John D. Young.

THE VALUE OF UTERINE CURETTINGS AND WEDGES FROM CERVIX AS DIAGNOSTIC AIDS.

(ESPECIALLY CONSIDERED WITH REFERENCE TO DIAGNOSIS OF CARCINOMA.)

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Photographs in separate book.

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oduction.

In the following pages I have given a synopsis of the histories and microscopic appearances of the various curettings and portions of the cervix removed, in a collection of cases which have been gathered from the gynaeecological Wards of the Glasgow Royal Infirmary, through the kindness of Dr. Kelly who was good enough to allow me to secure same.

Some of the cases I saw at the Dispensary prior to admission to Hospital.

I have been particularly impressed with the difficulties of making a positive diagnosis of malignancy at an early stage short of microscopic examination, and with the percentage of cancer cases arriving too late for operation , and it is with a view to shew the importance of early curettement or removal of a wedge of tissue in order to make out the pathological condition present in cases that are at all doubtful, that I have detailed the cases following. I had at first intended to submit specimens of malignant disease only, tracing the involvement from a very early stage in each form of cancer of the uterus, but found I could not get the cases at an early enough period, the disease as a rule being pretty well advanced before a section was got. In some inoperable cases the symptons complained of had been present for a considerable time, and had specimens been removed for diagnosis sooner, many more would have undergone radical operation.
Of course it is well known that patients themselves are not impressed by some of the slighter symptoms, and to some extent this prevented me from securing early specimens , others, however, had been under treatment for some time, outside.

In many of the simple cases detailed later, the symptoms, history, and even local examination might quite well lead to the formation of a fallacious diagnosis, and I have therefore given a short account of the histories and microscopic appearances in the various cases from which I have procured specimens. Unfortunately a considerable amount of repetition is unavoidable in doing so, and in the cases of Endometritis of a simple character I have merely given the histories and microscopic appearances of a few classical ones, and have sent in the microscopic slides of the remainder. My impressions are that curettement should be undertaken oftener than it is even at present, as the risks under antiseptic precautions with thorough preparation beforehand are very small; and apart from the benefit which the cases received from the operation, the operator is placed on a pretty firm footing having a more certain knowledge of the changes whichhave taken place once the curetted material has been examined.

paration of cimens for mination.

After thorough scraping of all interior of the uterus the curetting was received into a five per cent watery solution of formalin to harden for 12 hours, then washed, and if celloidin sectionswere wanted put into Alcohol and Ether for 24 hours. It was then put into some thin celloidin for 24 hours, then thick celloidin for another 24 hours then mounted and cut with microtome.

The majority of the specimens after thorough washing to get rid of formalin were cut with the small freezing microtome, the latter being preferred on account of speed and the thinness of sections if the tissue was not to friable.

Each curetting was carefully labelled, and the microscopic appearances noted, such as, quantity of tissue, size of each separate piece, the condition of the mucous membrane, and if any abnormal appearances such as branching or soft pulpy material present, changes which are likely to be present in malignancy.

ning. Haematoxylin and Eosin seems to be the most satisfactory for speed, and definition is fairly good.

o - ography. The photos are not very satisfactory it being my first attempt at any kind of photography.

Magnesium ribbon was the illuminant used with Ilford process plates. With high power I found good results difficult as so many of the cells stained faintly, and the magnesium light was rather fast. The Carmalum stain was the more satisfactory for photographic work.

I have divided the non malignant cases into I Typical and II Atypical varieties, the former comprising cases where the clinical histories do not indicate any malignant affection and the microscopic examination shews any changes to be simple in character, the latter, those cases where the clinical history or local examination were such as to suggest a malignant change yet the microscopic appearances shewed the cases to be non malignant.

The series of malignant cases I have kept in a separate section,

ical
ases.

A. Affections of Cervix. 1. Simple Endocervicitis.
2. " " with increase of fibrous tissue.
3 Simple New formation.

B. Affections of Endometrium. 1. Simple inflammatory conditions

C. Placental remains.

D. Simple New formation.

typical
cases.

A. Affections of Cervix.

1. Hypertrophy of Cervical glands

2. Cervicitis.

B. Affections of Endometrium. 1. Simple inflammatory conditions Embracing cases of glandular & interstitial Endometritis, and increased fibrous tissue formation.

Malignant disease of Uterus. 1. Squamous Carcinoma of Cervix.
2. Adeno Carcinoma of Cervix.
3. Adeno Carcinoma of Body.

1.Simple Endocervicitis.

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s of
le
ical
ctions.

Mrs McHattie. Agen 39 years, Married 8 years.

Pregnancies. At term 5, last 18 months since, easy labours.

Menstruation commenced at 15, four weekly, lasting four days.

Leneorrhoea, Mieturition normal but urine contains pus, Defaecation constipated.

Family History unimportant. Complaint Prolapse of womb for five yrs.

History - Gradual prolapse, goes up at night reappears next morning painless, but back weakness. Two confinements since prolapse.

Menstruation regular and painless.

i
ination.

Cervix protrudes from vulva exposing anterior vaginal wall.

Uterus measures 4½ inches, fundus lies towards left sacroiliac Synchondrosis where fixed, fundus tender.

Operation - Cervix amputated perinaeum enlarged, left appendages removed, ventrofixation of fundus.

Ovary was cystic, and contained considerable hair, numerous sebaceous glands and cartilage.

Microscopic examination of vaginal portion of cervix.

ace
helium.

Usual squamous type of cells with vesicular nuclei uppermost layers flattened.at one part invasion of epithelial cells by leucocytes. Usual epithelial papillae seen. - At one part (See Photo I) apparent downgrowth of papilla meeting a gland with some leucocytes at lower edge. On first inspection appearamce suggests malignancy, but the lower columnar layer of cells shew nuclei of equal size and stain uniformly. They are slightly distorted, however, and at parts crushed, section rather thick,

epithelial cells dont extend into underlying tissue.

nds. Lumina mostly small, some much dilated lining epithelium being flattened, some extension into muscle of glandular elements . LiningEpithelium high columnar, single layered, regular, and nuclei equal.

Connective tissue nuclei are swollen and irregular and a few leucocytes interspersed. Blood vessels increased, middle coat thickened and connective tissue around.

Condition is what one would expect an Endocervicitis.

ocern- Mrs. Rennie, Aged 29, Married 7 years.
is with
rease Pregnancies at term four, last 19 months ago.
fibrous
sue. Menstruation commenced at 16, frequency monthly, lasting 4 days. Micturition Normal Defaecation constipated.- Family history, Tubercular.

Bearing down pain and feeling of womb descent for 5 years, since birth of second child when instruments used. Pain is premenstrual increased on exertion relieved by flow. Mennorhagia, flow now lasting a week. Dyspareunia extreme. Varicosity of leg veins at menstrual periods.

Vaginam. Portio thickened irregular, lacerated on left side.

Uterus 2½ inches to sound - Nothing detected in appendages.

Operation Curettement cervical wedges taken for examination.

roscopic Surface Epithelium. Usual squamous type, small line of leucocytes
ination below in one section apparent downgrowth of epithelium due to direction of section, cells regular.

nds. Shew branching, proliferation, and tortuosity, epithelium usual appearance, single layered. Great inflammatory exudation around

glands. Below surface many venous spaces, some lined by Endothelium with spindle like nuclei, others with large pale staining Endothelial nuclei, latter at places appear to be in lumen from direction of cutting. In stroma many of these swollen cells also many mono and polynuclear leucocytes, latter extend into muscle. Blood supply is moderate, abundant connective tissue in walls of vessels. The amount of fibrous in muscle considerable increased.

Condition shewn is simply inflammatory with increase of fibrous tissue.

mple new nation. natous dule).

Mrs. Wilson, Aged 31, Married 13 years.

Pregnancies at term 5 last 4 years ago. - premature - one.

Menstruation commenced at 15, 4 weekly lasting three days, painful. Leucorrhoea. Micturition-difficulty in commencing, with burning pain. For three months a pressing down feeling as if bladder had not emptied. Defaecation regular, Family history unimportant

Complaint - Difficulty and pain in micturition.

History

Severe shivering at last confinement never well since, her discharge lasted 14 days. Menstruation regular, comes oftener than formerly, but is scanty. Pain uninfluenced by menstruation. Has lost weight and feels weaker since illness began.

Vaginam. Portio Vaginalis thickened, tissue being denser than usual. Sound passes 2¾ inches. Appendages feel normal.

Operation Curettement and nodule removed from anterior lip

roscopic mination. Section mostly composed of muscular tissue. Blood supply abundant, some vessels much thickened, endothelium at parts swollen,

one large venous space. Glands at lower part much convoluted, peculiar complicated figure from section of projections into cavity, at another part honey comb looking collection due to section cutting through a small cyst and shewing ends of cells. Where glands abundant abundant stroma is lax, other parts abundant connective tissue cells nuclei staining deeply. At one part in midst of muscular tissue a collection of new formed glands met, many small lumina cross section. The lining epithelium shews cells of equal size, staining, and uniform shape, having no tendency to invade tissue around, other glands are similar. - (Photo 3.) and is therefore of simple formation. New Glandular formation with extension into muscle necessitates careful inspection to exclude malignancy.

pical ases. B. Affections of Endometrium. 1. Purulent Endometritis.

Mrs. Gray - Age 27 - Married 7 years.

Pregnancies at term 3. Premature 2 - last 3 months ago. Menstruation commenced at 16, frequency 4 weekly lasting 4 days. Micturition normal, Defaecation Constipated, Family history unimportant. Complaint - yellow discharge for about three months.

tory. Miscarriage at 7th month about 6 months ago, proceeded by three weeks bleeding. Recovered, but later had another miscarriage at 6th week when had considerable bleeding with discharge of clots and membrane. Bleeding continued a week was much fevered, but no sickness, pain or shivering. Immediately bleeding ceased had copious yellow discharge and urinary retention, catheterisation for a week. Yellow discharge has continued, but scantier. Menstruation - three weekly since miscarriage and normal. Complains of dull heavy feeling and disinclination for work.

Vaginam. Uterus - ordinary situation moveable slightly enlarged appendages matted on right side, but pain exceedingly slight.

roscopic ination Surface Epithelium - Mostly regular single layered unless where thick, nuclei equal. Collections of mucus and epithelium on surface some almost squamous looking, a few are probably pus cells. At one part looks like proliferation almost as some epithelial buds seen, but nuclei regular.

nds. Hypertrophy of glandular tissue, also marked convolution. Note projections from gland sides forming the so called "saw teeth processes, at places join across forming "bridge processes". All covered by single layer of epithelium (see Photo 10) Convolutions form complex figures. At one place cystic degeneration seen with

formation of large cyst, other have low cuboidal epithelium through dilatation . Section 2 shews large gland with very large pale nucleus in it, but the nuclei of glands generally shew regularity in size and staining.

oma Dense throughout and plentiful between glands connective tissue cells swollen, at places where glands abut almost, stroma scanty. Swollen connective tissue cells almost as big as epithelial at parts staining faintly. Leucocytic infiltration all through; in clumps between glands at parts. Blood vessels plentiful.

The microscopic appearances shew the condition to be a hypertrophic endometritis, its only resemblance to any malignant change being the tendency to form surface buds, but the equality in size and staining of the nuclei mark it as simple apart from clinical considerations.

ctions 2. Glandular Endometritis. Simple Adenoma.

f

metrium Mrs. Pollock - Aged 25 - Married 8 years.

Pregnancies. At term none. Menstruation commenced at 14, frequency 4 weekly, duration 6 days. Micturition normal, Defaecation, constipated.

Family History - unimportant. Complaint, Great Menstrual pain of 12 months duration.

Vaginam. Portio Vaginalis feels dense and firm, os small, uterus ordinary ante flexion, no enlargement of appendages, detected, operation, uterus curetted, cervical tissue very dense.

tory. 12 months ago had an abortion at 3rd month , discharge afterwards lasted 14 days, menstruation regular since, but has had severe sharp gnawing pain in ovarian and regions & back for two days

before and after menstruation. Occasionally has shiverings and sweatings. Menstruation is more frequent for 3 months but painless Leucorrhoea.

oscopic
ination
of
ting.

Surface Epithelium - Shows single layer of columnar epithelium Nucleus near foot of cell, the nuclei are similar in size shape & staining properties and have no appearance of proliferating into small layers.

ds.

Great hyperplasia and convolution of its glandular elements, some of them being much dilated. In many, complicated figures and skein like processes are seen due to projections from gland sides being cut in section. All however, generally shew a single layer of epithelium lining the glands andcovering the processes unless where section has sliced along edge causing appearance of more than one layer. The nuclei, however, are similar in size, form and staining showing the simple formation. Glands may contain the complicated figures referred to, some contain a few loose epithelial cells and mucus. Cyctic formation has begun at parts and the lining epithelium is flattened. At one place the epithelium has disappeared from the side of a gland, and at the other side there is a slight encroachment by cell elements.

oma.

Is of ordinary type, dense at parts and lax at others, considerable leucocytic infiltration appears around some glands and the blood vessels are in considerable number. The speciman at present reveals nothing more than a simple adenomatous condition but from the tendency to cystic transformation, the density of the cervix, and the appearance in gland noted above, if the symptoms continue a further examination would be an advantage.

ections 3. Glandular Endometritis with hypertrophy.
of
etrium Mrs. Crawford - Aged 34 - Married 15 years.

Pregnancies at term 5 - last eight years ago - Premature, one, 2 years ago at third month.

Menstruation commenced at 18, frequency 5 weekly, duration 7 days premenstrual pain. Micturition, painful, Defaecation, regular. Family History, unimportant Complaint, left iliac and sacral pain for 4 years.

Abdomen - tenderness to palpation in ovarian regions especially left.

aginam Portio irregular, os wide transversely, Uterus normal situation, Appendages feel normal.

tory. Had premenstrual pain always which four years ago increased to violent throbbing stabbing pain which has for four months been almost constant but greatest at menstrual periods and on exertion. Pain is least a few days prior to menstruation. Has had sweating and shivering fits .

Ammenorhoea for eight weeks previously regular, but menstruation scanty. Leucorrhoea always. Operation Curettement.

oscopic
ination

ace Not seen
helium

ids. Enormous increase of Endometrial glands with dilatation, convolution and appearance of corrugation at sides. Majority have not the usual rounded appearance, edges being crenated. Epitheliu m lining is low cuboidal, single layered, nuclei being equal and

shape and staining constant. Glands are very irregular in form, shapes legion, much new formation seen some contain mucus and epithelial debris - Around glands are leucocytic deposits in clumps, these are however most numerous where glands are few or absent.

ma. Shews connective tissue, cells swollen and crowded at parts. Enormous numbers of large mononuclear leucocytes are distributed through italso considerable vascular supply is present. Stroma is present between all glands, so that none of them abut on each other.

Appearances are of simple character and confirm clinical symptoms.

tions f etrium The remainder of the cases from which curettings have been got show much similar changes and nothing worthy of special remark. They shew conditions of glandular and interstitial endometritis Many being associated with hypertrophy and as the different forms of Endometritis merge into each other I shall not attempt to classify them, but merely mention the names, the full histories and appearances I have in my notes.

5 Cases of Version associated with Endometritis, Taylor, Quinn, Innes, Weir, Greig.

3 " " Prolapse " " " Nicol, Deans, McGilp.

8 " " Nothing detected by local examination. Bruce, Mowat Muir, Smith, Devlin, Hislop, Burns, Wilson.

cental Mrs. Adams - Aged 24 - Married 4½ years.
mains

Pregnancies - at term two - premature one in early months, 3 months ago.

Menstruation commenced at 13, 4 weekly lasting three days.

Micturition and defaecation normal.

Family History - Mother died from cancer of breast, otherwise unimportant. Complaint, bleeding of five weeks duration.

ory. Patient had miscarriage three months ago, the discharge continuing for a fortnight, then ceasing for a week, followed by a severe flooding lasting three days. After recovery from this another similar flooding 3 weeks later, the bleeding since then continuing more or less necessitating her lying in bed from time to time. Has never suffered from any pain.

Uterus in ordinary position, freely movable, slightly enlarged,

nam sanious discharge on finger. - Operation, Curettement.

oscopic (Curettings were fairly abundant, shaggy appearance).
nation

Part of the section made up of tissue of Endometrium the other placental tissue. Placental tissue has been altered in appearance by retention in the uterine cavity, the details of the placental structure being pretty well absent (Photo 15). The outlines of the placental villi only are seen of varying shapes round oval etc the usual stroma of spindle shaped or branching cells with oval nuclei making up the villus are not to be made out, nor can the double layer of cells be seen at periphery. Instead the appearance is like a network of fibrin with leucocytes distributed through it and indistinct outlines of cells with oval nuclei lining the spaces

of the villi. Fibrinous material surrounds the altered villi with venous sinuses in it.

- No possibility of confusing this with careinomatous condition The other part of the section shows tissue of Endometrium with considerable leucocytie collection on surface and at part appears as if more than single layer of Epithelial Cells but all equal sized, the glands showing increase in number and dilatation almost enough to form cysts; and much convoluted. Other places glands not prominent, lumina small and far apart. Epithelium lining one layer generally, nuclei equal shape and staining uniform. Stroma very dense throughout, especially where glands few. Many small mononuclear leucocytes and swollen connective tissue cells in stroma.

cental emains. Mrs. Ferguson - Aged 41 - Married 21 years.
Pregnancies at term 13, last 22 months ago. Menstruated first at 16, frequency 4 weekly lasting three days. Complaint bloody discharge for 2 months.

ory. Previous to this pretty well, menstruation ceased 3 months previously. Flooding then began accompanied by bearing down pains and discharge of clots. Similar attacks followed. Apart from this a constant bloody discharge like menstruation but no malodour.
Micturition, frequent desire, Bowels regular. Weight and colour lost since illness began. Abdominal examination shows tenderness on pressing hypogastrium.

Uterus enlarged 3½ inches to sound lies in ordinary position walls dense.

