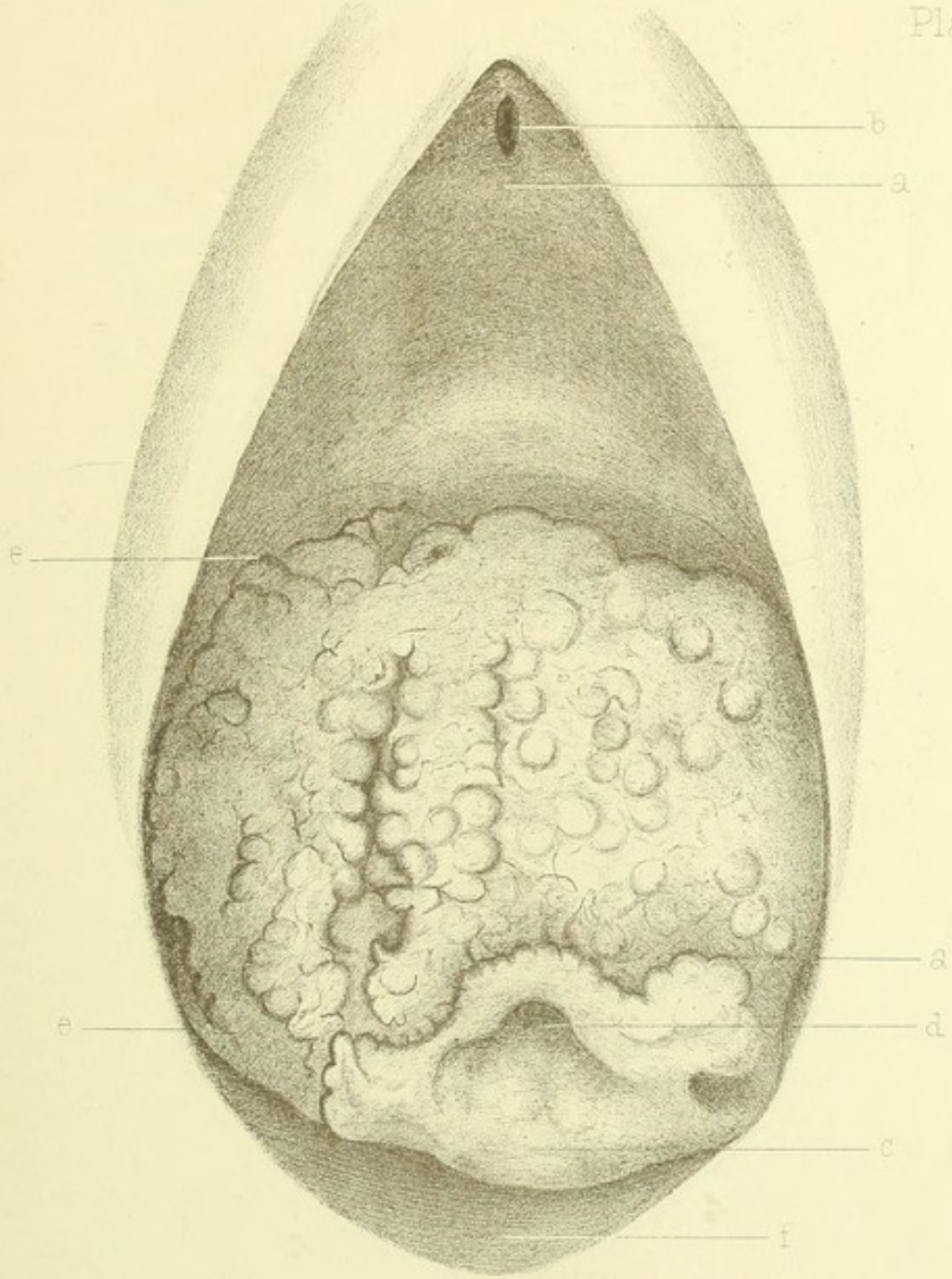
Fig. 1.—Cervix and inverted vaginal wall in Case V.

a. a. Anterior vaginal wall.
b. Orifice of urethra.
c. Posterior lip of cervix uteri.
d. Os externum.
e. e. Cancerous growth.
f. Posterior wall of the vagina.

Fig. 2.—Cervix removed in Case VII.

a. Part of anterior wall of vagina.
b. Os uteri.
c. Dotted lines shewing the cancer burrowing in the substance of the cervix.
d. d. Cancerous ulcer.
e. and f. Anterior lip split into two layers.

Plate 3



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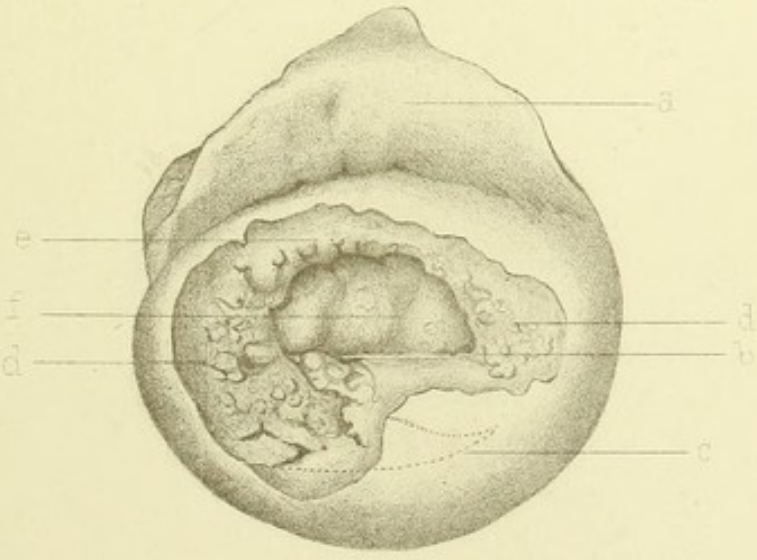


Fig 2

H. Spencer del

PLATE IV.

Fig. 1.—Section of healthy and diseased tissues of vagina in Case VI.

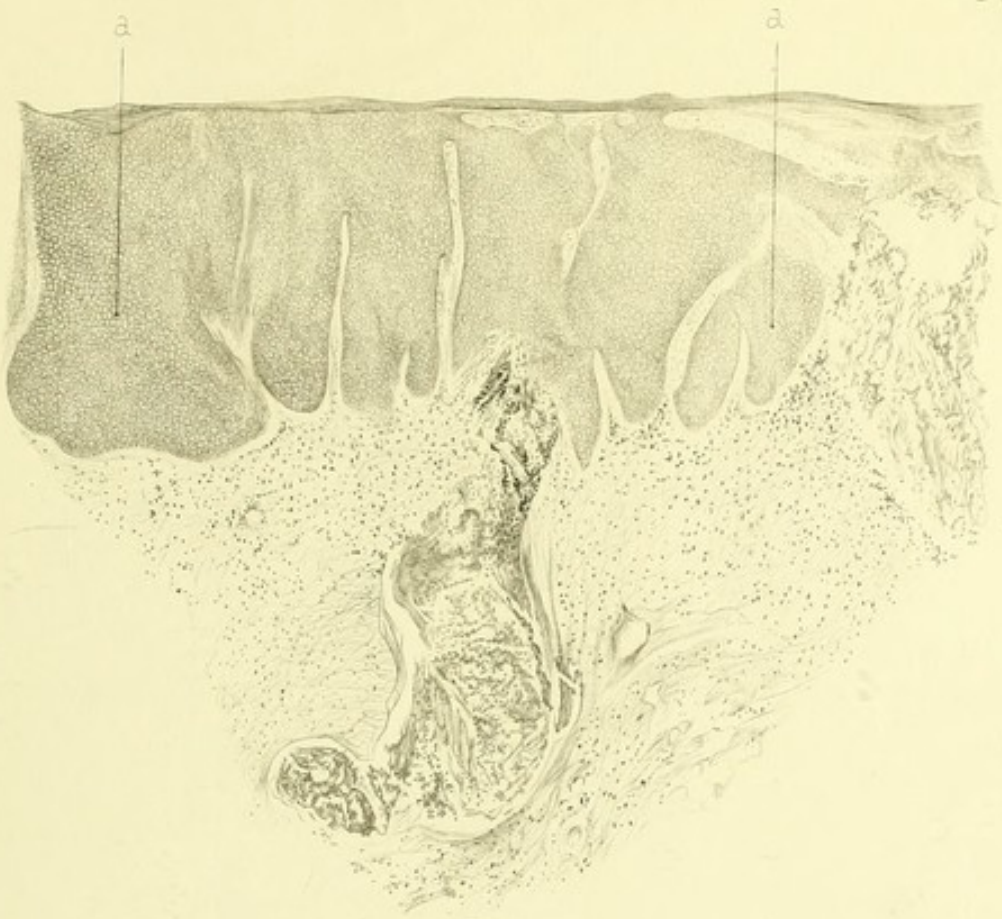
a. a. Squamous epithelium thickened and growing into subjacent tissues.

Fig. 2.—Section of a squamous epithelioma of the portio vaginalis invading the glands.

a. a. a. a. Glands of an erosion.

b. A gland in great part lined by healthy columnar epithelium in part invaded by squamous epithelioma.

c. c. Glands changed into masses of squamous epithelioma.



