

REPORT and COMMENTARY.

ON THE FOLLOWING SIX CASES :

1. Squamous Epithelioma of Maxillary Sinus.
2. Squamous Epithelioma of Mandible.
3. Recurrent Sq.Epith. of Tongue.
4. Recurrent Sq.Epitheliomata of Tongue  
with Syphilitic Glossitis and Leucoplakia.
5. Recurrent Squamous Epithelioma of Tonsil.
6. Leucoplakia and Recurrent Squamous Epithelioma  
of Vulva.

All the cases were seen in Wards 7 & 8  
during the class of Clinical Surgery, except Case 6.

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*Paterson Prize in Clinical Surgery,  
1946.*

by IAN F. SOMMERVILLE.

JUNE 1946.



Mrs. ISABELLA WHITTON

Aet:- 75.

8, Cromwell Road,  
Burntisland.

Occupation: Housewife.

Admitted : 22/6/44

Complaint : Painful swelling in left cheek.

Duration : Three months.

HISTORY : The patient awoke one morning, three months ago, to find that both sides of her face were swollen. She felt weak and fevered and remained in bed. Dr. Logie, Burntisland, was called in at once. He found that the swelling was more marked on the left side and that there was an additional lump - the size of a pea - behind the left ear. The left cheek was more painful than the right.

Apart from these local features, the patient complained of a severe headache which radiated from the vertex and shivering sensations "up her spine". She lost her appetite and for a few days felt miserable.

At the end of a week the Headache, pyrexia, and general feeling of malaise had disappeared as had the swollen appearance of her face. The lump behind the left ear gradually subsided

but a swelling, which she could palpate, in the left cheek - has persisted.

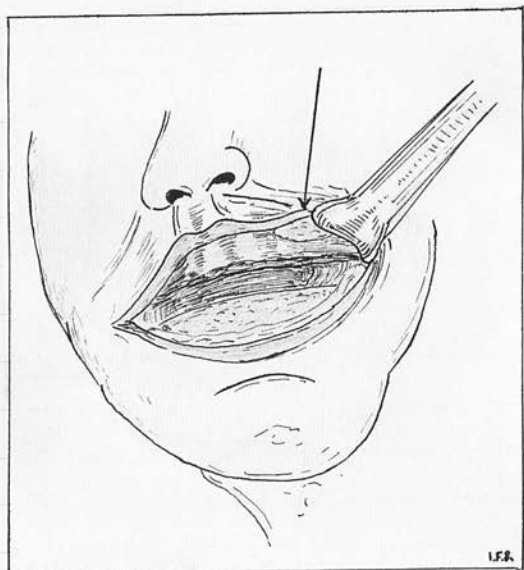
The area often becomes hot and painful and flushed - especially in the evening and in the early hours of the morning. Mastication and conversation make it more painful, so that at times she is afraid to open her mouth.

The patient notices that she is becoming slightly deaf on the left side.

Previous History: The patient has enjoyed excellent health and has had no serious illnesses. She has never had an acute sinusitis, and is not subject to frequent colds or nasal catarrh. She has had " a lot of trouble " with her teeth and has been edentulous for many years.

She has always had a good appetite but her dietary history indicates a lack of first-class Protein in the form of Meat, Fish, Vegetables, and an excess of Carbohydrate. Almost certainly the Vit. B complex content of the diet was not of the order demanded by this Carbohydrate excess. The patient does not smoke, or drink alcohol, but enjoys many cups of strong tea daily.

Social History: Her diet if not inadequate has been



ill-balanced over a long number of years.

The patient has a family of five - all alive and well. Her husband died nineteen years ago.

There is no ascertainable family history of Neoplasm.

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### EXAMINATION

An intelligent old lady - who does not look her years.

Temperature:- 97°F.                      Weight: 7st.2lbs.  
Pulse Rate:- 60/min.  
Blood Pressure:- 125mm./85mm.

On inspection of the face a slight fullness is noted on the left side, and the left cheek is flushed. There is no trace of the swelling behind the left ear, which was mentioned in the history,

When the finger is passed up into the groove between the soft tissues of the cheek and the Superior alveolar margin - an oval swelling is palpable. The swelling measures 3cms. by 1.5cms. and lies with its long axis parallel to the alveolar margin. The tumour is solid - of a hard consistency - and is completely fixed to, the underlying bone. The Mucous membrane over this area is reddened but intact.

The tumour has a well defined margin, regular in outline. It is slightly tender.

Three small round nodules - each measuring

24:5:44. X-ray Report.

" Complete opacity of the left antrum with  
destruction of the infero-lateral wall.

Typical appearances of Carcinoma of the Ant

a few mms. - well defined, hard, and fixed, are palpable on the left side of the palate near the alveolar margin opposite the tumour and at the level of the 2nd. Molar. The gums are completely edentulous.

There are no palpable Cervical glands.

The Tongue is clean and moist and there is no papillary atrophy.

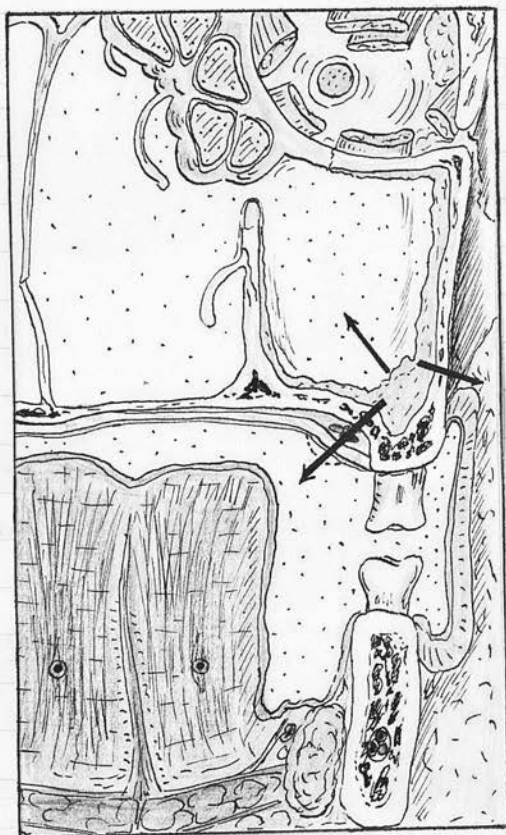
Integumentary system:- The skin is loose and dry and there are areas of brownish discolouration on the arms and legs. Fissuring at the angles of the mouth is suggestive of an old Cheilosis.

The patient weighs 7st.2lbs. but has not lost weight recently.

No pathological signs were elicited by examination of other systems.

DIAGNOSIS:- This is a case of Carcinoma of the Left Maxillary Sinus.

The clinical features three months ago - during the acute phase - suggested an inflammatory lesion, but this is not supported by the subsequent course and clinical examination on admission. Careful clinical examination left open several alternatives. Rarity and age incidence militated against some of these and X-ray examin.





excluded many, The histological type of Carcinoma could almost be anticipated, but final diagnosis awaited histological examination.

(1) Inflammation:- Inflammation was present and there had been a lymphadenitis of the pre-auricular gland, but the basic lesion was not inflammatory. There was no necrosis of bone, haemorrhage, or pus, nor acute local tenderness, such as one finds Alveolar Osteomyelitis.

(2) "Epulis":- rather an indefinite term ( Greek: "on the gums") and comprising:-

(a) Fibrous Epulis or Fibroma - a tumour of periosteum, a nodular hard swelling fixed to the bone as in this case, but growing outward and not invading the bone. Another important point against such a diagnosis is the age of the patient. All Epulides tend to occur in adolescence and early adult life, and the Fibrous Epulis most commonly arises from periosteum at the site of Deciduous teeth and practically never permanent molars.

(b) Malignant Periosteal Sarcoma - this is again a tumour of earlier decades and is very rare.

(c) Osteoclastoma or "Benign" Giant Cell Tumour or "Myeloid Sarcoma" of the Jaw. - a firm vascular

slightly tender swelling. Palpation may reveal "egg-shell crackling". As in other epulides - rare after the age of 40.

(3) Osteoma:- Diffuse cancellous osteoma, discrete Ivory exostosis, and a host of intermediate forms may affect the Maxilla. An Ivory Enostosis may arise within the Maxillary antrum. The X-ray appearance is characteristic.... dense localised opacity in contradistinction to the less dense irregular opacity of Sinus Carcinoma.

(4) Chondroma: This arises either on the nasal surface of the Maxilla or in the Maxillary Sinus - probably from cartilaginous 'rests' . Not completely excluded by clinical and radiological examination but most unlikely.

(5) Sarcoma: all types of sarcoma have been described in this region but the most likely form in this case would be a Round Cell Sarcoma arising from the Muco-Endosteum of the Maxillary Sinus. Such a tumour would present an identical clinical picture. An Osteogenic Sarcoma(periosteal) is very malignant, the course would be shorter, and X-ray examination would reveal radiating laminae of new bone.

(6) Gingival Sq.Epithelioma or Gumma :- unlikely to

invade the Sinus without more marked local signs.

Wassermann Reaction negative.

(6) Malignant Tumours of Maxillary Sinus:

(a) Sarcoma - usually Round cell type.

(b) Carcinoma -

1. Basal Cell Carcinoma.

2. Adeno - Carcinoma.

3. Squamous Epithelioma.

The last named is the most common, but a final diagnosis could not be made at this stage.