At one part with low power see a mass of blood clot with fibrous tissue septa forming a reticulum. Villi outlines seen with a few cells lining them; appearing as spaces of different sizes and shapes, with blood and leucocytes in them. Sect A shews a condition of glandular hypertrophy at one part and atrophy at another. In the former the glands are increased in number and some much dilated - the epithelium lining same is very high, at parts, other places ordinary columnar, nuclei a little distance from cell foot, no proliferation of Epithelium. In other parts few or no glands lumina small but epithelium regular although thick sections show more than one layer. New formed fibrous tissue is compressing and obliterating the glands (Photo 14).

Stroma very dense, where glands absent, many connective tissue cells and abundance of leucocytes (Photos 13 and 14).

In Sect I. See gland filled with meshed colloid material (stains pink) and nuclei through it some round celled, others irregular and tailed.

The Epithelium is stripped round save at upper part where cells one or two deep apparently. Leucocytes of different varieties are collected round glands. Some glands contain leucocytes, denuded Epithelium, and small cells, others are corrugated and have slight tendency to form new glands by proliferation - One triangular gland seen with enormous number of leucocytes around, different varieties.

is striated at places, forms columns of connective tissue cells, some being swollen, they form compartments containing cells with nuclei of varying shapes, cells mostly leucocytes, not malignant looking. Stroma arranged as network around some glands
History of case points to miscarriage, Age 41 being rather before usual time of menopause, and microscopic examination of curetted material bears out same, shewing placental remains, also shewing glandular endometritis to be present. History and microscopic inspection put out malignancy, there being no chance of confusing the appearances of retained placenta here with careinomatous changes.

new
ions

Mrs. Cochrane - Aged 36 - Married 14 years.
Pregnancies at term 3 - premature 5 - all between 6th and 7th month. Labours all tedious. Menstruation commenced at 14. 4 weekly lasting 8 days.
Previous to present illness troubles with copious leucorrhoea, no malodour. Micturition very painful but no frequency. Bowels constipated.
Family History, unimportant. Bleeding of five weeks duration and pain in left side. Pain she dates from last child birth 3 years since, is mostly premenstrual, of dull gnawing character like mild labour pains and aggravated by motion. During menstruation 5 weeks ago had sudden flooding accompanied with crampy abdominal pain, bleeding has continued to lesser extent since. For twelve months previous to above symptoms has menstruated twice each month.

ation
omen.

shews fulness generally more so on left side, and obscure sense of fulness over pelvis with some tenderness, but no tumor. Portio high up and directed backwards. Uterus strongly anteverted movable, tissue dense. Operation, Curettement.

am.

copic
ation

shews section made up partly of the tissue of the endometrium which merges into another part composed of muscular tissue (Photo 17). The glands of the Endometrium are normal at places, at other parts dilated, the Epithelium being as a rule single layered with nuclei uniform in size and shape although at one or two places there is more than one layer due to direction section cuts through gland. Some large spaces seen with leucocytes of various kinds and cells resembling Epithelial cells in interior

but rather smaller. The glands are increased in number at parts forming an adenoma, some of the glands are imbedded in the substance of the adjoining myoma. The dividing line between endometrium and myoma is well seen. The myoma is made up of the usual cells with blunt ended nuclei. In the muscle deposits of cells some with dark staining nuclei are seen others faintly stained larger than leucocytes, these rather resemble epithelial cells but smaller, they are probably caused by the existing infiltration inflammation. The stroma also shews a dense leucocytis ~~inflammation~~ , and the cells between are of varying size and shape rounded oval and irregular and some but for smaller size are not unlike Epithelial.

Many are probably formation cells, other swollen connective tissue cells and leucocytes. The manner in which the stroma is laid down however, and the presence of those cells although not enough to put down as carcinomatous, are sufficiently suspicious to warrant further examination, the patient was accordingly instructed to return if bleeding recommenced.

The history is such as might be found inmalignancy, mennorrhagia, leucorrhoea, haemmorhage, although duration of pain for three years is rather against malignancy.

typical Cases. of Affections of Cervix.

1. Cervicitis.

Mrs. Beckett - 36 years - Married 15 years.

Pregnancies at term 6, last 16 menths ago - premature one 10 yrs a ago.

Labours difficult 4 instrumental

Menstruation first at 12, 4 weekly lasts eight days.

Micturition slight frequency but painless for 16 months.

Defaècation Regular but diarrhoea at periods.

Family History, Unimportant - Complaint Pain in back and left side

ry of ess. Pain dated from birth of still born child 10 years since. States back pain more a feeling of weakness, side pain like "gum-boil" and sometimes jagging pains like labour pains, there, also at menstrual periods. Menstruation - regular but getting more copious and dark and clotted. Yellow discharge between periods which during last few months got malodourous, and also during this time lost flesh and strength.

Palpation of abdomen shews tenderness above symphysis and especially to left.

Portio enlarged and irregular and lacerated, uterus normal

lnam. position, movable. Cicatricial contraction in base of left broad ligament which if stretched causes pain.

pscopic ination Surface usual squamous epithelium seen, papillae in cross section

e from erior lip ervix. Epithelium varies in thickness, at parts papillae appear to project deeper but note that lower layer of columnar cells unaltered as regards staining, size uniform and no breaking up.

Below Epithelium a rounded collection of dark staining cells with large nuclei, these are probably large mononuclear leucocytes cells are simple in character as uniformity of size and shape testify and smaller than epithelial cells . Those cells are merely inflammatory in origin although on first inspection the picture looks malignant, and not unlike a sarcoma, another similar collection near. (See photo 6).

Below epithelial collection mentioned above are two cervical glands dilated - epithelium usual appearance high columnar and single layer nucleus at foot, rather palestaining. One gland at part has two rows epithelium probably from thickness of section as cells alike in size, shape and staining. Note some glands dilated with smaller glands around as if new gland formation, 4 glands seen thus, epithelium single layer, swollen connective tissue cells around and dark staining cells, (Photo 7), due probably however to section cutting through gland ramifications. Deeper, some glands in muscle but epithelial nuclei are similar in size, shape staining and single layered. No clumping of glands together always stroma between.

Fairly dense throughout with glands and many venous and lymph spaces distributed. Tissue is vascular, many blood spaces large sized.

Hypertrophic and atrophic Endometritis

For most part regular, cylindrical, and ciliated, the nuclei being oval, vesicular and about middle of cell, here and there minute

polypoid projections at places, would think proliferating, but nuclei similar in size shape and staining.

Below Epithelium a dense leucocytic infiltration mostly of the small mononuclear variety, distribution uniform, no clumps of cells.

ds. at parts increased in number and dilated, at other parts decreased hypertrophic and atrophic endometritis, as a whole glands are much increased. The lining epithelium is of equal columnar variety, single layered with nuclei similar in size shape and staining. (Photo 8).

oma. shows considerable leucocytic infiltration throughout. Here and there are some larger pale staining cells amongst stroma, migratory looking cells with indefinite arrangement, no nuclear figures seen however. The blood supply is abundant, many veins seen especially where glands increased. Stroma is formed of ordinary connective tissue, with spindle shaped nuclei rather lax in places.

rks. These sections of cervix although on first inspection appear malignant, are not so, the dark staining collection of cells being merely inflammatory in origin, the nuclei being alike in size, shape and staining, and smaller than epithelial cells, the lower columnar layer of Epithelium being intact equal in size and staining, and showing no evidence of polymorphism. No nuclear figures are seen nor any definite ingrowth of papillae.

The woman was dismissed after curettement, but returned four months later complaining of continued symptoms especially of great pain. It was decided to perform vaginal hysterectomy. On

removal the Uterus was of the usual multiparous character measuring 3 3/4 inches to sound and save a few simple cystic formations, on walls, nothing else noted macroscopically. Sections were taken after removal of

1. Anterolateral portion of cervix.

The squamous epithelium seen thicker at one end then thins out into a very slender layer. Columnar layer of epithelial cells is regular, except at one part where a slight papillary projection , and there at point of papilla the columnar layer has proliferated, and is broken up considerably, and several dark staining cells are seen, the chromatin being increased, some of them being rather larger than others and shape differing a little. Below Epithelium two clumps of dark staining cells are seen, nuclei equal sized, and smaller than ordinary epithelial cells. nds. are as before simple in formation as regards lining Epithelium Many blood vessels especially venous speces and lymph spaces.

2. Fundus near top.

Shows a normal appearance practically, glands, however, increased at parts. At one place a considerable portion of fibrous tissue runs up with leucocytes (small mononuclear) in insterstices replacing glands, crushing them out as can see small ones at edge. Nothing else of note to remark on, no careinomatous change.

rks. The sections taken from the Uterus on this occasion while they dont show absolute signs of malignant change, are from the breaking up of the columnar layer, the slight disparity in size and shape of the nuclei and the increased amount of chromatin present, enough to suggest the commencement probably of a change, which appears to be more than a simple one, these appearances seldom

being seen apart from a cancerous formation. This case shows the importance of return for further examination, in cases which are at all suspicious even in a case where from the long duration of the symptoms the question of careinomatous change would be apt to be negatived.

pical of ions of rvix.

2.Hypertrophy of Cervical glands.

Mrs. Cowie - Aged 48 - Married 30 years.

Pregnancies at term 10, premature 4. Easy labours, two instrumental. Menstruated first at 13, 4 weekly lasting three days. Micturition, frequency and pain. Defaecation, normal.

Family History - Unimportant, Urine normal.

Complaint - Floodings on three occasions.

tory.

Menopause 2½ years ago, no discharge for 15 months then floodings on two occasions, no discharge then till 7 months later when as she thought menses returned, and later had another flooding. On admission more bleeding . Losing weight for six months but not colour.

aginam.

Portion expanded irregular, great density of cervical tissue Uterus movable but enlarged - Nothing detected in appendages.

scopic rances dge Cervix.

Refer to Photos 2, 4, 5.

Surface Epithelium - normal, usual appearance of layers of squamous epithelium. Below are several empty spaces with large single layer columnar cells lining spaces are Nabothian follicles. The epithelium lining is very low cuboidal and at places almost disappeared through pressure (Photo 2).

ands.

Many seen, convoluted, tortuous edges, glands enlerged lined with single layer high epithelium, nucleus at foot, where several layers, this due to obliquity. Teat like projections from sides of gland give appearance of several layers epithelial cells. Gland lumina empty. Some clumping of glands at parts. Note infiltration of round cells around dilated gland. Some glands deep in mucsle, clump of 4 but no encroachment into surrounding

tissue. Nuclei stain normally mostly, at one place a gland abuts on another, scarcely any stroma between. Some new glandular formation with vascular area around and infiltration of mononuclear leucocytes between(Photo 4) Gland epithelium stains lightly at parts, but nuclei mostly equal sized and shape uniform and to extension into surrounding tissue.

ma. at parts normal, at others great density, Thrombus seen undergoing degeneration in vessel. Leucocytic infiltration appears around new formed or dilated glands only. Muscular layer has usual appearance.

rks. Although the dilatation, convolution, and new glandular formation are at first sight suspicious, the single layer of epithelium lining glands, the regularity of its cells in shape and size and staining, and non extension into tissue, shews its simple character. Glandular formation in muscle also is not of malignant causation here, the Epithelial layer being single and regular, in fact this glandular extension into muscle is often physiological. In this case everything had been prepared for hysterectomy prior to microscopic examination, it of course did not take place. Although these sections not careinomatous the woman was asked to return later, as the clinical history of floodings, loss of weight with density of cervical tissue at age of 48 ~~was~~ WERE very suggestive of carcinoma.

II. ATYPICAL CASES.

B. AFFECTIONS OF ENDOMETRIUM:- Glandular hypertrophic Endometritis.

Mrs. McDaid, Aged 41, Married 20 years.

Pregnancies at term 7. Premature one. 14 months ago.

Menstruated first at 19, frequency 4 weekly lasting 4 days.

Micturition scanty. defaecation constipated.

Family History unimportant. Complaint Pain in iliac region for 5 months.

History: Miscarriage fourteen months since at 6th month preceded by acute nephritis. Five months ago numbness with loss of power of left leg commenced for which treated by support of womb, and has since been troubled with a jagging pain in left side. Menstruation always regular, but on last two occasions, copious lasting 10 days, the odour being offensive.

For a year has had a copious yellow discharge.

No loss of weight or colour noticed.

Per Vaginam. Uterus is enlarged and retroverted, fundus to left side and movable. Uterus measures 3½ inches: No pain on abdominal palpation. Operation, Curettement.

Microscopic Examination. - surface epithelium - low columnar cells regular and flattened.

cells regular and flattened.

Glands. Increased in number, some dilated others small sized where section then shows single layer epithelium, cells regular, equal sized staining uniformly. Dense infiltration of leucocytes in stroma and a few around glands. Blood supply abundant.

Here enlargement of uterus, metrorrhagia, with offensive odour and yellow discharge commencong 12 months ago, and age of patient pointed to possible malignancy, microscopic examination shewed glandular endometritis.

2. Mrs. Raper, Aged 30. Married 10 years.

Pregnancies - At term - two last 18 months ago. Micturition very frequent and painful. Defaecation normal. Complaint - Sharp pain in hypogastrium for 18 months.

Had somewhat similar pain, worse at premenstrual and postmenstrual periods, and had growths removed from womb. Pain only returned after birth of her baby, is sharp and shooting, starts in epigastrium and increasing in severity extends to hypogastrium, is increased on movement, relieved by lying down. Menstruation more copious lately, but same duration. Leucorrhoea for 3 years. History of sweating and shivering attacks, and lost greatly in flesh and colour.

Per Vaginam. Uterus enlarged, Erosions around os, left appendage matted and tender. - Operation, Curettement and urethral caruncle removed.

Microscopic Examination. Surface epithelium - normal save one or two papillary outgrowths.

Glands - at parts. increased in number, and slight dilation at places. The lining Epithelium normal and single layered except where section thick. Glands contain mucus & epithelial debris. In Stroma, small collections of large mononuclear lencocytes. Stroma neither dense nor many blood vessels present, - a condition generally of simple Endometritis.

Here the diagnosis lay between the return of filroids and endometritis, with the possibility somewhat remote of malignant affection. Microscope revealed a simple endometritis.

3. Mrs Allan. Aged 47. Married 23 years.

Pregnancies at term 6. Menstruation commenced at 12, 4 weekly, 4 - 6 days. Micturition and defaecation normal. Family history unimportant.

Complaint. Pain in back for 12 months. Patient in good health till menopause 12 months ago, since then dull aching pain in sacral region increased on exertion. During the last six months copious yellowish white vaginal discharge with very offensive odour, but never has been blood tinged and patient does not consider she has lost weight.

Examination of abdomen. Increased resistance and tenderness over pubis. Body of uterus moveable, but cervix fixed, tissues above posterior and lateral fornices being very dense. Uterus 2½" to sound. Little pain on examination. Operation - Curettement.

Microscopic examination. Surface Epithelium regular one layer, some of the cells differ slightly in size, but simple appearance as a rule. Many leucocytes collected on surface, especially large mononuclear below many swollen connective tissue cells. Glandular structures are pretty well absent, one or two seen their epithelium is regular in size, shape etc. but cut obliquely. Much fibrous tissue seen whorled at parts, nuclei of same in various planes, Aggregagations of lencocytes at different parts, also, (see Photo 9) especially towards mucous surface. Plentiful blood supply, the capillary

capillary Endothelium appears swollen. Here age, offensive vaginal discharge after menopause, pain, fixity of cervix point to possible malignancy, microscope shews inflammatory and fibrous tissue, and no malignant change.

4. Mrs. Hanley, Aged 39 - Married 18 years.

Pregnancies 8 last three years since, protracted labours. Menstruation commenced at 18, 4 weekly lasting seven days. Micturition frequency and after pain, Bowels constipated.

Family History - One sister died of consumption.

Complaint. Bleeding for sixweeks.

ory. At confinement three years ago states placenta removed too soon & had severe bleeding and three weeks in bed. On rising had dull gnawing pain in back and left side occasionally shooting. When stopped nursing, menstruation began at first excessive, later constant discharge. Underwent curettement, then regular for six months. Bleeding has since returned on alternate weeks and now constant.

aginam. - Portio vaginalis very irregular. Sound passes 2½ inches, fundus inclined to left and tender.

scopic. Shews glandular Endometritis and hypertrophy - Many glands seen
nation some very dilated and convoluted with processes of a bridge like character from gland sides projecting into them, glands and bridge like processes and buds covered with single layer epithelium, See Photo 18. These bridge processes are sections through gland folds merely. Some of the processes almost meet across middle line. One clump of enormously dilated glands with processes all round others with hardly any stroma between.

Here and there are seen some deep staining cells, smaller than epithelial. Some convoluted glands seen with epithelial cells and disentegrated material and mucus (yellow) in lumina. Epithelial cells are cylindrical and nuclei are oval and vesicular and rather below middle of cell.

oma. Stroma: at parts, density and patches of leucocytic exudation which stain deeply, some places glands absent, only leucocytes and swollen connective tissue cells seen. Blood vessels are plentiful, which would account for the hsemmorhage.

rks. Here no chance of mistaking these appearances for malignancy, the regularity of the cells of the lining epithelium, single layered, uniformity in size and staining and cells showing no signs of division, are against the probability of Carcinoma.

. Mrs. Whiteside, Age 34, Married 13 years.

Pregnancies at term seven, last 4 months ago.

Character of labours, Easy but last two instrumental.

Menstruation commenced at 19, Frequency 4 weekly, lasting 5 days. with premenstrual pain. Micturition normal, Defaecation Constipated. Family History - Unimportant. Complaint - Bleeding 4 months duration.

ry. Four months ago had premature labour at 7th month had uterine inertia and forceps applied. Considerable haemmorhage then which stopped and returned in a fortnight. Bleeding again ceased for a month, but has taken place since then at intervals amount lost being excessive. On the last occasion this was accompanied by pains like labour pains, sickness and vomiting. Has lost weight and colour from haemmorhage. Operation, curettement.

Vaginam. Portio Vaginalis thickened and irregular from laceration one of which passes down anterior vaginal wall. Retroversion, with fixation of uterus attempts to raise fundus causing pain. Uterus measures $2\frac{1}{2}$" to sound. Condition of appendages cannot be made out definitely. Operation. - Curettement and replacement and Albert Smith pessary introduced.

oscopic Examination. (Photo 11).

ace Epithelium. is single layered and cells regular, a tendency to form irregular little projections with single layer of cells covering like small polypoid growths.

ds. At parts much increase of glandular elements seen, many being much convoluted, one enormous branching gland being seen. Many complicated figures in gland centres due to the projections from the side being cut in section.

