CLINICAL SURGERY

ENTRY FOR PATTISON PRIZE.

MALIGNANT GROWTHS OF THE ALIMENTARY TRACT.

J. A. GILBERT.

JUNE 1941.
MALIGNANT GROWTHS OF THE ALIMENTARY TRACT.

AS ILLUSTRATED BY

1. SQUAMOUS EPITHELIOMA OF LIP.
2. SQUAMOUS EPITHELIOMA OF GUM.
3. SQUAMOUS EPITHELIOMA OF PHARYNX.
4. OESOPHAGEAL CARCINOMA.
5. GASTRIC CARCINOMA.
6. COLONIC CARCINOMA.
PREFACE.

During the three years I have been a student of clinical medicine and clinical surgery I have from the first been interested in carcinomata. Especially was my interest in this terrible disease stimulated while in Sir John Fraser's clinic and I saw for the first time how frequently it occurs and how seldom it reaches hospital while still sufficiently localized for surgery to intervene successfully.

In choosing a series of six cases of carcinoma I primarily selected the alimentary tract and secondly the upper alimentary tract for the reason that I believe there are certain carcinogenic factors in this area over which we can exercise control such as alcohol, hot foods etc.

In this series my main interest has been in carcinoma of the fore-gut with one case of mid-gut carcinoma more for a contrast as regards etiology, clinical features, etc., than for a detailed discussion on malignancy of this section of the alimentary tract.

I am deeply grateful to Sir John Fraser for his encouragement and interest in this series as well as his permission to publish 4 of the 6 cases.

I am also grateful to Professor J.R. Learmonth and Mr J.M. Graham for one case each.
CASE I.

Name - James Marshall.
   age 86.
Address - 42 Oak Bank, Midcalder.
Recommended by - Dr Young, Midcalder.
Ward - 6.
Occupation - oil worker.
               (pensioned).
Date of Admission - 26/6/38.
Date of Examination - 29/6/38.

DIAGNOSIS :- Epithelioma of the lower lip.

Complaint - (1) Sore throat for 5 years.
            (2) Swelling of the lower lip for 2 years.

History - Apart from a stroke ten years ago the patient has always enjoyed very good health. He has rarely been off work and then only with bronchitis which has troubled him increasingly each winter.

   His present trouble he states started five years ago when he had difficulty in speaking. His voice became husky and he had a choking feeling in his throat. He has had no difficulty in swallowing. The husky nature of his speech has remained the same since it first came on five years ago.

   He now has a chronic cough which is even present in the height of summer.

   About two years ago he noticed a small round slightly thickened area on his lower lip just to the right of the mid-line. At first this increased slowly in size but about a year ago it began to grow more rapidly, and is now an ulcerated area about 3/4 inch in diameter. It was at first slightly painful and hot but now is painless.
EARLY EPITHELIOMA OF THE LIP.
Social History - He is a moderate man as regards alcohol and tobacco.

Alcohol - about six pints during the week, without a chaser.

Tobacco - 2 ozs a week - pipe.

Family History - All his relatives have been long-lived most of them reaching the late seventies. He is the father of three children all alive and well. His wife died about five years ago and since then he has been living with one of his married daughters.

Physical Examination -

His general appearance is that of a man well past the best years of his life. He looks tired and has a pale pastey complexion. His skin is very dry and his general nourishment is decidedly below par. Mentally he is quite alert. His voice is extremely husky.

Local Examination -

Just to the right of the mid-line of the lower lip there is a brownish warty growth about 3/4 inch in diameter. The surface is fissured and partially covered with a dirty yellow scab. The surrounding lip is indurated for 1/10 inch on each side and downwards into the substance of the lip for about 1/2 inch. There is no tenderness in the part and no apparent increase in the local temperature. There is complete absence of vascular congestion at the margins of the lesion.

Examination of the submental, submandibular, deep cervical, and supra clavicular glands shows no evidence of enlargement or tenderness from a superadded inflammation.

Alimentary Systems.

Teeth - There are carious stumps in the jaws, but no dentures.

Gums - These are pale but considering the rotten state are remarkably healthy.

Tongue - Smooth and pink around the edges. The dorsum is covered with brownish fur. But on the whole is fairly moist.

Appetite - This is quite good but he has tended to eat sloppy foods of late because of the poor state of his mouth.

Bowels - Are rather constipated, but are kept regular by cascara when he remembers to take it.
SQUAMOUS EPITHELIOMA.
Respiratory System.

Chest - barrel shaped; ribs are far apart and are prominent. Movement; moves poorly and accessory muscles are used but not unduly prominent.

Auscultation; coarse vesicular breathing with coarse crepitations and low pitched ronchi.

Cardiovascular System.


Blood Pressure - 155/90.

Apex Beat - 5th interspace in mid-clavicular line.

Heart Sounds - faint, but pure and closed in all areas.

Urinary System - He has no symptoms referable to the urinary system. But during cold weather he has to rise once a night to pass water.

P.R. - showed slight uniform hypertrophy of both lateral lobes of the prostate. The medium groove was easily distinguished.

Urine - N.A.D. - specific gravity 1018.

Nervous System - he was moderately alert and showed no loss of sensation in any area. Knee-jerk present and equal on both sides. Babinski - planter flexor response.

Differential Diagnosis.

(1) Simple Ulcers
   Excluded by (1) General indurated appearance with lack of vascular reaction.
   (2) Failure to clear up under ordinary medical treatment.
   (3) Absence of swollen tender submental glands.

(2) Syphilitic Ulcers.
   (a) Primary Chancre - (1) More common on upper lip.
      (2) Almost invariably associated with glandular enlargement.
      (3) Usually flatter with excoriation of the surrounding skin.

   (b) Secondary Syphilis.
      Ruled out by (1) absence of tenderness (2) and general appearance.

(3) Tertiary Ulcer.
   This has not the appearance of a tertiary ulcer, no punched out or serpiginous edge. On the contrary
the surface is raised. Also W.R. negative.

(4) Tumors. 
This is either a papilloma or a squamous epithelioma. The appearance of the lesion is that of an epithelioma rather than that of a papilloma. The papillomatous lesion having a less indurated base and more tendency toward slight pedunculation, and a cauliflower crown.

**Diagnosis** - Squamous Epithelioma.

**Treatment.**

It was decided to use X Ray therapy in this case, which owing to the distance of the patient's home from the R.I.E. necessitated his coming into hospital. Small daily doses of X Rays were given over a period of one month, starting on 29/6/38, at the end of which time there was considerable regression of the growth.

**Progress Notes.**

The condition of the lip nine months later when he reported at the R.I.E. was excellent.
CASE II.

Name - William J. Blair, age 72.
Address - 23 South St James St.,
Edinburgh.
Occupation - Plumber.
Recommended by - Dr. John Jamieson,
34 Albany St.,
Edinburgh.
Date of Admission - 12:3:40.
Date of Discharge - 11:5:40.

COMPLAINT:

History - Up to until seven months ago the patient was
perfectly well, and in spite of his age still carrying
on at his occupation as a plumber. At that time he began
to notice a small hard papule on the lower aspect
of his left lower gum, which he thought at the time was
due to the fact that he had a touch of "flu".
However the papule gradually began to increase in size and soon encroached on the inner surface of the lower lip.
During all this time there was no pain except an occasional sharp needle-like pain lasting only about a second and shooting forward to the point of the chin.
About 3 months ago he noticed that on eating hard foods such as toast or the crusts of bread the lesion began to bleed a little - but nothing serious.
By this time the patient's wife decided that he should see his doctor about it but he could not be bothered until 3 days ago, when the pain and bleeding had become considerably worse and on examination by his doctor he was immediately sent to the R.I.E.

Social History.

Occupation - he is a plumber and has his own business. He has followed this trade all his life.
Tobacco - he was a cigarette smoker until he was fifty, at which time he changed to a pipe and now smokes about 8 1/2 ozs per week.
Alcohol - he does not drink beer and has about 6 double whiskies a week.

Family - He lives under comfortable conditions with his wife. His three daughters are all well and married. He had five sons, two of whom were killed in the last war. One is now living in Australia and the other two in this country.

Examination.

General. Blair is a man of good stature and well proportioned and certainly does not look his age. In fact one would estimate his age to be about 10 years younger than his three score and ten. His face has a good healthy tan.

Alimentary System.

Lips - External Appearance.

Have a pinkish colour and are a little cracked at the angles.

Internal Appearance.

Inside the mouth there is a large flat indurated ulcerated mass about 1 1/2" long and 1 1/4" wide extending from the first premolar tooth forwards onto the inner surface of the lower lip and laterally on to the inner surface of the left cheek for about 1 1/2".

Teeth - There are ten in the lower jaw and 8 in the upper. These are all very carious and the gums are full of pyorrhoea. When the gums are pressed pus is seen to ooze along the margin of the teeth.

Tongue - The whole of the dorsum of the tongue is covered with white plaques - a typical Leukoplakia

Neck - Examination of the neck revealed the submental, submandibular and submaxillary glands all to be enlarged and firm with adherence to the surrounding structures - the upper left cervical were similarly enlarged.

Cardio Vascular.

Pulse - Regular in time and force.

Rate - 70/min.

Wave - good upstroke well sustained and slower downstroke. Vessel well palpable but not markedly thickened.

Blood Pressure - 145/85.

Apex Beat - 5th interspace just outside the mid-clavicular line. Sounds closed and pure in all areas.
Respiratory.
Inspection - chest wall developed and moves freely and equally on both sides.
   Expansion 8¼".
Palpation - confirms inspection. Vocal fumitus normal.
Percussion - equally resonant note in all areas.
Auscultation - fine vesicular breathing all over.
Accompaniments - some fine creps at both veses.

Urinary: N.A.D.

Nervous System.
Normal except that the knee-jerks were a little bit weak.
Wasserman Reaction ++
Kahn " ++ve.