The Aetiology and Pathology of Squamous Epithelioma of the Maxillary Air Sinus is discussed in the Commentary.

Treatment: When the diagnosis had reached the stage outlined above, it was decided to try the effect of X-ray therapy. The result could not be foreseen since this type of tumour varies very considerably in its sensitivity to X-rays. The treatment was therefore to be a Therapeutic test of the Radio-sensitivity of the tumour in question.

An essential preliminary to this therapy was Drainage of the Sinus.

29:6:44 :- Operation.

Anaesthetic: Gas, Oxygen, and Ether.

An incision was made in the left canine

fossa as illustrated, the muco-periosteum reflected and the Maxillary sinus opened. The tumour was curetted with a sharp spoon and a pack inserted.

3:7:44 On examination the involvement of the left cheek was found to be more extensive and the alveolar and palatal nodules were larger than on previous examinations. The drainage opening was smaller than had been anticipated.

A ten day course of X-ray therapy was begun using a Field of 6 x 8 cms. It was doubtful whether the whole tumour was included in the field, but in view of the patient's age - field size was not increased.

14:7:44: There was little change in the condition and the patient was discharged "I.S.O."

7:3:45: The patient reported back eight months later complaining of severe pain in the cheek and of a large swelling in the upper outer part of the cheek. The insertion of a Radium cork into the antrum was suggested, but no further treatment was carried out.

The patient died four months later, with "extensive carcinoma of mouth and face". No further details are available.

John HORSBURGH.

Aet. 69

12, Abbey Park,  
Pittenween.

Dr. Page,  
Pittenween.

Occupation: Fisherman.

Complaint: Swelling of right side of Jaw.

Duration: Four months.

Admitted: 20:9:44.

HISTORY: In June 1944 - 4 $\frac{1}{2}$  months prior to admission the patient first experienced a hot " itchy " sensation over the right lower jaw. A few weeks later he noted a slight swelling in this region.

During subsequent weeks the swelling gradually increased in size, and in addition, the patient complains of a stinging pain which radiates up from the angle of the mandible to behind the ear and on towards the occiput. The patient sometimes wakes at night with a hot flushing of the Right cheek

His appetite is good and although uncomfortable, the tumour does not interfere with his ability to open and close his mouth. During the last month the tumour has grown more rapidly and the patient has now to cut up his food into small pieces because of the uncomfortable "heat" which develops in the affected jaw during mastication.

The pain behind the ear has been more frequent and often comes on suddenly when he lies down.

During this last month the patient has not felt himself and has had two styes in the Right upper eyelid.

The patient had very bad teeth as a young man and has been edentulous for many years. He has no dentures and has never had any fitted.

Apart from habitual constipation, the patient has enjoyed excellent health.

Social history: The patient appears to live a healthy full life in a fishing village. He smokes a pipe, does not chew tobacco, and drinks alcohol in moderation. While at home he has a good mixed diet - although imperfectly masticated - and he has not been much at sea in recent years.

EXAMINATION: A cheerful healthy looking man.

There is a single rounded swelling about the size of half an orange situated on the ramus of the Mandible on the right side. The tumour smooth with a regular outline and extends upwards to a finger-breadth below the Zygomatic arch, and downwards over the inferior border of the ramus into the Submandibular fossa where its lower margin is

palpable as an well defined elliptical border.

The tumour is firm in consistence, it does not fluctuate or transilluminate and cannot be indented by palpation, and although smooth there is a slight variation in consistence which suggests that it is not uniformly solid.

The tumour is completely fixed to the underlying bone. Examination by palpation inside the mouth defines the anterior rounded border of the tumour and confirms the fact that it is firmly fixed to the mandible. There are no teeth. The state of the Gums, Tongue, and Buccal mucosa is healthy. There is full range of movement at the Temporo-Mandibular joint. There are no palpable Cervical glands.

Wassermann Reaction negative..

Blood Pressure: 130mm./85mm.

No pathological signs were elicited by an examination of other systems.

DIAGNOSIS:- A final diagnosis could not be reached at this stage. Radiological report on 14th. June stated - " Right Mandible negative."

Differential Diagnosis:-

(1) Fibro-Sarcoma: Sarcoma is the most common malignant tumour of the mandible. The Periosteal

Sarcoma - the most malignant type - is recognised by X-ray examination, . . . dense radiating laminae of new bone. A Periosteal Fibro-Sarcoma is the most likely diagnosis in this case. The features are those of a well-defined swelling firmly attached to bone, but causing neither destruction nor deposition of bone.

(2) "Mixed Parotid Tumour": The fact that these tumours may arise from numerous tissues other than the Parotid gland has suggested that Mucous or Salivary gland tumour would be a better designation. The benign type occurs most commonly in the 4th. decade, and a malignant type in the 6th. decade. There are two possibilities. Either this is a malignant Salivary gland tumour invading the mandibular periosteum, or a Salivary gland tumour arising ab initio from that periosteum. Such tumours as the latter, corresponding to the Salivary gland tumour of the Hard Palate, even if originally benign, have a marked tendency to become malignant.

(3) Fibro-Cystic Disease of the Mandible: This tumour convert the whole ramus into a cystic mass. The tumour is an Epithelial Odontome arising from a proliferated remnant of the Enamel organ. Expansion



is chiefly towards the outer aspect of the Jaw.

Fibro-cystic Mandibular disease is predominantly a condition of early adult life and is more common in women. It may however occur in the edentulous and it was thought possible that this might be a malignant form. Radiological examination did not support this. Only histological examination could give a final diagnosis.

(4) Osteoclastoma (Myeloid Epulis); Fibroma; Chondroma; have been discussed in the previous case. All epulides are rare after the age of forty.

(5) Lymphosarcoma of the Facial Lymph gland: This would present the features of a hard, rounded, smooth tumour fixed to the mandible by contiguous spread. Age incidence is against such a diagnosis but it seems a possibility in view of the difficulty of correlating the negative radiological findings and the undoubted fixity of this large tumour to the Mandible.

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Treatment: With the diagnosis at this stage of uncertainty, the decision was made to explore the tumour.

22:9:44: Operation. Anaesthetic:- Gas, Oxygen, Ether.

27:9:44

Pathology Report.

" The sections show the wall of a cyst. The is lined with Squamous stratified epithelium. The cyst wall which is composed of fibrous shows infiltration with squamous epithelium tumour growth. Cell Nest formation is seen the tumour is extending to involve adjacent striated muscle.

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An incision was made below and parallel to the ramus of the mandible on the right side and the skin edges were dissected off the tumour. The lower border of the tumour was identified and freed by blunt dissection, and a small incision made in the capsule. Turbid, straw-coloured fluid was obtained. The cyst was evacuated and its lining found to be thick, white rough and fibrous. The facial and lingual arteries were seen traversing the cyst. The sub-cutaneous part of the wall of the cyst was incised and the cyst scraped with a Volkmann's spoon. A rubber dam drain was inserted down to the lower border of the ramus of the mandible inside the cyst, and the skin edges were approximated with s.w.g. sutures and Michel clips.

#### Evacuation and Drainage of Cystic Tumour.

The drain was withdrawn on the second day, the clips on the 5th. day and the stitches on the 6th. day. The patient was discharged on the 8th. day.

Progress:- The wound healed but the tumour grew, and during subsequent weeks the patient was unable to open his mouth more than  $\frac{1}{2}$  inch.

On the 8th. November, he was attempting to eat a roll, and in so doing he opened his mouth further than

RADIUM IMPLANT.

24:11:44 to 27:11:44

Dose:- 4000r

Time:- 74hours.

Radium:- 29Mgms.

Area:- 33 sq.cms.

usual. He heard a crack, and felt a severe pain in the right side of his lower jaw.

11:11:44 The patient was readmitted to hospital. He was unable to open his mouth. There was a discharging sinus in the right submandibular region which drained large swelling. The swelling was fixed to the mandible, its margins easily defined, and its consistency firm.

X-ray:- Right mandible.

"There is destruction of the body anterior to the angle. The appearances are those of direct metastatic spread from malignant glands."

24: 11: 44. Radium Implant.

29:11:44 - 12:12:44 Irradiation of right neck.

During the course of deep X-ray therapy, the sinus continued to discharge, but the discharge was less profuse toward the end of the course.

13:12:44 Discharged home.

During the next three months, there was little change in the unsatisfactory condition of the patient. The tumour did not enlarge but the difficulty of feeding the patient did not diminish. In March the pain was more severe.

21:3:45 The patient reported to the Radio-Therapy

Department. There was slight discharge from the sinus, but little change in the condition.

X-ray: Right mandible.

"The margins of the defect are much more sharply defined than in previous films. The extent of the defect is difficult to determine as pathological fracture has taken place, and there is some overriding of the fragments!" "

During the following three months, there was little change in the local condition, but the patient's general condition deteriorated. Pain in the jaw became very severe and maximum doses of Morphine were administered by his doctor.

The patient died on the 30th July 1945.

X . . . . .

Mrs. Elizabeth TRAILL

Aet. 70 yrs.

4, Tailor Place,

Edinburgh.

Recommended by: Dr. Barker, 4 Dalziel Pl., Edinburgh.

Occupation: Housewife.

Complaint: Swelling of tongue.

Duration: Six months.