A single layer of regular epithelium lines the glands and is continued over the projections, but where glands cut in long section one seen with a few large pale epitheial cells at tip. Glands contain considerable mucus, and many have accumulations of leucocytes arranged around them especially small mononuclear variety, but not so may through stroma. The tissue is vascular containing many blood vessels and venous spaces, the arteries show no thickening of walls. General appearance is one of glandular endometritis and at parts hypertrophy and non malignant. Here from history of bleedings dating from child birth and character of pains we should have expected to find some retained membranes, none were discovered. The thickening with irregularity of os was simple in character.

Mrs. Monteith, Aged 41, Married 22 years.

Pregnancies at term 9 - Premature 2, last miscarriage 3 years ago. Menstruated first at 15, 4 weekly lasting 4 days. Micturition frequent and painful, cystitis 3 months ago, Bowels constipated. Family History. Mother died of some womb disease associated with floodings.

aint. Pain in lower abdomen and back for 3 years.

ry. After the miscarriage 3 years since, suffered from bleeding and bearing down pains for three months. For this, curetted, bleeding ceased and felt well till 14 months since when pains in back and iliac regions extending to legs commenced and have continued more or less, worse during menstruation. Menstruation . A year ago changed twice only in eight months and had flushings and shiverings, regular since. Has noticed bloody discharge after connection for months. Curetted for this but no improvement.

Vaginam. Portio is thickened and dense. Retroflexion of uterus, which can be reduced, movable. Operation, Curettement.

oscopic ination. Shewed uterine glands dilated, corrugated and grouped with leucocytic collections round about glands and on surface, the stroma being wavy and interlaced looking and dense, the blood vessels are increased in number and grouped around gland collections. Gland epithelium single layer, nuclei, simple in character as evidenced by regularity.

Here history and local examination not unlike carcinoma, shewing endometritis on microscopic examination.

Summary of Cases of Adeno + Squamous Carcinoma of Uterus.

Disease	Name	Age	Heredity	Pregnancies: Term	Pregnancies: Premat	Pregnancies: Character of Labor	Menstrual History: Age at Commencement	Menstrual History: Frequency	Menstrual History: Duration	Accompanying Phenomena	Other Vaginal discharge	Pain	Duration of Complaint	Cachexia	Erection	Defaced	Abd. Exam.	Vag. Exam.	Operation
Squamous Carcinoma of Cervix	Macnab	37	Mother died of abd. growth	4	–	Normal	19	4 weekly	3 days	Premenstrual pain, Leucorrhoea 12 mos	Bloodings for 6 wks	None	Bleeding 6 wks	Pallor	Norm.	Reg.	–	Friability	
	Wallace	53	–	4	–	"	16	"	4 "	" "	Red discharge 12 mos	Sacral	Discharge 12 mos	Lost flesh	Freq.	Constip.	End. of hyp. glds	ulcer	Curett.
	Kearney	40	–	10	3	Difficult	15	"	7 "	" "	Bloody or yellow watery	Back	" 3 mos.	Lost wt. & col.	"	Reg.	Hypogastric & sigd	"	"
	Monaghan	46	–	12	5	Difficult	16	"	3 "	– "	Yellowish pink 12 mos	"	" & pain 12 mos.	Lost Wt.	"	Constip.	–	"	"
	Scott	46	–	7	4	Protracted	13	"	3-4 "	– "	Yell. watery foul 7 mos	"	" 7 months	Cachexia	"	Reg.	Mass at symphysis	Nodulation	"
Adeno Carcinoma of Cervix	Miller	62	–	8	3	Instrum.	13	4 weekly	8 days	– –	Offensive. Red occasionally	None	Discharge 6 mos.	Pallor	Freq.	Reg.	–	Ulcer & Thick	Curett.
	Morgan	32	–	1	–	Normal	14	4-10 weeks	4-8 "	– Leucorrhoea	Bloody - foul. 3 months	"	Bleeding 3½ mos.	Mt. Lost	Norm.	"	–	Dense	Vag. Hyster.
	Semple	36	Mother died of Cancer	3	3	–	13	4 weekly	3-4 "	Pain "	Bloodings - 12 months	Left side + leg	Pain 4 mos	–	Freq.	"	–	Nodulation	
	White	37	–	4	–	Difficult	16	4-6 "	3-6 "	Premenstrual pain "	Bloody - 6 months	None	Discharge 6 mos.	Mt. & Col. Lost	"	"	–	"	Vag. Hyster.
	Gillan	44	–	2	–	Normal	14	4 "	4-5 "	– "	Red or dark. 5-6 mos	Low in abd. + left side	" + Pain "	"	Normal	Constip.	End. of ing. glands	Ulceration	Curett.
Adeno Carcinoma of Body	Hulley	32	–	1	–	Normal	15	4 weekly	2-3	Dysmenorrhoea Leucorrhoea	Menstruation darker	Vaginal	Pain 12 mos	–	Freq.	Constip.	–	Tenderness	Curett.
	N	65	–	8	–	"	14	"	8 days	– –	Watery or blood tinged	Uterine	Discharge 6 mos	Malaise	–	–	–	Uterus Enlarged	Vag. Hysterect.

II.
nant disease. 1. Squamous Carcinoma Cervicis.

a. Mrs. Wallace, Aged 53, Married 30 years.

Pregnancies at term 4. Premature none. Menstruation first at 16. frequency monthly, duration 4 days premenstrual pain. Micturition is frequent and states urine dark and muddy (normal on examination). Bowels constipated. Family History. Unobtainable.

Complaint. Discharge of 12 months duration.

ory. Menopause 9 years ago. Well and healthy until a year ago, when very slight bloody discharge noticed accompanied by considerable sacral pain; both of which have steadily increased - Never any flooding . Discharge now black and watery, odour lately unbearable. Pain now present on posterior aspect of thighs and down ~~righ~~ right leg. Lying in prone position relieves pain. Has lost flesh during last year but colour unaltered.

nation. Oedema of right foot and leg to ankle - tense abdomen, inguinal glands enlarged, painless and movable.

aginam. About 2 inches above vaginal orifice finger meets firm irregular ulcerated mass representing portio vaginalis and vaginal vault, pressure causing pain - Operation, Curettement, too far advanced for operation.

roscopic mination wedge m Vaginal rvix. Squamous epithelium about same thickness save in middle where it projects deeper not as a single papilla but wide projection, (Photo 19). Cross sections of papillae seen in squamous layer. Note that the columnar layer is irregular broken up into several layers, nuclei are deep staining irregular in size and shape are

scattered and extend into tissue below. Where this proliferation taking place many leucocytes are collected, in small collections here and there. This section does not show the usual appearance of the individual papillary projections into the tissue underlying epithelium the proliferation being more diffuse and affecting a considerable portion of the columnar layer which forms the front of the encroachment. Below epithelium are collections of deep staining epithelial cells in little spaces, lymph spaces, which are widely distributed. In muscle can see the division between normal muscular tissue and the carcinomatous involvement between these a considerable collection of leucocytes are seen. The tissue which has not undergone marked careinomatous change is stained yellow by Picric acid and has considerable vascular supply, deeper down the carmalum stains the carcinomatous portion red, that portion consisting of deep staining epithelial cells of various sizes and shapes with thickened cancerous stroma, and leucocytes breaking up the epithelial collections and abundance of blood vessels especially at margin of encroachment.

In muscular area considerable number of epithelial cells seen scattered indefinitely and also many epithelial cells are collected round about small lymph spaces. At one place can see one or two large epithelial cells on wall of a blood vessel. Note the large number of blood vessels amongst muscle, these are abundant at edge of growth. Deeper down are seen large alveolar collections of epithelial cells, of varying sizes and shapes round elliptical the cells stain faintly, are vesicular looking and shew infiltration with leucocytes at parts. Very little stroma separates the epithelial collections and at places the atroma forms a thickened

network with spaces in which very large nuclei are seen (Photo 20) and in one or two places giant cells.

Many of the alveoli show leucocytic infiltration at edges.

Note the depth of involvement by the cancerous cells, this seems to be a very malignant tumor and appears to have a growth which is not to an extent dependant on extension from surface epithelium.

Here age of patient - Clinical history and local and microscopic examination all typical of malignancy.

b.Mrs. Monsghan - Aged 46 - Married 27 years.

Pregnancies at term 12 - Premature 5, last two years ago. Menstruated first at 16, frequency 4 weekly lasting 3 days. Frequency of Micturition. Bowels constipated. Family History Unimportant.

Complaint. Constant discharge and pain in back of 12 months duration. Miscarriage 2 years since and for 12 months afterwards had no proper menstruation . Eleven months ago had several severe floodings, causing fainting, since then had a constant yellowish pink malodorous discharge. Pain in back of dragging character constant and severe. No severe floodings since first attack.

Vaginam. The upper vagina is filled by a firm expanded mass ularating on surface representing cervix. Uterus is fixed. Operation, Curettement. Growth too advanced for hysterectomy.

escopic
ination of vaginal portion of cervix. (Photo 21).

The upper surface of section where squamous epithelium should normally be seen is covered with myriads of cells of various kinds and granular debris, cells are principally large mononuclear leucocytes small epithelial cells, formative cells, and cells with rather spindle shaped nuclei. Considerable necrosis has taken place as many cells shrinking losing individual outline and staining faintly. Some small amount of connective tissue streaked throughout, also small capillary vessels in section . Notice an alveolar collection of epithelial cells irregular in shape, cells of varied form vesicular looking with small

chromatin granules staining deeply and communicating with surface epithelial cells. Round about are epithelial cells and leucocytes spreading into tissue around.

Different parts show epithelial collections of dark staining cells tree root like in mode of growth in form of infiltrating cylinders of small epithelial cells collections being distinctly limited. At some places can see epithelial cells with nuclei splitting up forming daughter cells by division other places degeneration going on. Stroma is of the usual malignant appearance at parts, as fibrous strands with small epithelial cells between, which stain dark in places at others pale. Some small deep staining epithelial cells adjoining lymph spaces as if poured out. Near alveolar groups sometimes diffuse collections of small epithelial cells.with chromatin granules distributed. Deep down in muscle some collections of pale staining cells which are very much like cartilage cells in appearance. (Unfortunately the portions of tissue had been thrown out otherwise could have tried the effect of staining for cartilage.) At parts cell collections like cancer bodies, several clumped together with dark staining material in centre one body with four dark staining points. The tissue generally has not abundant blood supply unless near epithelial surface. Grouping of leucocytes around vessels at parts, one vessel seen with muscular coat thickened, another undergoing obliteration by fibroid change.

The history of case, floodings, discharge etc. and local signs and microscopic examination are diagnostic of cancer. The presence of cells like cartilage is interesting.

c. Mrs Scott, Aged 46, Married 27 years.

Pregnancies at term 7, Premature 4 last 8 months since. Menstruated first at 13, 4 weekly last 4 days, has frequency and pain during micturition. Bowels regular. Family History, Unimportant.

Complaint. Yellowish watery discharge of seven months duration. Menstruation for 12 months previous has been irregular. Several months elapsing, and seven months since at menstruation had a severe bleeding followed by another a month later. No further bleeding for six months but yellowish watery discharge which lately got malodorous. Pain in back all the time, increasing lately. Defaecation, painful. Has lost weight and colour greatly Examination. A firm mass felt above symphysis running across the pelvis and projecting above brim. Per Vaginam. Vault of vagina occupied by firm nodular ulcerated mass representing portio and spreading down vaginal walls. Uterus is fixed.

Operation, Curettement.

scopic nation. On surface many leucocytes mostly mononuclear and formative cells and epithelial cells are seen with new formation of connective tissue, the latter rather hyaline looking at places. Some of the formative and epithelial cells stain very deeply and of varied size and shape.

scopic nation. At place remains of squamous epithelium seen, at others finger like processes seen with central band of stroma splitting up with epithelial cells between. Enormous accumulations of epithelial cells in form of cell nests with leucocytes amongst them and some around seen below, some of these cells very large,

usual pale appearance, vesicular with chromatin granules in ~~nue~~ nucleus. New formed cancerous stroma well seen, thickened looking with apertures in which are epithelial cells, the branching stroma divides the tissue into alveoli of different sizes, the cell nests stain deeply, the stroma fainter. Between the strands of fibrillated stroma, enormous number dark staining epithelial cells of varying sizes.

Many lymph spaces with leucocytes and epithelial cells in them. Giant cells seen at edge of section where finger processes are, also epithelial pearls stained yellow, structureless in centre and connective tissue round about, near one are some cells undergoing hyaline change. At one part on surface where squamous epithelium lost, it looks as if a very delicate stroma with cells between were being formed prior to alveolar collections, at parts the stroma begins to be vacuolated. Blood vessels not prominent in section. Some with leucocytes with tripartite nuclei within and another with considerable connective tissue in intima. The tumor has been of quick growth, little inflammatory reaction being seen, and carcinomatous changes are well advanced.

d. Mrs. Maneary, Aged 40, Married 22 years.

Pregnancies at tem 10, premature 3. Labours difficult all instrumental. Menstruation commenced at 15. 4 weekly, duration 7 days. Micturition frequency for months, Defaecation, normal. Family History, Unimportant. Complaint, discharge for three months and weakness.

ory. Last confinement seven years since was only one without severe haemmorhage. Menopause occurred 3 years ago + good health until 12 months ago, when began to feel out of sorts. Three months since had slight bloody discharge, this continued alternating with yellowish watery malodorous discharge. Never any severe flooding. The increasing weakness and occasional labour pains what most

mplained of. Mas loat weight colour and appetite and strength for last 12 months and much headache.

ination. Abdomen thin walled and flaccid. Hypogastric and inguinal. Glands enlarged on both sides. No pain or palpation.

Vaginam. Cervix transformed into large irregular fungoid mass filling vaginal vault. Cervix fixed on right side but uterine body movable. Operation, Curettement of malignant tissue, as growth advanced.

oscopic ination. With low power can at once see tissue is abnormal being divided into alveoli by branchings of fibrous tissue. The glandular tissue of the cervix being absent save at upper part a clump of five glands. With high power see irregularity of upper limit, the surface epithelium pretty well shed, many epithelial cells and ordinary squamous cells seen, at places look as if enclosing spaces. The clump of glands mentioned above have high columnar

epithelium , nuclei at foot of cell, pale staining. Note that glands are huddled together with little stroma between,having tendency to group themselves. Above are collections of dark staining cells, leucocytes and small and large epithelial cells; and below many pale staining large epithelial cells. At the division between normal and pathological tissue many leucocytes are seen, the latter tissue being made up of bundles of cancer cells of varying shapes and sizes, some have the nucleus entire, others with granules of chromatin distributed through.
The usual fine strands of stroma with cancer cells between,in others large mononucleated cells seen. Faint staining and loss of outline at parts show necrosis and cells much crowded together A few leucocytes in the cell nests but mostly distributed around them. The tissue is well supplied with blood vessels, some arteries have thickened walls, others appear to be organising many venous spaces also.

(An advanced case of malignant disease all appearances decidedly malignant).

e. Mrs. McNab - Aged 37, Married 11 years.

Pregnancies at term 4, last 3 years ago. premature none. Menstruation commenced at 19, 4 weekly, duration 3 days. Micturition and Defaecation normal. Family History. Mother died after operation for abdominal growth, aged 40.

Complaint. Floodings during the last six weeks.

ory. Had ammenorrhoea for two months previous to floodings and had suffered during last year from a watery white discharge which was quite free from smell. Six weeks ago bleeding began, quantity at first small and most in morning occasionally this discharge got thinner resembling moss water. Suddenly 5 days ago seized with severe haemmorhage and discharge of clots, and fairly profuse bleeding has continued. Discharge now present has somewhat of a heavy odour, but not marked. Does not think she has lost weight or colour recently, and never had pain.

Operation, Curettement, only, on account of advanced growth.

oscopic ination uretting. Here the bulk of section is made up dark staining areas which are collections of epithelial cells, and lighter areas which represent the fibrous stroma intervening between the cell collections. Finger shaped processes are seen with central strands of connective tissue stroma in centre and the epithelial cells in places arranged on either side. The carcinomatous change is advanced, there being enormous collections of epithelial cells in alveolar form, thin strands of stroma separating. The Epithelial cells show the usual polymorphism, some are very large, have increased amount of chromatin and many show nuclear division.

The shaggy appearance of curetting is well seen in section from the papillary outgrowths, and necrosis is taking place at parts. The growth has been very malignant as the cells exceed the stroma Many leucocytes of various kinds are seen in the stroma and have extended into centres of cell nests., and are in places tending to break up the epithelial cells. The appearance of section shows malignancy of an advanced type.

2. Adeno Carcinoma Cervicis.

Mrs Semple, Aged 38 - Married 9 years.

Pregnancies at term 3, last 3 years ago. premature 3. Menstruation first at 13, 4 weekly, duration 4 days. Micturition frequent on imovement. Defaecation normal. Family History, Mother died of Cancer of Womb. Complaint. Pain in left side, back and down left leg for four months. Floodings took place 12 months ago and her doctor removed a growth from side of womb after which bleeding ceased, gained strength and menstruated regularly for 3 months. Has had for 5 months occasional red discharge with constant offensive white discharge. The pain she describes as neuralgic, shooting and sharp in regions mentioned. and is occasional only. After micturition complains of bearing down pains.

mination of Abdomen.

No pain on pressure, resistance slightly increased above inner end of left Poupart's ligament.

Vaginam. Cervix is represented by a large nodular mass apparently chiefly connected with anterior lip. The uterus has only slight mobility,

and the tissue above it is dense this density passing out into bases of broad ligaments.

oscopic ination. Squamous epithelium seen of regular thickness for a portion then an immense down growth has apparently taken place of irregular shape. (Photo 30). This appearance on first sight seems decidedly malignant, (squamous type) but is really due to a fold in section and direction of cutting, the lower columnar layer of cells also being regular in size and shape and staining. An appearance like this to one looking at section hurriedly would suggest squamous carcinoma.

nds. Hyperplasia of glandular structures generally, in section (Photo 30) irregularity in size and shape, some dilated, many glands with side pocketings, and projections from their sides. One large gland seen epithelium single layer in parts, then epithelium at other places 5 or 6 layers of cells deep (Photo 32) . Some of the projections from sides of gland shew only single layer epithelium. The majority of the lining cells shew nuclei of irregular size huddled together, variously shaped and staining deeply, in some parts several layers, at others epithelium entirely absent, and the cells invade interglandular tissue together with many leucocytes. The wandering irregular sized epithelial cells stain faintly,the leucocytes deeply, both are in little collections in places, many clumps of small mononuclear leucocytes seen where few glands present.