Differential Diagnosis

(1) Simple Ulcer - for a simple ulcer to remain for 7 months one would expect to find some definite constant traumatic agent, and no tooth with a ragged margin rubbed on the area. Also he always kept his pipe in the other side of his mouth.
   Examination - a simple ulcer would not have the hard indurated edge and base as in this case.
(2) T.B. Ulcer - these rarely occur anywhere except on the tip of the tongue and only in cases with advanced pulmonary T.B., also it is a very painful ulcer. In this case he had no signs or symptoms to indicate pulmonary Phthisis.
(3) Syphilis - Primary. The lesion in the patient's case is far too hard and indurated for a primary sore. Likewise a primary is usually situated at the tip of the tongue and is dusky brown and slightly raised.
   Secondary. Mucous Patches.
   Situation - These occur usually on the soft palate or dorsum of the tongue. They are very superficial ulcers and not indurated as in this one. Also it is most unlikely that a mucous patch would last 7 months.
   Tertiary Stage. Gumma - the most usual site for a gumma is the midline on the dorsum of the tongue. It has a yellowish sloughy floor and indurated base - the wash leather base.
   In the patient under examination the ulcer has not the wash leather base, the usual situation or the straight punched out edges.
(4) Actinomycosis - This condition is rare but has to be considered. Here one would see the little yellow sulphur granules in the middle of the ulcer; also it is more painful than it has been in this patient's case.

Diagnosis - epithelioma of the gum and inner side of left lower lip.
Treatment:

In view of the very bad condition of the teeth and gums his teeth were removed on 21:3:40. Six days later i.e., on 27:3:40 it was decided to excise the epithelioma.

Pre-Operative— and enema was given the night before the operation and on the day of the operation ATROPTIN gr.1/100 and HEROIN gr.1/12.

OPERATION.

Surgeon - Professor Learmouth.
Anaesthetest - Dr Jones.
Anaesthetic - gas, oxygen and ether.

The growth was first excised using incisions as shown -

The diathemy knife was used. The mucosa was then brought together in the inside of the cheek with interrupted sutures of 6/0 chromic catgut. The skin of the cheek was brought together and a sliding flap was brought up from the skin below the mandible to complete the lip. The Tissues came together without undue tension. The wound on the cheek was painted over with whiteheads varnish at the end of the operation and a small tube left in the most dependant part of the
incision.

Post-Operatively - on the first of April the wound became infected and began to gape - it was resutured but these sutures cut out as a result of the infection. During the middle of April the infection began to clear up and at the end of the month the wound was full of granulation tissue - this was treated by excision and resuture on 1:5:40.

**OPERATION.**

**Surgeon** - Professor Learmouth.
**Anaesthetist** - Dr. Jones.

Anaesthetic - gas, oxygen and ether.

In medial 1½ cms of the wound the incisions were made thus -

![Diagram]

and the granulation tissue was dissected back. The raw edges on the upper and lower flaps were then united with four interrupted S.U.C.stitches.

9.5.40. The sutured areas were not uniting satisfactorily.

11.5.40. He was discharged to ward 45. After intestine therapy for the syphilis the wound healed up well.

The patient was readmitted in February of this year, at which time he was feeling well but complaining of a little excessive salivation.

On examination - there were still some leucoplackic spots on the tongue but these were much smaller than a year ago.
On the 15th of March he was discharged again after having had 2 doses of X-Ray therapy to the parotid glands to check the excessive salivation.
CASE III

Name - George Cox,
age 50 years.

Address - 14 St Clair Street,
Kirkcaldy.

Admitted - 21.3.39.

Recommended by - Dr James Langwell,
Lesaghmore,
Kirkcaldy.

Complaint - Swelling on both sides of the neck.

History - The swelling on the right side of the neck was noticed about 3 months ago. At this time the swelling was not marked.

About five weeks ago the patient said he began to notice the left side of the neck swelling and almost simultaneously the size of the right side began to increase and become really prominent.

Previous History - Up until 3 years ago the patient had been a very healthy man but about that time his teeth were very carious and his gums full of pyorrhoea and so he had a total extraction done. Ever since then he has had the feeling of a fullness in the naso-pharynx, and for the past five weeks he has a blocked up feeling in the back of his nose, though he does not think that he has a cold.

For the last 3-4 years he has had some trouble with haemorrhoids but this had been rather better of late and now they only occasionally bleed after the passage of a motion.

For the past 2 years he has had constipation for which he took a teaspoonful of cascara nightly.

About 16 months ago he was envolved in a motor cycle accident and had his right leg broken - he made a rapid recovery from this.

The patient has suffered from frequency of micturition all his life - and until he was 21 years old he wet
the bed practically every night. At present he has to micturate every hour or so. There is no pain associated with this.

Examination.

General - The patient is of a good strong build and fairly well developed, but he looks toxic. His face is drawn and his eyes sunken a little. He has a cold greasy look about the skin of the face which is not a healthy colour but has a greyish pallor.

Mentally - He is alert, sociable and interesting to talk to.

Social - He is a married man living with his wife and is very comfortable. He has 2 children -

1 boy, aged 23, married, lives in Edinburgh.
1 girl, aged 20, lives in London.

Alcohol - T.T.

Tobacco - He smokes about 10 cigarettes a day on an average.

Local Examination.

Neck - There is a rounded, smooth firm swelling, about the size of a hen's egg situated under the right sternomastoid muscle. This swelling protrudes under the anterior margin of the sternomastoid for about 1 inch. It is not fixed to the muscles or deeper structures, and is freely movable, not inflamed or tender.

The swelling on the left side is of the same character and much the same situation being under the sternomastoid of that side but rather more posterior. Also it is a little higher in the neck - the upper part of it being under the mandible. It is attached to the deeper structures and is not at all mobile.

Systems, Alimentary.

Lips - good pink colour.
Teeth - all extracted.
Gums - pale firm and not tender.
Tongue - dirty and furred. Breath foul.
Tonsils - red and injected looking.
Appetite - good but has rather fallen off lately.
Weight - he has lost 6 lbs in the last 2 months.
Bowels - constipated.

Abdominal Examination.

Inspection - moves freely on respiration - there appears to be some looseness of the subcutaneous fatty layer.

Palpation - nothing to note.
Rectal Examination.
A few thrombotic piles could be felt.
Prostate - firm and rounded.

Urinary System.
Urine - S.G. 1.020.
Albumen - negative.
Sugar - negative.
Kidneys - not palpable.

Nervous System.
Elbow, knee and forearm jerks present equal and normal on both sides.

Cardiovascular System.
Pulse - 70; good violence; well sustained; vessel wall palpable; some thickening.
Apex Beat - 6th intercostal space in the nipple line - forceful.

Respiratory.
Inspection - shape and form normal; moves freely.
Expansion - 2 inches.
Palpation - confirms inspection.
Percussion - a resonant note all over.
Auscultation - faint vesicular.

Differential Diagnosis.
(1) Hodgkins Disease - there the glands are not so rapidly increasing in size and also they are not so hard and are indurated, and in the patient the left side firmly attached to the deep structures under the mandible.
(2) Lymphosarcoma - this is very difficult to rule out and is quite a possibility.
(3) Bi-Lateral Branchial Carcinoma - a bi-lateral condition of this type is rare but a possibility which can be illuminated or confirmed by biopsy.
(4) Secondary Deposit.
(a) From Mouth - in the mouth no primary could be found.
(b) From Naso Pharynx - and in view of the stuffed up feeling he has in the back of his nose this is quite a possibility.
(5) Leukemia - rarely starts in the cervical glands without some others being also enlarged; and in glands as palpable in the etc., nor is the spleen enlarged - blood film will be necessary to exclude this.
(6) **Tuberculosis** - this is rather unlikely here because

(a) The age of the person - it usually occurs in much younger persons.
(b) They are very hard swellings to be tuberculous and are not at all tender or inflamed.

After doing a blood film it was normal thus excluding leukemia. A biopsy was then done.

**OPERATION.** 24.3.39.

Surgeon - Mr. Mercer.
Anaesthetist - Dr Gillies.
Anaesthetic - gas, oxygen and ether.

A small gland was taken from the right side of the neck.

**Pathological Report** - on the biopsy "The glands are extensively invaded by malignant epithelial cells of squamous type. The glands also show tuberculous disease." signed J.J.M.B.

**Progress** on 26.3.39. The patient was referred to the E.N.T.Dept. for investigation of his nasopharynx for the chance of a primary here.

Dr Martin examined the patient and found a carcinoma of the nasopharynx. This took the form of a mass centrally placed in the upper part of the posterior wall of the nasopharynx passing up over the roof of the nasopharynx and along the upper end of the septum.

From this mass Dr Martin removed a small piece of biopsy.

**Pathological Report** - "Tissue is invaded by a lymphoepithelioma of the reticulum - cell type."

It was decided that the best treatment would be X-Ray therapy. This was started on 5.4.39 and carried on until 5.5.39. This therapy was applied to the nasopharynx and the upper right and left cervical glands.

He was discharged home and was instructed to continue reporting.
When he reported on July 15th 1939 his condition was satisfactory and then he began to have difficulty in reporting and died on 11.12.39 in Kirkcaldy. A post mortem was not done but the liver was very enlarged and knobbly—also there were palpable lumps throughout the rest of the peritoneal cavity.
CASE IV.

OESOPHAGEAL CARCINOMA

Name - Robert Duncan
   - Widower.

Address -

Recommended by - Dr Maxwell

Ward - 7

Date of Admission - May 2nd, 1939.

Diagnosis - oesophageal carcinoma.

Complaint - Difficulty in swallowing.

History of Present Disease - The patient has been troubled with constipation for the last two or three years.

Previously he took an occasional dose of cascara and glycerine - one teaspoonful at night.

1938. June-November he went to Detroit, U.S.A. for a holiday. At this time he noticed that if stomach occasionally became distended with flatus also his appetite fell off a little.

1939. February - he began to have pain across the epigastrium. This pain was a gnawing pain that came on after meals, it lasted about one hour and then gradually passed off.

Swallowing became increasingly difficult - at the end of February he was still able to take a little solid food, but in March he found that even soft boiled egg gave him great pain on swallowing.

During this period he had a great deal of retching which was very painful, also a lot of foul-smelling gas was brought up and for these he took brandy which gave him great relief.

Weight - He has been steadily loosing weight.

Bowels - Move every day and he has never noticed any dark motions. On the contrary he said they had been rather pale - probably because he has been living largely on a milk diet lately.

Appetite - Is good - he wants to eat but is afraid to because of the intense pain which it causes.

Previous History - He has never had any severe illness.