Admitted: 4 : 11 : 44. Ward 8.

HISTORY: The patient first reported on 17:11:43 with the history that her tongue had "looked queer" and felt queer for three months. Her tongue had not been painful but for a few weeks she had experienced some discomfort while eating and talking, and her tongue felt dry and large for her mouth. She had not lost weight and felt in good health. She suggested that her ill-fitting dentures were the cause of the trouble.

Examination at that time revealed two irregular areas of nodular thickening on the Ventral surface of the tongue on the Left side.

Biopsy:- A small piece of the tumour on the ventral surface of the tongue was removed and the tongue repaired by interrupted catgut sutures.

The pathology report stated: " A marked

degree of Leukoplakia. No sign of malignancy."

18:2:44 :- There were no enlarged or palpable Cervical glands. A Radium implant was performed by Dr. McWhirter.

1:3:44 :- The patient reported back when the reaction had subsided and only a puckered scar remained.

10:6:44:- She was examined again in June, when the condition was apparently unchanged.

Towards the end of June the patient first noticed a small hard lump on the left side of the tongue. This has grown rapidly, and although not painful, it causes discomfort and the patient is constantly aware of its presence. Her mouth is often dry - especially at night.

There is no loss of weight, appetite is good, and the patient feels "in good health".

Social History:-

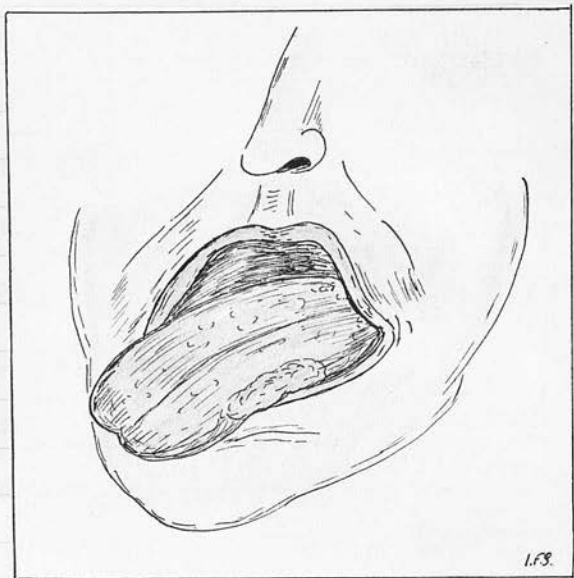
Three of a family - alive and well.

Mrs. Traill is a non-smoker, and abstains from alcohol on all but rare occasions.

EXAMINATION:- A cheerful old lady with a fresh complexion.

Mouth: The dorsum of the tongue is furred - white - and moist. The surface is regular with no cracks





and normal papillae. An oval tumour protrudes for a distance of 2cms. from the middle third of the left border of the tongue. The tumour resembles in shape and surface - a partially embedded peach stone. The surface is hard, irregular, and "fungating", pink in colour with dark red and grey streaks.

Palpation confirmed the impression of an extremely hard oval tumour lying partially in the substance of the tongue.

The ventral surface of the tongue is healthy on the right side but dry and wrinkled at the site of the previous implant on the left side.

There are no palpable glands in the neck.

There is a soft systolic murmur in the Mitral area.

The Apex beat is within the mid-clavicular line;

the pulse is regular in time and force and of good volume; the patient's ankles do not swell; and there is nothing to suggest Myocardial insufficiency.

No pathological signs were elicited by an examination of other systems.

DIAGNOSIS: The appearance of a tumour of the tongue in a patient of this age, the previous history of Leukoplakia confirmed by Biopsy, and the examination of the tumour - all indicated a diagnosis of

Carcinoma of the Tongue, and on clinical examination only - a diagnosis of Squamous Epithelioma of a Scirrhus type.

Differential Diagnosis:-

The early diagnosis of Carcinoma of Tongue is essential, and despite the comparative ease with which diagnosis was made in this case - the opportunity is taken to tabulate the various conditions which may have to be considered.

(a) diagnosis from other Lingual Swellings:-

(1) Papillomata:- differential diagnosis can only be obtained with absolute certainty by Biopsy. The diagnosis of "papilloma" of tongue is a dangerous one for it may be false, and even if true the tumour may be about to become malignant. In addition a carcinoma may present as a papilloma.

(2) Tertiary Syphilis:Gumma :- The Deep or Parenchymatous Gumma - a nodule in the substance of the tongue. Described as central but may be peripheral. The Gumma "part and parcel" of the surrounding tissue; indolent and inelastic; painless. There is no glandular involvement. Wassermann Reaction and age incidence should not be allowed to

to influence the diagnosis. A positive W.R. is almost as much in favour of Lingual Carcinoma as against it.

- (3) Lipoma and Fibroma of Tongue:- These tumours are clearly defined and separate from the lingual tissue. They may be lobulated. The typical lingual Lipoma is situated on the anterior half of the border of the tongue, covered by attenuated mucosa with no papillae, pseudofluctuant and yellowish in colour. A Xanthoma which closely resembles the Fibroma may occur in Diabetes. A Neurofibroma may occur as an isolated lesion in the tongue. Rhabdomyoma and Teratoma have been described.

- (4) Angioma; (Hydatid; Cysticercosis): Angioma is a tumour of early age groups. These two cystic conditions are rare and unlikely to be confused with either Carcinoma or Dermoid Cyst - which is an infralingual midline tumour.

- (5) Thyroglossal Tumours and cyst:- a brownish purple swelling on the dorsum between For. Caecum and the Epiglottis. Variation in size and recurrent haemorrhage are characteristic features. A diagn. of Angioma or even Adeno-Carcinoma might be made in a young patient.

- (6) "Mixed Parotid Tumour" of Tongue: The Salivary

gland tumour which affects the Parotid gland, may have spontaneous origin in Tongue, Palate, Lip, Submax. and Sublingual regions. An encapsulated, benign, yellowish tumour of the tip or ventrum of the tongue which may undergo malignant change.

(b) diagnosis of Malignant Ulcer from other forms of Lingual Ulcer.

(1) Tertiary Syphilis:Ulcerating Gumma: early in a superficial gumma, late in a parenchymatous gumma. Typically on the Dorsum (Carc.on edge) with punched out sides and a pale granulating base; more often single than multiple with one healing as another develops. No lymph gland involvement. Primary Chancre may occur at any age but is distinguished from other ulcers by appearance and by the early bilateral lymph-gland involvement.

(2) Tuberculous Ulcer: Uncommon, and associated with advanced pulmonary or laryngeal tuberculosis or with Lupus of the lips. Typically a pale shallow ulcer with granulating sloping sides, painful, and extremely tender.

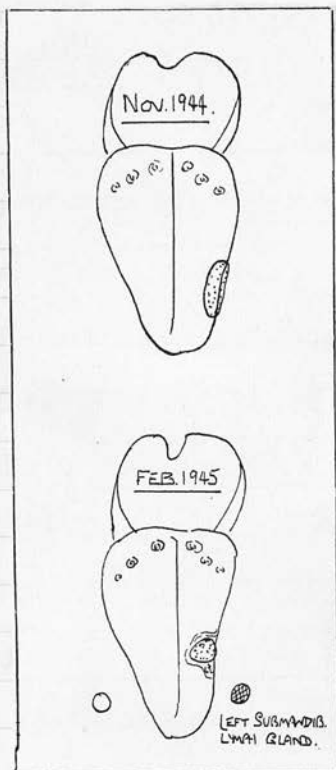
(3) Traumatic Ulcer: a single ulcer usually with some apparent cause such as a jagged tooth. A Carcinoma may develop in the base of a chronic

Traumatic ulcer.

- (4) "Dyspeptic" Ulceration: the classical picture is a raw beef tongue - the fungiform papillae appearing to be enlarged because of atrophy of the filiform papillae, with small round superficial ulcers, exquisitely tender, bright red in colour, scattered over the dorsum.
- (5) "Simple" Ulceration: a small inactive ulcer may develop in the centre of an area of papillary atrophy in a tongue which has been the site of a Chronic superficial glossitis. The dangerous nature of such a diagnosis is discussed in the Commentary.
- (6) Herpetic Ulceration: This is a disease of children suffering from exanthems may it may occur in elderly debilitated adults. It is distinguished by the appearance of vesicles which soon break down into small superficial ulcers with bright areolae.

The importance of these last four causes of lingual ulceration is that they have certain common factors in their aetiology not only with one another but with Lingual Carcinoma.

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Treatment:-

The condition was therefore a well-defined, scirrhus Squamous Epithelioma occurring in an area which had already received Radium therapy. It was decided that Excision was the method of choice.

7:11:44      Operation.

Anaesthetic: Gas, Oxygen, and Ether.

A strong stitch was passed through the the tongue to act as retractor and a V shaped portion of tissue removed, including the tumour, on the left side of the tongue. The tongue was trimmed - so that almost a hemisection had been performed. Bleeding points were tied and the edges of mucous membrane approximated by catgut sutures.

Partial Glossectomy.

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Specimen: "The sections show the tumour to be a Squamous Epithelioma. There is a marked Fibroblastic reaction.(Scirrhus) Cell nests are numerous."

Following the operation the patient's speech was rather slurred but improved, and the patient was comfortable and the wound clean and healing when discharged - 16:11:44.