At parts secondary glandular formation, collections of new formed small glands with lining epithelium proliferating, (Photo 31) and this apparent new formation is seen in the muscular portion also little clumps of new formed glands being distributed in same with leucocytes round about (Photo 34).

The connective tissue stroma is plentiful in places at other parts scarce, the section consisting mainly of epithelial cells of the usual variety in shape and size, and showing many chromatin granules throughout. Notice where the epithelial cells are most dense, there are fewer leucocytes than at other places.
The leucocytes are of three varieties:-
In Sect. 2. A number of pale staining irregular nuclei have arranged themselves in the form of a gland formation showing claearly the origin of the tumor from glandular epithelium. Continuity of gland broken in Sect 4 and a clump of epithelial cells large sized deposited, many other parts of this section look perfectly simple. The vessels shew thick coats, many connective tissue nuclei in walls, and some leucocytes, the venous spaces are large, and one is seen where the endothelium on one side is irregular and there is seemingly an invasion of the wall by the epithelial cells, many being inside the lumen and others immediately outside,these cells being markedly malignant.

rks. The history of case is typically a malignant one, and manner glands are dilated, and irregularly placed, with appearance of lining. Epithelium, is never seen in a simple case, The tendency for the epithelial cells to imitate the glandular form shews the origin from glandular epithelium, but apparent down-growth at first confusing.

b. Mrs Miller - Aged 62 - Married 33 years.

Pregnancies at term 8 - last 18 years ago - premature 3, Labours instrumental. Menstruation first at 13, 4 weekly duration 8 days. Micturition slight, frequency but painless. Bowels regular. Family History. Mother died at Menopause.Cause indefinite. rest unimportant. Complaint. Discharge of 8 months duration. Menopause took place 10 years since, no discharge till 8 months since when underclothing occasionally stained red. The discharge increased and a bad odour developed. Her doctor advised waiting and douching. Discharge occasionally is bright red, other times brown and watery. Never had pain at any time, but has felt faint and got paler and thinner for last few months.

mination. No enlarged glands felt.

Vaginam. Portio vaginalis level with vaginal vault , lips hard and slightly irregular, hardmess passing towards vaginal wall and both lips of portio show a reddened ulcerated surface, and in upper part of cervical canal is a small prominence like the remains of a cauliflower exerescence. Operation, Curettement and Cauterization.

oscopic mination. On vaginal surface enormous number of cells seen, mostly leucocytes, connective tiss e cells, formative and epithelial cells Not far from surface many epithelial dark staining collections of cells are seen of usual malignant appearance with considerable atroma separating with leucocytic infiltration. At parts a grape like arrangement of cells on stroma noticed. The cell collections shew disentegration in centre staining yellow due to the leucocytes getting into middle and loosening and breaking down the tissue so that spaces are left which contain at parts mucous looking tissue

and debris, at other parts nuclei of fibrous tissue and leucocytes. On surface one or two small circumscribed spaces some stained pink others paler, these consist of mucoid accumulations and some are blood spaces. A mucoid degeneration is evidently taking place pretty generally. The malignant cells at parts are encroaching on connective tissue divisions, at one part epithelial cells continued across stroma to another collection. The spaces between cell collections and dividing stroma, probably due to shrinkage, and some very large pale staining cells are seen at parts others with much chromatin. At one place the convolutions of fibrous tissue resemble the windings of a gland; note the leucocytic collections between the strands of tissue (Photo 35) also epithelial cells. The cell accumulations resemble the cell nests in squamous carcinoma, but the glandular type is readily seen at places. Note in muscle the accumulations of leucocytes localized and defined and dark staining away from the general tumor formation, one seen deep down between some small venous spaces (Photo 34) these of themselves in a situation like this should make one be on the look out for a more serious involvement elsewhere. The vascular supply is very considerable. The whole appearance being so markedly malignant there is no possibility of mistaking it for another condition, the irregular collections of cells varying in size and shape and staining and arrangement of stroma being sufficient. The absence of pain here of any kind even though growth advanced, a striking point, and case is illustrative of the danger attendant on delayed examination and of recommending douching merely in any case associated with discharge after the menopause.

c. Mrs White, Aged 37, Married 20 years.

Pregnancies 4. All difficult, last 9 years ago. No miscarriages. Menstruation first at 16. frequency 4 - 6 weeks. duration 4 days. Micturition frequent, Bowels regular, Family History. Unimportant.

Complaint. Bloody discharge for 6 months.

tory. Six months ago discharge resembling menses began and has continued Six weeks ago had some bearing down pains and passed Per Vaginam a large lump size of orange, three days later a flooding and some clots passed. Her doctor said she had miscarried and had ulcerated womb. Another flooding later for which womb scraped, and bleeding now stopped practically. No offensive odour from discharge. Was in good health previously save that had dribbling of urine on stooping, and now has frequency. Lost strength and weight recently.

Vaginam. Portio vaginalis forms a large nodular mass surrounding os on all sides, except small portion posteriorly. Uterus is movable, no glandular enlargement noticed. Operation, Vaginal, hysterectomy.

Microscopic appearances of wedges from Cervix - junction cervix & body and body.

1. Cervix. Squamous epithelium of irregular thickness, papillaedont dip (Photo 26) however, and lower columnar layer intact save at one part where one papilla looks in section as if meeting gland and the columnar layer at that part slightly broken and irregular cells at margin, giving almost the appearance as if proliferation taking place from squamous epithelium, but glandular type seen in carcinomatous collections below.

The gland mentioned is dilated, lining epithelium shows proliferation . Note great variety of cells, nuclei, large, irregular and preparing for division as some granules at poles, others arranged in middle. Below epithelium are many epithelial collections deep staining with many leucocytes arranged around and showing glandular type of formation, cells having the usual characters, also some dark staining cells amongst connective tissue with nuclei bigger than connective tissue nuclei. The gland like formations are scattered irregularly. Where the tumor growth is advanced the section consists merely of enormous number large pale staining epithelial cells with hardly any stroma dividing. (Photo 27), usual irregularity of shape etc. resembling alveolar collections which have run together, many polynuclear leucocytes around. Necrosis is taking place at parts, nuclei becomind indistinct, irregular and swollen. Many new formed blood vessels and venous spaces seen, tissue having abundant blood supply, also lymph spaces with epithelial cells in them. The appearance of stroma is carcinomatous, thickened, with spaces as if cells had

dropped out, some very large pale nuclei also and chromatin granules throughout. Blood vessels some distance from growth are pretty large.

Junction Cervix and Body. Glands rather larger than usual, and mostly shew the epithelium proliferating although here and there single layered. Between the glands at places are large irregular deep staining epithelial cells with much chromatin, decidedly malignant, at other places the epithelial cells are swollen. Note arrangement of stroma into longitudinal bands with cells between, epithelial in character (See photo 28) this arrangement of stroma is suggestive of malignancy. The connective tissue cells are swollen and considerable number of leucocytes seen, mostly mononuclear. Blood vessels appear prominently at places at others almost absent.

Body of Uterus. Considerable irregularity in arrangement of glands, a few dilated glands seen, at other parts glands fewer and smaller. Great infiltration of leucocytes between, many of glands shewing several layers of epithelium lining. In stroma some pale staining epithelial cells with large irregular nuclei, also many smaller epithelial cells some staining deeply. This portion of uterus also shews malignancy, nothing to remark about rest of section, ordinary muscular structure.

Remarks. Here again the carcinomatous involvement has progressed higher from cervix to body, probably both by glandular and surface extension. The fact of the body of the uterus being involved as shown by the examination of the curetting is important, as it is then better treatment to remove ovaries and tubes along with

uterus, because of possible carcinomatous involvement. This case shows the advisability of curetting for diagnostic purposes any case with discharge after a supposed miscarriage, the odour also being inoffensive in this case.

Mrs, Morgan, Aged 32, Married 6 years.

Pregnancies at term one 16 years ago - premature none.

Menstruation commenced at 14 frequency 4 to 10 weeks, duration 4-8 days. Micturition and defaecation, normal. Family History, Unimportant. Complaint. Bleeding for 14 weeks.

tory. Previously well, save severe premenstrual pain always, at times sharp, at other times dull in character. Fourteen weeks ago suddenly took severe bleeding and has since suffered from discharge usually bloody, but occasionally brownish and watery with very offensive smell. Has lost weight and strength since bleeding began, but has no pain apart from menstruation.

mination. Abdomen usual multiparous characters, no glandular enlargement noticed.

Vaginam. Uterus retroverted, fairly movable, cervix greatly thickened and very dense. Os irregular bordered by hard edges, in interior of cervix there is a deep cavity surrounded by nodular walls. Smell of discharge offensive, blood on examining finger. Operation, Vaginal Hysterectomy.

Adeno Carcinoma Cervicis.

Macroscopic appearances of Uterus and annexa removed.

Uterus is enlarged being 5 inches long by 2¾ broad at fundus. Cervix measured 2½ inches. Anterior wall ¾" thick at fundus, and is thicker slightly lower down at cervix. On the posterior surface of the fundus many hard cystic growths present varying from size of millet seed to pea. The lips of cervix are thickened and the os broadens out above into a large cavity about two inches high with rough walls and papillary growths

from upper part. Cervix is eaten into and almost ulcerated through posteriorly. The right tube is enlarged swollen and tortuous and matted to ovary which is also much enlarged, the tube has a cystic appendage. Left tube is cystic matted and thickened with adherent fimbriae, and a hardened mass present at left ovary which is also enlarged. The interior of uterus seemed normal not suggesting any malignancy

copic
ation.

Wedges from Cervix & fundus and portion of left tube at middle.

1 of Cervix. Low power see tissue divided by Stroma into areas almost resembling muscular bundles, very little stroma between at parts. High power the squamous epithelium where present is irregular no dipping of papillae seen, the lower columnar layer of cells is regular showing no tendency to break up, or any difference in size shape or staining of nuclei. Starting from surface note 4 Zonular divisions (Photo 22) surface squamous epithelium, then normal stroma, succeeded by an inflammatory zone with leucocytes, and finally the collections of epithelial cells dark staining with stroma dividing. The section is mostly made up of the immense collections of pale staining epithelial cells with vesicular nuclei of various sizes some being quite small, chromatin granules are seen in most, some being distributed round periphery of nucleus others scattered through. Nuclear dimension is going on in many. (Photo 23) Some few leucocytes around cell collections and one or two amongst cells, but not abundant, the growth being very malignant and little time

for inflammatory reaction.

On first examination the epithelial cells are seemingly collected in solid nests like squamous celled carcinoma where growth is advanced, but at the other places the glandular type shewn in the arrangement of cells, also the absence of papillary projections, and regularity of columnar layer and absence of epthelial pearls decide. Where surface epithelium lost, the stroma is in strands with epithelial cells and leucocytes between. The Stroma is barely present in some parts only the epithelial collections and no proper glandular tissue seen. At places many wandering multinucleated cells seen and some leucocytes and one or two multinucleated giant cells. Considerable number of venous spaces Their Endothelium well seen and with leucocytes around wall, the dilated spaces being mostly in inflammatory layer near surface.

The glandular element increased, some small, other slightly dilated. The glandular epithelium consists of several layers cells various sizes and shapes crowded together, one seen with very large cells at lower end. One solitary gland seen in muscular layer epithelium proliferated into several layers and extension into interglandular tissue. Between the glands are many diffuse collections of epithelial cells scattered about indefinitely with leucocytes alongside. The stroma is very dense at parts around glands, especially so near muscle, and more lax near mucous surface Leucocytic collections at intervals and one or two large cancer cells. Considerable vascularity of muscle. The section is undoubtedly malignant.

In those sections a great increase in the glandular element a hyperplasia of the structures generally.

The fibrous and muscular portions of the tubal folds are well seen the surface of folds being covered with several layers of Epitheliu m some of the nuclei staining deeply and also unequal in size. Some very large pale irregular epithelial cells are also seen covering the convolutions which have tendency to invade the tissue round and many in centre of tubal projections also, many of these cells have chromatin granules distributed through the nucleus.

The appearances in tube are clearly cancerous

rks. Here the cervix fundus and tube are all markedly cancerous, the ovary also seemed involved but unfortunately did not secure a specimen. In primary ovariancarcinoma a curetting should be got prior to operation as uterus may be affected.

The probability is, that the primary growth was in the cervix and that in the body a continuation of the cervical growth. This may take place not only by the surface extension as the lymphatic channels may dip deeply into uterine muscle and then again reach the surface as the lymph flow is well known to be from cervix to body. Secondary cervical affection could only take place apart from surface extension by a backward lymph flow or implantation of Carcinomatous particles from the discharge, both unlikely. As a rule it is found that the tubes are rarely affected by malignant change in squamous carcinoma of cervix and still less in the fundal affection. In Adeno Carcinoma of the Cervix the tubes are now and again affected, but as the appendages are usually left statistics are unsatisfactory; and possibly they are oftener affected than is generally supposed.

From the occasional affection of the tube it is safer to remove the annexa.

In some cases of Adeno Carcinoma of Cervix A Salpingitis is found and it is an open question whether the Carcinoma causes the Salpingitis. Here however the extension to tube has been by lymphatic channels.

The early involvements of the broad ligaments here is a point to note. Mobility of the Uterus is a very rough test however, as often much lateral extension may have taken place without evidence of any ligamentary thickening being made out by vaginal examination.

This is an instructive case as the age and long continuance of the premenstrual pain apart from the flooding were against malignancy. The growth has been a rapid one from time of occurrence of first haemmorhage; as extensive involvement had taken place, and recurrence after removal of uterus was probable. No glandular enlargement was noticed. The glandular extension of adeno carcinoma in operable cases is rare, if so a very late phenomenon, the glands may be enlarged by mere increase of fibrous tissue. The reason given by Lubarsch for this is because the epithelial cells are too big to enter the lymph channels readily.

e. Mrs. Gillan, Aged 44, Pregnancies at term- two-last five years ago.
Menstruation commenced at 14. frequency, monthly, lasting 5 days.
Micturition and defaecation normal.
Complaint. Discharge and pain of five months duration.
Discharge commenced first, varied from light to dark colour, constant, never severe floodings. A month later pain commenced in lower abdomen sharp, jagging, lasting 20 minutes, worse on left side. Weight and colour lost.

inal nation. Enlarged veins in both iliac regions. Fulness on deep pressure in supra pubic region. Inguinal glands slightly enlarged.

aginam. Portio vaginalis presents deep irregular ulcer in region of os.
Operation, Curettement.

scopic appearances.

Proliferation of surface epithelium, atypical gland formation with irregular extension of epithelium, thickened fibrous tissue with epithelial cells of usual malignant appearance and leucocytic deposits seen. Typically malignant appearance. Note quick growth after appearance of first symptoms (5 months). Operation useless.

Carcinoma of Body.

a. Mrs. Halley, Aged 32, Married 13 years.
Pregnancies at term - one 12 years ago - Premature one-13 years since. Menstruation commenced at 15, 4 weekly-lasting 3 days. Micturition frequency for 3 months but painless. Bowels constipated. Family History. Unimportant. Complaint. Burning vaginal pain of 12 months duration.

story. The pain is always worse a few days before menstruation and appears to be relieved by the flow. Between the periods it is less severe, occasionally is absent altogether for a day or two and is worst at night. Menstruation was regular till pain started 12 months ago, but comes at irregular intervals since then from a fortnight to a month. The discharge varies in amount occasionally scanty other times profuse, is darker in colour, but not madodorous. Has had leucorrhoea for some length of time.

ination. No glandular enlargement noticed.

Vaginam. Cervix found close to vulva, uterus movable tending to retroversion, some tense bands crossing above left fornix. Uterus measures 2¾ inches. Curettement was done for diagnostic purposes but nothing further the patient being dismissed irregularly for misdemeanour.

oscopic ination. Surface Epithelium. Some parts look quite normal a single layer of columnar epithelium with nucleus about middle of cell. Suddenly this single layer forms 2 or 3 layers of Epithelium and some little excrescences formed by epithelial cells are noticed but nuclei dont differ greatly in size (Haematoxylin Section) At one part the surface epithelium has proliferated very much and three new glands are formed, the cells forming same being stained very faintly (Carmalum Section). No stroma seen through surface buds.

ds. Shew no increase in sixe, glands scanty in places, the lumina are small and no new gland formation. Many of the glands have the lining epithelium composed of several layers nuclei, rather irregular, and some stain pretty deeply, others have epithelium

regular and single layered. At one part the glands are rather larger and several are grouped closely together, Many of the glands have skein like formations in their centre with many layers of epithelial cells covering them, due to section cutting through projections from sides and at parts the glands are much convoluted and section show complicated figures.

oma. is of about usual appearance but shows a round celled infiltration throughout, mostly the small mononuclear variety.

rks. The formation of the little epithelial mounds , the proliferation into several layers of surface epithelium and of that lining the glands, also the presence of the skein like formations together with the convolution, and grouping of the glands and the alteration in staining at parts, go to shew the change a malignant one The sections dont all show these appearances, and in a case such as this malignant change might well be missed were several sections not examined.

In this case the symptoms are not at all characteristic of malignancy. The age of the patient, the absence of floodings, the discharge never having been bloodstained nor malodorous, the relief of symptoms after menstrual flow, rather pointed to a displacement merely being the cause, which local examination alone rather tended to confirm. The pain also was not like that usually complained of in malignancy, being absent from the usual situations. Apart from curettement and microscopic examination of tissue removed, a trustworthy diagnosis as to the condition was impossible.

b. Mrs. N. Aged 65, Pregnancies at term eight.