Five or six years ago he was bothered with haemorrhoids but these are cleared up now.

No sore throats.
ABDOMINAL EXAMINATION.

AREA OF PAIN + INCREASED RIGIDITY

RIGHT DIRECT INGUINAL HERNIA
Social History - He is a widower - 4 sons and 2 daughters - one of the daughters is unmarried and lives with him. All the rest of the children are married. His father lived to be 80 and his mother to be 75. Both died of "old age" according to the patient.

Alcohol - 3-4 pints of beer on Saturday night - none throughout the week. No spirits.

Tobacco - He stopped smoking last November - previous to that he smoked a pipe - 2ozs a week.

Occupation - Was employed as a clerk in an office until a year ago. Lately he has only been doing odd jobs around the house.

Physical Examination.

1. General Appearance - alert and quite healthy looking. Face is a little drawn.
2. Abdomen - is scaphoid shaped, skin is loose and dry. Scattered over the skin are many De Morgans spots. Abdomen moves freely on respiration and the abdominal aorta can be seen pulsating through the anterior abdominal wall.
3. Mouth -
   (a) Tongue - coated - breath is foul.
   (b) Teeth - all but four were removed last February because his doctor thought that this may have been the cause of his general malaise. The four remaining teeth are very bad and the gums are full of pyorrhoea.
4. Circulatory System - Apex beat in the fifth interspace inside the mid-clavicular line - Both sounds closed and pure in all areas.
5. Respiratory System - nothing to note.
6. Genito Urinary System - urine is negative.

Pre-Operative - The patient was in the ward for a week prior to his operation. During this period it was impossible for him to eat any solid food and his diet was largely a milk one.

Morphine 1/4gr.
Hyoscine 1/150gr.
PORTION OF TUMOUR GROWTH

LINES ALONG WHICH CLAMPS WERE APPLIED.

PORTION OF OESOPHAGUS AND STOMACH REMOVED.
OPERATION

Surgeon - Sir John Fraser.  Anaesthetist - Dr Gillies.
Assistant - Mr J.J.M. Brown.
Second Assistant - Dr M. Johnstone.

The patient was lying on his right side. An incision was made along the line of the 6th-7th ribs, these ribs were exposed. The periosteum of these ribs was removed by a raspatory. These ribs were then cut and pushed aside and a self retaining retractor was put in.

The parietal layer of pleura was now incised and the lung immediately collapsed.

The left phrenic nerve was found running along the mediastum, the nerve was crushed with an artery forceps in order to paralyse the left side of the diaphragm.

An incision was now made in the diaphragm, this incision passed forward from the oesophagus. A carcinoma was found at the lower end of the oesophagus, it has spread a little into the surrounding lung.

The stomach was pulled up through the opening in the diaphragm. The vessels at the upper end of the stomach were caught and ligated. A crushing clamp was now applied to the stomach as is shown in the diagram. The stomach was then divided by cautery. A continuous row of cat gut sutures were now inserted to strengthen the cautery.

The oesophagus was now divided above the carcinoma.

The carcinoma was then removed and a small opening made on the anterior surface of the stomach immediately below the line of cat gut sutures - also as shown on the diagram.

The oesophagus was now anastomosed to the stomach.

The diaphragm was closed with cat gut sutures and the anastomoses pulled up the thoracic cavity.

The neighbouring part of the lung was sutured around the anastomosis to make it more secure.

The retractors were now removed, the lung inflated and the parietal layer of pleura closed with cat gut. The resected ribs were approximated with stout cat gut sutures and the skin with interrupted sutures of silk-worm gut and the intervening parts of the incision with Michael clips. Iodine and a dry dressing.

Note - During the operation the patient had a continuous intravenous saline drip.

POST-OPERATIVE - The patient did not rally from the anaesthetic but became weaker and was put into an oxygen tent. This gave but little improvement and it was found necessary to stimulate his respiratory centre with cor-amine and of this he was given 2c.c. every 2 hours also 1/4gr. of morphine every four hours for the pain,
Incision for Anastomosis.

Oesophagus Anastomosed to Stomach.

Squamous Epithelioma.

From R. Duncan's slide.
In spite of these efforts together with continuous intravenous saline and glucose the patient became weaker and died on the morning of the 11th having survived the operation for about forty-four hours.
ABDOMINAL EXAMINATION.
CASE V.
GASTRIC CARCINOMA.

Name - J. Lancaster.
Age 82.

Address -
Recommended by - Dr. Maxwell.

Ward - 7.
Date of Admission - 9th May.

Diagnosis - Gastric Carcinoma.

Complaint - Gastric discomfort and vomiting.

History of Present Disease - About a year ago he began to suffer from indigestion and gastric flatulence. He called in his doctor who advised him to take Macleans Powders.

Gradually the indigestion changed into a continual dull pain. This pain was felt chiefly above the umbilicus. It did not radiate and was more in the form of a dull ache than of an acute pain. It was there continually and was not relieved or made worse by the taking of food.

As well as the pain he was having acid which were becoming worse. This together with the fact that he was having a great deal of flatulence and was obliged to rise during the night to pass it induced him to pay another visit to his doctor. This time the doctor gave him a prescription containing belladona which he took half an hour before meals.

This treatment was not very satisfactory and he soon paid another visit to his doctor who sent him to the R.I.F.

Digestive System.

His tongue was covered with a furry white coat and his breath was foul.

Vomiting - For the past six or eight weeks he has vomited either every day or every second day. In the vomit he has recognized food which he has eaten ten or twelve hours previously.

Bowels - He has been comparatively free from constipation until lately when he has noticed that his motions are becoming very hard and he has to use an enema.

About six weeks ago he noticed that his motions were very dark but this cleared up about a month ago.
DIAGRAMMATIC REPRODUCTION OF XRAY.

ARROWS INDICATE AREA OF CARCINOMA.
Weight - He has been steadily losing weight for the past year.
Appetite - Has been slowly getting less for the past fifteen months.

Physical Examination.

The patient has a deeply sallowed appearance typical of an advanced case of cancer.
Abdomen - The abdomen is thin and scapoid shaped. The skin over it is very sallow and very loose - signifying considerable loss of weight.
Palpation - There was no increased rigidity of the muscles. A rounded mass could be felt above and to the right of the umbilicus. This mass was about the size of an egg. It was under the abdominal muscles. Marked splashing in the stomach could be elected four or five hours after food.
Test Meal - showed an increase in the free acid and also a retention of charcoal.
X-Ray - Barium "There is a pre-pyloric carcinoma which would appear to be operate". 25:4:39.

Other Systems.

Respiratory - Nothing to note.
Cardiac - Nothing to note.
Genito-Urinary - He has frequency of micturition and is obliged to rise once or twice during the night to pass water.

He finds it difficult to initiate the act of micturition and once started only a small stream comes away. When he thinks he has stopped he finds it is still dribbling a little. These findings would indicate an enlarged prostate. This was confirmed by a rectal examination.

Social History.

1. Occupation 1. He was in the army four years in his late teens and early twenties.
   2. For the last forty-seven years he has worked in an office, a sort of janitor's job.
2. Tobacco - Smoked a pipe - 1 oz a week from the time he was twenty until he was twenty-six, but has not smoked since then.
3. Alcohol - Has been T.T.
4. Family - Five daughters all married. Two sons married and in Canada. He is a widower - his wife died six years ago.
GASTRO ENTEROSTOMY

TRANSVERSE COLON

ENTERO-ENTEROSTOMY

DUODENAL STUMP WITH INVAGINATED END.
Pre-Operative Treatment.

Morphine 1/4 gr.
Hyoscine 1/150gr.


Surgeon - Sir John Fraser.  Anaesthetist - Dr. Gillies.
Assistant Surgeon - Dr. M. Johnstone.
Anaesthetic - spinal - 2nd lumbar space.
100mg Neuropaine and Ephedrine as usual.

The abdomen was opened by a right paramedian incision about 5 inches long - 3 inches above the umbilicus and 2 inches below the umbilicus. The subcutaneous bleeding points were caught with artery forceps.

The peritoneal cavity was then opened and a self-retaining retractor inserted. The stomach was pulled out through the opening and towels inserted.

The following areas were then examined for the evidence of any metastatic spread of the cancer.

1. Liver - no evidence of metastases.
2. Coeliac Plexus - no.
4. Pelvic Peritoneum - no.
5. Left side of the abdomen - no.

It was decided that resection was possible. The greater omentum was pulled up and dissected of the transverse colon up to the greater curvature of the stomach. The gastro epiploic and the superior pancreatico-duodenal vessels were then tied off.

A clamp was then applied about the middle of the stomach and the stomach divided by cautery. The pylorus was then clamped with a large occlusion clamp, right gastro-duodenal artery was secured and tied. The duodenum was divided and the cut end invaginated and a pulse string tied.

The affected part with its corresponding piece of greater omentum was now removed.

2. A gastro-enterostomy was then performed. A loop of jejunum was brought up in front of the transverse colon and anastomosed to the distal end of the stomach by three rows of sutures.
ADENOCARCINOMA.

CARCINOMATOUS REPRODUCTION OF NORMAL GASTRIC GLAND.

FROM A SLIDE OF LANCASTER'S GASTRIC CARCINOMA.
3. An entero-enterostomy was then done on this loop.

Post-Operative.

The patient received morphine for the first four days after his operation. He was put on a gastro-enterostomy diet and made a most wonderful recovery for a man of eighty-four years. During the first ten days the patient said that he did not believe he would live, but later on his mental attitude took a sudden change for the brighter.

The clips were removed after the fifth day and the stitches after the eighth day.

On the eighth of June he was first allowed to get up and left the ward on June the eighth "feeling wonderful".

Pathological Specimen - a typical adenocarcinoma.
CASE VI.

COLONIC CARCINOMA.

Name - James Shiels.  
age 65 years.

Address -

Recommended by - Dr. Irvine.

Ward - 7.

Date of Admission - 14th April.

Diagnosis - carcinoma of the ascending colon.

Complaint - "Pain and wind in the bowels".

History of Present Illness - The patient has not been feeling quite up to scratch since he stopped working four years ago. However during the past three months he has been very constipated and bothered with intestinal flatus. The pain is dull and gnawing. When first it became evident it was in the right iliac fossa but since then it has changed its position and is now more diffuse with the main discomfort in the umbilical region.