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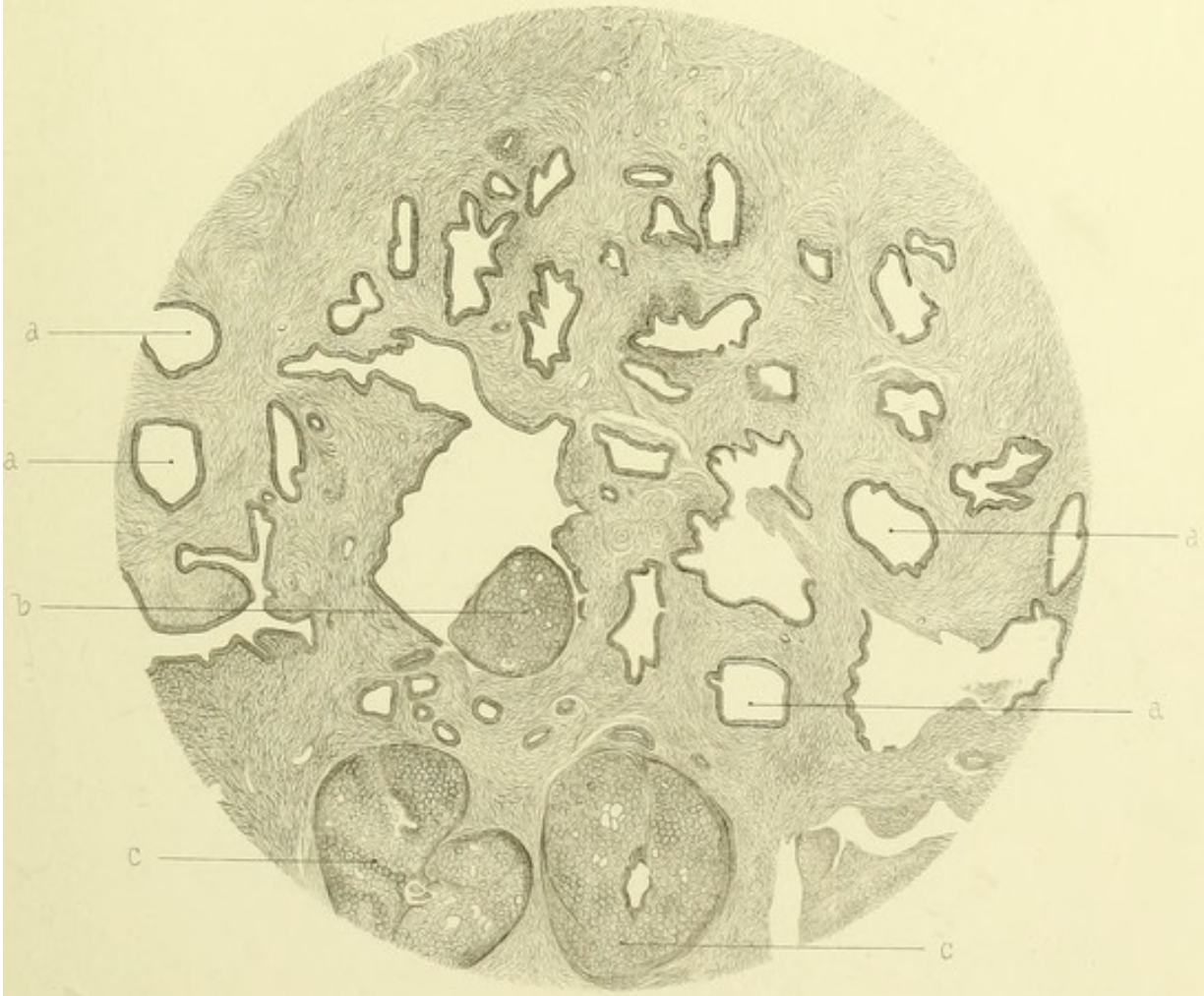
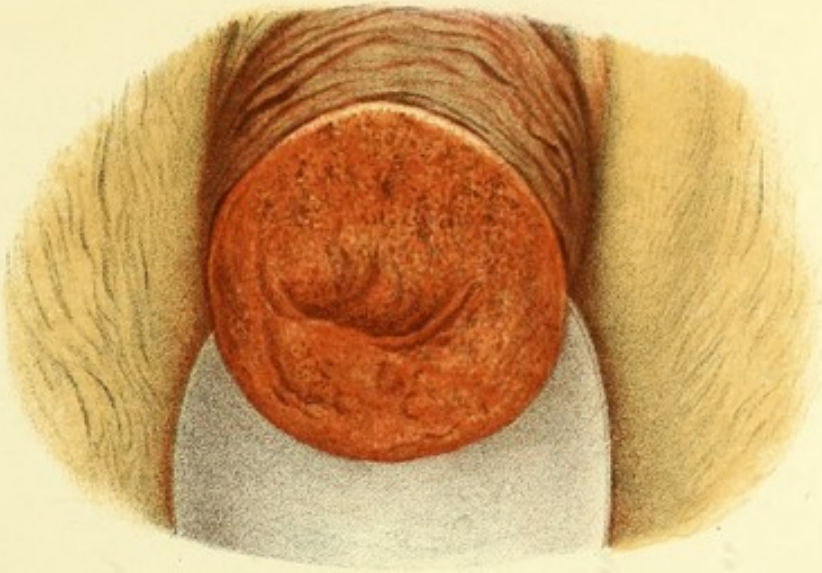


Fig 2.

PLATE V.

Fig. 1.—Villous erosion, Case X.

Fig. 2.—Epithelioma creeping down the vaginal wall, Case VI.



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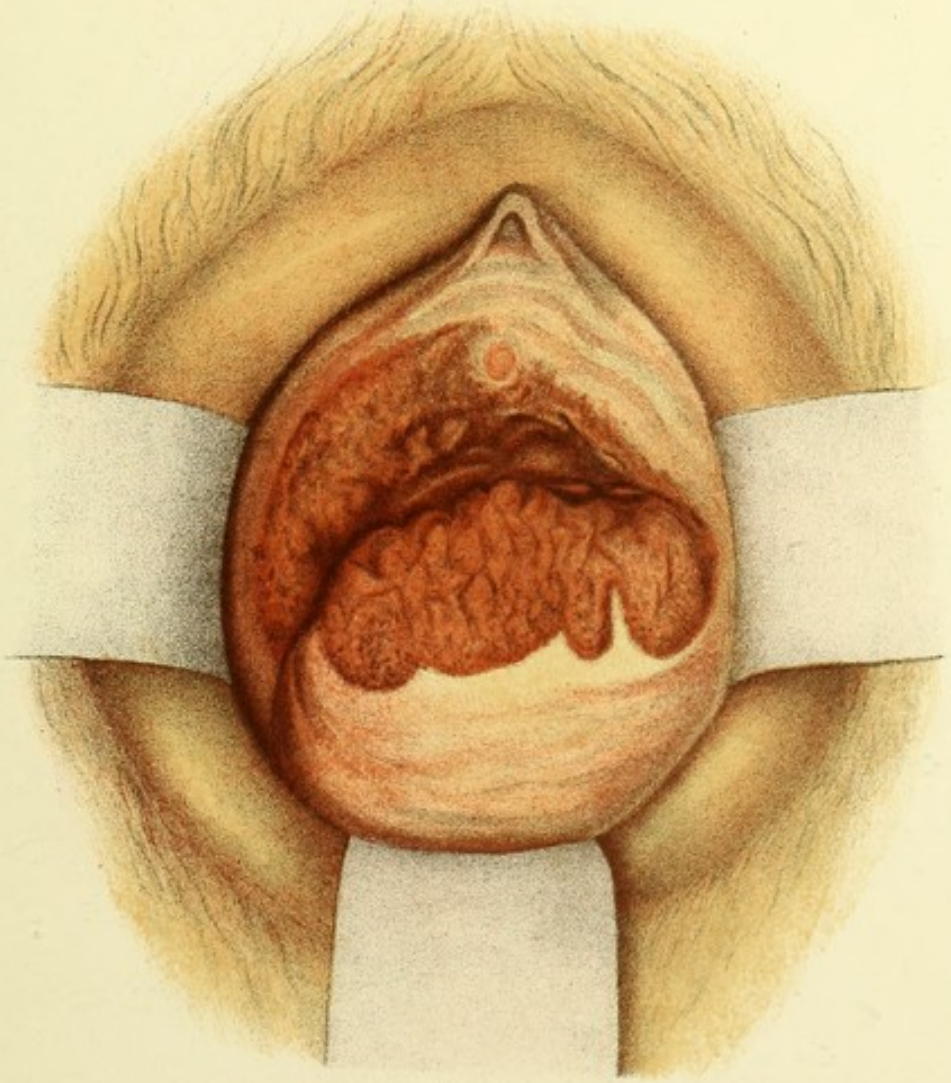


Fig 2

E. Burgess, del.

Danielsson & Co. lith.

PLATE VI.

Fig. 1.—Section of older part of the diseased growth in Case VI. (See Plate V., Fig. 2).

a. a. fibrous stroma.

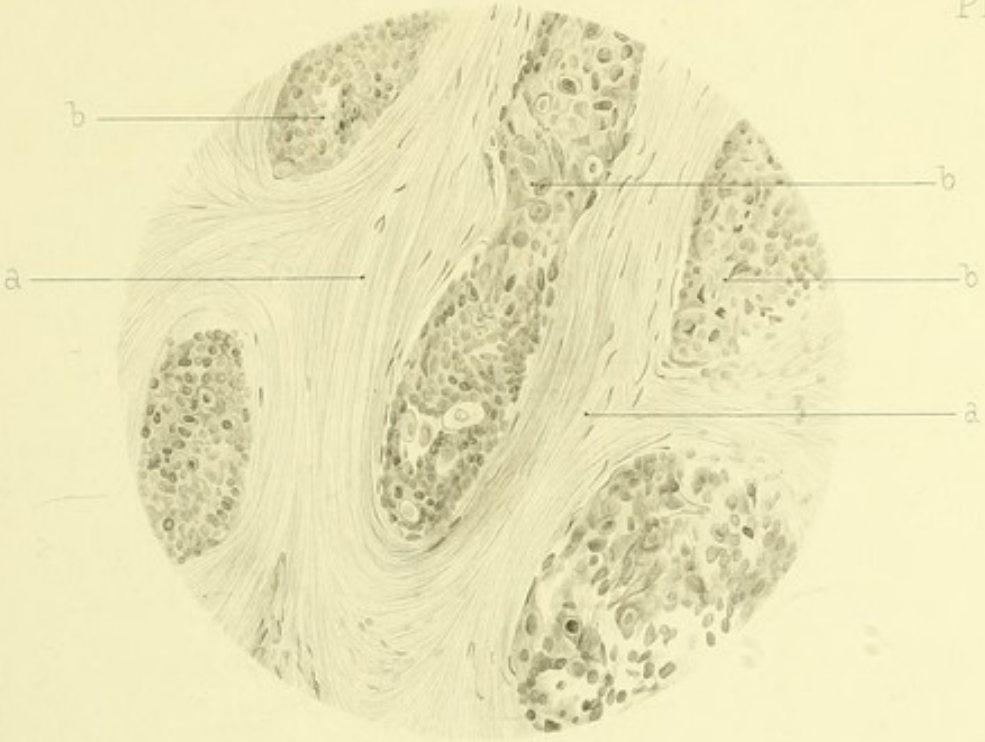
b. b. b. Masses of cancerous cells.