Menstruation started at 14, 4 weekly lasting three days. Micturition and daefacation regular. Family History. Unimportant. Complaint. Discharge of 6 months duration.

story. Menopause took place about 20 years ago, her menstrual periods prior to this being perfectly regular and accompanying phenomena normal. Six months ago a discharge like ordinary whites began which was occasionally reddish in colour but no bad odour perceptible and appeared simple in character. Later the discharge became more bloody and increased until considerable haemmorhage, and she also got thinner and weaker, the discharge being accompanied by uterine pain and malaise generally.

l
ination. Nothing abnormal could be felt in cervix, bimanually however, the uterus was felt enlarged, with tenderness on pressure, no sign of fixation or invasion of broad ligaments, nor could any glandular involvement be made out.

ration. Uterus curetted and material diagnosed as malignant. Vaginal hysterectomy performed.

oscopic
ination. Uterus measured 4½ inches long, 3½ inches broad at fundus and walls about an inch thick. The entire cavity almost occupied by fungating lobulated cauliflower mass with fine processes the attachment of growth to body stopping at internal os. One part of growth projected in polypoid form into cervical canal.

oscopic
ination. 1. Curetting. shewed glands increased in number, some dilated, others crushed together and abutting with little or no stroma between. In almost all the lining epithelium shews proliferation into 9 or 10 layers and extending beyong gland limits.

The nuclei stain deeply, varying in size and shape, many are vesicular looking, others with much scattered chromatin, one dilated gland seen filled with epithelial cells of different shapes, some staining deeply, others very pale. Much leucocytic infiltration round glands, and free epithelial cells. Note want of method in gland arrangement marked. Several giant cells seen one with 4 large irregular pale nuclei with leucocytes in interior.

ion of tumor. It consists of enormous number of epithelial cells, leucocytes and connective tissue stroma. The interlacing stroma divides the cells into alveolar like collections, great variety in size and shape of the nuclei, many with chromatin granules, others undergoing Karyokinesis as nuclei broken up and definite arrangement of fragments. Degeneration going on in parts, leaving spaces, as if cells had dropped out, probably a fatty degeneration, appearances like cancer bodies at places probably due to same cause. Many deposits of polynuclear leucocytes amongst cancer cells probably causing degeneration as nuclei losing outline, becoming pale and cloudy. Many large blood spaces with contents degenerating and becoming fibrillated. The Stroma contains many round cells, some arranged in lines. A network is present at places containing epithelial cells, and leucocytes, having the characteristic appearances of malignancy, also many daughter cells alongside larger cells, also cells with protoplasm tailed and small nuclei.

Tumor appears from large quantity of cells and sparse stroma to have been quick growing. The number of blood spaces accounts for the haemmorhage.

ction from fundus. Surface epithelium. at places collected into little mounds, nuclei vary in size and stain faintly at places, at parts the single layer extends into several layers of cells with varying staining.

nds. Irregularity in shape and deposition. Epithelium many layered, some cells extremely large. Appearance definitely malignant. Muciod degeneration in one gland (staining yellow). Encroachment of interglandular tissue by epithelial cells, also many leucocytes formative cells and cells with sharp ended or triangular nuclei. Muscular layer not deeply involved, lmyphatic vessels with large pale epithelial cells in them. A blood vessel with some suspicious looking cells amongst blood perhaps washed in, vessel wall looks intact. Blood supply abundant.

All the sectiona are undoubtedly malignant, the muscular wall of uterus is not deeply affected although tumor very malignant and large. This case was diagnosed as malignant by examination of curetting prior to operation.

The following two sections were kindly lent by Dr. Kelly and shew malignant change in Endometrium very markedly - Curettings.

a. Mrs. McLeod Scraping from tumor in Adeno Carcinoma of Body.

pscopic Examination.

No surface epithelium present, but strands of connective tissue forming centres of finger processes with epithelial cells with round, polygonal or elliptical nuclei arranged on either side. Many dark staining areas others very pale, evidently an advanced growth as so much necrosis. Note as approach centre the nuclei have a different shape, looking like spindle shaped sacroma cells, others triangular on cross section, the stroma separating being whorled and wavy. Many pale blood spaces in centre, also thin walled dilated spaces, lymphatic and blood spaces containing debris. In necrosed areas many definite dark staining collections like cell nests. Nuclei almost Star shaped, angles being sharp. In the pale areas the nuclei are breaking up and losing their individual shape and outline, massing together as if due to a coagulation necrosis, especially areas which are well enclosed. No glandular tissue seen. The stroma stains pale, nuclei of elongated, at places the thickened shining network Stroma common in malignancy, also rows of epithelial cells seen.

Note the entire absence of leucocytes, no inflammatory reaction, shews rapid growth, also the great resemblance of the tumor at parts to a spindle celled sacroma. The appearance of the strands of stroma with irregular cells on sides and in collections is very distinctive of malignancy.

b. Mrs. Condry. Section from Fundus in Adeno Carcinoma of Body. Surface Epithelium. Usual columnar layer seen, nucleus a little distance from foot of cell. Proliferation into several layers, some of the nuclei crushed, shape altered, staining pale. Surface cells are proliferating near a depression, if these cells join will form a new gland on surface.

ands. Seen in long section, winding appearance like cork screw. Where glands in cross section, note indefinite arrangement in clumps. Gland epithelium forms several layers at places; complicated figures formed by the vesicular nuclei. Epithelial cells seen breaking through gland wall extending into interglandular tissue, and appearances like cell nests from proliferation in other glands Some of the cells stain faintly. Slight dilatation of one or two glands, but near muscular layer many glands with small lumina with many leucocytes around. Note the encroachment upon muscular tissue with inflammatory cells accompanying. Many glands deeply placed shewing epithelial proliferation, staining faintly in places, at others deep, one isolated gland with leucocytes around, invasion of muscle stroma also by epithelial cells. The glandular arrangement generally is suggestive and extension of

helial cells into lumen of glands with nuclei of different sizes.

ma. Normal appearance, very dense at margin of muscle where leucocytes also densely deposited. Near surface stroma is lax, nothing otherwise to remark.

rks. Often the gland extension into muscle is not pathological, but here extension is of itself suspicious owing to great depth and deep staining of ingrowth. The formation of several layers on surface, the proliferation of glandular epithelium into many

layers and extension into tissue , the indefinite disposition of glands and the variety of staining and size of nuclei all shew malignancy.

Synopsis of Histological changes in Carcinoma Uteri.

mous Carcinoma Cervicis.

Appearances vary according to stage of growth; from commencing hardening and induration merely, with no tissue loss, then gradual disentegration with finally advanced necrosis and pus formation and sloughing of tissue. Histologically examined at first the surface epithelium may be shed and the deeper layers proliferate, papillary growths may invade the deeper structures the cuboidal layer of epithelium forming the front of the encroachment and there may be an appearance resembling the tree roots so often referred to in the cases submitted, by the advancing epithelial cells. The proliferating epithelial cells become closer packed, stain more deeply, contain more chromatin, the nuclei enlarge and a leucocytic infiltration takes place below the growth. Giant cells, clustering of epithelial cells to form Cell Nests and epithelial pearls may be formed from the vesicular nuclei by pressure partly and structural change. Nuclear figures in many of the cells may be seen with increase of cell chromatin. The Stroma becomes infiltrated with round cells mostly derived from the vessels, and a new formation of connective tissue takes place. This new formation of connective tissue or stroma appears to be not a secondary growth, but grows hand in hand with the increase of the epithelium. Other views are that the cancerous growth acts as a foreign body causing irration and thus fibrous tissue

formation. At any rate in the sections submitted where the growth is slow the round cells are in abundance, and if rapid they are fewer in number, so that inflammatory reaction is an element in the production of the stroma. Finger like projections may be formed on surface with the new formed stroma in the centre.

The stroma supports the blood vessels which are usually wide, with the usual arterial and venous connections, and near advancing margin of growth the blood supply is abundant. Where degeneration takes place the vessels are either thrombosed or lumina very small. The nests of epithelial cells become invaded by leucocytes which are seen in some sections lying between the individual cells. The cells degenerate from the leucocytic invasion of nuclei and protoplasm assuming a hyaline appearance Many of the cells are shed and stroma is seen in branching form with empty spaces, with giant cells here and there. Later pus formation takes place on surface, the necrosis below advances, the cell nests become filled with leucocytes with degeneration of epithelial cells and nuclear disentegration

Adeno Carcinoma Cervicis.

Here the growth may commence in the epithelium covering the surface or lining the glands, more commonly the latter.

In the glandular form the epithelial cells proliferate forming the "teat like" projections referred to in the descriptions of slides. unite across, forming smaller glands which may abut on each other without any intervening stroma or may have a scant amount.

In many cases a dilatation of some glands is the first change noticed, this may then be subdivided into many smaller new glands by proliferating epithelium, which may form buds uniting across, the dilatation of the gland causes the epithelium to be flattened, or the gland cavity may be entirely filled gradually by the epithelial lining proliferating into multiple layers. The proliferation is often simulated by the direction gland is cut in section several layers appearing but in the malignant condition the cells are multiform, oval or polygonal, their nuclei usually stain variably, as a rule faintly, unless at margin of growth. they vary much in size (an important feature) and many of the cells shew nuclear changes. As a rule the glandular formation is still apparent in places, but where lumina filled with cells the resemblance to squamous carcinoma is great. The extension in adeno carcinoma is in the form of hollow cylinders or branched gland prolongations the squamous form in the form of branching ingrowths like tree roots. Also in glandular cancer epithelial pearls are never found and the growth disentegrates much more slowly, and usually some parts shew the glandular type.

The stroma shews a round celled infiltration, especially along the advancing margin the slower the growth the greater the inflammatory reaction. Many localised collections of leucocytes are seen in clumps, often deep staining and this tendency appears to be much more marked in malignant conditions than in cases of simple endometritis, and the collections in areas far apart should encourage careful search for possible malignant conditions. This rarifaction andfibrillation of the stroma with spaces between containing cells, is a common feature in the specimens submitted.

c.
o Carcinoma of Body.

The changes may take place in the surface epithelium or in the gland. In the former the epithelium on surface at places may form one or two layers of cells deep causing little mounds of epithelium to be found, these mounds at first have no stroma, but later Stroma forms up the centre with small capillary vessels. Two epithelial mounds may form a new gland on the surface by proliferation and junction, and this new gland formation may be considerable. The epithelial cells shew marked variety in size and shape and the staining at parts may be faint and in other places very largedeep staining nuclei may be present. The entire surface almost may shew irregular branched outgrowths and new gland formation, or the epithelium may merely shew proliferation into several layers of cells of various sizes.

Where the glands are affected as a rule the first change noticed is the increased size with tendency to faint staining of epithelium and proliferation into many layers. At other places the glands may be grouped irregularly in an atypical fashion, and much new glandular formation may take place.

Complicated figures appear in the glands in section from the gland epithelium proliferating from sides, and glands may be scattered irregularly through the tissue in various directions without any definite system, clumps of glands with proliferating epithelium appearing deep in muscle away from ordinary position of glands.

Complicated twisted formations in glands especially if associated with dilatation are always suspicious and different curettings should be examined. The nuclei of the gland epithelium usually show disparity in size, and irregular in shape, and at places may stain very deeply, cells extend into interglandular tissue often and nuclear figures are seen. Giant cells seldom seen in this form. Papillary growths with central supporting stroma and multilayered epithelial cells often seen.

The stroma shows cells with ordinary spindle shaped nuclei contains many round cells, especially abundant at growth margin and if entension has taken place into muscle an abundant leucocytic infiltration is found there. As the morbid process advances the surface cells undergo necrosis and infiltration by round cells, the glands undergoing a similar necrosis, the cells losing their individual outline, and the nuclei staining faintly.

IV. Clinical Considerations in diagnosis of malignancy from cases noted of carcinoma.

Age. Youngest is 32. Oldest 65, See Tabulation.

Whilst deserving of consideration, age of little account taken alone, also inexact as probably disease existent for some time previous to symptoms being prominent. Usually cervical affections about menopause, fundal after menopause. Here Halley (32) fairly early. Seven of the cases are under 40 the age after which many think cancer usually commences, or think it is rare before that age. Ganghofner reports case at 8, Baldy at 17.

Heredity. Enquiries unsatisfactory, cause of death unknown or particulars unreliable. McNab and Semple maternal heredity. Disease is fairly common amongst dispensary patients amongst whom existence means a struggle. Cullen mentions three cases of sisters who died od cancer as well as father. Cullen found hereditary history in 19%. A cancerous relationship whilst a consideration, yet each case to be weighed on its own merits.

c.
truation. In cases here given as a rule regularity up to time of illness In cervical affections one would only expect this, cervix not having to do with menstruation so usually normal until menopause. Halley who developed disease at 32 had mennorhagia for a year before. This is common in fundal affections and this increase often prior to any other symptom. Halley had also alternation with scanty menstruation and irregularity. Therefore disordered menstruation above the age of 30 should demand consideration.

Ruge and Veit state that menopause is delayed in those who become subject to carcinoma of the body.

d.
nancies. At term. All are multipirae. Seven of them had miscarriages, this rather above the average percentage. Malignancy in a nullipara is rare, in cases of such quoted, usually some previous instrumental treatment. Cancer is apt to develop in scar tissue or where a continuous ~~irratien~~ irritation as where the cervical lips are everted and coition or locomotion causes irritation, a favourite seat of commencement is in the part of cervix which has been lacerated by forceps.

e.
charge. In 8 of the cases this was about the first symptom complained of. 1. Nature of discharge. Usually bloody or blood stained but may be yellowish and watery (Scott Beckett) this sometimes through whole course resembling an ordinary leucorrhoea, blood however sooner or later generally appears, this attributed by patient to prolongation of period, and if after menopause to a return, and mostly thought lightly of. In Beckett's case note that the discharge was present for a long time, remained leucorrhoeal all through and although later developed a bad odour, this condition is often found due to want of cleanliness especially in poorer patients. The duration of pain 10 years also misleading. Here therefore without examination of a wedge of tissue positive diagnosis impossible.

Bloody discharge present also in simple cases, (Nicol) (Endometritis) coming on where the other symptons present for a time, also suspicious or bloody discharges (See Allan, fibrous change, and Ferguson placental remains) in all of which microscopically no malignant change detected. A sloughing polypus may cause a discharge impossible to distinguish from malignancy.

2. Quantity of discharge. No absolute guide as we have seen this may be scanty (Beckett), sometimes it is profuse, the latter we would expect because in malignant change there are more blood vessels the tissue is friable and a slight cause may produce haemmorhage, and again in Adeno Carcinoma there being an increase in the epithelial cells which normally secrete fluid hence more discharge

3. Time of appearance. May be very late when considerable involvement has taken place (Morgan) This noted especially in cervical affections as a rule only when ulceration that discharge appears prominently. In squamous affections also before any blood appears extensive involvement may have already taken place (NcNab). Usually however discharge appears fairly early which as in McNab's case may be watery and odourless. A yellow or cloudy discharge often foul and irrating, later blood stained or blood stained, then haemmorhagic is common, (Miller Maneary), or a trifling discharge and then severe flooding suddenly.

. Accompanying pain. - May or may not be present (See table)

From the great variations the consideration of discharges therefore short of microscopic examination might easily cause a fallacious diagnosis.

f. Haemmorhage.

In two of the cases(McNab & Morgan) flooding was the initial symptom. In the case of Morgan it was the first indication of any trouble and bleeding was continuous and complained of nothing else, on enquiry found had vey slight leucorrhoea for some time. Floodings may be at intervals for months (Semple) or may never be present or be a very late phenomenon when operative interference useless. (McNab).

Bleeding after coitus whilst significant is a symptom not limited to cancer (See Monteith Endometritis) Again haemmorhage may be present in other conditions and the history may quite well be such as we might have in malignancy, and local examination fail to decide. (See Hanley Glandular Endometritis).

Bleeding was also present in Ferguson where an abortion had taken place and remains left, also in Cochrane with submucous myoma and this may be very profuse. In the cases noted the bleeding was worse on movement or exertion or coitus, blood being often found after a P.V. examination on finger, due to the delicate processes being broken. Notice that the bleeding in fundal affections usually less than in cervical affections, partly because blood supply less, and also on account of situation protecting.

(Halley had no bleeding, Adeno Carcinoma of Body.)

Here again no distinctive sign of malignancy in haemmorhage.

g. Pain. This was the initial symptom in Semple and Halley, Adeno Carcinoma of Cervix and body respectively.

In Monaghan and Gillan, discharge accompanied the pain,

As initial complaints, in the other cases pain was not prominent.
Character and situation.- variable, early there was merely a feeling of uneasiness (Beckett) Burning Vaginal pain, (Halley). In side, back, thighs, ankle (Wallace). May have no pain, (McNab, Miller) or only slight backache and bearing down when encroachment extending to pelvic wall. Pain is prominent owing to nervous trunk involvement (Wallace) this very severe often because of Sacral plexus irration or pressure, in advanced cases lower abdominal pain present commonly. Typically pain ia bearing down, tearing or stabbing referred to lumbar and sacral regions and radiating down legs, and into lower abdomen.

2. Duration and time of appearance.

Pain may come on and last for a definite time. intermittent, (Gillan) or only at Menstruation (Morgan) or perhaps continuous. In cancer of cervix pain is often absent so long as limited to there and only begins when extension to body or cellular pelvic tissue. In cancer of body, pain appears early, probably because of sensitiveness and contractions being set up through retention, and when obstruction removed and discharge escapes, relief follows. Champneys states pain commoner on left side because that side of nervous system more sensitive. In many of these cases abdominal tenderness on palpation was noticed. Pain therefore as a symptom cannot be depended upon, it may be absent and its situation is so variable, also its presence in so many other uterine conditions apart from malignancy, and the fact of its seldom being a very early symptom make it of doubtful value in the early diagnosis of malignancy. The pain is stated to be partly due to pressure or later to a neuralgic state due to anaemia and toxine absorption,

h.

exia & Wasting. This is really not a consideration in the early diagnosis of malignancy being a late phenomenon usually when there is no doubt from local examination and the symptoms, of the presence of malignancy. Many of the Cases cited had lost weight, but in only a few was the cancerous cachexia present and this even although growth had extended beyond operatic interference. Many complained of losing weight and pallor from haemmorhages. It is well known that most patients are well nourished and have good appetites although malignancy present and even fairly well advanced, at other times in early cases patients are thin anaemic and cachectic. Klemperer attributes the cachexia to increased nitrogenous excretion from experimental evidence. A certain amount of cachexia is due to the anemia produced by the prologed uterine discharge, and from auto intoxication.