Previous History - The patient has been a ploughman until four years ago when he stopped working. Since then he has had constipation which has gradually but steadily been getting worse.

January 1939 - He had what he calls an attack of"flu". During this attack he had great abdominal pain with intestinal flatus. His abdomen became grossly distended and he vomited intermittently for two days after which time his doctor was called in. The doctor told him he had an attack of flu and advised him to take a dose of magnesium sulphate and a small dose of cascara once a week for his constipation.

Following this attack he had an uneventful recovery and was soon able to go out for short walks on the nice days, but on other days he did not feel he had the strength to walk. From then on his walks became less and less frequent and his constipation more and more marked in spite of the purgatives which his doctor had advised.

From April 17th until he was admitted he had not had a motion - during this period he was troubled with increasing pain of a colicky nature, diffuse in there distribution but chiefly centred below and a little to the right of the umbilicus.
On May 2nd the district nurse was called in to examine him, she in turn called in the doctor who administered a hypodermic purgative which failed to act. His doctor then sent him to the R.I.P.

Social History.

1. **Occupation** - In his early twenties he worked in a paper mill but from then until 1935 he has been employed as a ploughman.

2. **Tobacco** - He has not smoked since last October. Previous to that date he smoked a pipe - 2-3 ozs a week.

3. **Alcohol** - Two or three pints on Saturday nights. Nothing throughout the week and he never drinks spirits.

4. **Family** - Six daughters and three sons all alive and well. He is a widower and lives in rotation with the families of two of his daughters and two of his sons. His wife died 24 years ago from cancer of the stomach.

Examination of Various Systems.

1. **Respiratory** - Chest moves freely on respiration. Palpation - confirms inspection and vocal resonance slightly diminished. Percussion - Note a little hyperresonant. Auscultation - Medium to coarse broncho-vesicular but some course crepitations over the bases.

2. **Cardio-Vascular**
   - Pulse - regular in time and in force.
   - Wave - sharp upstroke poorly sustained followed by a somewhat slower downstroke.
   - Vessel Wall - a little thickened.
   - Heart - Apex beat - in the fifth interspace inside the mid-clavicular line. Both sounds closed and pure in all areas.

3. **Genito-Urinary** - Never had any trouble.

4. **Nervous** - Nothing to note.

5. **Digestive** - His appetite has been diminishing for several years. Never bothered with heart burn or water-brash.
METHOD OF INSERTING A PAUL'S TUBE.

TYING IN A PAUL'S TUBE.

ALLISS'S FORCEPS

CAECUM

PAUL'S TUBE

PURSE STRING
He was vomiting - unable to keep anything down, even a glass of water was soon vomited.

**ABDOMEN:**
- **Inspection.** Was very distended, moved very little on inspiration. The umbilicus was not everted. Bulging in both flanks.
- **Palpation.** No increased rigidity.
- **Percussion.** A dull note all over.

**GENERAL APPEARANCE.** Patient looks ill - flushed and beads of sweat standing out on his forehead. He seemed very restless.

- Temperature 98.5. Pulse 104. Respiration 24.

**PRE-MEDICATION**
- Omnopon 1/3 gr.
- Atropine Sulphate 1/100 gr.

**OPERATION**
- Blind Caecostomy.

**Anaesthetic**
- Spinal.

**Surgeon**
- Mr. J.J.M. Brown.

**Assistant Surgeon**
- Dr. M. Johnstone.

**Anaesthetist**
- Dr. J. Gillies.

A gridiron incision was made, small subcutaneous arteries were caught with artery forceps and the peritoneum was exposed. The peritoneum was then caught with two Allis's tissue forceps and a small opening made in it. The opening was then lengthened with a pair of scissors thus exposing the caecum.

The caecum was not brought out of the wound but a small incision - 1/2 inch long - was made on its anterior aspect. In this opening was put one end of a Paul's tube which was then fixed in position by Senn's method i.e. The tube was put into the caecum, about half an inch away from the opening a purse string suture was inserted and while this was being tied and tightened up the opening and the tube were invaginated still farther and a second purse string suture inserted.

The peritoneum was then closed with cat gut sutures. The vessels in the anterior abdominal wall were ligated with cat gut. The wound was closed with interrupted silk worm gut sutures. One on either side of the Paul's tube to assist in holding it in position. Between the silk worm gut sutures Michael clips were inserted. The wound was swabbed with iodine and a large dry
Diagrammatic representation of X-ray.

Barium put into caecum through Paul's tube.
Result of Operation.

As soon as the Paul's tube was inserted a great deal of greenish fluid faecal material poured out of the rubber tube which was connected to the Paul's tube. This material continued being evacuated as a steady stream for the next 2 hours.

Post Operative Treatment.

April 14th
Morphine 1/4 gr.
Hyoscine 1/100 gr. at 10.30 p.m.
Morphine 1/4 gr.
Hyoscine 1/100 gr. at 3.30 a.m.

April 15th
Morphine 1/4 gr.
Hyoscine 1/100 gr. at 11.30 p.m.

April 16th
Morphine 1/4 gr.
Hyoscine 1/100 gr. at 9.30 p.m.

April 20th
2 stitches out.

April 26th
Got up for first time.

May 1st
Barium enema done.

Barium - "Barium flowed freely into the ascending colon but the caecum could not be filled. Some barium was then introduced via the caecostomy. The appearance suggested a situation of the ascending colon. No lesion in the pelvi-rectal region was seen."

OPERATION - Transverse - Ileo-Colostomy.

Surgeon - Sir John Fraser.
Assistant - Dr M. Johnstone.
Anaesthetist - Dr Gillies.

The abdomen was opened by a long right paramedian incision. The ileum was divided about 6-8 inches from the ileo-caecal valve. Both the cut ends were then invaginated. The ileum was then brought up and anastomosed to the middle of the transverse colon by an end to side anastomosis.

The tumor was then exposed and found to be in the upper part of the ascending colon. At this stage it was comparatively free from the surrounding structures.

The abdomen was closed with silk worm gut sutures and Michael clips.
POST-OPERATIVE.  11.5.39.

3.00 p.m. Sod. chloride with glucose 6% - 400c.c.
4.30 p.m. " " " " " "

12.5.39.

1.45 a.m. Sod. chloride with glucose 6% - 400c.c.

15.5.39.

Sod. chloride 0.9% - 200c.c.
Glucose 6% - 400c.c.
6.30 p.m. 400c.c. Sodium chloride and glucose 6%.
4.00 p.m. " " " " " "
8.15 p.m. " " " " " "

16.5.39.

2.00 a.m. 400c.c. Sodium chloride and glucose 6%.
7.55 a.m. " " " " " "

May 14th - the were taken out.
May 19th - the were taken out.

Patient progressed quite favourably.

**OPERATION** - Resection of the Right Half of the Colon.

Pre-Operation - Morphine 1/4
Hyoscine 1/120

Surgeon - Sir John Fraser.  Anaesthetist - Dr. Gillies.
Assistant - Dr. M. Johnstone.

Anaesthetic - spinal-neurocaine.

The abdomen was again opened by a right para-median incision and the right half of the colon was mobilized. The fixed parts i.e. the hepatic flexure, the ascending colon and the caecum were pulled up and the outer layer of the mesocolon was divided and the colon stripped of the posterior wall, care being taken of the ureter, spermatic vessels, and the duodenum. The ileo-colic and the right colic arteries were now caught and ligated. The transverse colon was now divided proximal to the anastomoses and the end invaginated.

The medial layer of the mesocolon was divided and divided and the right half of the colon removed.
The region was swabbed out and a large flavine pack was put in.

The abdomen was then closed in the usual manner.

Note.
Although at the previous operation the tumor was relatively free, yet at this operation, some four weeks later, the tumor was quite firmly bound to the surrounding structures by fibrous adhesions and some difficulty was experienced in freeing it.

Post-Operative.

June 6th. - The patient was returned to the ward at 2p.m. He began to come out of the anaesthetic at 4.30p.m. and was then given morphine gr.1/4. At this time the nurse noticed that he was bleeding from the new incision.

At 5.00p.m. he was given 2c.c. of haemoplatin.
At 7.30p.m. another 1/4 of morphine.
At 10.30p.m. - Sodium chloride 200c.c.

Blood 600c.c.

June 7th.
3.30p.m. Sodium chloride and glucose 6% - 400c.c.
5.30p.m. " " " " " " " "

The patient gradually became weaker and died at 10 p.m.
DISCUSSION.

In this series I have chosen six cases of malignant growths of the upper alimentary tract, that is of the fore-gut and the mid-gut.

In a short series like this, there is little value in discussing the various technical procedures which in any case hardly fall within the realm of the student. Therefore in these cases I propose to discuss chiefly the signs and symptoms of the growths and how these vary with the sites of the growths. Also the various etiological factors at work in each case and how, from little knowledge of this vast subject, we can attempt some sort of prophylaxis and when the disease is found to be established the broad fields of treatment that we have open to use at the present day.

Let us firstly consider some of the main points about carcinoma per se.

A carcinoma is a malignant tumor which tends to invade the lymph spaces of the surrounding connecting tissue. It is the commonest of all tumors, very much commoner than the sarcoma. The cells show the characteristic epithelial arrangement - they are collected into groups or acini, with fibrous stroma between the cells of the groups. The stroma varies in amount, and largely determines the pleomorphic character of the tumor.

Two facts are necessary for carcinoma
1. An Intrinsic factor made up of
   (a) Constitutional susceptibility
   (b) Organ inferiority.
2. An Extrinsic factor in the form of chronic irritation.

Sex Incidence
1. Official statistics show that cancer in approximately the same in all countries, all classes and in both sexes.
2. Although cancer of the alimentary tract is slightly less frequent in females than in males the compliment is made up by uterine and breast cancer.
   22.5% of males who die from cancer die from cancer of the stomach whereas only 16.6% of females do. But if breast and uterine cancer are included in the female the incidence rises to 24.4%.

As regards immunity to cancer it is interesting to note the work of Luves and Reinholf in 1922 - quote "The constitutional predisposition to cancer is not diminished by any immunity following development of a growth for in more than 50% of 123 patients who had
breast carcinoma removed and were known to have died from cases other than a local recurrence or metastases died from cancer and in 20% of these cases the stomach was involved."