Fig. 2.—Portion of cervix removed in Case IX., and laid open.

a. a. a. a. Papillary growth.

c. Old laceration shewing no papillæ.

Fig. 3.—Papilliferous glands of an erosion.



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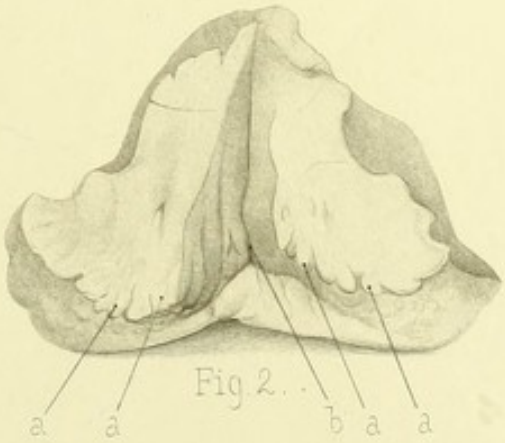


Fig 2.

Fig 3.

PLATE VII.

Fig. 1.—Adenoma of the cervix (Case XI.).

a. a. Vaginal surface, where a thin layer of squamous epithelium is still retained.

b. Thin layer of tissue of cervix infiltrated with round cells.

c. c. c. Glands lined by a single layer of regularly oblong cells.

Fig. 2.—Cancer commencing at the fundus of a glandular recess from Case XIII.

a. a. Places where the columnar epithelium lining the recess becomes cancerous.

b. Cells of the columnar epithelium greatly elongated and arranged in multiple layers—cancerous.

c. A cancerous nodule.

d. Columnar epithelium still retained on a papilla in the recess.

e. e. Vacuoles.

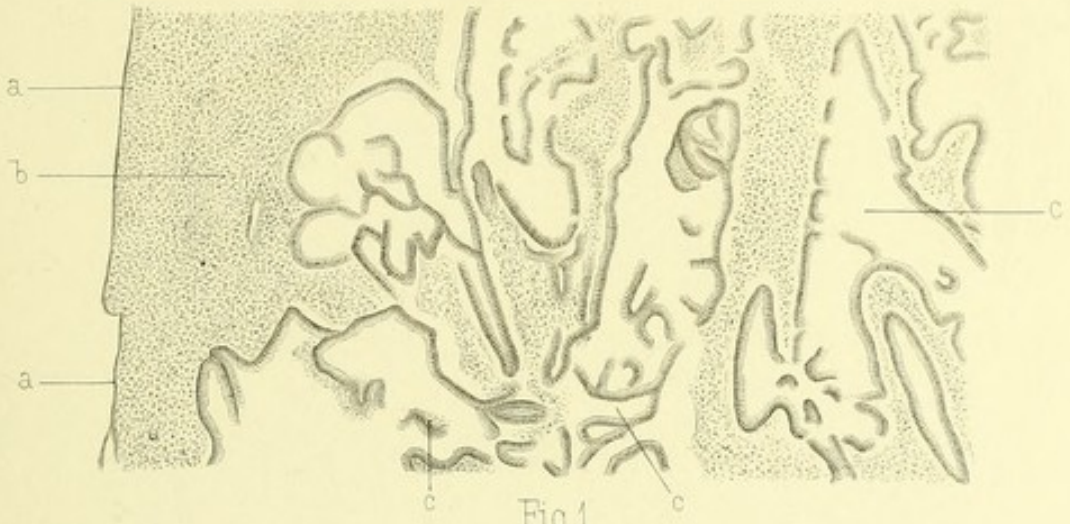
Fig. 3.—Section of the part removed in the operation for the recurrence in Case XV.

a. a. Surface of uterine canal lined by columnar epithelium.

b. b. b. Glands of uterus.

c. c. c. Cancer on the outer side of the uterus invading its wall, and showing every transition from glands to cancer.

d. d. Healthy uterine tissue between the uterine glands and the cancer.



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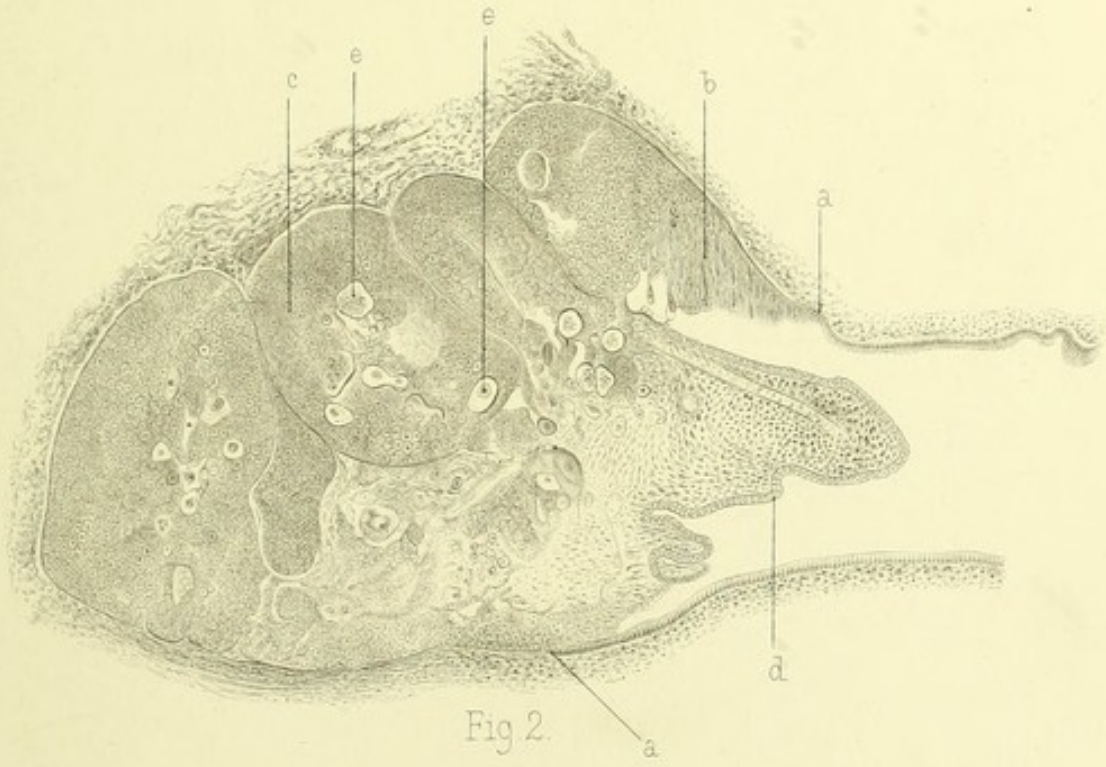

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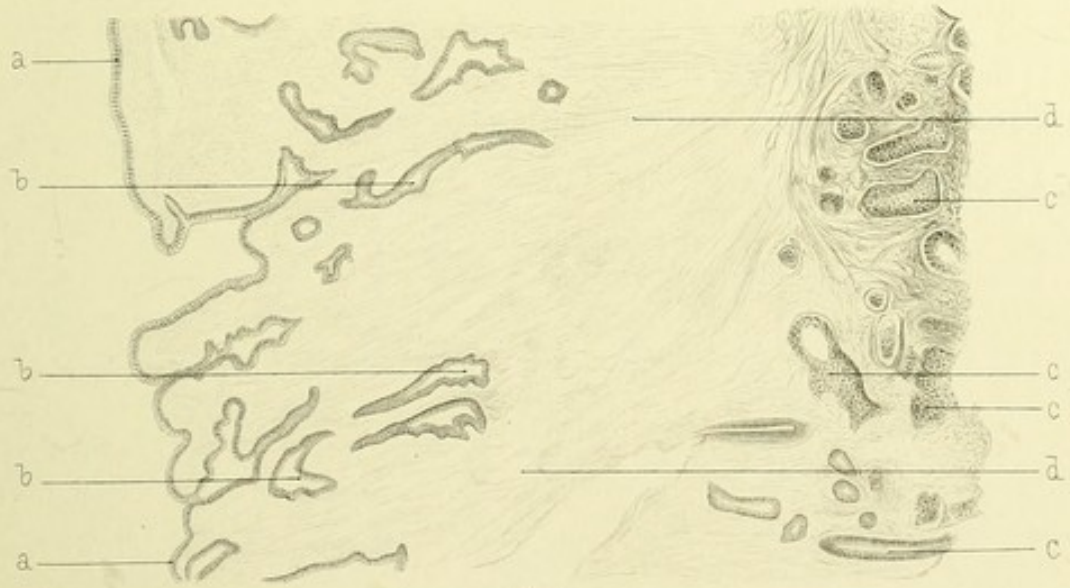


Fig 3.

PLATE VIII.

Remains of uterus, vagina, and bladder after supra-vaginal amputation (Case XVI.). Recurrence took place in the cellular tissue.

a. Fundus uteri.

b. Recurrence of cancer in cellular tissue posteriorly.