Subsequent Progress:      Three months later the patient developed a recurrence on the left side of



the tongue, with palpable glands in the submandib. region. Dr. McWhirter advocated combined Radium Implantation and X-ray therapy to the Neck. Sixteen needles were inserted for 41 hours(3300r). removed on the 11th.March. X-ray therapy was commenced the following day. By the 19th.March there was an incipient mucosal reaction.

One month later the mucosal reaction was reported as " continuous with deep ulceration".

The patient died on the 23rd.May1945.

The mucosal reaction had subsided; the gland in the neck had become impalpable; the condition of the tongue was most satisfactory. The death was recorded as "myocardial failure".

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Robert CLARK

AET. 57

172, West High Street,  
BUCKHAVEN.

Recommended by: Dr. Forman, Buckhaven.

Complaint: Swelling of the Tongue.

Duration: Nine Months.

Admitted: 21 : 6 : 44          Ward 7.

HISTORY:- In September 1943 the patient noticed a small rough patch near the tip of the tongue on the right side. This grew gradually at first, but in the last month it has grown rapidly and interferes with speech and mastication. The patient's tongue has been grey and swollen for at least 15 years.

Six years ago, the patient noticed a small circular area of roughness on the Rt. side of the anterior third of tongue. At that time he had just completed a three-year course of Arsenical and Bismuth anti-syphilitic therapy at Kirkcaldy Hospital. The area on the tongue became gradually more elevated and in Feb. 1943 a diagnosis of Squamous Papilloma was made and the patient was admitted to Ward 13. The papilloma was removed by incision and the breach in the mucosa closed by catgut sutures. Path

Pathological examination confirmed the benign nature of the tumour.

Between April and September 1943 the patient suffered from gradually increasing constipation. During these months , he lost 2 stones in weight. Purgatives had little effect and colonic lavage gave only temporary relief. By September the patient had lost his appetite and complained of Epigastric pains and abdominal distension, and there was Olstipation.

The patient was admitted to Ward 7. There was marked peripheral abdominal distension , with the Caecum, Ascending, Transverse and Descending Colons delineated and a diagnosis of Carcinoma of the Pelvic Colon was made.

On the 5th. of October (1943) the abdomen was opened by a left lower paramedian incision. The descending and pelvic colon was found to be grossly distended, and there was a small scirrhus annular carcinoma at the Pelvic Rectal' junction. There were several enlarged glands in the Pelvic Mesocolon, but none round the Aorta.

A Pelvic Colectomy was performed, dividing the Colon between rows of clips inserted by a de Petz clamp, and the abdomen closed around the stumps of the Colon which were anchored to the Peritoneum.

A purse string suture was inserted into each stump the de Petz clips removed, and Paul's tubes inserted.

An enterotribe was inserted on the 2nd. December. Histopathological examination revealed a well differentiated scirrhous Adeno-carcinoma infiltrating the bowel wall as far as the serous coat.

The patient made an uninterrupted recovery. At that time, a small Papilloma was noted about 1cm. from the tip of the tongue to the right of the mid-line. This has grown until the time of admission.

#### Social History:

The patient is married and has three of a family. He smokes and drinks alcohol "in moderation

He was a miner until his illness a year ago. During the past year, his appetite has been poor, and before going into hospital, he was unable to get the "right type of diet."

#### Examination:

A short, wiry, bald-headed man of average intelligence.

Mouth: The patient has been edentulous for many years and has a set of dentures which are regularly in use.

Tongue: The tongue is soft and moist.

A large patch of Leukoplakia - greyish white, rough and elevated covers most of the left half. A similar patch is present on the anterior half of the right side of tongue but rising from it and replacing it is a large round pedunculated mass, white in colour, firm in consistence, and with a well demarcated edge.

There are no palpable glands in the neck.

A general examination revealed a moderate degree of Emphysema with diminished Respiratory excursion, reduced vocal fremitus, tympanitic percussion note, and diminished area of Cardiac dullness.

The Apex beat is in the 5th. interspace - the mid-clavicular line.

Pulse is regular. 74/minute. Heart sounds closed.

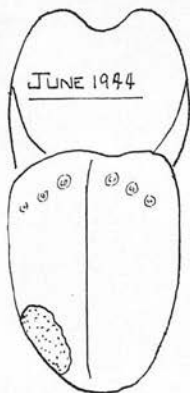
Blood Pressure : 140mm./90mm.

Vassermann Reaction negative.

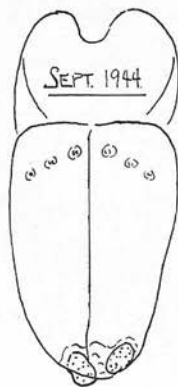
There are External Piles and enlarged Inguinal glands.

DIAGNOSIS:- A provisional diagnosis of Squamous Epithelioma of the tongue was made.

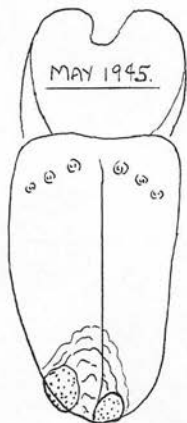
JUNE 1944



SEPT. 1944



MAY 1945.



Treatment:    Excision.

20;6;44.    Operation

    Anaesthetic: Nitrous Oxide; Oxygen: ether.

Traction was applied to the tongue by means of a deep S.W.G. suture and the tumour excised as a triangular wedge. Haemorrhage was controlled and the cut edges joined with catgut.

Partial Glossectomy.

    .....

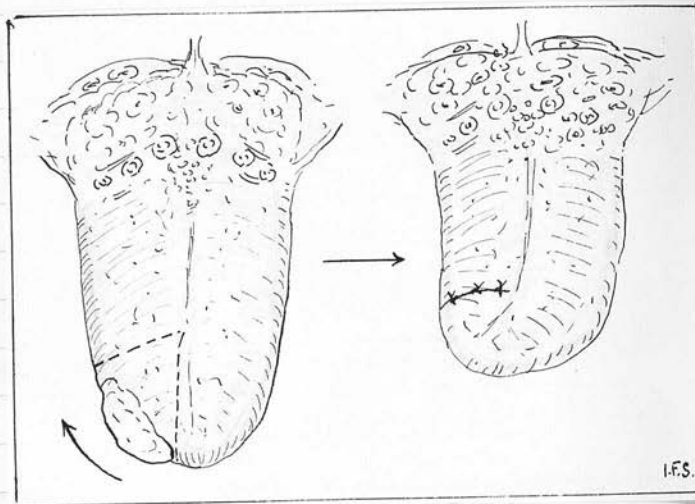
Histopathological Report: - Squamous Epithelioma

    One or two small islets of cells indicate early infiltration of the deeper tissues.

    The patient was discharged in ten days, but was readmitted two months later with a recurrence on both margins of the tongue. On the left margin, there was a small circular nodule, whitish-pink in colour, about 2ims. in diameter and with a granular irregular surface. On the right margin - close to the tip - there was a similar growth, but this one was pedunculated. The remainder of the anterior  $\frac{1}{2}$  of the tongue was covered by a mantle of Leukoplakia.

28:9:44    Excision of these "papillomata".

    Elliptical incisions were made round both papillomata which were dissected out along with a piece of healthy tissue.



I.F.S.



Haemostasis was obtained and the edges of the tongue approximated with interrupted catgut sutures.

Partial Glossectomy.

.....

The pathological report stated :- "Squamous Papilloma and Leukoplakia. The sections of tongue show an exterior area of Leukoplakia. In the centre of the Leucoplakic patch there is a papillomatous projection in the base of which the blood vessels and lymphatics are dilated, forming an angiomatous tissue.

There is no evidence of infiltration of deeper tissue.

.....

Follow Up:-

17:4:45. Patient readmitted complaining of pain in the tongue on eating hot foods. Another two papillomatous areas had appeared at the tip of the tongue. These were excised and satisfactory healing followed.

10:7:45. No evidence of further malignant change and no spread of the Leucoplakia.

4:9:45. No change.

27:11:45. No change.

6:2:46. There is no change in the condition of the tongue. Patient's general health is excellent.

William MUNRO.

Aet. 73

Woodend,  
Ettrick Bridge,  
Selkirk.

Recommended by: Dr. Murray, Tower Street, Selkirk.

Complaint: Swelling at back of tongue.

Duration: Two months.

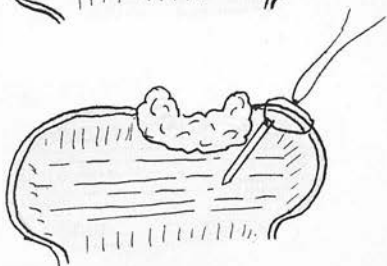
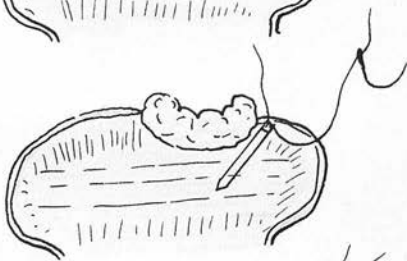
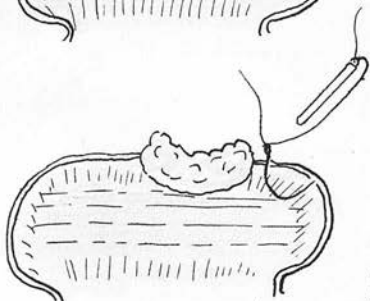
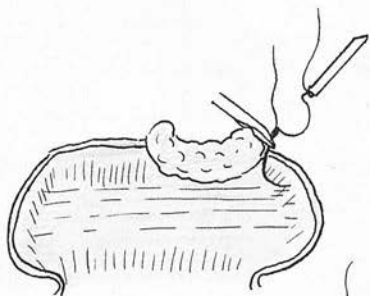
Admitted: 25 : 7 : 44. Ward 7.