**Age incidence. 85-65.**

When allowance is made for the number of people living at any age there is a steady increase. Note, This is not due to an increasing susceptibility to cancer but as Cranl -1938 - points out that the exciting causes act very slowly and may require "a lapse of time occupying a considerable fraction of the normal span of life before they can bring out the development of cancer".

**Carcinoma of the Lip.**

This is a condition which arises usually after the age of 50 years and as the patient James Maxwell is 86 he is well qualified for the disease as regards his age. In over 90% of cases it is males which are affected and usually the lower lip as in our patient's case.

It is a disease with a definite social incidence being found much more frequently in the poorer classes than in the upper class - a feature which we will find is a constant one in all malignant growths of the upper alimentary tract.

The clay pipe has long been blamed as one of the chief causes of the disease. The rationale here being that the hot pipe-stem caused a chronic irritation and finally a hyperplasia of the lip epithelium. That this is a factor is fairly definitely proved by the fact that when squamous epithelioma of the lip is found in women it is almost limited to clay pipe smokers. Whilst the etiological significance of pipe smoking is generally assumed it is not accepted by all authorities and Broders in particular has maintained that the relationship is more apparent than real. Lane Clayton has shown that statistically there is no support for the belief that smoking as such has any definite relationship to cancer of the lip though it is possible that the heat of a pipe stem or excoriation induced by adhesions of cigarette-paper may be predisposing factors. In some cases a syphilitic lesion, a wart or fissure or patch of leucoplakia seems to be a predisposing factor.

In the case of Maxwell we have I think 2 chief extrinsic factors acting as irritants and these are:

(1) The fact he smoked a pipe - granted he did not smoke a great deal - 2 ozs a week but this was done for 60 years.

(2) Secondary - the fact that he was a shale oil worker and had been one for 40 years.

Shale oil is well known to predispose to cancer and everyone is familiar with the fact that it is used in ex-
LYMPH DRAINAGE OF TONGUE
"SHED"

DEEP CERVICAL

SUBMANDIBULAR ROUTE

SUBMENTAL ROUTE

LYMPH DRAINAGE OF TONGUE
(CENTRAL VESSELS)

SUBMANDIBULAR

UPPER DEEP CERVICAL GLAND

LOWER DEEP CERVICAL GLAND
Experimental animals to produce cancer of the skin by painting it on the skin at regular intervals.

Maxwell then had two very important carcinogenic factors acting on his lower lip and since the duration of their action had been about half a century we fulfill the *desiratum* of the Craml vide ut supra - that the irritant should act for - quote "a lapse of time occupying a considerable fraction of the normal span of life before they can bring out the development of cancer" - surely fifty years is a considerable proportion of three score and ten years.

**Naked Eye Appearance.**

In its early stages it may be (a) a small wart as it was in this case or (b) a fissure which fails to heal or (c) a small ulcer.

Later it takes on one of two forms - (a) the ulcerating or (b) as here, the papillary form.

**Microscopically,** the growth has the structure typical of a squamous cell carcinoma - i.e. with the cell nest and prickle cells.

**The Mode of Spread.**

The growth first spreads through the substance of the lip and may eventually invade the gum and alveolus. From here the spread is to the submental glands, then the upper deep cervical and finally the lower deep cervical.

Fortunately in Maxwell's case there was no evidence of any glandular enlargement in spite of the fact that the growth had spread deeply in the lip substance.

**Clinical Features** - are often very slight, as indeed they were in this case. But when there is much superadded infection and glandular enlargement from the infection or from spread of the malignant disease there is often a marked cachexia.

The pain from the local lesion in Maxwell's case was practically nil and I would attribute this chiefly to the fact that the lesion was free from any gross superadded infection.

**Carcinoma of the Mouth.**

In the mouth the tongue is the most common site of carcinoma and figures given by Fraser in 1932 are -

<table>
<thead>
<tr>
<th>Site</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Edge</td>
<td>67%</td>
</tr>
<tr>
<td>Anterior 2/3 of dorsum</td>
<td>22%</td>
</tr>
<tr>
<td>Tender surface</td>
<td>9%</td>
</tr>
<tr>
<td>Posterior 1/3 of dorsum</td>
<td>2%</td>
</tr>
</tbody>
</table>
As regards the predisposing cause Fraser gives
irritation - i.e. the heat of tobacco smoke and syphilis
as the main two.

The age incidence according to Professor Illingworth
is from 40 onwards and the commonest fifteen years is
between 50 and 65. Fraser disagrees on this point and
gives the age as 50 and upwards and the commonest decade
as that between 75 and 85.

The sex incidence is much the same as in cancer of
the lip that is 90% in males. In Great Britain cancer
of the mouth is most frequent is the North-Western part
of England (Stocks).

In the case of Blair, the patient under consideration,
his age of 72 years brings in well within the "normal" age period for cancer of this region.

And again it is interesting to note that the two
chief factors predisposing to malignance of this region
vidae supra - Syphilis and pipe smoking are both at work
in this case.

The syphilis is evidenced by the W.E.+++ and a very
marked leukoplakia of the dorsum of the tongue and inner
sides of the cheek.

The pipe smoking was as in the last case - not heavy
- 2½ ozs per week - but he says he had smoked a pipe
since he was 18 years old and therefore the irritant had
been at work for some 50 years.

Macroscopically,

The lesion was of the ulcerating type and microscopically it was a typical squamous epithelioma.

Spread,

The spread of carcinoma of the tongue is along the
lymph vessels of the tongue and this is shown in the ac-
companying diagram. Blair's case brought out the very
important point that in cases of carcinoma of the mouth
and particularly of the tongue, the spread to the glands
is often bi-lateral owing to the lymph channels crossing
the mid-line.

Clinical Features,

The chief point to be noticed in this case, as in the
last, is the very slight amount of pain in relation to the
size of the lesion. Here, although the lesion had been
present for 7 months, only in the past month had there
been any pain at all. Speaking on general lines one
may say that whereas the case of lip carcinoma is one
of the sites of malignant disease, that holds out a fairly
good prognosis, the very opposite or almost so is
the case where malignant disease affects the tongue.
The reason is that the spread throughout the tongue and
so to the lymph glands draining the area is very rapid
because the tongue is such a mobile organ and there is no submucous layer. The mucous membrane is bound down to the muscle, hence the propelling action of the muscle on the malignant cells in the lymph vessels.

Summary of Etiology, Pathology and Clinical findings in two cases

(1) cancer of the lip,
(2) cancer of the mouth.

I think that as this series of six cases falls anatomically and functionally into three groups that is

Group I. (a) Lip.
(b) Mouth.

Group II. (a) Pharynx.
(b) Oesophagus.

Group III. (a) Stomach.
(b) Ascending colon.

it is better to have a discussion at the end of each group and a final summary of the conclusions drawn, than to have one large final discussion covering all the lesions.

In these cases of cancer of the mouth and lip we have seen that in each case there were two chronic extrinsic irritants. In the case of the lip shale-oil and a pipe, in the case of the mouth syphilitic leukoplakia and a pipe.

The question that naturally arises from such a statement is - can we explain or rather attribute the malignant growths to these factors or would the growth have arisen in the absence of these irritants. There are many who would argue that these irritants have little affect and will quote cases of growths like these where there has been no history of any irritant, probably it would be more correct to say that no history of any chronic irritant was obtained. In any case there are those patients who suffer from carcinomas of these areas and we cannot find any irritant at work. It might well be that in these cases there is an irritant but we are not aware of its being such, or again the intrinsic factor might be largely responsible - Hurst - organ inferiority and constitutional susceptibility, in which case a much milder of extrinsic irritation would be necessary.

However to make a general statement one might that in the vast majority of these cases an extrinsic factor is found.

Prophylaxis.

Because we can find an extrinsic factor in these cases, would it not be a prophylactic measure if these could be removed? I am not insinuating that it would stop the disease entirely but I think it would certainly decrease the incidence.
If the pipe with the hot stern were dispersed of, the shale miners occupation changed so that he stayed at this job not more than 10 years at the most, the early syphilitic treated promptly, and the tooth with the ragged edge filled properly or extracted and all such obvious irritants removed I feel convinced there would be a great reduction in cancer of the lip and mouth.

Treatment.

The established case must be dealt with.

Firstly - squamous epithelioma of the lip.

The usual treatment is to use deep X-Ray therapy or radium needles if the lesion is small. If the lesion is large excise with 1 c.m. of healthy tissue on either side. The V-shaped incision is widely used but the late Colonel J.J.W. Shaw disapproved of this operation on the grounds that the V usually came too close to the growth with the result that lymph channels full of cancer cells were left. He therefore favored the excision. In Maxwell's case deep X-Ray therapy was used with good results. As regards the glands of the neck if they are involved treat by irradiation or excision.

Secondly - squamous epithelioma of the mouth.

In the case under consideration where the lesion affected the gum, inner side of the cheek, and inner surface of the lip a local excision was carried out and as the glands of the neck were involved irradiation was commenced.

Fraser, 1932, favours radium for the local growth of the mouth followed up by excision of the regional glands on the affected side with post-operative irradiation of the neck when the mouth lesion is healed, and if the glands are fixed, as they were in this case, irradiation only. Before irradiation the toilet of the mouth should be attended to and carious teeth removed as was done in this case.
Carcinoma of the Pharynx.

Of this there are two types, the epilaryngeal, commoner in men and usually found in the region of the aryepiglottic fold, and the post cricoid carcinoma which is much commoner in women.

In this case it is a man who is suffering from the disease - rather a rare finding, for women usually predominate by four to one.

Clinical Features.

In this case it is interesting to note that the first thing which drew the patient's attention was a swelling in the left side of the neck some three months ago, and the right side became rapidly enlarged about 5 weeks ago and it was only 5 weeks ago that there were any symptoms caused by the primary lesion, and that this was only a feeling of fullness in the back of the nose without any pain or general upset. Also for some reason we cannot adequately explain at the moment this disease is associated with the Plummer-Vincent Syndrome

(1) Spoon shaped nails,
(2) Hypochromic anemia,
(3) Dysphagia.