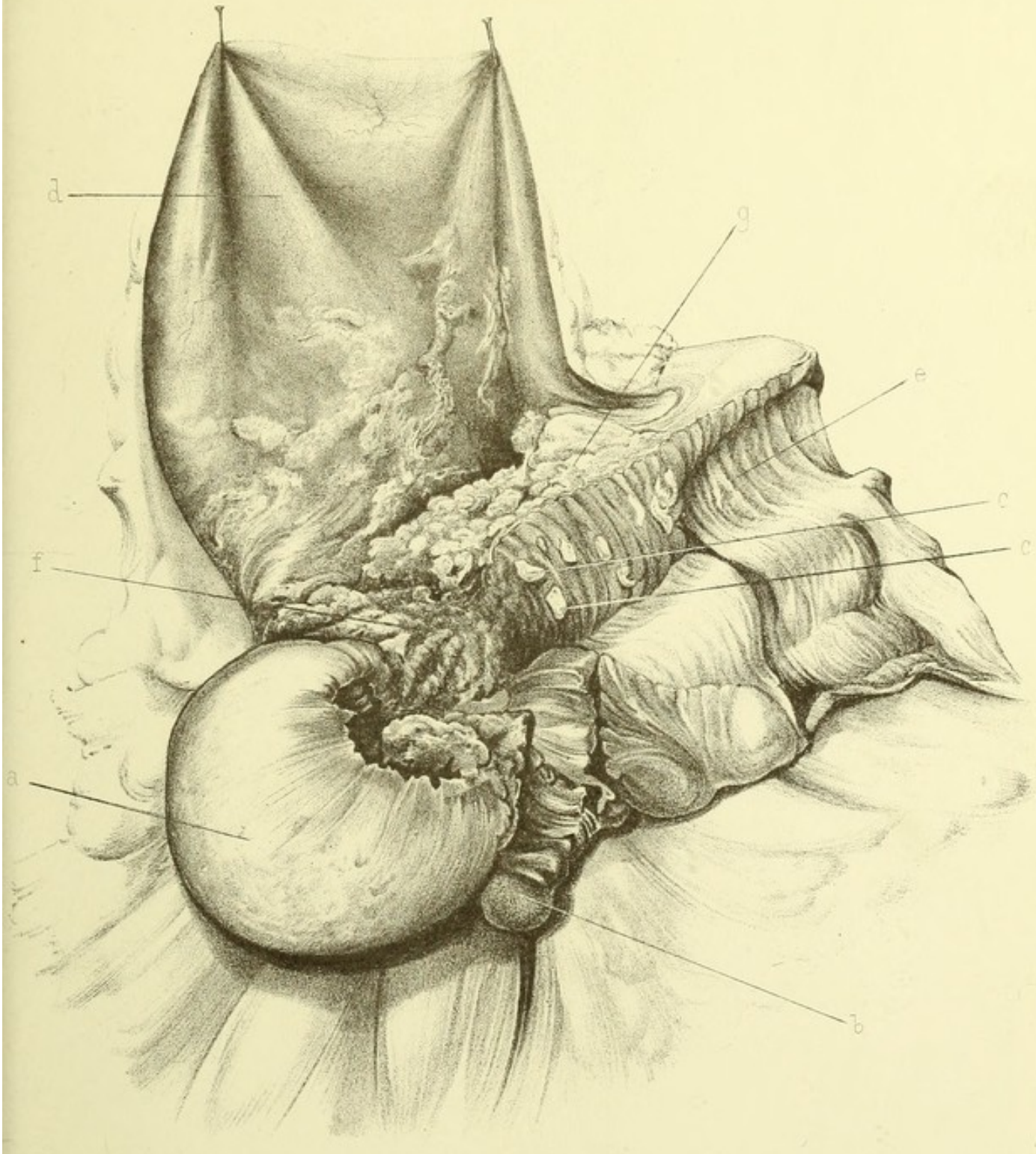
c. Cancer growing through wall of vagina from cellular tissue around.

d. Bladder.

e. Vagina.

f. Opening into the bladder caused by ulceration.

g. Cancer in the cellular tissue between the bladder and vagina, extending as far down as the inner orifice of the urethra.



F. Collins, del.

Dancelsson & Co, lith.

PLATE IX.

Fig. 1.—Section of the primary cancer of the cervix in the specimen represented in Plate VIII., shewing its glandular structure, and the change in the character of the glandular epithelium. The epithelium has fallen out on one side, (Case XVI.).

Fig. 2.—Perpendicular section through the vaginal wall in the same case after recurrence had taken place, shewing that the recurrence took place in the connective tissue, the vaginal surface remaining intact.

a. a. Squamous epithelium of the vagina.

b. b. b. b. Cancer growing in the connective tissue around the vagina.

c. c. Healthy connective tissue between the vaginal surface and the cancer.

Fig 1

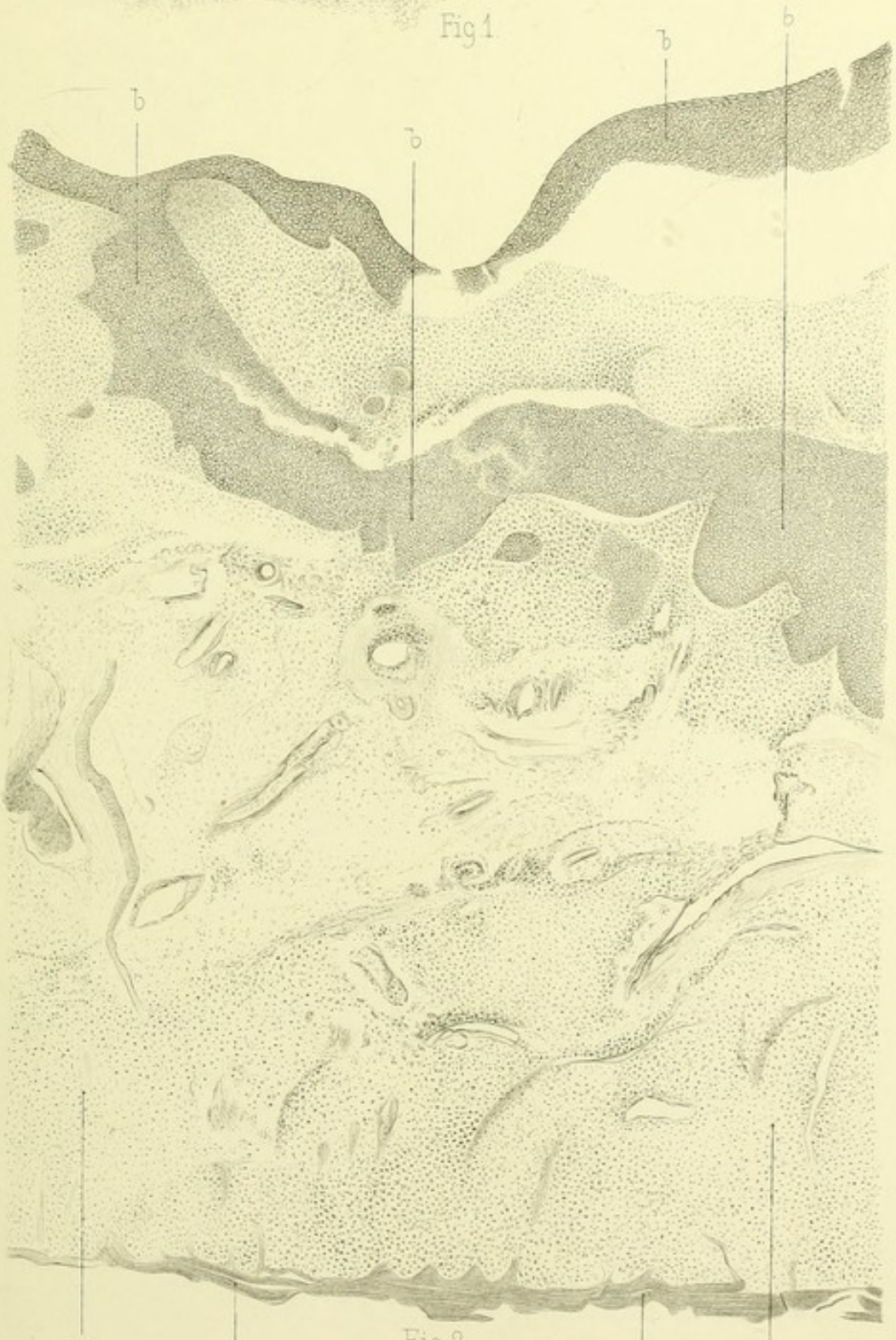


Fig 2.

R. Buxall del.

Danielsson & Co lith.

PLATE X.

Fig. 1.—Cervix removed in Case XIX., laid open and showing a villous cancer.

a. a. Cancerous growth.

b. b. Healthy ring of cervix covered by squamous epithelium.

c. Lacerated portion of cervix not affected by cancer.

d. d. Portion of vaginal wall removed.

e. Cervical canal.

Fig. 2.—Median section of uterus shewing a cancerous nodule growing downwards in the posterior lip. (Case XXIV.).

a. Inner orifice of uterus.

b. b. Cancerous nodule.

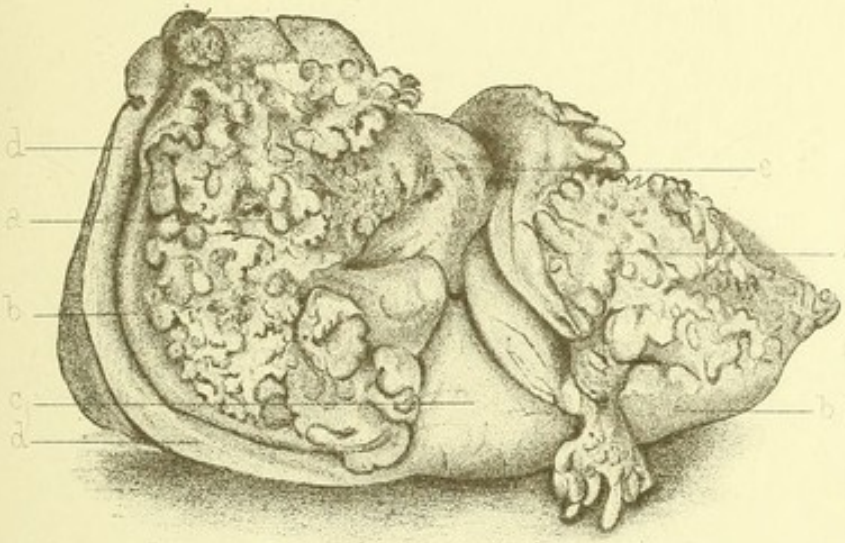
c. Ulcerated surface.

Fig. 3.—Cervix removed in Case XXVI., laid open.

a. a. Cancerous growth projecting into the cervical canal and bulging through the external orifice.

b. b. Cervical canal.

Fig. 4.—*a. b.* Points of origin of growth—one just below the inner, the other just above the outer orifice.