HISTORY:- Eighteen months ago the patient first noticed a small nodule on the mucous surface of the lower Lip . The nodule grew until it was about one cm. in diameter. A diagnosis of Leucoplakia was made - developing into an "early malignant condition" and one dose of X-ray therapy was applied to the area in July 1943. The swelling disappeared.

Two months ago the patient became aware of a swelling at the back of his mouth on the right side. At the time of admission the patient complains of a dry, stiff, sensation in the right side of the throat, and a swelling which interferes with deglutition. Apart from this the patient feels well.

He drinks alcohol " in moderation", and smokes a briar pipe.

Examination:- A raised greyish-white indurated area is present over the right half of the posterior



third of the Tongue and extending up onto the Anterior pillar of the Right Fauces. Palpation reveals that the area is raised above the surrounding mucosa and has a hard well defined border.

The Right Jugulo-Digastric gland is palpable, - hard, discrete, mobile, and not tender.

Wassermann Reaction - negative.

Diagnosis:- Squamous Epithelioma of Tongue and Right Fauces.

TREATMENT:-

(1) 25:7:44:- Radium Implant 4000r into tongue and Right Fauces as illustrated.

(2) 2:8:44: to 15:8:44:- X-ray Therapy.

(a) Right Fauces: Maximum Tissue Dose 4920r.  
Minimum Tumour Dose 4000r.

(b) Right Neck :  
Maximum Tissue Dose 4000r.  
Minimum Tumour Dose 3400r.

8:8:44:- The mucous membrane reaction is limited to the fauces. The glands in the Rt. Jug. Dig. are still palpable.

15:8:44:- There is now a continuous mucosal reaction over Rt. Fauces and Soft Palate. The glands are smaller.

12:10:44:- The glands are impalpable. The lesion has healed. The patient complains of a dry mouth and has been advised to give up smoking.

Follow Up:-

8:12:44:- The patient has stopped smoking, his appetite is good and he has no discomfort when swallowing. The lesion is reported as satisfactory.

9:2:45 ; 2:11:45 ; 7:3:46 :- condition unchanged.

.....

James KIRKLAND.

Aet. 80.

90, Seafield,  
Bathgate.

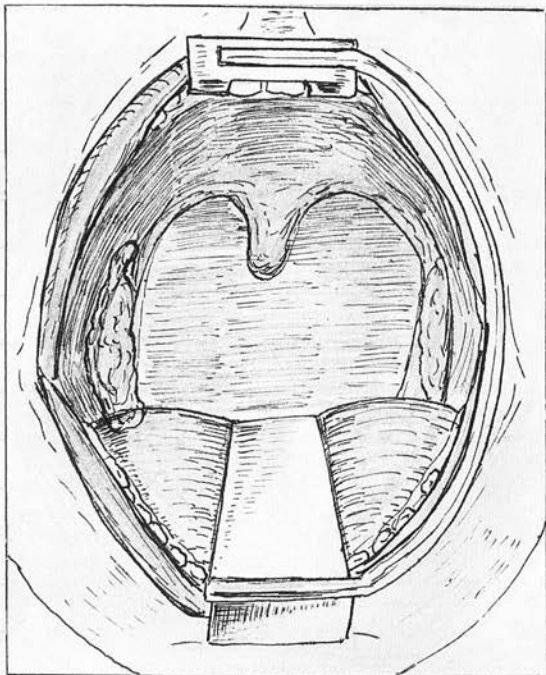
Recommended by: Dr. Lang, Marchwood, Bathgate.

Complaint: Pain in the throat on swallowing.

Duration: Two months.

Admitted: 6:9:44.

HISTORY: In January 1943, the patient first became aware of two small nodules on the roof of the mouth - situated far back on the right side. The nodules were not painful nor did they cause discomfort on swallowing, but the patient was conscious of their presence. During the subsequent six months the nodules enlarged and the patient could see two rough slightly raised plaques on the palate on the right side. The patient was examined and the condition described at that time as -



- well demarcated areas of Leukoplakia. The patient received a course of X-ray therapy in November '43.

In July 1944, the patient began to experience a curious sensation of discomfort in the back of the mouth - a sort of "stiffening" of the tissues. In a few weeks this discomfort became marked especially while chewing meat or swallowing hot fluids. On several occasions, when he shouted or spoke loudly - there was a sharp stab of pain radiating up in front of the Right Ear.

During the month of August the pain in the ear became more constant, and the patient's voice was hoarse.

Social history: The patient lives with his family, is well cared for, enjoys a good mixed diet, drinks very little alcohol, and smoked a pipe until four months ago.

Examination of Mouth:

Situated on the Right Tonsil and spreading onto the Anterior pillar there is a greyish-white plaque of tissue. Over the tonsil there is a small ulcer with a rolled edge and a base not more than .25cm. in diameter. Palpation confirms the rolled edge and necrotic base of the ulcer and

reveals induration of the contiguous Anterior pillar. There are no palpable Cervical glands.

Diagnosis: Leukoplakia of soft palate.

Squamous Epithelioma of Right Fauces.

TREATMENT:- Excision of Malignant Ulcer.

8:9:44 Anaesthetic:- Intra-venous Pentothal and Intra-tracheal Oxygen.

The patient was induced by Pentothal and an Intra-tracheal tube introduced orally into the Larynx. A mouth gag was inserted and the mouth opened widely. A short incision was made in the anterior pillar of the Fauces and another in the posterior pillar and the intervening Ulcer removed. The wound was then closed with interrupted catgut sutures.

Specimen:- "Sections show the presence of a well differentiated Squamous Epithelioma. The advancing edge of the tumour is surrounded by a dense barrier of small lymphocytes and plasma cells .

Squamous Epithelioma. Broder Group I, "

The patient was given Phenol Sodique gargles and discharged on the third day.

Arrangements were made for a course of X-ray therapy to the Right Fauces and Right Neck.



The course of X-Ray therapy lasted 14 days. The patient was asked to report back when the reaction had subsided. A rather severe reaction ensued, with redness and some mucosal sloughing of the right Tonsillar area, but this subsided leaving residual scarring and irregularity of the anterior pillar.

6:12:44. The right faucial region appeared healthy apart from slight scarring.

12:3:45. In March 1945 a small recurrence was noted between the pillars of the right Fauces. A single implant was inserted into the posterior third of the tongue, and a delayed reaction - some superficial ulceration followed three weeks later.

29:1:46 No spread of the disease, and no deterioration in the general condition of the patient.

.....

Mrs. Annie SCOTT.

Aet: 72

8, Lady Nairn Avenue,  
Kirkcaldy.

Occupation: Housewife.

Admitted : 7/2/46

Complaint : Painful "ulcer" on Vulva.

Duration : Four months. (recurrence).

HISTORY : Four years ago, the patient began to have irritation around the Vulva - especially on the inner aspect of the Labia Majora, and a small sore appeared below the Fourchette. This soon healed, but a few months later a small "cut" appeared on the Left Labium Majus. This never healed but gradually enlarged until the patient was admitted in 1945 - with a large ulcerated area on the medial aspect of the left Labium Majus and spreading on to the Labium Minus.

In August 1945, a Vulvectomy was performed, followed by a ten day course of Deep X-ray therapy. Histological examination revealed a Squamous Epithelioma of Vulva with many cell nests.

In October 1945 - Biopsy. A small piece of Granulation tissue was examined - no sign of malignancy.

During the three months preceding admission a small ulcer appeared on the previously excised area - above and to the right of the Urethra.

#### EXAMINATION

The skin of the previously excised Vulva is white, shiny, and atrophic. Two cms. above and to the right of the Urethral orifice the skin is rough with white scaly plaques and in this area there is an ulcer which takes the form of a vertical crack with purplish granular tissue in its base. The skin is tense and it is difficult to estimate the degree of fixation to underlying tissue.

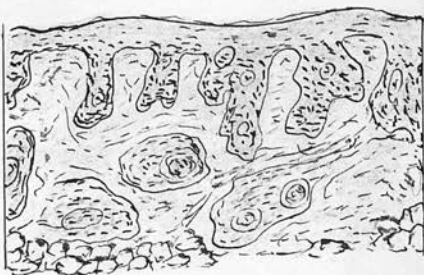
The Vaginal orifice is narrow, but it was possible to insert one finger up to the cervix. There is no abnormality of Cervix, Vagina, or appendages..

There is slight enlargement of the horizontal group of Inguinal lymph glands on both sides - more marked on the Right side. The glands are hard, discrete, and not tender.

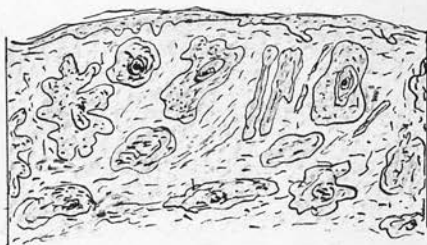
#### PROVISIONAL DIAGNOSIS:-

- (a) Recurrence of Squamous Epithelioma.