Micturition and defaecation - only affected usually in advanced cases, therefore wont discuss.

j.

l Examination. As a whole the cases noted are too far advanced for one to have very much doubt after a local examination, as a rule stony hardness or ulceration or bloody malodorous discharge on examining finger. However in cases at an early stage with indefinite clinical characters, it is quite easily understood that the commencing changes are such as could not well be appreciated by the finger, and here curetting or snipping is necessary for diagnosis by microscope.

In such cases as Cowie, Rennie, Wilson and Bennett where local examination and clinical signs misleading microscopic examination is the only basis for a positive diagnosis. In the case of Cowie who had reached the menopause, Aged 48, who came complaining of floodings, loss of weight and frequency of micturition, the vaginal examination revealed an expanded irregular portio vaginalis; the cervical tissue being much denser than usual with enlargement of uterus. All these suggested a probable cancer but microscope revealed no malignancy. In Beckett's case on first appearance, there was pain of ten years duration, tendency to mennorrhagia, yellow discharge between memses, which had been malodorous for some months, Per Vaginam. - The portio was irregularly enlarged with some contraction in left broad ligament, the symptoms excepting long period of pain, and the local examination making malignancy be suspected. Microscopic Examination revealed no malignancy, but appearance of section being suspicious suggested further examination later, and on return the beginning of malignant change was seen in epithelium. Similarly in Rennie and Wilson the local signs Per Vaginam were suspicious owing to hardening of cervical tissue and microscopic examination again cleared up the matter shewing conditions of fibrous change and myomatous nodule respectively (See details of cases).

I might mention that in Cowie's case preparations were being made for hysterectomy, the operator being almost certain that malignancy was present, but had the tissue first examined in the usual routine and found the conditionsto be a simple one.

If to experienced fingers there is at times an element of uncertainty, how much less is the practitioner who only examines an

occasional case able to appreciate anything but gross changes. Local examination, therefore, whilst a valuable adjunct in formulating a diagnosis falls short often and a more satisfactory line of enquiry than the snse of touch is essential, which in most individuals is very variable and unreliable. Few general practitioners could appreciate the value of Spiegelberg's sign (compared to feeling of wet indiarubber) in early cancerous formation, to do so requires very considerable training of a sense which however cultivated is often liable to error.

k.
ndular enlargement.

In comparatively few of the cases could glandular involvement be made out, this occurs in later stages, not so early as some suppose, extension occurs more by continuity of tissue and is especially rapid where adjoining tissue loose. If glands affected the chances of successful operation are a minimum, although occasionally in enlarged glands, fibrous change merely can be detected with no evidence of malignancy.

V. Importance of early Curetting or snip from Cervix with a view to early diagnosis of malignancy.

As is seen from consideration of the Cardinal clinical symptoms, Discharge, Pain, Haemmorhage etc. that none of these individually is sufficient to base a diagnosis upon, and considered collectively there is often an element of uncertainty and doubt in early cases presenting undistinctive features, the conclusion is evident that no commencing case can be positively diagnosed short of microscopic examination, when any glandular or epithelial chnage can be noted.

Negative examination of course is not of equal value with positive, as may have missed the part affected in the particular section and merely have the adjoining localised inflammation, hence much safer to examine several sections.

Simplicity of securing specimens.

To secure a snip from cervix local anaesthesia with cocaine is sufficient, for curettings a general one is required. Thoroughly antiseptic precautions are of course imperative.

The cases seeking advice at the public dispensary who are affected with malignant disease form a considerable array, the squamous variety being fairly common. In the list of malignant cases in my series the fact that almost all were too late for radical operative treatment is singularly impressive. Curettage merely being done as a palliative measure. Some were seen by medical men previously and many were locally examined by them.

From statistics comparatively few die as direct result of operation but found that a certain number have recurrence, this in majority of these cases takes place in a few months and usually due to late diagnosis. Early diagnosis and operation averts this also no time for metastasis. Cases are satisfactory if got early, results being better than in breast cancer. One case I know of in an old lady who had hysterectomy performed 7 years ago for a very decided malignant tumor of fundus where a curetting for microscopic examination was got early is now alive and well. Statistics of recovery in squamous carcinoma after operation range from 20 - 30%, in adeno carcinoma of body as many as 70%, but in glandular cancer of cervix the prognosis is graver being less than in squamous.

The fact of another outbreak after years may be due to a new appearance in a likely patient for development of cancer.

ognosis. In the event of a curetting or snip being found malignant, one may form a fair idea by the nature of the growth, the amount of stroma and extent of inflammatory reaction, as to rapidity of growth and comsequently the probable length of time the affection has been present, the probability of involvement of other structures through the lymphatics and thus the prospect of a recurrence within certain limits.

ortance to General Practitioners.

The question of the early diagnosis of malignancy is all important in the interests of his patients, and it should be made a rule where a patient over 30 is consulting to enquire particularly as to menstrual functions not to be content with the reply that she is regular, but to enquire for any abnormal conditions of menstruation, floodings, discharges, pains, and where any of these present, to go into case minutely with a view to determining causation. The great majority of practitioners treat these in very light fashion indeed and even when a woman comes complaining of menstrual disorder attended with bleeding or discharge, a prescription is given off hand or a douche ordered without any local examination being proposed Treatment of a vaginal discharge in a married woman above 30 should never be undertaken without a local examination and if necessary a curetting or snip from the cervix got for examination.
(See case Mrs. Miller advised to wait and douche ordered, result being too late for operation.

Once a local examination has been made, and any change having taken place in the cervix in the way of increased density or if history suspicious, a portion should be excised for examination. If no physical conditions can be made out which would account for the symptoms present then wise to curette for diagnosis, making certain that all parts of fundus and cervical canal are scraped, which should be done in a systematic fashion, laterally and antero posteriorly and at angles of tubes so that no possibility of missing a part where any malignant change.

Microscopic examination in a doubtful case is of as much or more inportance than the examination of a sputum for tubercle, in our present stage of knowledge regarding cancer, and can hope for results in an early case quite as gratifying.

A careful differential microscopic diagnosis is necessary, which can be secured by sending the specimen to the pathologist the practitioner as a rule not being versed in the early carcinomatous changes. The result of course must be considered in conjunction with the consideration of clinical phenomena, and these together will seldom leave much room for a doubtful diagnosis. Some say where any doubt it is wiser to go by the clinical considerations, but I am of the opposite opinion.

The more common cases to which the practitioner should heed are, 1. In women who having reached the menopause, have any commencing vaginal discharge, no matter how simple or harmless in character it may appear, any histories of floodings or any commencing pelvic pain or progessive weakness, Emaciation or cachexia, without apparent cause, a local examination should be made, followed by a curetting

or cervical snip for diagnostic purposes.

2. In women above 30 who have had children (carcinoma in nullipara being rare.) who have symptoms as above mentioned or any menstrual abnormalitywhatever, whether scanty or profuse, which local examination fails to explain, in cases of supposed miscarriage where a bloody discharge persists, and in all cases where local examination reveals a cervix with increase of density it is much wiser to curette and remove a wedge of tissue for examination without delay, and in the event of any malignant change operation can be undertaken immediately with reasonable hope of cure.

- - - - - - - - - - - - - -

Microphotographs of Uterine Curettings and of wedges from cervix.

John D. Young

Photo. 1 Shows surface epithelium of vaginal portion of cervix with papillae. Papillae to right are normal. To left near edge an apparent downgrowth of one papilla. Slight irregularity of columnar layer from obliquity and thickness of section, the cells being slightly distorted but stain normally & equal avid (high power shows these points) A few leucocytes below projection normal stroma with blood spaces below. — Non malignant but suspicious at first sight on account of apparent papillary projection.

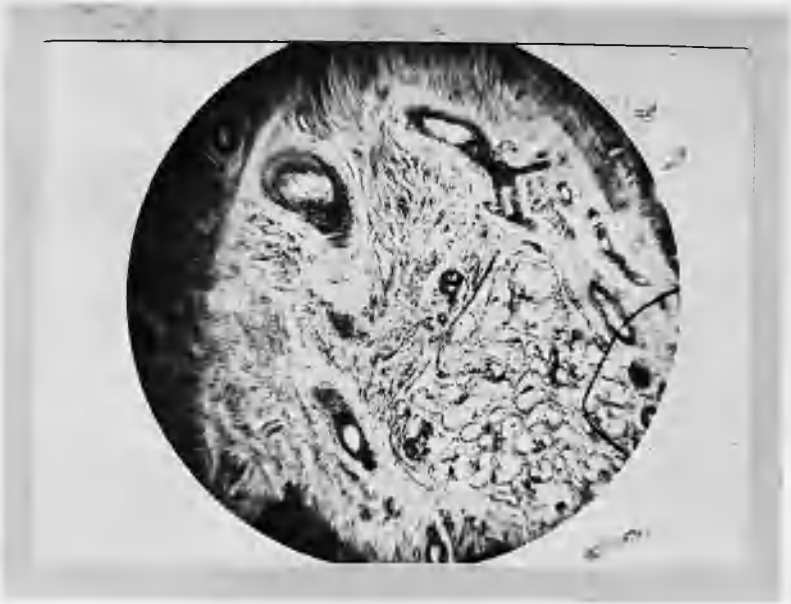
Trachelitis

Photo. 2 Section of Cervix showing hypertrophy of cervical glands. Three dilated glands or Nabothian follicles seen. One to left has its epithelium flattened into cuboidal form from dilatation. The others have high columnar epithelium, nucleus near cell foot, walls crenated. Leucocytic exudation round about glands also in stroma which is very vascular and cells dense. Open mouths of many vessels seen.

Cervix

Photo 3. Section of Corneal Nodule - Section mainly composed of muscular tissue. To right are seen the lumina of many glands cut in cross section - a new gland formation. The epithelium lining is single layered, high columnar, nucleus at foot of cell and staining is normal. Blood supply plentiful, some thickening of vessel walls apparent. Section shows no malignancy but new gland formation is suspicious.

Wilson



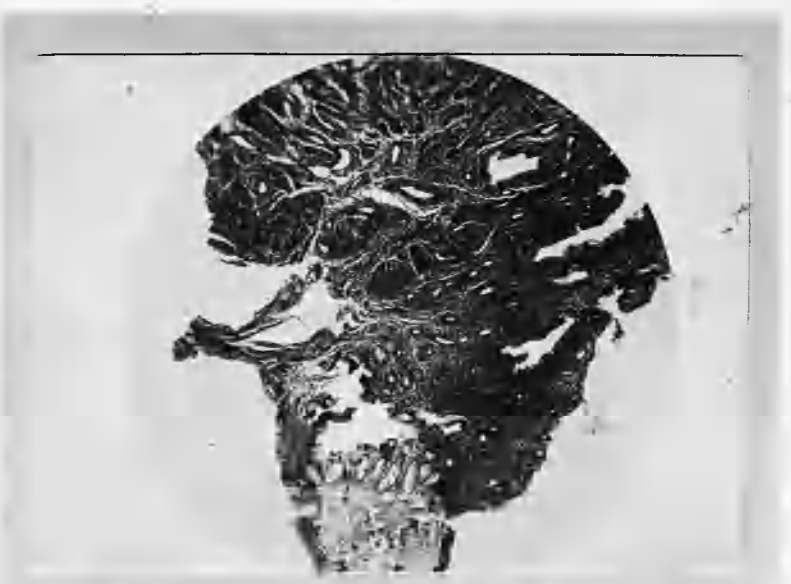


Photo 4. Section of cornea showing new gland formation. Orifices of glands seen cut across, those in the middle (broken up) is branching & many of the lumina are due to section of branches. Others are new formed, stroma between fresh. Considerable leucocytic infiltration around. Epithelium lining is single layered high columnar, nucleus at cell foot staining faintly but rest shape typical. In upper part are blood spaces & ordinary corneal stroma. Glands do not show any malignancy but clumping into one part is rather suspicious.

Cowie

Photo 5 - High power photo. of last section, showing new formed glands with considerable mucus in interior, and infiltration of large mononuclear leucocytes around. At upper part on right a large branching gland is seen, epithelium being single layered and of usual cervical type. Dense connective tissue stroma with many venous spaces seen.

Cervix

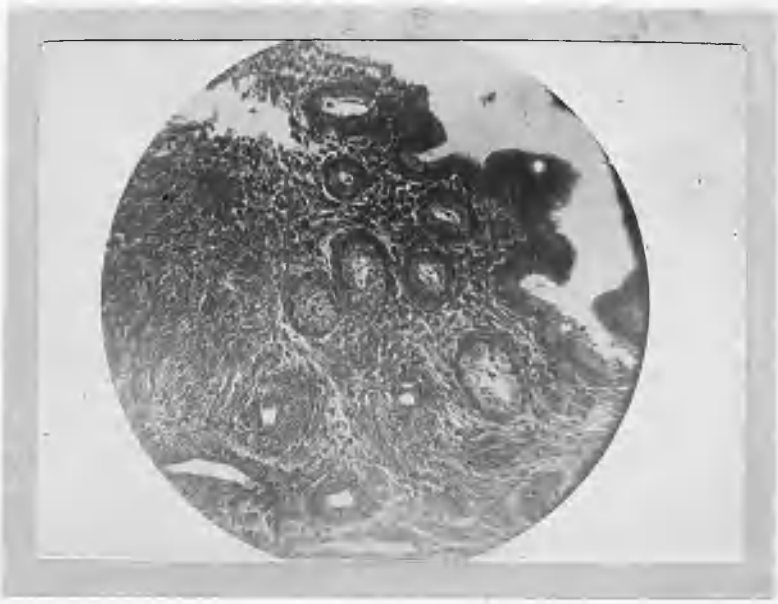


Photo 6 Section of Vaginal part of Cervix. Squamous epithelium + papillae in cross section. In middle one papilla of them apparently ingrowth, but integrity of lower columnar layer, no alteration of cells or stroma, in the underlying tissue. To right is a rounded mass of deep staining cells, smaller than epithelial and regular in shape - these are inflammatory cells - large mononuclear leucocytes. Note definite localisation. Below is a branching cervical gland with ingrowing buds, epithelium covering is single layered and of simple formation. The white portion is due to a tear in section. Below surface a leucocytic exudation. Appearance non cancerous but localised epithelial adhesion + new gland formation suspicious

Beckett

Photo 7 Three new formed glands seen and part of fourth. Epithelium is high columnar, nucleus at cell foot, and forms a single layer. Connective tissue cells are arranged around gland in centre, also some large deep staining nuclei in tissue between glands. Many of these are swollen connective tissue cells.

Beckett

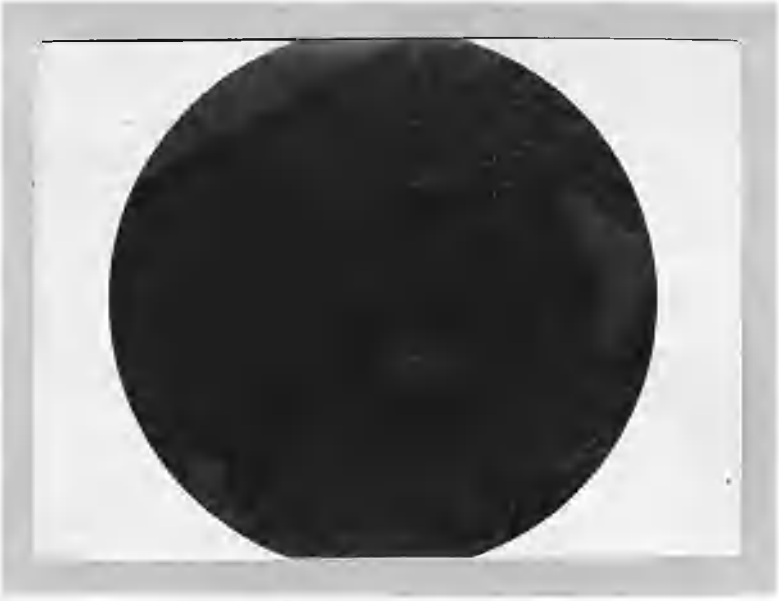


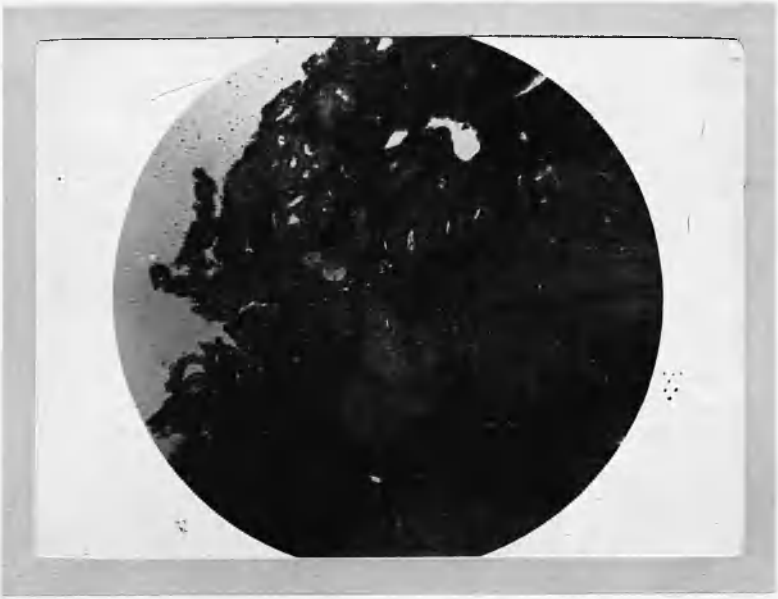
Photo 8 Curetting from Body of Uterus. - Three uterine glands with small circular lumina, one or two are dilated. Epithelium lining is single layered and regular.

Beckett Considerable leucocytic infiltration between glands which are slightly increased in number here. — Glandular Endometritis -

Photo 9. Curetting from Body of Uterus. Many blood vessels of upper part seen lying very closely together, walls are thick & are undergoing organisation. The lighter areas are where fibrous transformation has taken place. The darker are from Glandular Proliferation.