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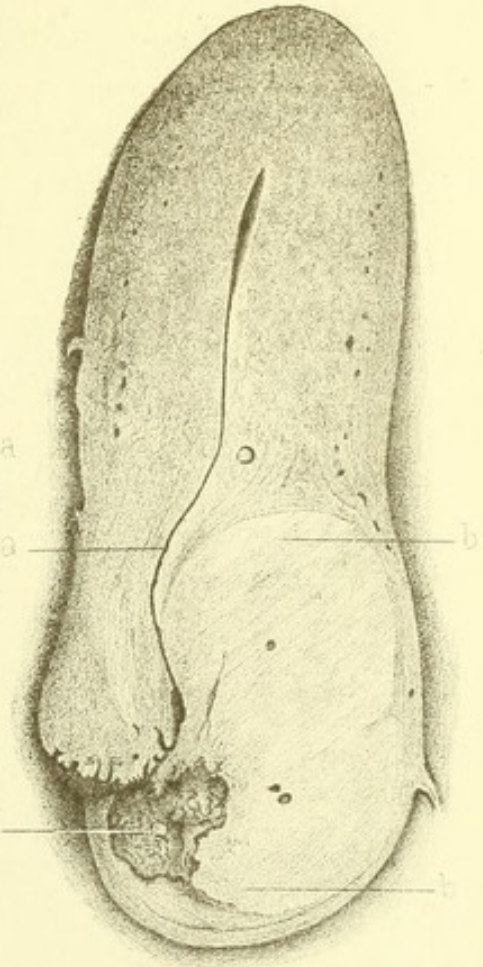

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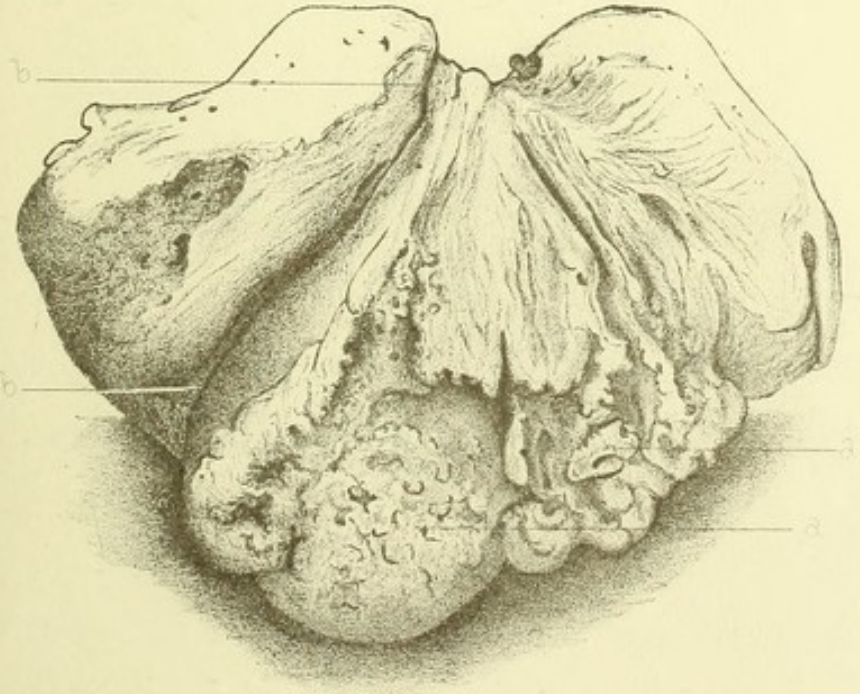

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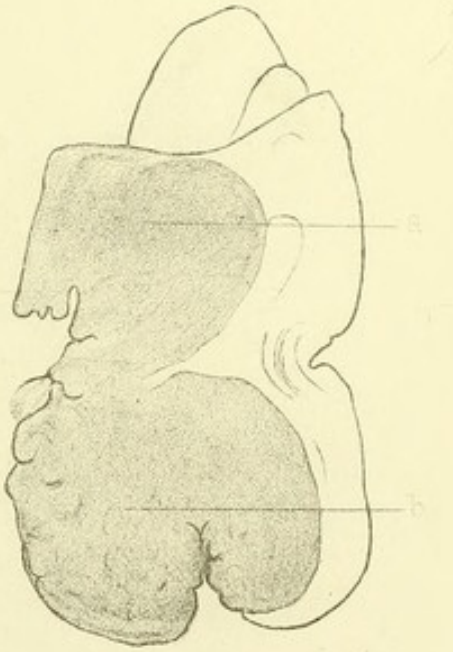


Fig 4.

H. Spencer del.

Daniels sons & Co. lith.

PLATE XI.

Fig. 1.—Structure of the cancer in specimen figured in Plate X., Fig. 3.

a. Cancer.

b. Wall of uterus.

Fig. 2.—Showing mode of growth of same from the glands.

a. a. Side of gland entirely cancerous.

b. Part of gland still lined by columnar epithelium.

c. Transition from columnar epithelium to cancer. In plate XIV. this is figured as seen by a higher power.

Fig. 3.—Section of a mucous polypus attacked by squamous epithelioma from Case XXVII.

a. a. a. Peduncle covered by columnar epithelium.

b. b. b. Cap of squamous epithelioma.

c. c. c. Glands lined by columnar epithelium.

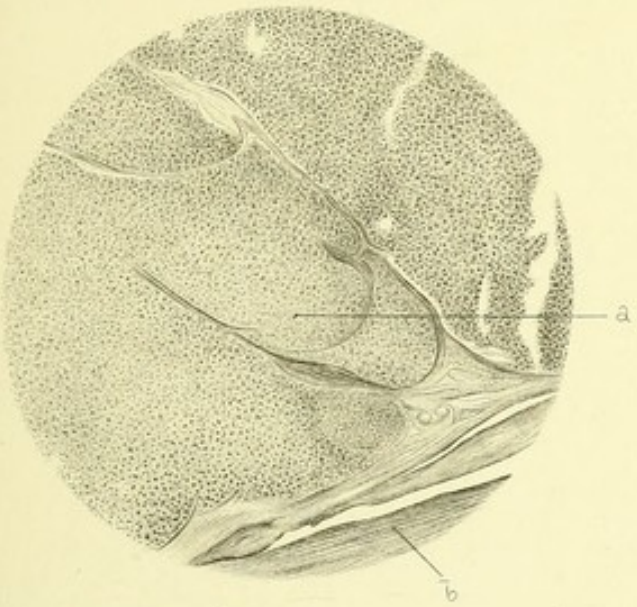


Fig. 1.

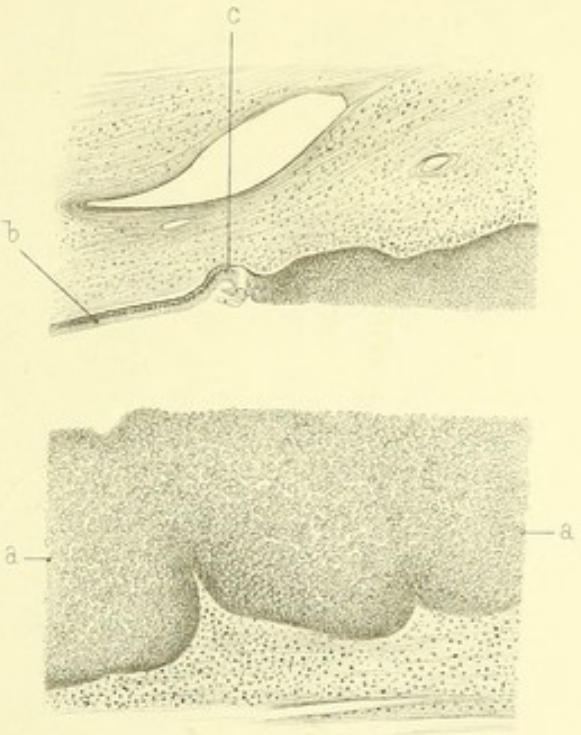


Fig. 2.

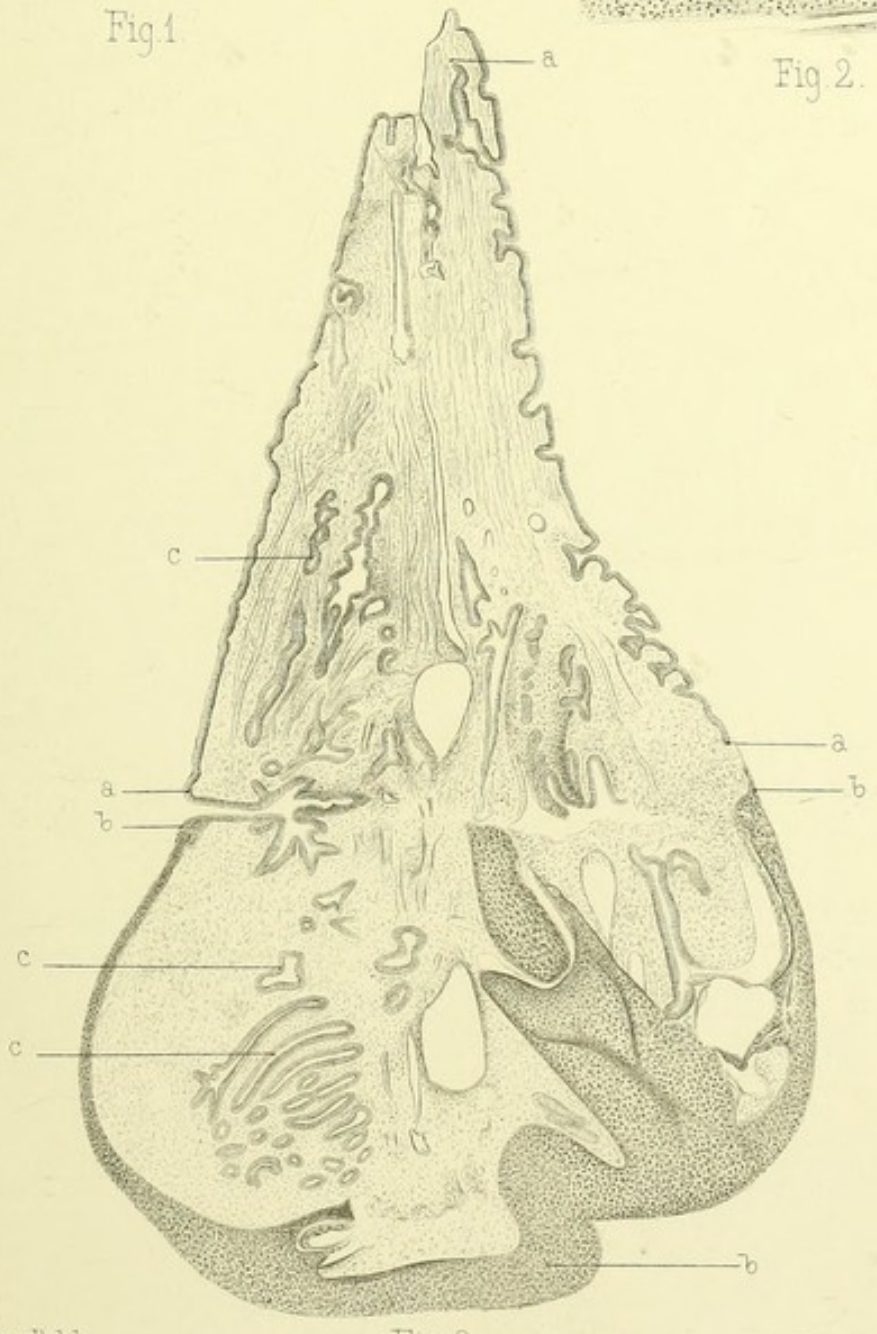


Fig. 3.