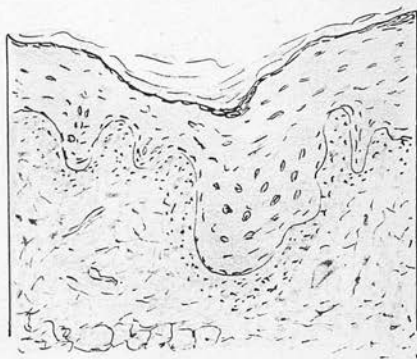
Squamous  
Epithelioma  
of Labia.



Rodent  
Ulcer  
of Labia.



Parakera-  
-tosis  
Vulvae.



(b) Possibly a Simple Ulcer in a patch of Leukoplakia Vulvae. (Discussed in Commentary)

OPERATION:- Vulvectomy

Anaesthetic: Gas, Oxygen, Ether.

An elliptical incision was made from a point above the Clitoris, then downwards across what remained of the Labia Minora and  $\frac{1}{2}$ " lateral to the Vagina to reach the Perineum  $\frac{1}{4}$ " anterior to the Rectum.

A second incision was made around the Vaginal orifice, after the Urethra had been isolated and secured. The skin bearing the ulcer and the subjacent fibro-fatty tissue were then dissected off, and many bleeding vessels were secured and ligatured.

The skin edges were brought together by interrupted sutures - "Deknatel". The forceps were removed from the urethra and a self-retaining Catheter was passed. A pack was inserted into the Vagina.

Pathology Report: "A Group I Squamous Epithelioma of Vulva. Many cell nests".

After-care: The perineum and vulva were kept scrupulously DRY by a tightly applied, frequently

changed, Vulvar Pad. - After each dressing the area was sprayed with Hydrogen Peroxide. The Deknatel silk stitches were removed and healing was complete within 14 days.

23rd. February: Fifteen days after the operation the wound had healed satisfactorily, and the patient felt perfectly well. No urinary symptoms. Dr. McWhirter was consulted as to the advisability of X-ray therapy. His opinion was that the state of the glands was in keeping with the cure of the primary condition, and that should a small recurrence appear - it should be treated by the implantation of Radium needles.

.....

COMMENTARY.

" A - S - C - I - F - a - T - XYZ = Aetiology."

Where A :- age.

S :- sex.

C :- senile changes in the epithelium.

I :- irritation.

F :- frustrated repair.

a :- alcohol.

T :- tobacco smoke.

XYZ :- as yet undetermined. "

(Laryngeal carcinoma)



## COMMENTARY

### AETIOLOGICAL FACTORS in the cases reported:-

Buccal Carcinoma is a striking example of the multiplicity of factors which appear to contribute to neoplastic change in tissues.

There are many "causes of Cancer", the difficulty being to decide how many of these are half causes and what factors are necessary to complete the process - heredity, dyshormonism, virus infection, or intracellular factor. The aetiology of Laryngeal carcinoma was expressed in algebraic form by Chevalier Jackson. ( formula stated opposite)

### Age Incidence:-

The ages of the patients in the report were as follows - 80, 75, 73, 70, 69. Robert Clark - who belonged to a younger age group - age 57 - had a history of Syphilitic Glossitis.

Carcinoma is 30 times more frequent at 75 than at 35, and Lingual Carcinoma is most common in the 7th. and 8th. decades. With the ageing of the European population, a greater incidence of Lingual Carcinoma may be anticipated, but this increase will be dependent upon the increasing number of the population falling into these later age groups.

The increased incidence in these groups has been accredited to increased "cell instability", so that a stimulus which would pass unnoticed in a younger tissue, might now induce a neoplastic reaction. This may be due to:-

- (1) Progressive lowering of the vitality of tissues.
- (2) Loss of control over the formation of new tissues.
- (3) Variations in the power of reproduction and growth of different tissues so that one invades the other.

Sex incidence:-

Buccal Carcinoma is more common among men. Only 15% of cases dying of Buccal Carcinoma are women. It is believed that this is due to:-

- (1) Better oral hygiene in Women.
- (2) Less abuse of the buccal mucosa by smoking and alcohol.

These reasons may not be very convincing, and one wonders if there is not some more subtle factor.

A point in favour of mucosal "abuse", however, is afforded by a study of cases of Betel Nut Buccal Carcinoma. In areas of India - Ceylon, Malabar,

Trarancore, where Betel Nut chewing is widespread among both sexes and if anything, more so among women, Buccal Carcinoma is more common in Women than in Men.

The general impression is that, when Buccal Carcinoma occurs in Women, there are usually well-marked aetiological factors, especially Syphilis, and long-continued Dental Trauma. This was illustrated in Case 3 - Mrs. Traill- where there was a definite history of dental sepsis, followed by the wearing of ill-fitting dentures and the development of Leukoplakia. Of 10 women with Lingual Carcinoma, probably 7 or 8 are edentulous, one may have ill-fitting dentures, and a variable number have W.R. positive; whereas in a high proportion of men predisposing factors are equivocal Syphilis:

There was a history of Syphilitic ~~osis~~ Glossitis in one of the cases reported.

The famous epigram that "Cancer of the tongue is a disease of syphilitic smokers" was probably very near the truth when coined by Poirier, but Syphilis plays a less important role in the aetiology today. There is a history of Syphilis in less than 20% of

cases of Lingual Carcinoma at the present time.

It is interesting however to note that this rises to 70 -80% in carcinoma of the dorsum of the tongue - i.e. the area where trauma does not play a significant role.

#### Irritation.:-

Examples of the part played by chronic local irritation are legion. One feels that if the Buccal Mucosae of two series of men and women were subjected to the same irritating factors, the ~~sex incidence~~ sex incidence would be almost equal. Time will tell whether the emancipation of women, with the adoption of some masculine habits, has brought with it an unforeseen equality.

It is impossible to say, however, whether prolonged irritation does, per se, produce neoplasm in suitable patients, or whether it merely prepares the way by weakening the resistance of the tissues locally and so producing a suitable soil in which some other specific agent may then easily cause neoplastic change.

(a) The Metaplasia which preceded the Epithelial Proliferation in the case of Sq. Epith. of Max. Sinus was almost certainly the result of some chronic inflammatory process in the Sinus.

The communication between the Sinus and the middle meatus of the nose is high up on the wall and cannot effect drainage. It ceased to do so when the primate adopted the erect posture. Infection reaches the sinus through this opening or spreads up from the roots of the Bicuspid of 1st. or 2nd Molars. The latter were a likely source in this case.

(b) Defective teeth:- These act in two ways:

1. Irritation by ragged teeth or sharp edged fillings.
2. Oral Sepsis.

This is receiving increasing recognition and was a potential factor in all the cases of Buccal Carcinoma reported.

(c) Tobacco:- All the men in this series were moderate or heavy smokers. Extensive research Professor Leitch has shown that Tobacco is by itself not a specific irritant or a proved carcinogenic agent but acts as a non-specific irritant. The irritative agents in Betel Nut Carcinoma are not Betel and Areca Nut but Lime and Inferior Raw Tobacco. It is said that the principal factor is the quality of the tobacco, since the incidence is much higher among the poor natives of coastal

districts of Ceylon than among the better paid coolies working on tea plantations. Almost certainly Diet plays a part in this distinction.

(d) Alcohol:- There was no definite history of excess intake of Alcohol in any of these cases. Alcohol plays a similar role to tobacco and there is a higher incidence of Lingual Carcinoma in areas where the drinking of raw spirit is prevalent.

#### Social and Dietetic Factors :-

Cases of Buccal Carcinoma occur most frequently among the poorer classes, attributable to the higher incidence of oral sepsis among these classes.

Another factor which has not received much recognition is the influence of diet.

There was a definite history of dietetic imbalance in Case I and in none of the cases III to VI was the dietetic history satisfactory.

In 1942 Abels published a report of a large series of cases of Leukoplakia of the Tongue. He pointed out that the pathological changes most commonly associated with glossal papillary atrophy and leukoplakia were Achlorhydria, functional and organic lesions of the Gastro-Intestinal tract, Cheilosis, Onychia, and Anaemia. He found

dietetic deficiency ( grossly defective in animal protein and vegetables ) with a low plasma vitamin A in 61% , low Urine Riboflavine in 42%, and Hepatic Dysfunction in 12% . With the role of vitamin A established as an essential factor for the well-being of mucous membrane -"the anti-infective " vitamin - the implications in such a case as the Sq. Epith. of Max. Sinus are obvious. Abels found Gastric Achlorhydria in 30% of these patients.

It is interesting to note that Smith (of Adelaide) discovered that the administration of Hydrochloric Acid cured a high proportion of cases of Leukoplakia Vulvae.

Another interesting observation which may be correlated with this work comes from the Radiumhemmet ( Stockholm ). In recent years - of 150 women with Buccal and Pharyngeal Carcinoma - 70% had signs and symptoms of the Plummer-Vinson ( Paterson- Kelly ) syndrome, a syndrome in which nutritional Anaemia and Glossitis are essential factors. Probably the basic lesion is a decrease in the respiratory activity of glossal epithelium - dependent upon Riboflavine deficiency.