Though in the case under consideration there was no dysphagia probably because of the anatomical position of the growth i.e. high up on the posterior pharyngeal wall. Hurst has isolated Streptococci but it is not certain whether or not these organs have any causal relationship to the disease.

Microscopically - these growths are usually squamous cell carcinomas in which cell nests are present or in some cases a basal cell type of growth occurs. In this case pathological report from a biopsy of the glands of the neck was a squamous cell carcinoma.

I think this fact of the metastatic deposits in the glands being the first evidence of the disease is a very significant fact.

Etiology.

The disease, as we have already said, is more frequent in women compared with carcinoma of the rest of the oesophagus and alimentary tract; why? Many theories have attempted to explain this and none of them have been entirely satisfactory. One theory is that women drink a great deal more hot tea than men and the heat of course has its maximum affect in the pharynx and upper end of the oesophagus. This theory finds support in the fact
### Relative Frequency of Different Grades of Oesophageal Carcinoma

<table>
<thead>
<tr>
<th>Observer</th>
<th>No. of Cases</th>
<th>Grade I</th>
<th>Grade II</th>
<th>Grade III</th>
<th>Grade IV</th>
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<tr>
<td>Broders and Vinson</td>
<td>207</td>
<td>-</td>
<td>16</td>
<td>95</td>
<td>96</td>
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<tr>
<td>Watson</td>
<td>202</td>
<td>15</td>
<td>14.8</td>
<td>39</td>
<td>-</td>
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<tr>
<td>Clayton</td>
<td>39</td>
<td>3</td>
<td>15</td>
<td>12</td>
<td>9</td>
</tr>
<tr>
<td>Percentages</td>
<td>-</td>
<td>4.9%</td>
<td>4.0%</td>
<td>32.5%</td>
<td>23.5%</td>
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</table>

From British Journal of Surgery 1937.

### Abstract from a Table by Sir Arthur Hurst

<table>
<thead>
<tr>
<th></th>
<th>Oesophageal</th>
<th>Gastric</th>
<th>Intestinal + Rectum</th>
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<tbody>
<tr>
<td>All Males</td>
<td>1000</td>
<td>1000</td>
<td>1000</td>
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<tr>
<td>Barmen</td>
<td>4287</td>
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<td>Cellarmen</td>
<td>4577</td>
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<td>1871</td>
<td>-</td>
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<tr>
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<td>315</td>
<td>-</td>
</tr>
<tr>
<td>Other Denominations</td>
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<td>408</td>
<td>-</td>
</tr>
</tbody>
</table>
that in China the males drink much more hot tea than the females and there the incidence of post-cricoid carcinoma is correspondingly greater in the males.

**Treatment**

If the lesions are very small they may be excised but these operations are usually severe and much tissue has to be taken away if one is to remove this highly malignant tumor. Usually, as in this case, it is better to use deep X-ray therapy to the primary and to the glands if they are involved.

**Oesophageal Carcinoma.**

**Middle and Lower End.**

The food is moved down the oesophagus by peristaltic waves but even when fully relaxed the opening at the lower end of the oesophagus is still narrower than the rest of the oesophagus, hence food takes longest to pass this point and any irritant will consequently exert its maximum effect here.

**Etiology.**

1. **Alcohol and tobacco** have a greater action on the oesophagus than on the stomach because the oesophagus is always empty whereas the stomach usually has something in it to dilute the irritant. The fact that alcohol is a very potent factor in causing oesophageal cancer is seen by the fact that it is four times as common in people in the liquor trade than in non-liquor trades. Only about half as much liquor is consumed in Holland as in England and the incidence of oesophageal carcinoma is precisely half of that in the British Isles.

2. **Achlasia** will cause carcinoma of the lower end of the oesophagus. Achlasia = closure of the sphincter = retention of food = irritation = ulceration = hyperplasia = leukoplakia = carcinoma.

3. **Age incidence** - 50 to 70. Note how much higher this is than the age incidence of post-cricoid carcinomata of women. The explanation given by Grey Turner is that there is some factor in the mucous membrane of the lower end of the oesophagus which requires that it be acted on longer for malignancy to occur. In Robert Duncan's case he says he drank 3-4 pints of beer on Saturday nights. However it is quite possible that he drank more than this. As for tobacco 2 ozs a week is not a lot but possibly it was of the cheap variety therefor I would conclude that these two factors help to cause the malignancy. He did not appear to be the high strung sort in whom achlasia.

4. **Dysphagia** - a steadily progressive dysphagia is the chief symptom as well as this the patient usually says...
Clinical Features.

Dysphagia - a steadily progressive dysphagia is the chief symptom. As well as this the patient usually says he can feel the food sticking and can localize the area on the front of the chest or abdomen. In Duncan's case he pointed to the region just over the cardia.

Loss of Weight - is also a marked feature and this is for 2 reasons.

(1) The fact that not food or at least very little food was passed into the stomach.

(2) From the toxaemia that any malignant disease causes, as well as this there was a dehydrated appearance from lack of fluids.

Prophylaxis - avoidance of irritants e.g. alcohol, tobacco, etc.

Proof. Presumably chronic oesophagitis is the precursor of carcinoma and it has been shown that the removal of the irritant in a case of chronic oesophagitis soon results in the disappearance of the oesophagitis and therefore of a pre-cancerous condition.

Treatment.

Two methods are used.

(1) X-Ray therapy in suitable cases. This is done by using three beams from different angles so that the tumor gets a maximum quantity of rays.

(2) Surgical removal is very difficult because of the structure surrounding the oesophagus and the operation is therefore a very serious one. In Duncan's case surgical removal was attempted because he was in such a poor state that he would never have lived long enough for a course of X-Rays to reduce the carcinoma to allow the passage of food.

Gastrostomy is only used when it is necessary to keep the patient for a short time to complete some financial transaction.
The etiology is again an intrinsic factor and a chronic irritant as an intrinsic factor.

Etiology - Sex - Incidence. Sir Arthur Hurst examined a series of cases at the New Lodge Clinic and Ruthin Castle, and found that although carcinoma of the stomach occurred in nearly three times as many men as women. The stomach was involved in 40% of 160 males and 38% of females suffering of cancer of the alimentary tract or pancrea.

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STOMACH -( CARCINOMA)

Etiology. Men are affected three times as commonly as women. More than one third of all malignant diseases in men, more than one fifth in women, is gastric. Ninety-five per cent of gastric cancers occur between 40 and 69 years of age (Balfour). The greatest frequency is in the sixth decade. No race is exempt from cancer of the stomach, but the actual racial incidence varies. The risk of cancer of the stomach is fifty per cent less in England than in continental Europe (Cramer). Occupation and social class have not been shown beyond doubt to influence the incidence of gastric cancers: Stevenson found it more common in the industrial, Hoffmann in the leisured class. Fibiger, by feeding rats on cockroaches infested by the gastric nematode - Gongylonema Neoplasticum - produced chronic gastritis, polyposis, and finally carcinoma in the rat stomach, but his work lacks confirmation, and there is no evidence that chronic irritation is responsible for human cancer, unless ulcer-cancer is considered an irritative form. Cancer of the stomach is so general a disease that it is difficult to know whether dramatic familial incidence, sometimes recorded, has any statistical significance. Adenomata and other simple tumours are occasionally starting-points for the cancerous process. Rests of pancreatic and duodenal epithelium, "misplaced" in the stomach, have been considered likely points of origin for carcinoma (Cohnheim). There is no reason to doubt Ewing's opinion that "the origin of gastric cancer has been satisfactorily traced to altered, but previously normal, gastric tubules", and that the first change is a localised overgrowth in apparently normal epithelial cells.

In the lower animals, though in general carcinoma is not an uncommon disease, gastro-intestinal tumours are exceedingly rare, if we except squamous epithelioma/
epithelioma of the rumen of cows and of the cardia of mice (which are essentially oesophageal tumours), and the common anal tumours of dogs. Slye found no gastrointestinal tumour in 100,000 rat autopsies. In wild animals, isolated gastric tumours are described in the kangaroo, rhinoceros, deer, leopard, and the telostean box. In 531 autopsies on primates, the only gastric tumour was a diffuse adenoma of stomach in a Hamadryas baboon. Cancer of the stomach is predominantly a tumour of man. It is not known whether civilised man is more prone to it than is primitive man. Probably he is - because of his greater chance of living into the cancer age-period.

Relation of achlorhydria to Gastric Carcinoma.

- Lancaster did not suffer from achlorhydria but rather slight hyperchlorhydria.

In 1929. 1. Hurst stated that achlorhydria was not caused by gastric carcinoma but was there before the cancer developed and was due to chronic gastritis.

2. Konjetzy - has shown a good deal of pathological evidence pointing to the fact that gastric carcinoma develops from chronically inflamed cells of the gastric mucosa - i.e. chronic gastritis.

In gastric carcinoma there is generally such a short history that it is difficult to believe that the growth is not the primary condition, but there has shown that the chronic gastritis can be very latent.

In Lancaster's case however he admits that his appetite has steadily been getting worse for the last fifteen months associated with this was gastric discomfort on taking food. In this case there is little doubt that there was a chronic gastritis prior to the carcinoma - Lancaster : have chronic gastritis with slight hyperchlo\-

- lydia - not a common condition but sometimes seen. Ulcer Cancer - about 5% of chronic peptic ulcers become malignant.

Hurst: "I have never seen a case in which achlorhydria was developed in a patient with cancer of the stomach who was known to have had free acid in an earlier stage."

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Pathology. Cancer is commonest in the pyloric part of the stomach, less usual at the lesser curvature, cardia, posterior wall, greater curvature, anterior wall, and fundus, in order of decreasing frequency. Neither a pure morphological nor a pure histological classification is satisfactory, for the structure cannot always be deduced from the gross appearance. Five varieties, however, have sufficient histological or naked-eye specificity to justify their separation as special groups, but shaded gradations occur between the five groups, and the single tumour may deserve inclusion in more than one category.

(1) The polypoidal, proliferative, or cauliflower cancer commences as a warty thickening of the mucosa (sometimes at the base of a polyp) and soon forms a large, soft, projecting mass. Enlargement is rapid, the tumour outgrows its blood supply, and surface ulceration is early, with consequent haemorrhage, infection, and cachexia. Usually situated at pylorus or at cardia, it may give obliteration of the lumen. Spread beyond the submucosa is slow, and extension to the peritoneal surface and to the lymphnodes is often late. Structurally, this tumour is of columnar cells, reproducing gastric tubules more or less exactly, but in its more malignant (encephaloid) form, the cells are spheroidal, the stroma scanty, and a glandular origin less obvious.