R. Boxall del.

Danielsson & Co. lith.

PLATE XII.

Fig. 1.—Cervix removed for cancer, shewing (Case XXI.) :—

a. Anterior lip.

b. Posterior lip.

c. Cancerous growth, commencing in anterior wall of cervix and seen in os externum.

d. d. Fissures in each side of cervix not affected by cancer.

Fig. 2.—Median section of same through anterior and posterior walls.

Fig. 3.—Transverse section of portion shewn in Fig. 2., shewing that the disease is limited to the anterior wall and does not affect the fissures.

a. a. Border of diseased structure.

Fig. 4.—Cancer of the body of the uterus (Case XXVIII.). The organ is shewn opened by a median incision through the anterior wall.

a. a. Healthy cervix.

b. Lower border of the disease.

c. Opening between the cavity of the uterus and that of the intestine.

Plate 12.

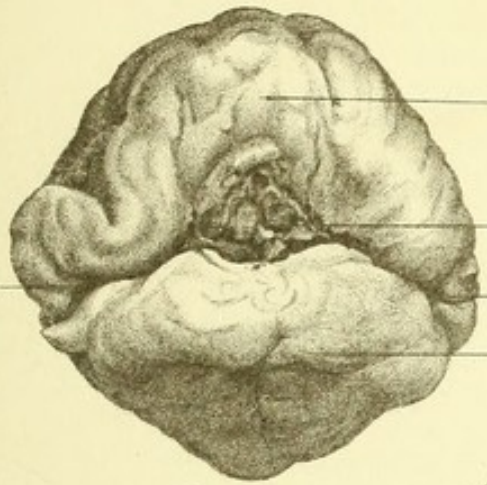
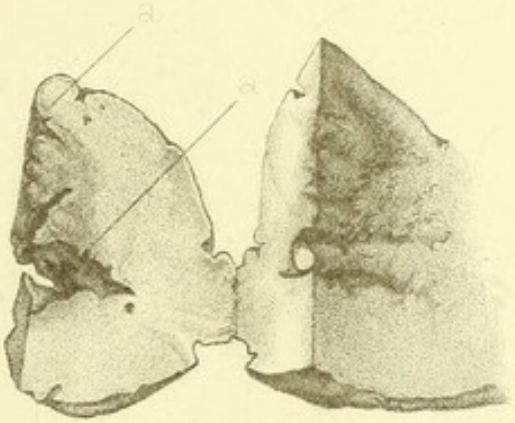


Fig 1.

Fig 2.



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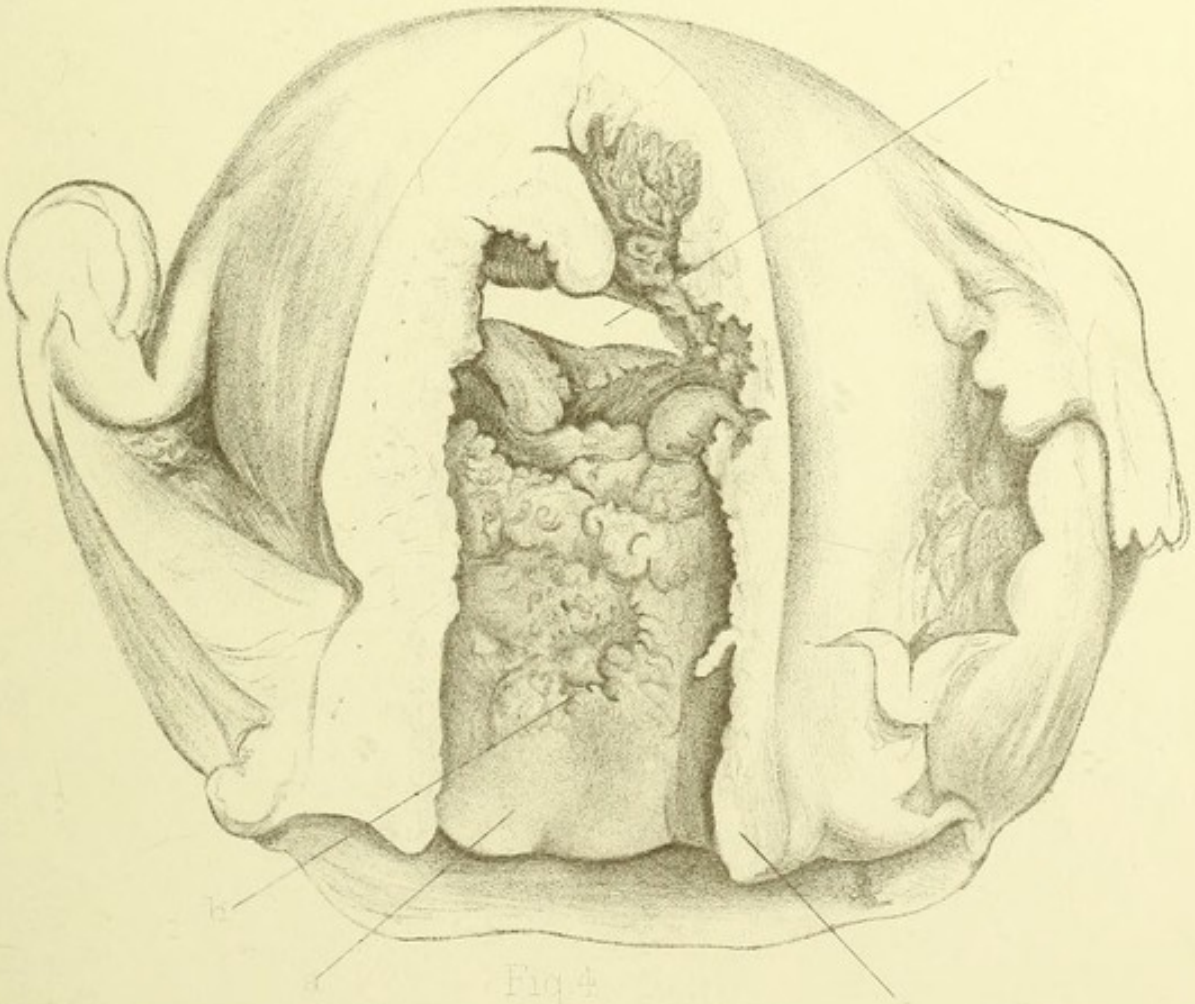

Fig 4.

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PLATE XIII.

Fig. 1.—Cancer of the cervix invading the body of the uterus St. Bartholomew's Hospital Museum, No. 3008.

Fig. 2.—Cancer of body of uterus from the specimen figured in Plate XIV., Fig. 2.

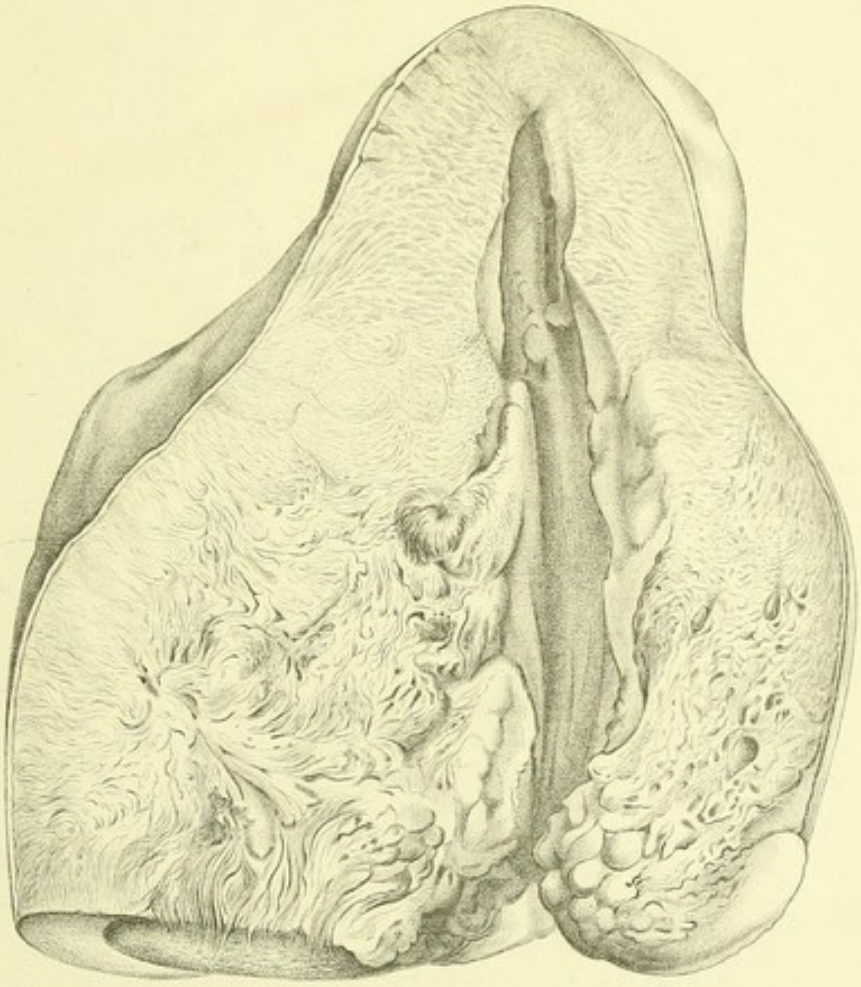

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Fig 1.

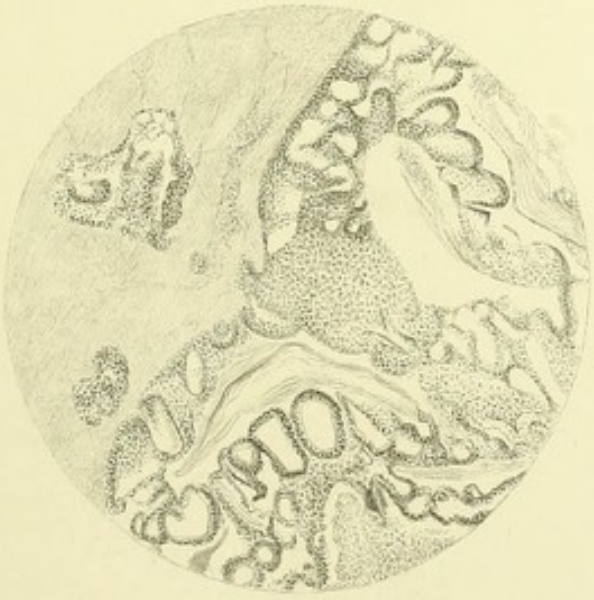

Fig. 2.