### Pre-Cancerous Change:-

This is the fundamental topic which has been illustrated throughout the Report and discussed in the Commentary. Case 6 was included mainly because of its contribution to this subject.

Hutchinson was the first to apply the term to Buccal Syphilis. Inflammation, direct trauma, long-continued irritation, tobacco, devitalisation of epithelium by dietetic deficiency and senility have all been illustrated in the Report.

There remains to be considered how these factors produce their effects upon the epithelium. The sequence of events is not difficult to visualise in the case of inflammation, especially Syphilis.

Epithelial proliferation, submucous oedema, lymphocytic infiltration are the histological features in Syphilitic Glossitis, and are manifested by Leukoplakia, papillomata (Robert Clark), fissures, gummata and papillary atrophy. Meikie suggested that the deciding factor was a cutting off of the lymphatic flow to the epithelium (destruction of the "prickles" and reduction of inter-cellular spaces) and to partial ischaemia due to Syphilitic Endarteritis Obliterans. The Glossitis associated with Achlorhydria may act in a similar fashion.



We have visualised the possibilities of senile degeneration of the epithelium, and the influence of Vitamin A deficiency and of Riboflavine deficiency on cell respiration.

In the case of tobacco and other irritants, the sequence may be somewhat as follows :-

Chronic Irritation  
of the Epithelium.

Chronic hyperaemia  
favouring erosions.

Erosions and superficial  
ulceration.

Lymphocytic infiltration of the  
intercellular spaces, especially  
in the prickle cell layer.

"Instability" of the Epithelium.

The same reasoning may apply to Leukoplakia and Epithelioma Vulvae, but all Gynaecological text-books are at pains to state that Syphilis plays no part in the aetiology. Leukoplakia Vulvae is a chronic inflammatory condition in contradistinction to Kraurosis Vulvae which is degenerative. Whatever the aetiology of Leukoplakia - it probably has as much a hormonal basis as an inflammatory one - Sq. Epith. follows in 20-30% of cases.



The potentially most malignant phase is the 2nd. stage Leukoplakia - i.e. the stage of Epithelial Proliferation.

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### PATHOLOGY:-

The cases reported have a common pathological basis - the Squamous Epithelioma - but the pathogenesis and pathology have varied according to the site and tissue involved.

The Squamous Epithelioma is a tumour of stratified epithelium and it may arise in the following situations:-

1. SKIN - around the Lips, Anus, Scrotum, Penis Vulva , and old scars.

2. MUCOUS MEMBRANE:-

(a) Covered by stratified Squamous Epithelium - Buccal and Lingual mucosa, Pharynx, Larynx, Oesophagus, Vagina, Cervix.

(b) Transitional epithelium which has undergone Metaplasia - Bladder, Ureters, Renal Pelves.

3. ECTOPIC Squamous Epithelioma - from remains of obliterated Thyroglossal duct, Branchial cleft, epithelioma of the Thyroid, Hassall's corpuscles of Thymus, Supracellar Cysts.

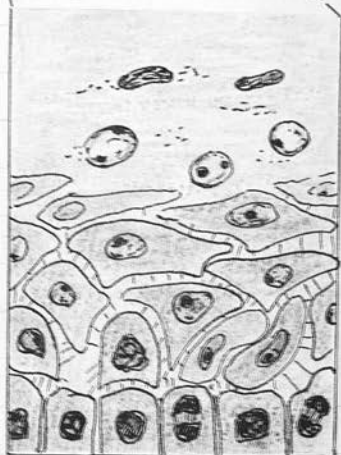
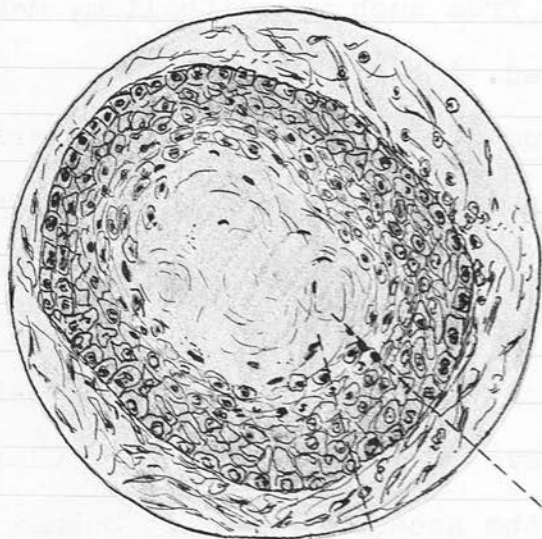
The Maxillary Sinus is lined by an Endosteum - fused with Mucous Membrane - Muco-Endosteum - and this is continuous with the Nasal Mucosa, and like it, is ciliated. In order that a Squamous Epithelioma might arise from such an epithelium, metaplasia must have occurred. (q.v.)

The cystic tumour of the Mandible, described on histological examination as a Squamous Epithelioma of the Mandible, presents an interesting pathological problem.

- (a) It did not arise from the Buccal Muco-Periosteum
- (b) It might have arisen as a Salivary Gland Tumour, either of the Accessory Parotid Submaxillary Gland or of the Mandibular Periosteum (Albers). Cell nest formation is rarely prominent in such tumours.

- (c) More probably it was a true Squamous Epithelioma - a type of Adamantinoma - arising from the superficial "tehris paradentales" (Malassez) which is the atrophic duct of the enamel gland.

This confirms the clinical differential diagnosis as a "Malignant Epithelial Odontome". Other forms of Odontomas do not occur in this age group.



Whatever the site, there is little variation in the mode of orientation of the tumour cells. As the epithelium proliferates, the cells form layers corresponding more or less to those of skin epithelium. Their characteristic downgrowth, with superficial layers invading deeper layers, distinguishes the Squamous Epithelioma from its benign counterpart, the Squamous Papilloma, in which the normal relationship is preserved; but, as in Case 4 (Robert Clark) a Squamous Papilloma may undergo malignant change. This change is manifested by the appearance of numerous mitotic figures in the cells of the epithelium as they burst through the basement membrane and invade the fibroblastic core.

One of the invading processes of a Squamous Epithelioma is shown in cross-section. This is the "cell-nest" or "epithelial pearl."

(1) Germinal Layer:- a row of cells resembling the basal cells of the normal mucosa, but differing in that they vary in shape and have pleomorphic and often hyper-chromatic nuclei. All the phases of Mitosis may be observed in this layer.

(2) Two or three irregular rows of larger, less deeply stained, round or polyhedral cells

/cells, separated by narrow canals but united by delicate processes. These are "prickle-cells" but again they vary from those of the normal mucosa in configuration and in the chromatin content of their nuclei.

(3) Swollen polyhedral cells gradually becoming flattened and compressed with karyolysis and karyorrhexis of their nuclei and finally fusing into a homogeneous acidophile mass.

In the case (Kirkland) the tumour was referred to as Broders Group 1. Broders(1925) pointed out that it was not enough to make the diagnosis "Squamous Epithelioma", and he elaborated a method of classification depending on the %age of differentiated and undifferentiated epithelial cells.

Keratin formation is an important sign of differentiation and this is manifested in the "cell nests". Thus the presence of cell-nests has come to be regarded as an index of Malignancy. There is here a certain fallacy, since cell-nest formation is much more plentiful in certain tissues than in others. Thus cellnests are more numerous in a Carcinoma of the Skin than in a Carcinoma of the Cervix of the same degree of Malignancy.

In addition, it must be recognized that the

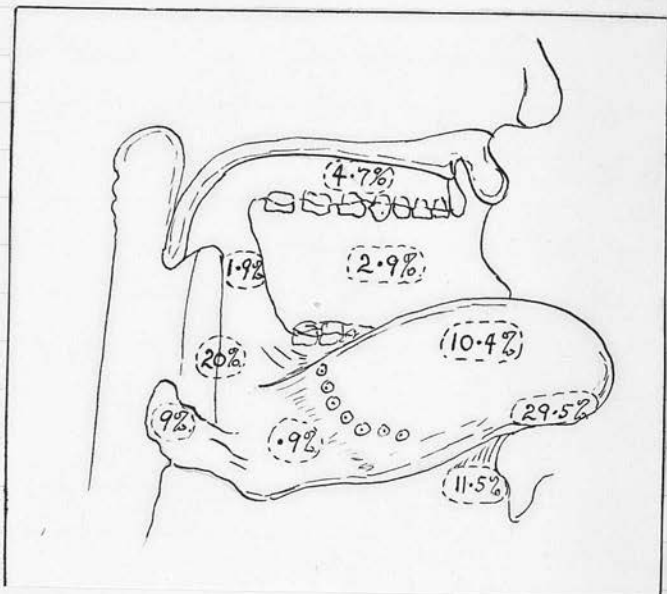
the "grading" only refers to the microscopic section of tissue under consideration, and may be a poor index of the malignancy in other parts of the tumour. Thus histological grade need not parallel clinical advance of the neoplasm; but in general it may be said that the less well-differentiated neoplasms (Grades 3 and 4) grow more rapidly and metastasise earlier.

Clinical Classifications of Squamous Epithelioma must also be accepted with reservations. Although lymph gland involvement is an important sign of further spread, it is a late one; and no amount of clinical acumen can divine the presence or absence of embolic tumour cells in impalpable glands.

Thus absence of clinical signs of lymphatic spread is no more than encouraging. On the other hand, lymph glands may be enlarged due to Secondary infection as in Case 1.