Allan

Note entire absence of uterine glands. The fibrous tissue as it advances breaks up into septa. — Inflammatory & fibrous tissue change. —



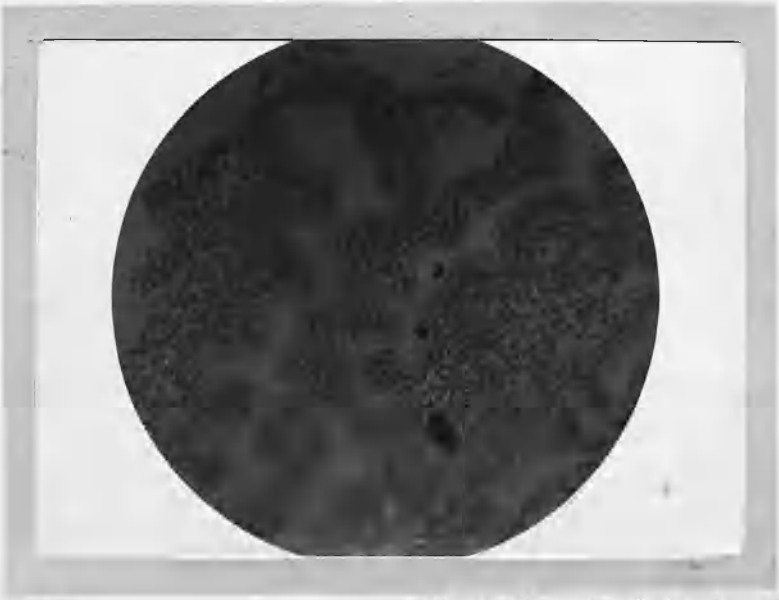


Photo 10 Curettig from case of purulent Endometritis. Showing glandular hyperplasia. Two large glands in centre with projections from sides forming the so called "saw teeth" processes, caused by the gland convolutions. Glands are lined by single layer epithelium which also covers the projections, nucleus are equal size situated at base of cell. The stroma contains many round cells and a certain amount of stroma is always between the glands.

Gray.

Photo 11 Curetting from fundus - shows small polypoid outgrowth with surface epithelium of endometrium covering all the way which is triple layered + regular. Glands where they appear are irregular in shape + distribution. Part to left shows dense inflammation between glands

Whiteside Note absence of fluid on surface or proliferation of epithelium, points which would have suggested malignancy

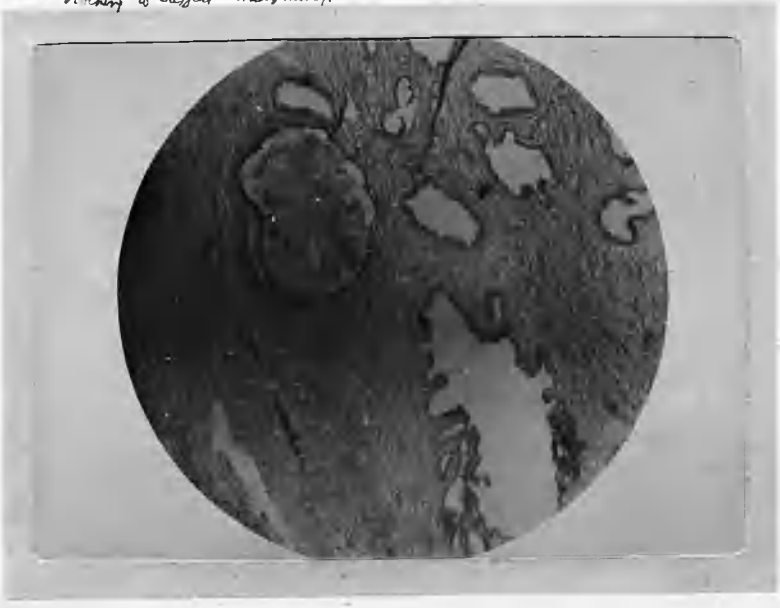
Photo 12. Section of placenta showing placental villi

A congeries of small vessels seen in cross section, veins or venous sinuses amongst these are larger vessels with thick walls. the arteries, the connective tissue being more abundant. - A small amount of connective tissue surrounds the vessels throughout

Glandular Atrophy with increase in number of glands.

Photo 13. Curetting from fundus. Two very dilated glands seen, the lower shews sections of the gland pockelings, giving appearance of new gland formation. Lining epithelium is normal being single layered + fairly high in lower gland. In upper gland there is a large collection of colloid material in lumen, and many leucocytes are seen around. Epithelium at parts is multiple layered but cells equal sized, due to direction of section. Nothing to suggest malignancy.

Ferguson



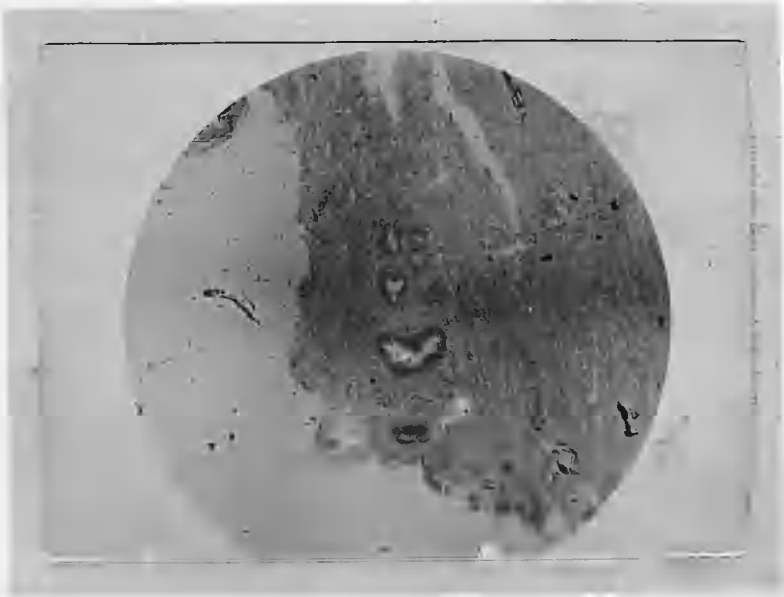


Photo 14. Glandular Atrophy - from same section as above. Only a few small glands are seen, the lumina of which are very small. The connective tissue cells and leucocytes are however abundant, and the new formed connective tissue is obliterating and replacing the glandular elements.

Ferguson

Photo 15 Placental remains The tissue has undergone change from retention in uterine cavity.
The outlines of the placental villi are seen cut in cross section
Adams A considerable amount of canalised fibrin surrounds the villi
with venous sinuses distributed throughout.

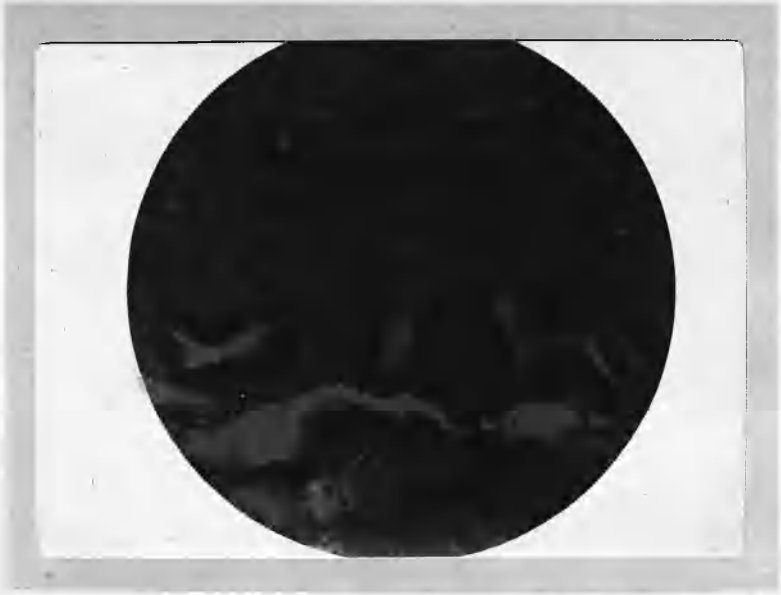


Photo. 16. Curetting from Body Four uterine glands seen in cross section. Space below is
due to a tear in section. The arrangement of stroma here is rather
Cochrane suspicious of malignancy, the cells being arranged in rows with small amount
of connective tissue strands separating. The cells are formative cells, swollen
connective tissue cells and leucocytes

Photo 17

Wallace

Cordrome

Submucous myoma The glandular tissue is seen suddenly merging into muscular tissue.. The glands are irregular in shape and distribution, the epithelium lining being single layered and nuclei regular in size and shape., the glands also are increased in number and shew a tendency to clumping. A few venous spaces here & there. The surface of section shews irregularity and some large deep staining cells are seen there appearances suspicious patient asked to return

18

Photo 18

Hanley

Glandular Endometritis with hyperplasia. Many dilated irregular empty glands seen, the edges of glands shew the "saw tooth" processes to a limited extent. At one or two places these projections meet forming the "bridge processes". With high power the epithelium is seen to be single layered and columnar but nuclei equal. Stroma is lax where glands abundant, and dense where there are fewer, cells containing considerable number of leucocytes many dilated capillaries. Considerable blood spaces are seen. appearances are not suggestive of any malignant change

Photo 19 Squamous Carcinoma Cervix - Squamous epithelium seen on surface. In upper portion of photo an increase in thickness is seen due to a broad papillary projection. The lower columnar layer is seen to be broken up, the nuclei being of varied size and shape and staining deeply. The leucocytes are arranged in groups in vicinity and in stroma generally. The stroma is dense, contains many epithelial cells and lymph spaces. This section does not show the usual localized deep projections of single papillae, but appearance of columnar layer alone shows malignant change.

Wallace.

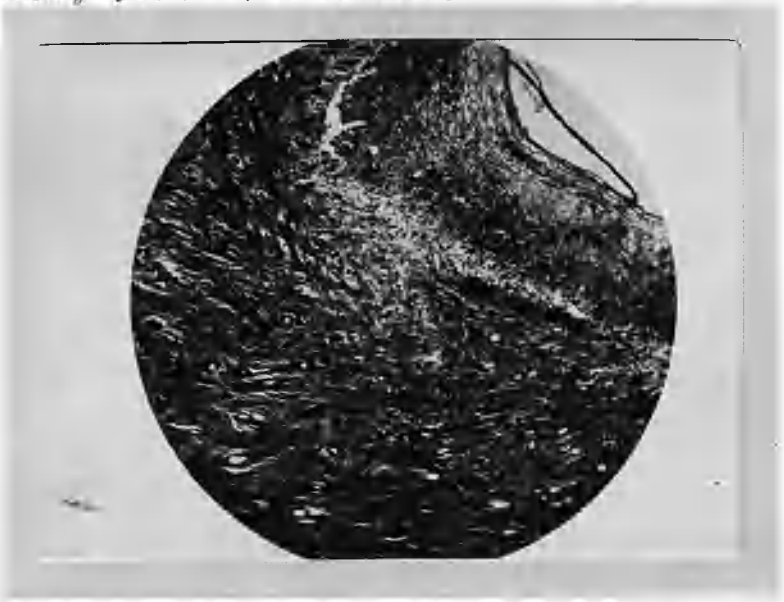


Photo 20. Squamous Carcinoma Cervix - Shows malignant cells in stroma. The thickened cancerous stroma forms a network and in it are large irregular deep staining epithelial cells. Many of the spaces are empty as if the cells had dropped out. - Section is characteristic of malignant change.

Wallace

Photo. 21. Squamous Carcinoma Cervix. Upper portion represents vaginal surface, the squamous epithelium to be seen, it being replaced by a dense deposit of leucocytes and small epithelial cells, which stain faintly and are evidently a necrotic change is going on. Below two dark staining columns are seen the upper one being in connection with epithelial surface cells showing its origin - an infiltrating cylinder of cancerous cells. The lower is an island of cancer cells forming a "cell nest" Stroma around contains many leucocytes and epithelial cells. Bundles of large round fibres. Many blood spaces all around.

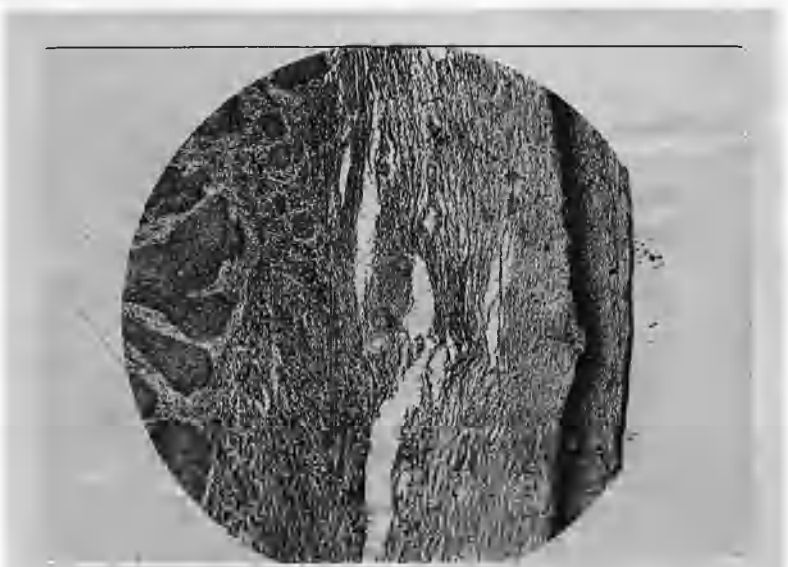
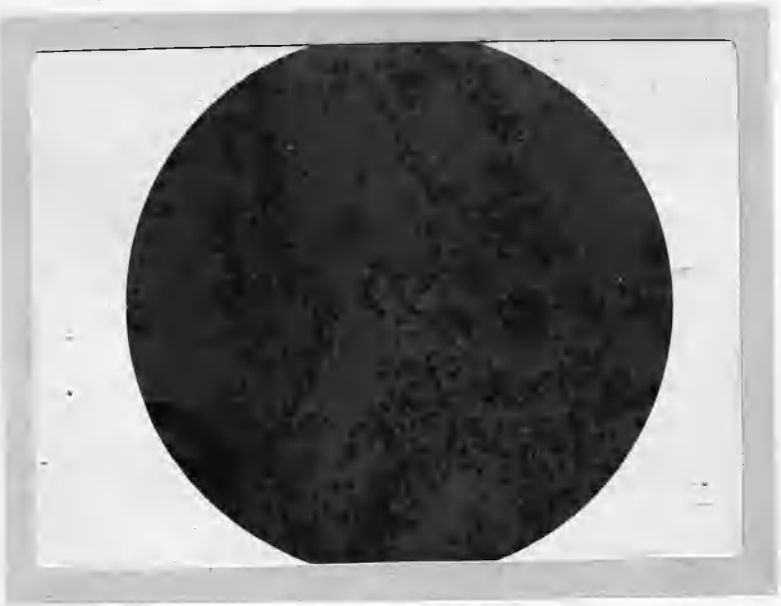


Photo 22 Adeno Carcinoma Cervix Starting from right to left four zones are seen.
1. Squamous epithelium - intact - no dipping of papillae
2. Thin band of normal stroma.
3. Inflammatory zone. Many cells not vesicular nuclei, many deep staining and shrunk and disparity in size. Many are probably small epithelial cells + leucocytes.
4. Cancerous branching columns of cancer cells, nuclei of varied size + shape, at places resembling the alveoli in squamous carcinoma. The glandular type can be seen in the smaller masses also - characteristic malignant appearance.

Morgan.

Photo. 23 Curettings from Body of Uterus. Shews high power. Large pale staining irregular epithelial cells in clusters with chromatin granules distributed throughout the nuclei, some swollen connective tissue cells here and there. At lower left corner a portion of a gland seen lined by several layers of epithelium, the nuclei of which stain deeply and shew diversity in size and shape.

Morgan



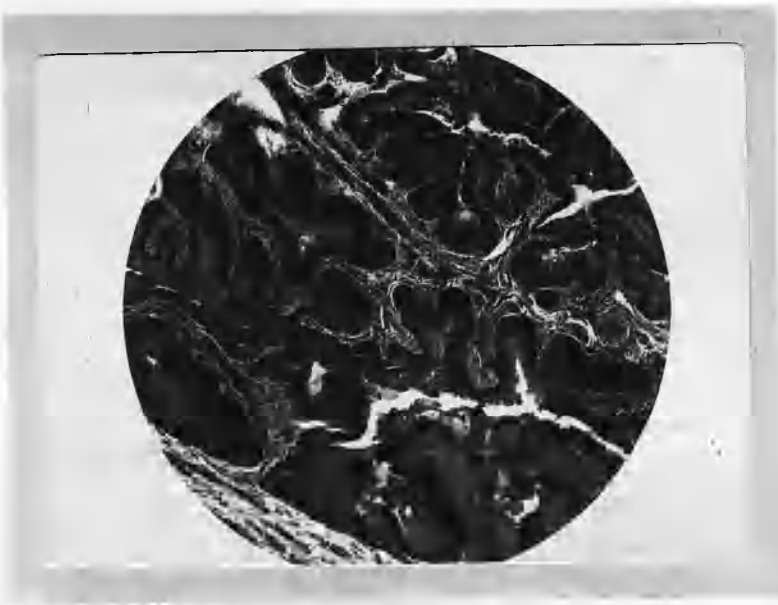


Photo 24 Section of Fallopian tube in adeno Carcinoma of Cervix.

Morgan Shews glandular hyperplasia, the various windings being covered with several layers deep staining epithelial cells. Many cells are also seen in the projecting portions of the tube lumen. In addition to the cells covering the projections, many large irregular pale staining epithelial cells with chromatin granules which tend to crowd the supporting tissue, decidedly malignant. Fibrous tissue from a papillary glandular portion of Uterus. Interesting as would [illegible] stated that tubes are rarely affected in cervical adenocarcinoma

Photo 25 Adeno Carcinoma Cervix - Below spaces are seen formed by degeneration of epithelial cells, filled by colloid material in form of network, between the spaces are a number of epithelial cells. Connective tissue stroma surrounds all. At upper part of photo a large collection of malignant cells seen with characteristic stroma having apertures for cells. Note the glandular type is reproduced. Spaces in centre - Around are many large deep staining mononuclear leucocytes and some epithelial cells of various sizes.