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PLATE XIV.

Fig. 1.—Shews the transition from columnar epithelium to cancer as seen by higher power than in Plate XI., Fig. 2.

Fig. 2.—Cancer of the body of the uterus with fibroid tumours, and secondary cancer in the left broad ligament (from Case XXX.).

a. Cancer limited to the surface of the body.

b. b. b. b. Fibroid tumours cut through by the incision made to lay open the uterus.

c. Secondary cancerous mass in left broad ligament.

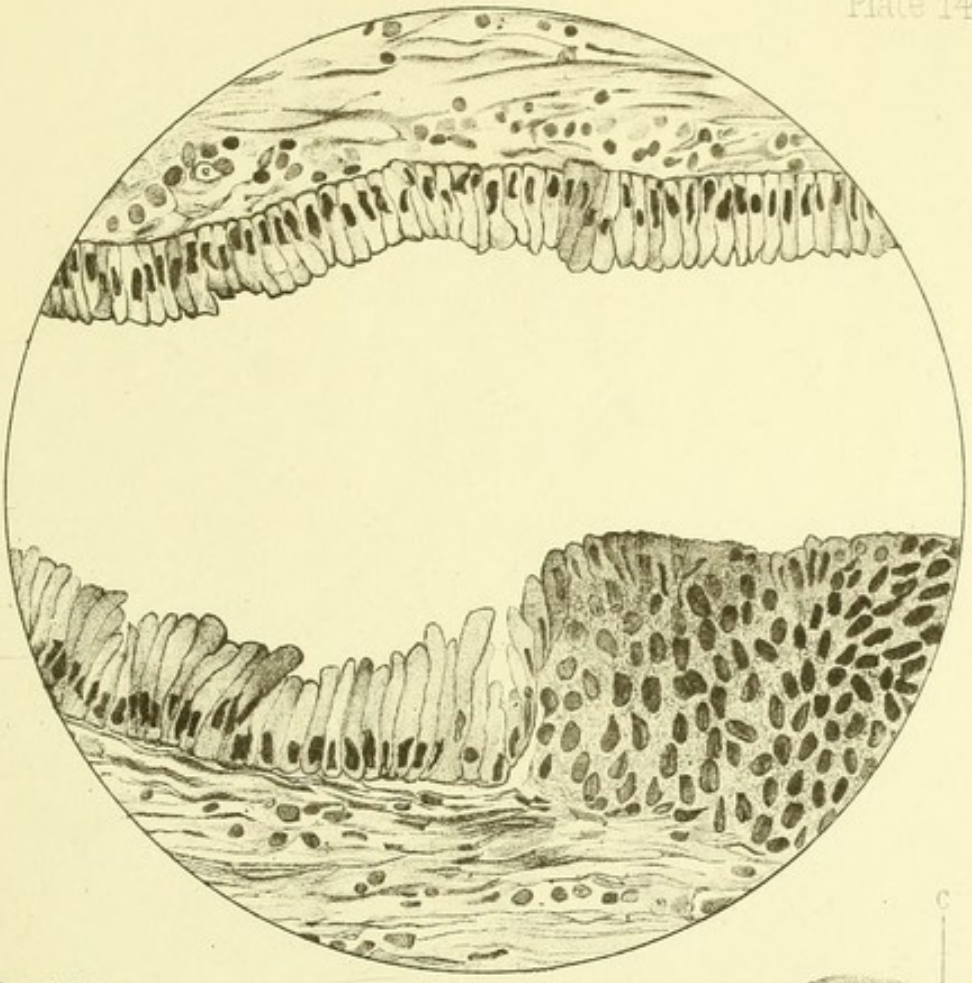

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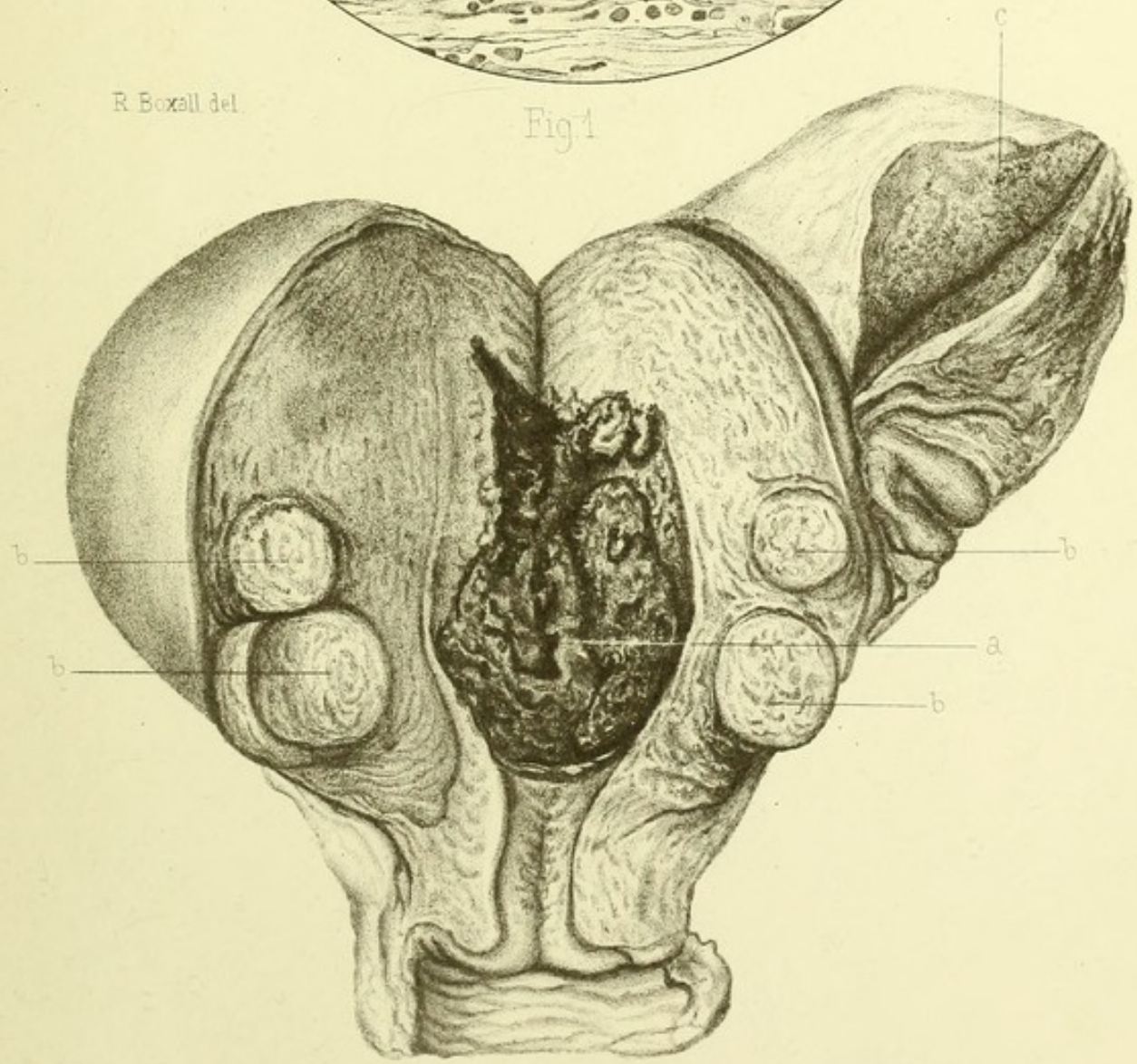
Fig 1



E Burgess del.

Fig 2.

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PLATE XV.

Fig. 1.—Structure of cancer in specimen shown in Plate XVII. (Case XXXIV.).

Fig. 2.—Structure of cancer in Case XXIX.

Fig. 1.

Fig. 2.

R. Boxall, del.

Daniellsson & Co. lith.

PLATE XVI.

Fig. 1.—Cancer of the Fallopian tube, Plate XVII., No 3010, in St. Bartholomew's Hospital Museum.

Fig. 2.—Secondary growth in liver in Case XXX., (Plate XIV., Fig. 2), shewing the reproduction of the uterine glands in the cervix.