Metastasis to the cervical glands is inevitable in untreated cases and occurs sooner or later in 80% of all cases of Lingual Carcinoma.

The whole problem of treatment and prognosis pivots on this potentiality, and an accurate understanding of the lymph sheds in this area is essential.





The most important single fact is probably the recognition of crossed drainage in the median plane. There is thus no justification for regarding the Median plane of the Tongue as a sort of magical barrier, and no special virtue in the operation of Hemiglossectomy.

Metastases from Lingual Carcinoma to other parts of the body are exceedingly rare. Before the introduction of Radiotherapy, they were clinical curiosities, but with the increased expectation of life, consequent upon modern treatment, more cases occur. There was no evidence of such spread in the cases reported.

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#### SITE INCIDENCE of LINGUAL CARCINOMA.

In the Report:-

(a) Traill (Mrs.):- Anterior Marginal.

TONGUE: (b) Clark:- Tip and Borders with Leukoplakia.

(c) Munro:- Right posterior third .

(a) This is in accord with the importance of dental trauma in female cases.

(b) This is in accord with antecedent Syphilitic Glossitis.

(c) Carcinoma of the Post.Third is uncommon.

There is controversy as to the reasons why carcinoma of the Posterior third of the tongue is uncommon. Are these lesions the result of tissue predisposition and instability, unaided by irritating factors? Such a suggestion is perhaps supported by their embryonal type and distribution in areas rich in lymphoid tissue. (Cade)

Or does the presence of these lymphoid follicles of itself account for the rarity of these tumours by some sort of immunity mechanism? (Fraser)

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#### MULTIPLICITY of LESIONS.

Where a Squamous Epithelioma appears in two sites independently viz. Lip and Tongue, this is said to indicate a marked "epithelial instability." The prognosis is worse in these cases with a tendency to local recurrences.

In the case of Wm. Munro - there was Sq. Epith. of Lip, followed in 18 months by Tongue and Rt. Fauces. These lesions were not coincident but consecutive, but recurrences might have been anticipated. These did not occur and the patient is alive and well to-day.

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## Discussion of Treatment.

The methods which were employed in these cases were :-

- (1) Surgery - Excision.
- (2) Radiotherapy - (a) Radium Implant.  
(b) Xray Therapy.

Other methods which may be employed are

- (3) Diathermy. (a) Excision by Endotherm Blade.  
(b) Coagulation and Fulguration.
- (4) A Chemo - Surgical technique.

The choice of method or methods depends upon factors which vary in every case viz. Age of patient, Site of tumour, type of tumour, histological grade, probable radiosensitivity - and therefore each case must receive individual consideration.

Most of these techniques have a special place in the general therapeutic scheme and the surgeon should, if possible, understand and practise them all. His role, in the therapy of Buccal Carcinoma is that of the experienced eclectic.

These factors will now be considered in detail.

( OVER )

Factors which influence the choice of method of treatment:-

(1) Age. In none of the cases reported was age considered a deterrent to full active treatment. In no case was Palliation deliberately chosen as being ultimately in the patient's best interests. There is, however, a definite place for such a decision in advanced Buccal Carcinoma, and a basic principle of their treatment should be that, wherever possible, treatment should not begin as Radical and end up Palliative.

(2) Site.

(a) Tongue:

(1) Marginal Tongue: Case 3 (Mrs Traill) in which there was a scirrhus Sq. Epith. protruding from the edge of the tongue, was an excellent case for excision. It was possible to remove the tumour with a margin of apparently healthy tissue and yet leave a functioning tongue.

Another point in favour of excision was that the area had already received interstitial radiotherapy. Ash has been stated elsewhere - Hemiglossectomy is unsound because it follows anatomical boundaries and the lymphatics of the tongue anastomose freely.

(ii) Anterior Tongue:

The site of the Multiple Papillomata in the Case of Robert Clark was also suited to excision, especially as the tongue had been the seat of Chronic Syphilitic Glossitis. Excision was also indicated because of the high degree of differentiation with low radiosensitivity.

(iii) Posterior Tongue.

The value of excision is more questionable in this site than elsewhere in the mouth.

Many cases are Lympho-Epitheliomata and these are successfully treated by deep X-Ray therapy.

Unfortunately, however, there is a high incidence of remote metastasis and a bad 5 year cure rate.

In the case (Kirkland), illustrating Post Dorso-Lingual Carcinoma, interstitial irradiation was achieved by a Radium Implant, and the faucial region and neck treated by X-Ray therapy. In this case there was evidence of spread to Jugular Digastric glands and even so the result was most successful - 20 months later.

(b) Tonsils

A squamous epithelioma of the tonsil was excised in the case of Kirkland, followed by a course of X-Ray therapy. There was a recurrence

within three months. Probably surgery should be employed only in cases where the tumour can be removed freely without cutting into it. This was observed in this case, but even so, excision by dissection is rarely indicated.

Exposure is difficult in many cases where the tumour is involving the base of tongue and epiglottis, and now the various techniques of Pharyngotomy are less widely employed.

Diathermy has been an important contribution to treatment of such cases as Kirkland, whether as fulguration, preliminary to excision, or for excision by the Endotherm Knife.

### (3) Radiosensitivity.

It is generally true that radiosensitivity parallels anaplasia; but this is not a constant finding. Certain tumours have been found by experience to have a high degree of Radiosensitivity. Lympho-Epithelioma has already been mentioned in this connection. As was stated in the Report, the radiosensitivity of Squamous Epithelioma of the Maxillary Sinus is difficult to evaluate and treatment was a therapeutic test.

( OVER )

Case (2) - the Squamous Epithelioma of the Mandible - did not respond very well to irradiation. Albohm found that, although 58% of Malignant Salivary Gland tumours ( the alternative diagnosis ) showed some degree of Radiosensitivity, the most radioresistant growths were the Sq.Celled and Adenocarcinomatous types. Probably the best method is to try the effect of adequate Radiotherapy in all such cases.

#### Spread:

Tumours infiltrating compact bone are unsuitable for irradiation.

In the cases reported - metastasis to the Cervical glands was always treated by X-Ray and with good results. The problem of metastasis - histological and not clinical - has been mentioned.

Perhaps with improvements in Radiotherapeutic technique, it may be desirable to irradiate the neck in all cases of Buccal Carcinoma.

#### Recurrences.

In preradiotherapy days, the incidence of Recurrences was exceedingly high in patients who survived long enough to have them.

## Recurrences (contd.)

Adequate excision, supplemented by radiotherapy, was the basis of treatment in the cases reported.

Even so, recurrence dominates the series.

	<u>Primary</u>	<u>Recurrence</u>
(1) Whitton:	June 1944	Died following Primary.
(2) Horsburgh:	Aug. 1944	Died following Primary.
(3) Traill:	Nov. 1943	Nov. 1944; March 1945.
(4) Kirkland:	Jan. 1943	Sept. 1944; March 1945.
(5) Clark:	Feb. 1943	Sept. 1943; Aug. 1944. March 1945.
(6) Scott:	Aug. 1945	Feb. 1946.

The treatment of recurrences differs from that of Primary growths. This was well illustrated in Case 3. (Mrs. Traill)

### (a) Recurrence after Irradiation:

A recurrence in the centre of tissue which has been adequately irradiated means that there is little difference between the sensitivity of the tumour and that of the surrounding tissues, and therefore further irradiation is as likely to cause necrosis of healthy tissues as regression of growth.

### (b) Recurrence after Excision:

After excision, it is difficult to excise more tissue; scar tissue further limits free excision and



therefore irradiation is indicated.

In certain of these cases, there was a definite indication for Surgical Intervention.

(1) Draining of the Maxillary antrum prior to irradiation in a tumour of doubtful radio-sensitivity.

(2) Excision of Squamous Epithelioma of Tongue in suitable site (Marginal) where the tumour was of known low radiosensitivity.

(a) highly differentiated- Sq. Papillomata  
(Clark)

(b) recurring after irradiation (Traill)

Yet, the cases reported have shown that excision alone is too simple a therapeutic technique to defeat this neoplastic process.

An interesting modification of excision is the chemosurgical technique employed by Frederick Mohs. This method has been applied extensively to Carcinoma of the Lip. The tissues are "fixed" by a Zinc Chloride fixative. Cancerous tissue becomes dead white, healthy tissue is grey. After 24 hours application of fixative, a first excision is carried out and frozen sections stained.

Subsequent excisions are carried out at 24 hour intervals as required. Of 197 cases treated by Mohs - of which 24.4% had had unsuccessful /

unsuccessful treatment by other methods, there were only 4 failures (5 year cure rate 1939-1944 )

Whatever the demerits of such a method, it emphasises the concept of histopathological control of treatment of carcinoma by excision.

Finally, the cases in the Report, by illustrating a series of definite aetiological factors, suggest a line of attack not usually available in the treatment of neoplasms, namely, prophylaxis.

Adequate treatment and follow up of cases of Syphilitic Glossitis ; early recognition and treatment of Buccal Leukoplakia ( and especially of Leukoplakia Vulvae ) ; the avoidance of prolonged dental trauma and serious consideration of resultant "simple" ulceration ; the recognition of treatment of nutritional anaemia ; all these may reduce the incidence of Buccal Carcinoma despite the ever increasing number of candidates in an ageing population.

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