(2) Colloid, mucoid, or gelatinous carcinoma, essentially an adeno-carcinoma, is modified in appearance by the presence of huge quantities of mucus-like material in the cells, in the primitive acini, and in the tissue spaces. The cells, especially at the infiltrating edge of the tumour, are distended by undischarged mucus, and present a "signet-ring" appearance, the nucleus being displaced to project outwards at the periphery of the cell. Commonest in the pyloric region, the tumour rapidly infiltrates all coats, thickening the wall, endowing it with a strange translucency, and sometimes greatly narrowing the lumen. It erupts early on the serous surface, often to give widespread peritoneal dissemination. Stomach outranks colon and gallbladder as a cause of colloid cancer of the peritoneum.

(3) Diffuse, atrophic, scirrhous (leather-bottle) Stomach. Linitis plastica. First the pylorus, later the body, and finally sometimes the whole stomach, is converted, by fibrous thickening chiefly of its submucous and subserous coats, into a rigid tube.

(4) The ulcerative form occurs usually in the pyloric region or on the lesser curvature. It may arise as a "de novo carcinoma" in an otherwise healthy stomach not the seat of a previous peptic ulceration, or it may arise as malignant.
malignant change at the edge of a chronic peptic ulcer - "ulcer-cancer" or "cancer ex ulcere". The former tends to have the typical appearance of a malignant ulcer, with a shallow crater elevated above the level of the surrounding mucosa, edges hard and nodular, and an irregular red floor; the ulcer-cancer tends to be more deeply excavated.

Wilson and McCarty, and other American authors, have opined that more than 70 per cent. of cancers take origin in chronic, simple peptic ulcers, because of the fibrosis, patchy fragmentation of the muscularis, and endarteritis obliterans which are so common in cancers of the stomach. These appearances are not, however, conclusive evidence of longstanding simple ulceration. To be certain that any given cancer has arisen in a chronic peptic ulcer, there should be present: (1) a regularly-laminated fibrous tissue, rich in fibroblasts, (2) complete destruction of the whole thickness of the muscularis at the ulcer site, (3) fusion of the muscularis mucosae with the muscle coat at the edge of the ulcer, and (4) longstanding dyspepsia (Dible). These criteria of chronic ulceration are definitely absent in 84 per cent. of gastric cancers; in the remaining 16 per cent. it is impossible either to establish or to exclude old chronic ulceration.

In corollary with this argument it is legitimate to ask how often a peptic ulcer, clinically considered simple, is found after excision to show early malignant change. Many simple peptic ulcers bear a histological resemblance to carcinoma. Epithelium in healing areas, cut obliquely where it dips through scar tissue to lie on the surface of the circular muscle, may simulate malignant infiltration, as also may sympathetic ganglion cells at the base of an ulcer. Before making a histological diagnosis of carcinoma, therefore, at the edge of a chronic peptic ulcer, there should be seen (1) irregular epithelial overgrowth, (2) true cancerous infiltration, (3) obvious mitosis, (4) absence of mucin from the cells. If these criteria are satisfied, only a small proportion of the cases diagnosed clinically as simple peptic ulcer will be pronounced malignant by the histologist. Balfour found that in 1,200 cases of gastric ulcer, considered simple at operation and treated (as was then the rule) by gastro-jjunostomy alone, few of the ulcers disappeared, yet cancer developed in only six per cent. - a proportion no greater, probably, than the expectation of the cancer of the stomach in a cross-section of the general population at the same age-period.

In general, it may be said that six per cent. of simple chronic ulcers undergo malignant change, while, conversely, not more than sixteen per cent. of cancers of the stomach arise in previous simple peptic ulceration.
LYMPH DRAINAGE OF STOMACH.
and a line drawn midway between the curvatures, and they
drain directly into the coeliac glands. (ii) The
inferior gastric glands lie between the layers of the
greater omentum along the greater curvature, in relation
to the right gastro-epiploic artery. They drain the whole
pyloric region and the left or lower part of the distal
portion of the body of the stomach. The inferior gastric
glands drain into the subpyloric and retropyloric glands.
Those glands are closely related to the first part of the
duodenum, and can be removed at the time of gastrectomy
only if the first inch of the duodenum is ablated with
the stomach. Further spread from the subpyloric and
retropyloric glands is by lymphatics along the upper border
of the pancreas to the coeliac glands around the coeliac
axis. Rarely, extension of cancer may occur not only by
this route, but along the biliary lymphatics to the glands
of the hilum of the liver, and a branching cancerous
permeation of the ligamentum teres, resulting in a secondary
mass at umbilicus. (iii) The third gastric lymphatic area
is roughly triangular in shape. It is bounded by the upper
part of the greater curvature, by a line drawn midway
between the two curvatures, and by a vertical line dropped
from the right edge of the oesophagus. This area drains
into glands in the gastro-splenic ligament, and to glands
in relation to the tail of the pancreas and hilum of the
spleen. These gland groups, in their turn, drain by
lymphatics which pass along the upper border of the pancreas
to reach the coeliac glands.

The middle, or middle suprapancreatic glands are
thus usually the central metastatic terminus for all cancers
of the stomach. Occasionally, however, further permeation
from the coeliac glands along the thoracic duct or by way of
other mediastinal lymphatic routes may give rise to a metastatic
deposit in the supraclavicular (inferior deep cervical)
glands on the left side. (Virchow).

(4) Peritoneal spread (most extensive in the
colloid form of gastric cancer.) When the primary tumour
in the stomach reaches the serous coat, cells set free in
the peritoneal cavity may produce malignant ascites, with
multiple nodules on the parietal peritoneum and on the
surfaces of all the viscera. The greater omentum, the
pelvic floor, and the ovaries suffer most, the cells
gravitating through the abdominal cavity to alight on these
organs like "snow-flakes". A bulky ovarian tumour
(Krukenberg tumour) may be obvious while its tiny gastric
parent escapes notice. It has been suggested that the
metastasising cells may reach the ovary by the blood, and
multiply rapidly there in the fertile ovarian pabulum, but
Sitzenfray has found cancer cells among the germinal surface
cells of the ovary, none in the body of the gland, so spread
from stomach to ovary in these cases seems to be mainly
transperitoneal.
(5) Blood spread is usually late, and, in the first instance, by portal vein to liver. Typically, the blood-borne liver metastases are multiple and scattered: (direct extension to the liver gives a secondary liver growth, spreading inwards from the surfaces; lymphatic permeation a branching extension from the hilum along the portal tracts).

Metastases to the lungs are unusual and late, those to systemic organs (bones, skin) later still and rare.

Clinical Features.

Symptoms. The patient is usually between 40 and 60 years of age. Men are affected three times more commonly than women. The symptoms to some extent depend upon the type of tumour present. They are usually of only a few month's duration, unless simple ulceration has preceded the cancer. Feeling or distension induced by a meal, or of quite irregular onset, is perhaps the commonest initial symptom, and is due to reduction in stomach capacity. It is accompanied usually by anorexia. Pain is late and usually slight, though in ulcerative varieties it may be severe and even of hunger type, relieved by food (Balfour).

Anaemic factor, may be the most prominent clinical feature: essentially a secondary anaemia, it may yet be associated with a fairly high colour index and simulate pernicious anaemia closely. A particularly intense variety of anaemia occurs when the bone-marrow is the seat of widespread metastases. Loss of weight and strength may be obvious before gastric symptoms arise. The notorious cachexia of cancer of the stomach may be "marantic" (due to vomiting and dehydration), the blood haemoglobin remaining high even at death, or it may be "anaemic" (from ulceration and haemorrhage) with reduced haemoglobin.

A few cases, especially of cancer of the body of the stomach, are completely symptomless until the growth is large and metastases are present. The stenosing varieties may closely mimic simple pyloric obstruction (though a greatly dilated stomach is unusual) or may rarely produce hour-glass deformity. In carcinoma of the cardia, dysphagia is the predominant symptom.

It cannot be too strongly emphasised that any dyspepsia, loss of weight, or anaemia, occurring at or beyond middle-age, demands a complete examination of the stomach long before vomiting, coffee-ground haematemesis and cachexia of advanced gastric cancer supervene.

The onset of malignant change in a chronic peptic ulcer is characterised by a more or less dramatic alteration (clinically) in the longstanding dyspepsia. Pain loses its periodicity, and becomes more persistent, its/
its interval after food is shortened, food fails to relieve it, and the appetite is lost even in the presence of adequate acidity (Balfour).

Physical signs. Diagnosis should be made before any positive features are obvious in examination of the abdomen. A palpable tumour suggests that operation has already been fatally postponed. In late cases, fixation of the tumour may be obvious, or a mass of enlarged glands, or an enlarged liver, or a malignant ascites. Stenosing forms rarely give sufficient dilatation of the stomach for splashing to be elicited.

Jaundice may be present in late cases, from liver involvement, or from pressure of glands on the common duct, or merely from cachexia. The degree of anaemia should be measured by clinical appraisal and by blood counts. There is usually a considerable leucocytosis, but the digestive elevation of the white count does not occur.

Test Meal. This is most cases shows hypochlorhydria. Free hydrochloric acid secretion can usually be induced, even if at first it appears to be absent, by histamine injection after adequate gastric lavage. The hypochlorhydria is due to replacement of secreting cells by cancer, and there is a reduction also in the amount of pepsin secreted. The fractional meal usually presents evidence of retention, and lactic and butyric acids and Boas Oppler bacilli may then be present. True cancer cells are said to be sometimes demonstrable.

X Ray Signs. The earliest signs are best elicited by examination of the mucosa relief: - local lack of peristalsis, lack of clear delineation of rugae, loss of flexibility and altered rate of emptying; Motility is usually reduced, even though emptying is rapid. The radiological signs of well-developed carcinoma depend largely on pathological type.

(1) Polypoid growths present a filling-defect of irregular outline, gradually fading into normal stomach, if the rays are tangential to the tumour.