Gillam

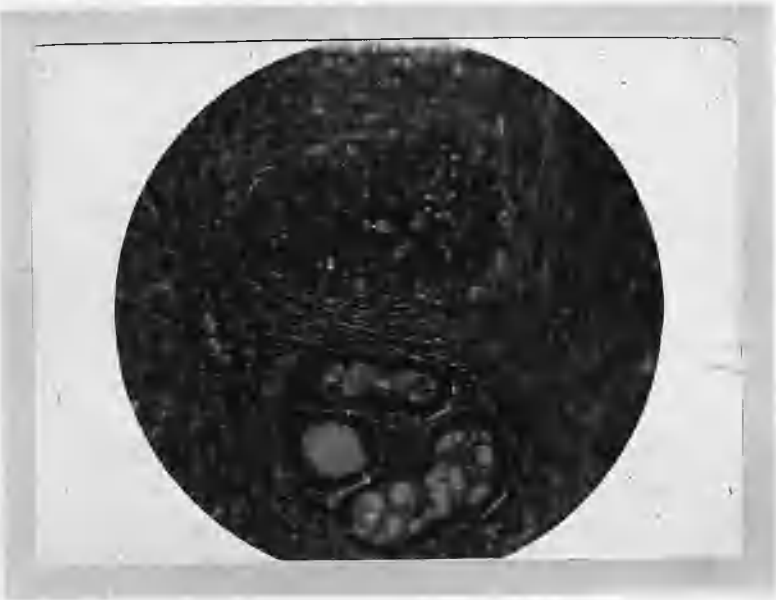


Photo 26 Adeno Carcinoma Cervix - Type columnar epithelium seen at upper part - papillary Portions epithelial in arrangement. Below are seen many deep staining areas which are degenerate of cancer cells scattered indefinitely. Note glandular type with spaces between.

Gillett The nuclei of the cells show the various polymorphism, and many leucocytes in the vicinity around the collections. The stroma is fairly dense has many vessels and is fine reticulum. Epithelial cells in the white spaces seen are blood spaces.

Photo 27 Adeno Carcinoma Cervicis. - Section taken where growth more advanced. Upper portion shows cancerous collections resembling the alveolar spaces in squamous carcinoma. The malignant cells here stain more faintly than in the more virulent & have a very small amount of stroma separating. The lower half of photo shows the earlier deposits of cells in gland like form, these are seen as small rounded deep staining collections, having plentiful stroma between and many leucocytes. Blood spaces not abundant here. - A very malignant picture.

White

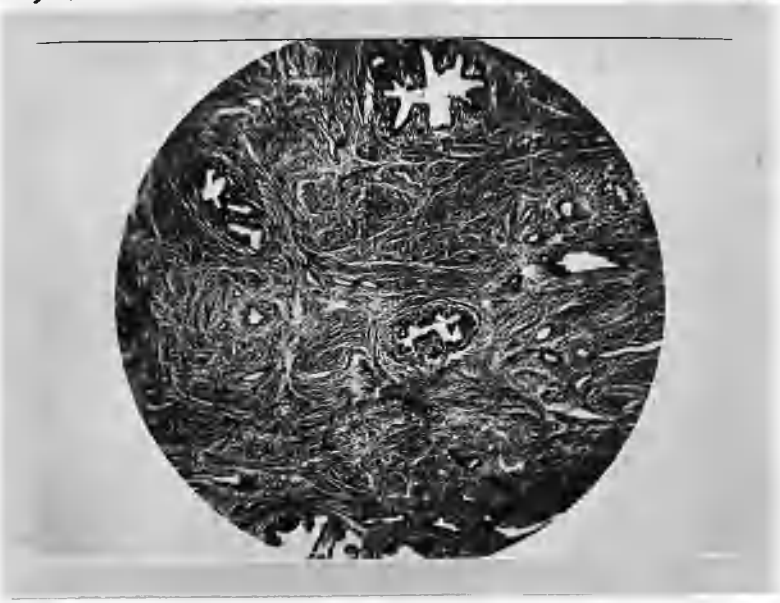
Photo 28 Adeno Carcinoma Cervicis - Photo from Section at Junction of cervix & body

White

Shows mucous surface with stroma dividing into strands, enclosing enormous numbers of deep staining epithelial cells. The nuclei are varied in size and shape. To the left is one of the endometrial glands lined by several layers of epithelium with debris in lumen.

Photo 29. Adeno Carcinoma Cervix - Shows gland formation in muscle. Several little glandular collections with leucocytes around seen. The lumina of glands are irregular in shape and lining epithelium is several layers deep atypical, nuclei vary in size and are deep staining. Rest of section composed of muscular fibrous tissue with blood & lymph spaces throughout. Glandular extension here is not physiological, as the wide distribution, the several layers of lining epithelium and the character of the nuclei of same show malignancy.

Semple



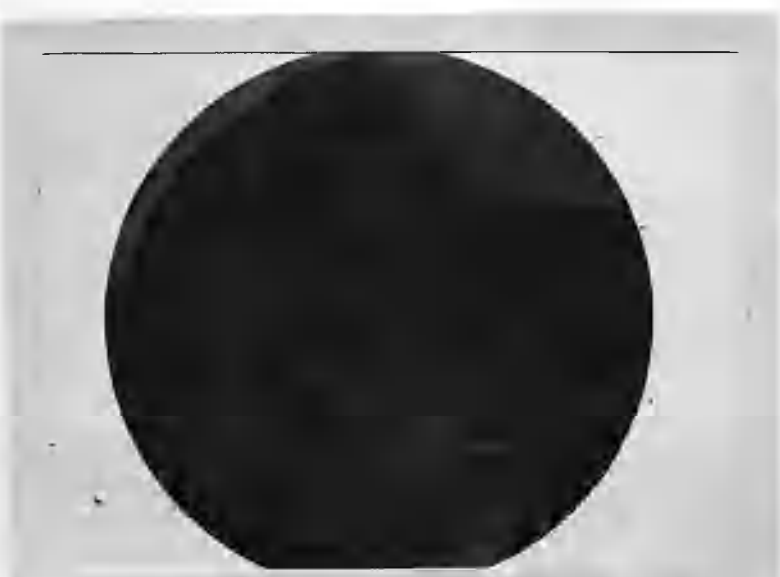


Photo 30 Adeno Carcinoma of Cervix. - Shows apparent proliferation of atypical epithelium. Enormous development of stroma, due to a fold in the section. The tissue columnar layer is regular in size and staining, a few leucocytes are seen along lower edge of epithelium. At other parts several layers of epithelium at places. At other parts a dilated gland is seen with a single layer of epithelium at places. At other parts several layers with nuclei huddled together and of varying size. A large blood space seen, curette has injured other parts. Stroma is lax and contains a few leucocytes. Appearance suggests a squamous carcinoma really a glandular carcinoma

Semple

Photo 31 Adeno Carcinoma Cervicis. Shews atypical glandular formation + hyperplasia of glandular structures. Dilated gland seen to right containing debris from curetting. The epithelium in places forms several layers, in a few the nuclei shew a slight variety in shape but mostly regular. Other glands distributed irregularly throughout field, no method in deposition. Many leucocytes in interglandular tissue. From the appearances mentioned could not say malignant but hyperposes shows many large epithelial wandering cells in interglandular tissue shewing malignancy

Semple.

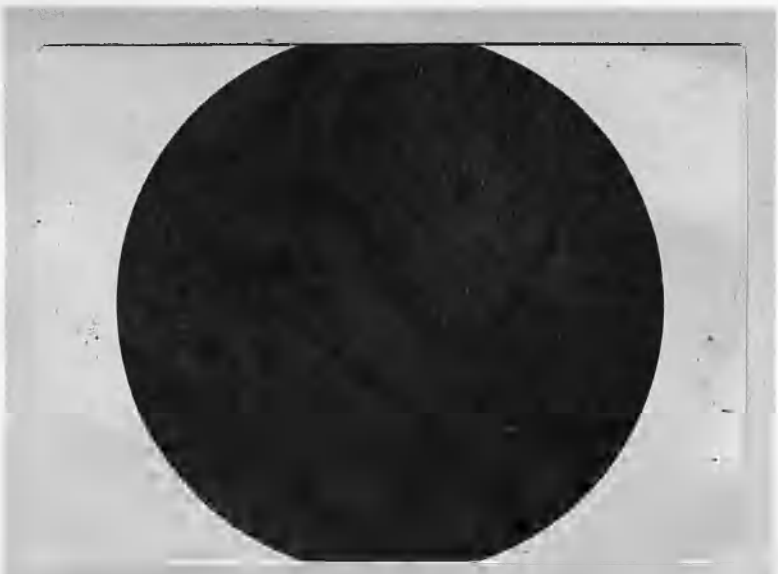


Photo 32 Adeno Carcinoma Cervicis. - Shews proliferation of glandular epithelium. Large gland in centre shews epithelium single layered at lower portion, the rest shews proliferation up to 6 or 7 layers deep, the nuclei varying much in size & shape. Another gland below is similarly lined. above an aggregation of malignant cells is seen. The stroma is of usual density + structure, many leucocytes throughout same.

Semple.

Photo 33 Adeno Carcinoma Cervicis - One dilated gland seen at top with epithelium forming several layers. Many of nuclei are crushed together and are much altered in size and shape, a few odd epithelial cells in lumen. Further down two other glands are seen nuclei varying similarly. Above the smallest gland a large collection of leucocytes seen. Other places stroma formed of ordinary connective tissue cells. Picture is malignant, and with history sufficient for a diagnosis of same

Semple.

Photo 34 Adeno Carcinoma Cervicis - In very centre of field a localized collection of leucocytes in muscle is seen, a very considerable distance from marked cancerous invasion, & appears as if a cancerous stroma forming a few epithelial cells also seen throughout tissue. The rest of the section is composed of muscular and fibrous tissue with numbers of blood vessels. This appears more formed of similar to Fig 6, but cells are smaller. These localized deep staining leucocyte collections of the Carcinoma & these appears more should require careful inspection.

Miller

Photo 35. Adeno Carcinoma Cervicis – Shows deposits of deep staining Epithelial cells in form of gland formations. The lacunae in photo with white space is caused by cell degeneration & parts dropped out. Those also are beginning to disintegrate also. The stroma divides & encloses these gland like spaces is very dense and many shows abundant leucocytic infiltration & some Epithelial cells distributed throughout – Typically malignant.

Miller

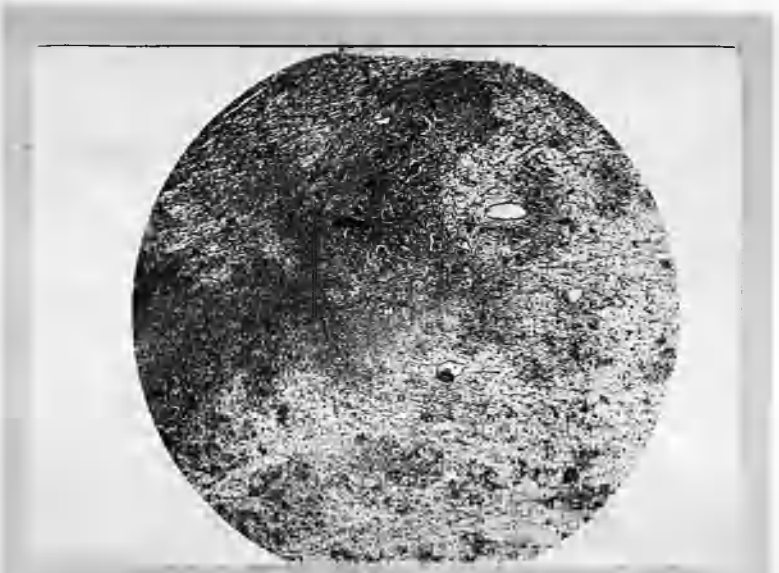


Photo 36 Colloid Cancer of Ovary. General ovarian stroma is stained faintly, the dark portion being made up of leucocytes and Epithelial cells. Large deep staining Epithelial cells of great variety in size distributed through, some in little bunches, others single lying in a space. Some show chromatin crowded into one part prior to division probably. High power shows giant cells. Stroma is wavy, is divided into minute spaces & shows colloid appearance, at parts shows thickened septa & small leucocytic collections. Near the centre a large lymph space seen with large irregular Epithelial cell in it. To right a venous space with flattened Epith + Ep. Ulcell around.

Conway

Photo 37 Nodule from Douglas's pouch in Carcinoma of Ovary (Colloid)

Conway Shews characteristic carcinomatous formation of colloid variety. The dense cancerous stroma in form of network in which are deep staining epithelial cells in form of and size & deep staining. Carcinomatous cells are in groups with injudicious fibrous tissue between. - Shews repetition of original form of tumor

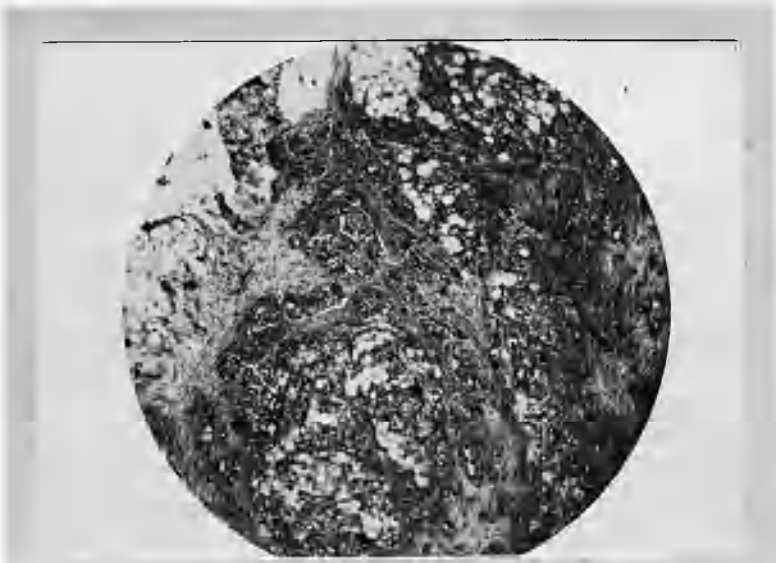


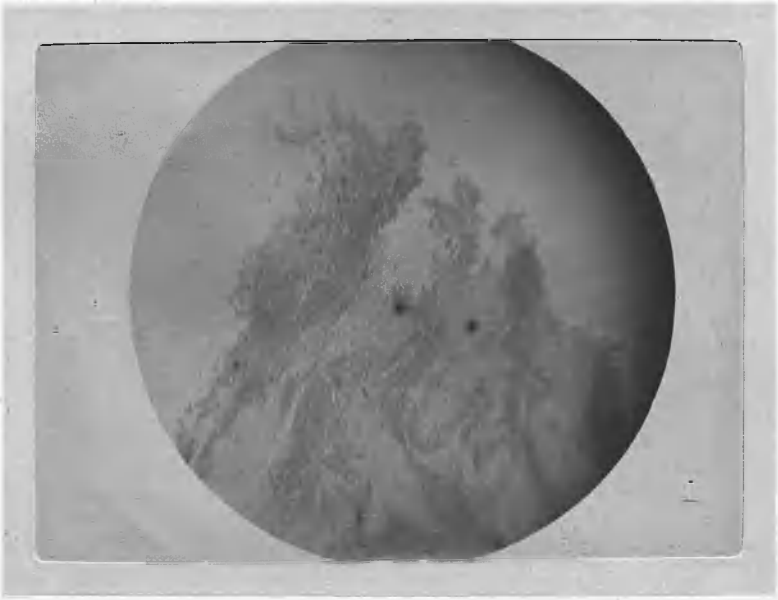
Photo 38 Peritoneal Nodule in Colloid Cancer of Ovary - Somewhat similar characters to above, the white reticulated looking portions are undergoing colloid degeneration & many of the cells have dropped out. In the centre the branching fibrous tissue is dividing up and enclosing carcinomatous alveolus of various sizes. Many deep staining epithelial cells also distributed indefinitely throughout. Structure of original ovarian tumor is repeated here & there.

Conway

Photo 39

Mc Lean.

Adeno Carcinoma of Body. Pale and dark staining areas are seen, the former are formed by masses of cancer cells which have undergone coagulation necrosis the latter are formed by epithelial cells of varied shape & size staining deeply. The cells in parts are star shaped with sharp angles and at places bear a very great resemblance to the cells in a spindle celled sarcoma. Stroma is scanty at parts & may form finger processes



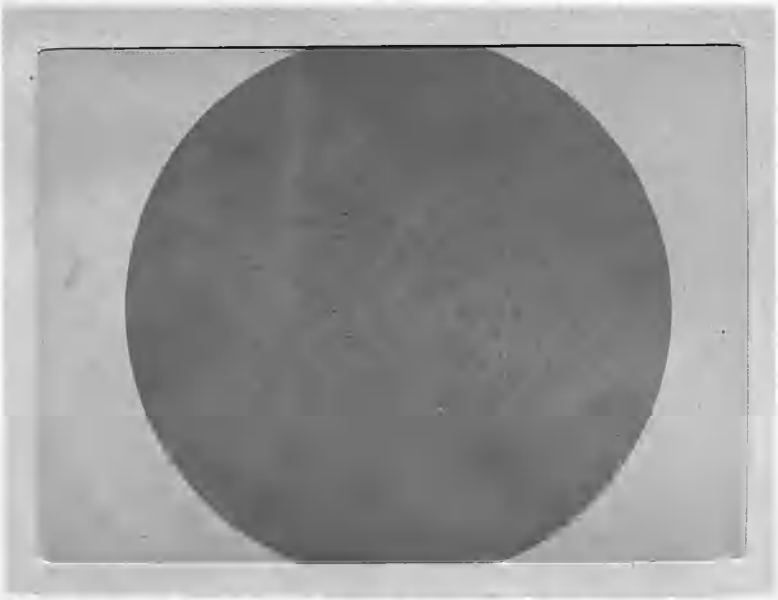


Photo 40

Mc Lean.

Adeno Carcinoma of Body. High power of above section. Shews the deep staining rows of epithelial cells, (nuclei very much varied in form & size) arranged on sides of a thin strand of stroma forming the so called "finger process" -