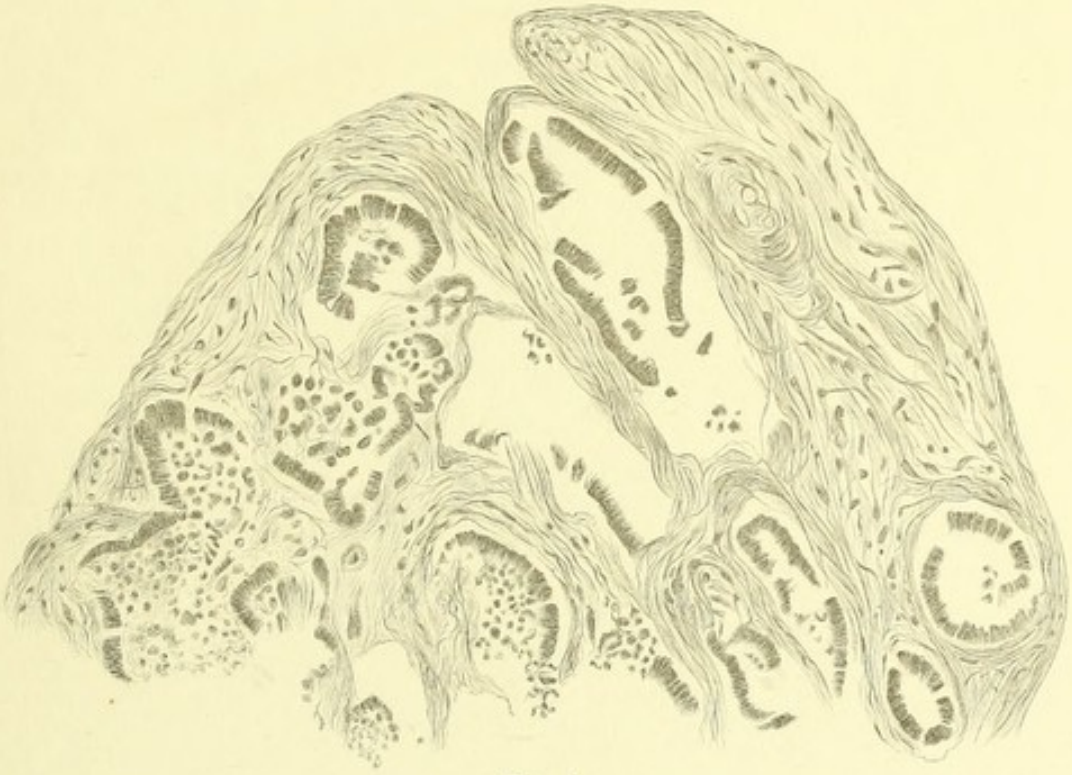

Fig. 1

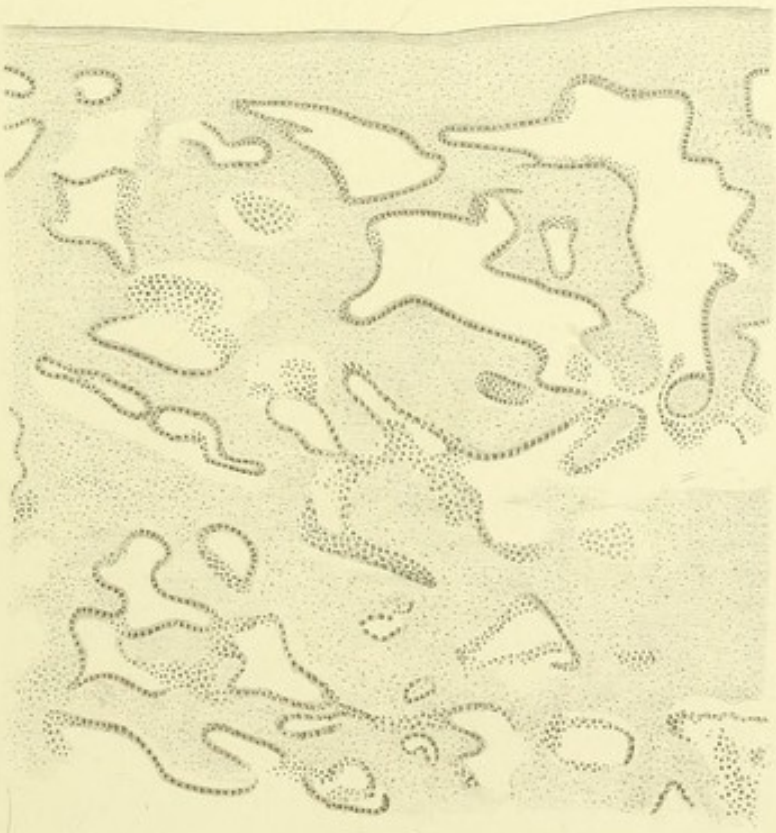

Fig. 2.

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PLATE XVII.

Cancer of the body of uterus and Fallopian tubes in St. Bartholomew's Hospital Museum, No. 3010. (Case XXXIV.).

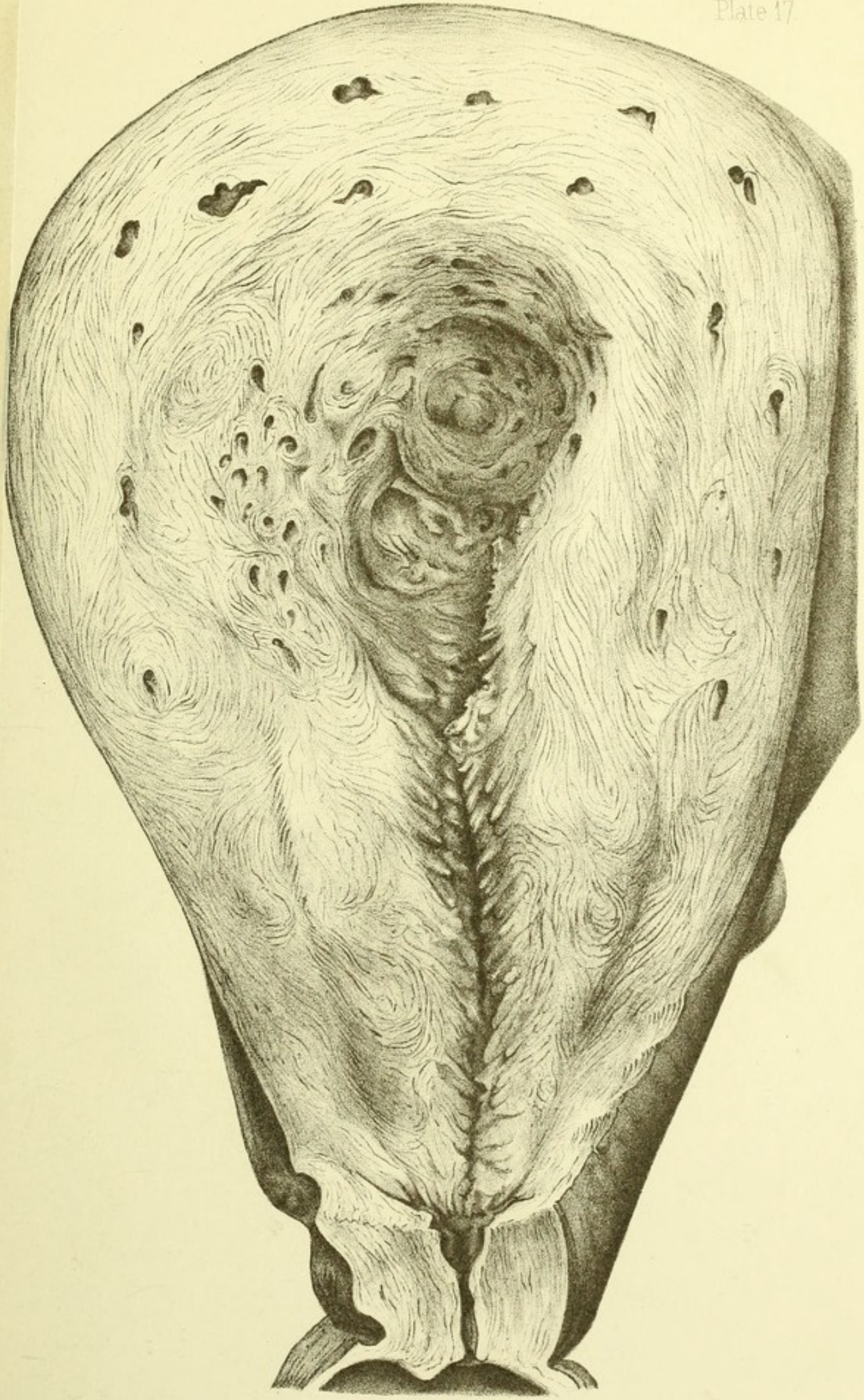

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PLATE XVIII.

Fig. 1.—The uterus removed in Case XXXI., opened by a median section through the anterior wall, shewing the interior of the uterus covered with a villous growth and a tumour on the posterior wall projecting into the cavity.

Fig. 2.—Shews a section through the growth in the median line.

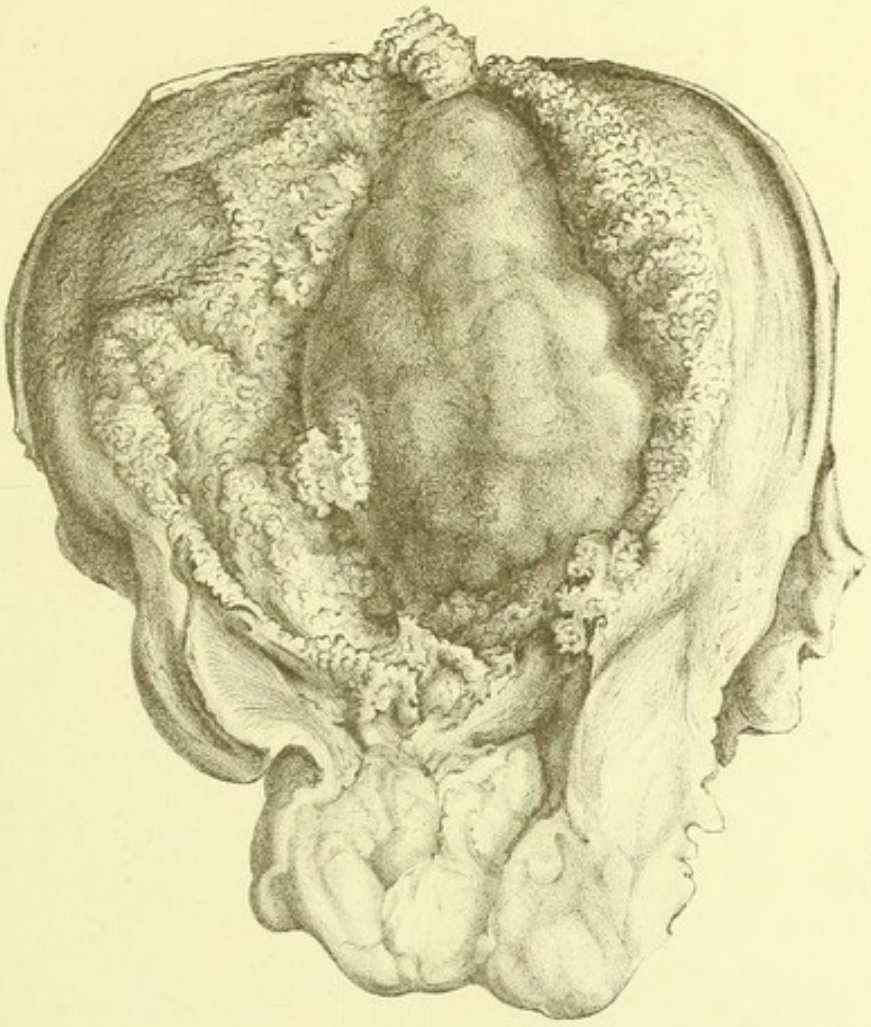

Fig 1.

Fig 2.

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London: Printed by H. K Lewis, 136 Gower Street, W.C.

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