(2) Scirrrous cancer presents often a relatively smooth surface, rigid under palpation, but not clearly demarcated from normal stomach wall. In pyloric scirrhus, the lumen may be reduced to a narrow but still patent tube.

(3) The leather-bottle stomach has a narrow lumen, rigid walls, rapid outflow, and no local filling-defect.
(4) Malignant ulcer cannot always be differentiated from simple on radiological grounds alone. An ulcer crater more than an inch long should be considered potentially malignant. Sometimes the rolled edge may be seen as a filling-defect around the crater (Carman's meniscus sign) and indicates malignancy beyond all doubt. Malignant ulcers are not usually tender on palpation.

(5) In cardiac growths, the small stomach may fill slowly, and bismuth be delayed in the oesophagus.

The Gastroscope. The Wolf-Schindler flexible gastroscope is a side-vision endoscope mounted in a flexible rubber tube. As a rule, a fairly clear view may be obtained of the lower part of the body of the stomach, of the pyloric region, and of the edges of the opening into the pyloric canal. The amount of lesser curvature visualised varies from case to case. After gastro-enterostomy, the stoma is visible in about fifty per cent. of cases. The gastroscope has proved most useful in the examination of various forms of gastritis. It is increasing our knowledge of the physiology of the pylorus. It is occasionally required in the diagnosis of cancer of the stomach. Only in rare cases is a cancer which the radiologist has failed to demonstrate visible to the gastroscope, and a negative gastroscopy report by no means excludes the presence of carcinoma.

The Gastric Camera. - a tiny camera swallowed to take multiple views of the stomach - is of no practical importance in the diagnosis of cancer.

Treatment. Hurst, Lancet, March 11th, 1939.

"The treatment of carcinoma of the stomach is purely surgical. The onset is so insidious that even with the earlier and more general use of the modern modes of investigation, including the gastroscope, it is doubtful if the most skilful surgeons will even increase the five year survival rate after operation for all cases, including the inoperable ... we must look for prophylaxis."

Prophylaxis. Should be based on the following:

(1) Reduction of gastric irritation. Chronic gastritis and gastric ulcer when developed must be stopped as soon as possible.

(2) Teeth. Greater care must be paid here. - In this country from the time children leave school and hence the school dentists. They simply let their teeth deteriorate until they get a plate, and during this time the stomach is subject to trauma, from the swallowing of pus from pyorrhoea and improperly masticated food.
As carcinoma only appears in people who are predisposed. It is said that if we stop trauma to their stomachs they will develop it somewhere else, but these people may lack the other necessary factors i.e. chronic irritation and organ inferiority and in this case they won't develop it.

Prognosis. At present prognosis depends on many factors. Paradoxically, a longer history is more hopeful than a short one; at the Mayo Clinic 45% of patients for whom resection was possible reported symptoms of less than one year's duration; whereas in the group of those for whom only laparotomy or a palliative operation was performed the corresponding figure was 54%. Moreover in those patients in whom symptoms had been present for less than a year at the time of resection the five-year survival rate was 25%, whereas for those whose symptoms had lasted for more than a year it was 32%. It seems clear that patients with longer histories had tumours of lower degrees of malignancy, less liable to metastasis, than those with short histories. Nor is the youth of the patient the unfavourable sign it is usually supposed to be; the higher malignancy of the young person's tumour is offset by his greater ability to withstand a radical operation. Among patients over 60 the hospital mortality-rate at the Mayo Clinic was above 20% while among patients between 30 and 40 it was only 5%. It is noteworthy that among patients with a palpable abdominal mass the tumour was removable in 41% of cases, while in patients with rectal or cervical glands suggesting the presence of metastases only about 20% had gastric lesions which could be resected. WALTON has emphasised the same point over here; the large size of the mass should never be taken as a contra-indication to operation. Spread of carcinoma by lymphatic or peritoneal metastasis lowers the five-year survival-rate far more than direct spread of the tumour through the stomach wall to neighbouring structures. This means to the surgeon that a tumour which appears at first to be inoperable by reason of direct extension may, if it is completely removed and the patient survives, lead to a better end-result than a more easily mobilised tumour which has given rise to lymphatic spread. Among patients with no abdominal mass and no evidence of rectal or cervical metastasis the gastric tumour was removable in 50%. The operability of a growth can only be established by surgical exploration; gastroscopy or peritoneoscopy may reveal contra-indications to operation, but the degree of local and distant spread cannot be estimated with either instrument. On the other hand, gastroscopy is unsurpassed as a means of deciding between benign and malignant conditions, thus ensuring proper choice of treatment and permitting the surgeon to forestall malignant change.
LOCAL EVIDENCE OF DISTRIBUTION OF DISEASE.

[SIR JOHN FRASER.]
COLON. Important Anatomical Points.

(1) The mucous membrane of the distal part of the colon is more tightly bound down to the muscularis than in the proximal half.
(2) Goblet cells are greatest in the distal part.
(3) Lymphatics. Best drainage is from transverse colon and there carcinoma has poor prognosis spread.

(1) Down the mesentery.
(2) Up to stomach.
(3) To spleen.
(4) To capsule of liver.

(4) Blood supply. The right colic artery shows many abnormalities and this upper part of the ascending colon has a poor blood supply.

Causes.

1. Constipation - as an entity is not associated with any increase in the disease.

2. There are more goblet cells in the distal part of the colon and Sir. J. Fraser thinks that this is the reason for the high incidence in the sigmoid colon.

3. Sex incidence - about the same.

4. Social. Dr. Haig has shown that the highest incidence is in the wealthiest people.

Dr. Robertson of the Mayo Clinic draws attention to the fact that ulcerative colitis polypi are the percussion and puts the cause down to a dietetic source and uses this to explain the difference of incidence in the wealthy and poor classes.

Sir. J. Fraser differs in his opinion from Dr. Robertson. He says it starts locally, whereas Dr. Robertson believes it is a constitutional disease.

The typical tumour is the adenocarcinoma. According to their behaviour the tumours are divided into five grades.

1. The cells retain their true physiological character and try to reform glands.
2. 3. 4. No attempt to form acini. Cell is spherical.
5. The cells begin to accumulate a large amount of mucus.

Five Year Death Rate.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>I</td>
<td>40%</td>
</tr>
<tr>
<td>II</td>
<td>56%</td>
</tr>
<tr>
<td>III</td>
<td>76%</td>
</tr>
<tr>
<td>IV</td>
<td>100%</td>
</tr>
<tr>
<td>V</td>
<td>100%</td>
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</tbody>
</table>
Above grade IV death is inevitable.

The method of grouping tumours is also very useful in guiding one to a prognosis.

A. Those limited to the mucosa - the peritoneum is not involved.
B. Those in which the peritoneum is involved.
C. Passed along to lymph glands as well as peritoneal cavity.

In Five Years.

Prognosis.
Group A. 7% are dead
Group B. 75% do
Group C. 68% do

In practically all cases is surgical intervention the treatment, and the type of operation will vary in the different sites.

Signs and Symptoms. - differ as we pass along the colon.

A. Caecum and Ascending Colon.
   1. Pain.
   2. Dyspepsia.
   3. Tenderness in the right illicic fossa.

The dyspeptic symptoms are more marked in tumours of the caecum and ascending colon than in the rest of the colon. This dyspepsia was well marked in Shiels case - Note the anaemia is very often a marked feature of these carcinoma of the right half of colon.

B. Transverse Colon. The tumour is easily palpated and there is alternating constipation.

C. Left sided. Constipation and bleeding. In dealing with these colonic cases Rosvenog's Rule is very useful - symptoms that increase as we pass around the bound are

(1) Constipation
(2) Bleeding.

In making a diagnosis a careful history is necessary as usual.

In X-Ray the patient the latest method of the Fisher Modification of the ordinary barium enema has given very excellent results.
Final Conclusions.

The final conclusions I would like to draw in these cases:

1. Carcinoma of the upper alimentary tract is definitely related to chronic irritation of some form or another. In many cases this is in the form of alcohol, hot fluids, cheap tobacco smoked in a pipe. This smoking of course cheap tobacco and drinking of poorer grades of alcoholic beverages is no doubt an etiological factor and helps to explain the greater incidence of carcinoma of the upper alimentary tract in the poorer classes. If these factors were eliminated I feel there would be a great reduction in carcinoma in this region.

2. Carcinoma of the stomach — because this is such a dreadful disease, chiefly because of its insidious onset and hence its very poor ultimate prognosis I have gone into this a little more fully than the other lesions. This disease is a little commoner in the poorer classes but not so markedly so as in the mouth and oesophagus, because now the hot food is cooled by its passage down the oesophagus and the spirits diluted by the fluids of the stomach.

3. Carcinoma of the colon — here the incidence is practically the same in all classes of society and therefore we cannot blame the same factors as we did in carcinoma of the fore-gut. When the food is in contact with the colon it has been cooled, digested, and broken down and any potentially malignant properties which it might have had have been vented on the alimentary tract above this level. We must conclude therefore carcinoma of the colon is due more to an intrinsic than an extrinsic factor.

4. A point to which I would like to draw attention is that in each of the last three cases i.e. the lower end of oesophagus, stomach and colon the cause of the patient's coming into hospital was not the carcinoma per se but was the obstruction it had produced in the alimentary tract. In the oesophageal case the obstructing of the passage of food into the stomach caused the man to suffer from severe starvation, emaciation and anemia. In the gastric case the man was not nearly so emaciated because the obstruction was not complete and a little food was getting into the intestine to be absorbed and also there was little absorption from the stomach whereas...
there was none from the oesophageal wall.

In the third case the man suffered much less loss of weight than the previous two did, the reason being as follows. Although food was obstructed in the colon still it was able to pass into the small intestine and be absorbed. Obstruction to the colon is not nearly so serious as obstruction higher up and this is borne out in Samson Wright’s case in which a man did not have a motion for a year at the end of which time he was still perfectly healthy. In this third case therefore the loss of weight is almost entirely due to toxic absorption from the carcinoma. The degree of anemia ran a course parallel with that of the loss of weight.

In dealing with these advanced cases of cancer of the alimentary tract Mr Grey Turner outlined the true principle when at the Royal Medical Society of Edinburgh in February 1939 he said - quote “In all these advanced cases of malignant disease we should operate and give the patient the chance of survival no matter how great the risk.”